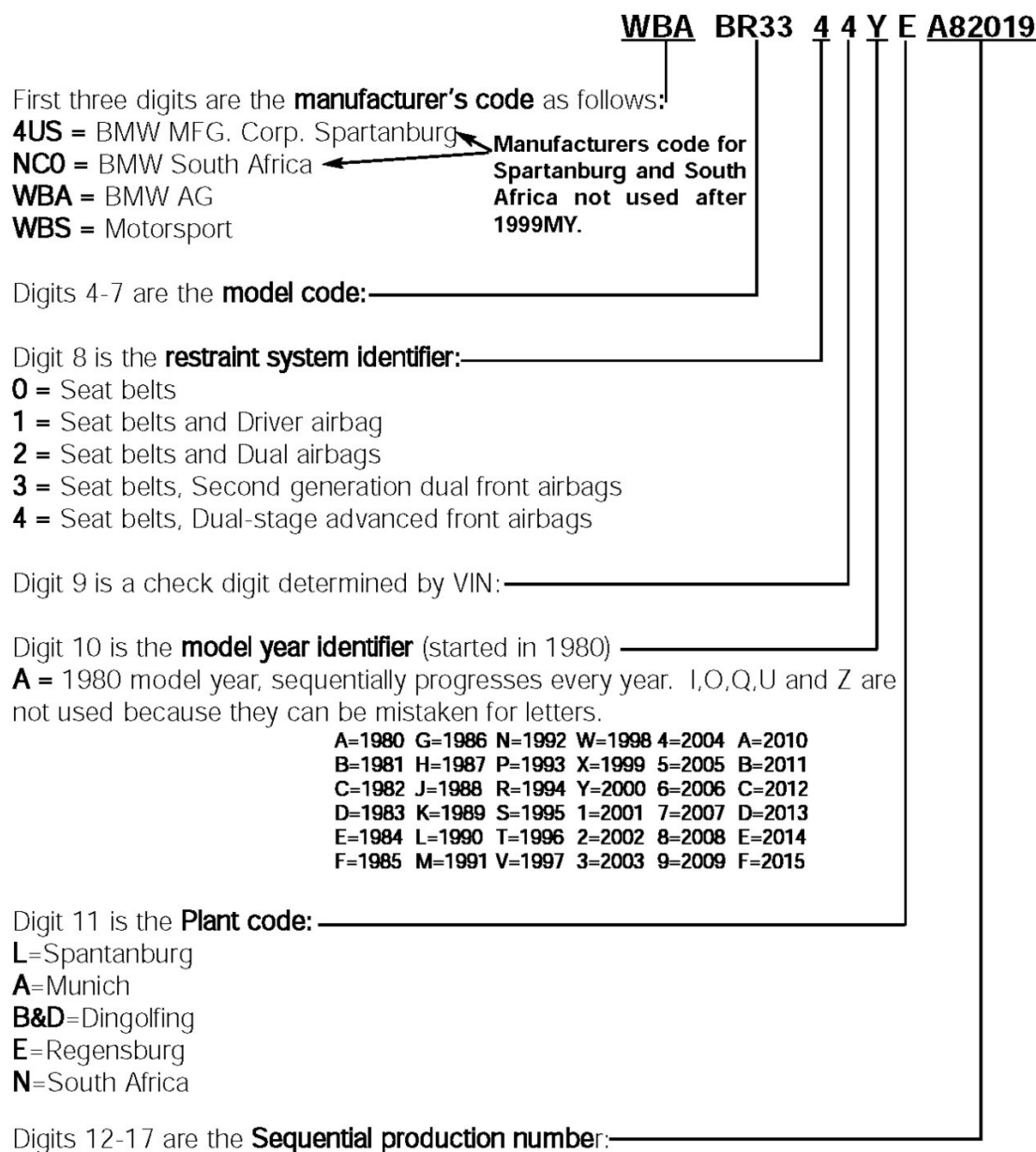


# Vehicle: Application and ID

## Vehicle Identification Numbers

Vehicle Identification Numbers are referred to as the VIN. BMW utilizes a VIN with a 17 character structure. The characters are grouped to include multiple information as follows:



## Vehicle Identification Number

### VIN Location On Vehicle

The VIN is located on the vehicle in the following locations:

- In the left lower corner of the dashplate. This can be viewed through the windshield from outside of the car.
- "B" pillar compliance label. On the driver's side door jamb.

Additionally the VIN is stamped into the body in one of the two locations below.

- Under hood on engine compartment bulkhead.
- Under hood on passenger side shock tower.

### Vehicle Production Dates





The production date of the vehicle is included in the B pillar compliance label.

Production date information is required quite often when a repair procedure affects only a certain range of vehicles. The range is based on production dates.

The date shown on the label reflects the actual month and year the vehicle was produced. It is not a model year indicator.

### Vehicle Production Anti-theft Labels



Since 1987, the National Highway Traffic Safety Administration (NHTSA) requires that the VIN be marked on specific parts of the car during manufacture for theft identification. Some models are exempt if there if the total number of vehicles imported is below a certain number.

If the vehicle does have the label it is also a reference point for the VIN.

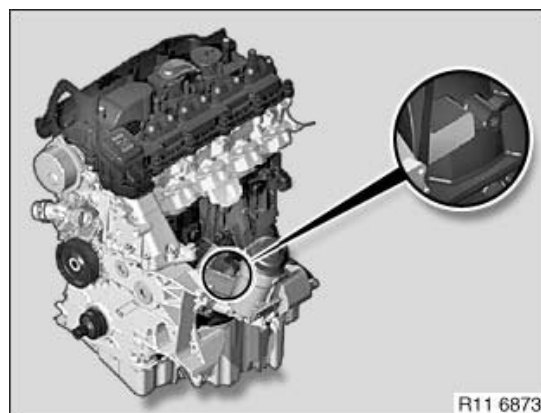
If equipped, the label is placed on the following locations:

- Engine
- Transmission
- Hood
- Trunk lid
- Front bumper
- Rear Bumper
- Front Fenders
- Doors
- Quarter panels.

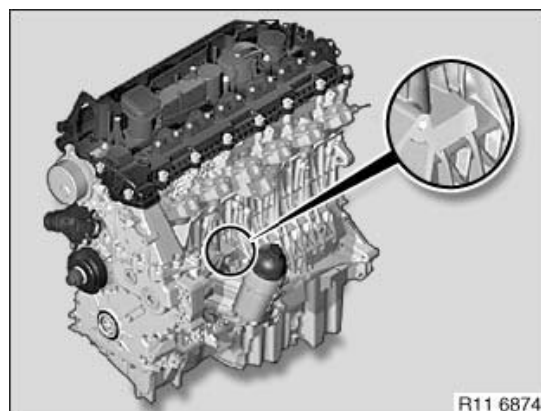
## Engine: Application and ID

### Engine identification

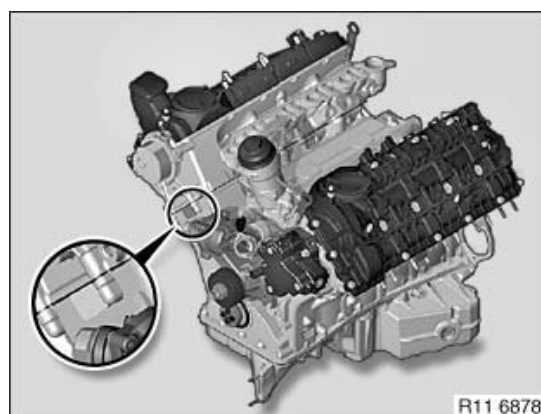
Drive in engine numbers at marked surface with impact tool.



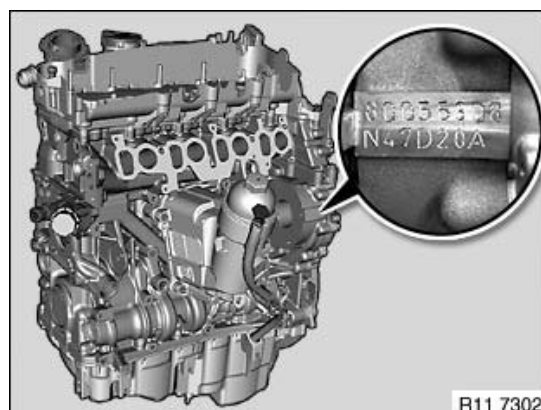
M47 / M47TU / M47T2



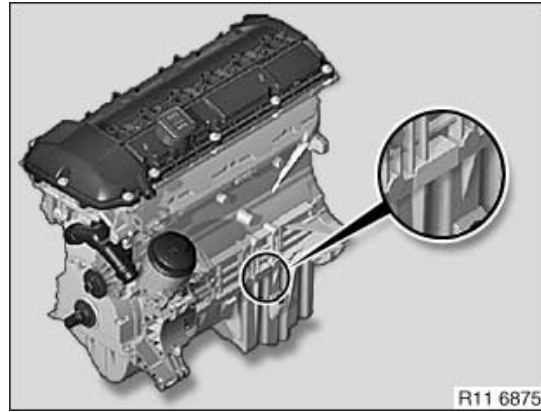
M57 / M57TU / M57T2



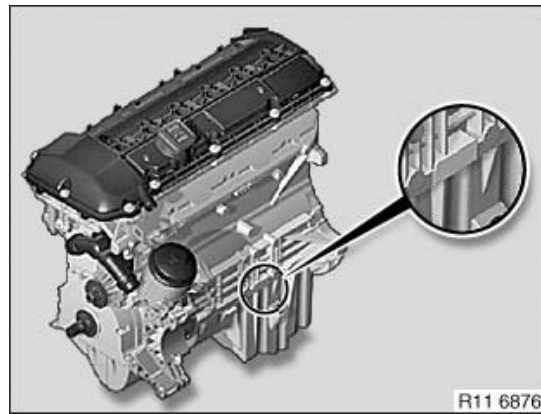
M67 / M67TU



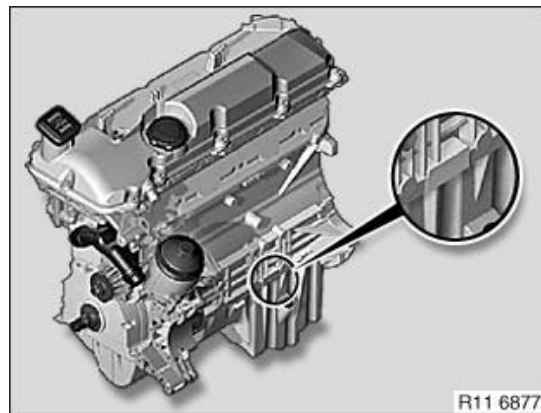
N47 / N47S



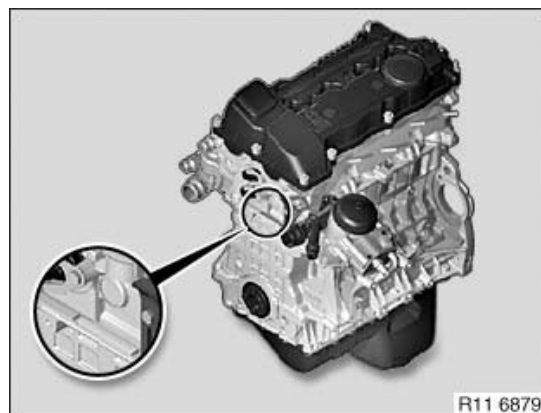
M52 / M52TU



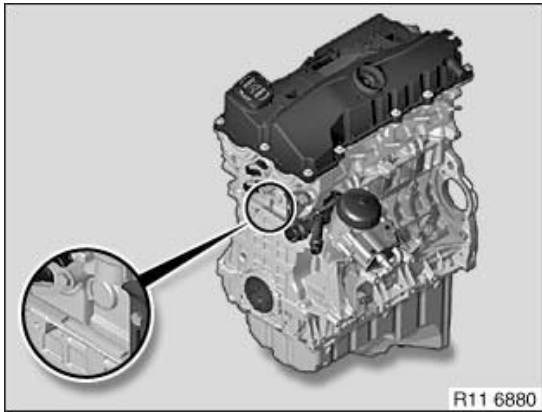
M54



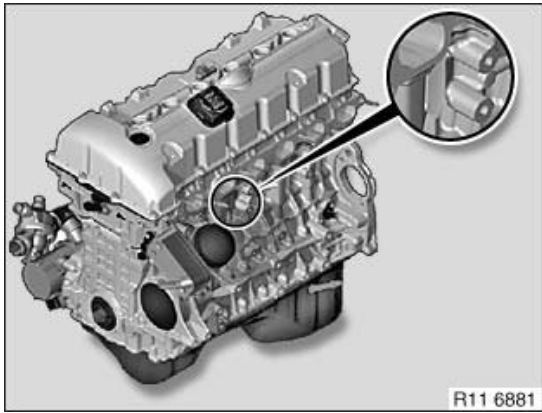
M56



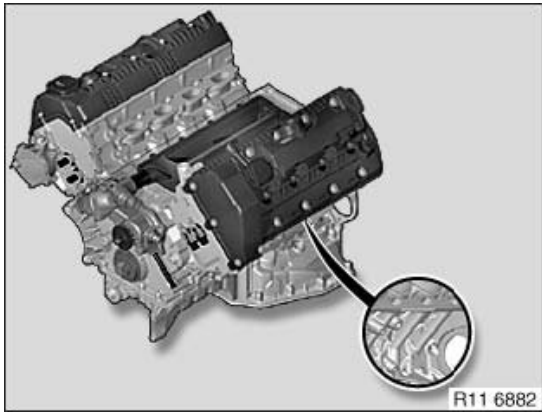
N40 / N45 / N45T / N43



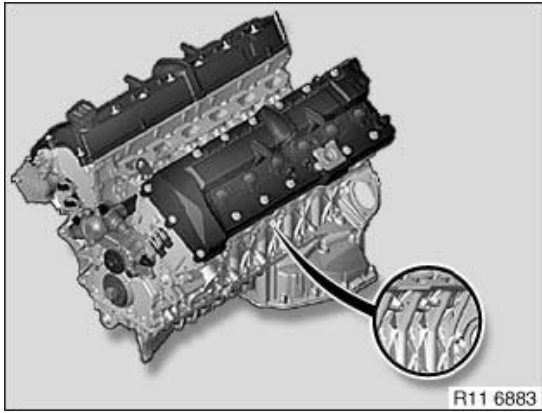
N42 / N46 / N46T



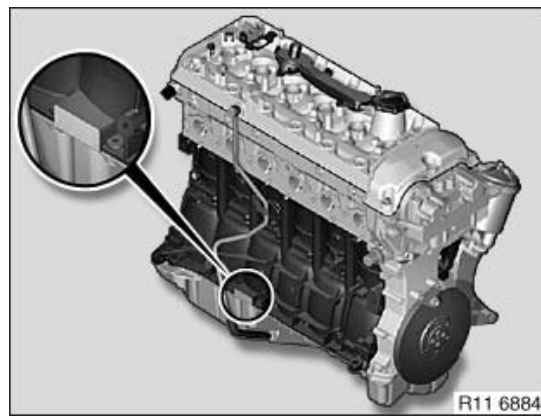
N51 / N52 / N52K / N53 / N54



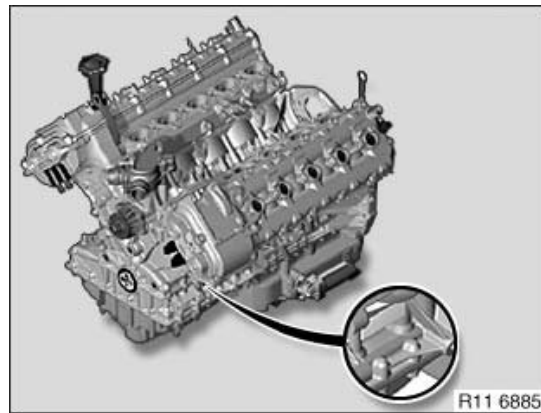
N62



N73



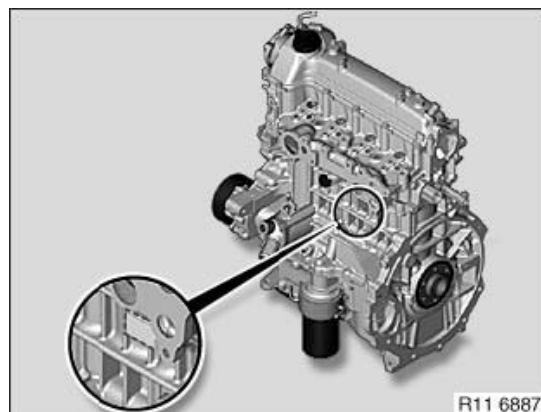
S54



S85/S65



W10/W11



W17

Assemble engine.

## Engine: Procedures

### Mounting Engine on Assembly Stand

#### Mounting engine on assembly stand (N14)

Special tools required:

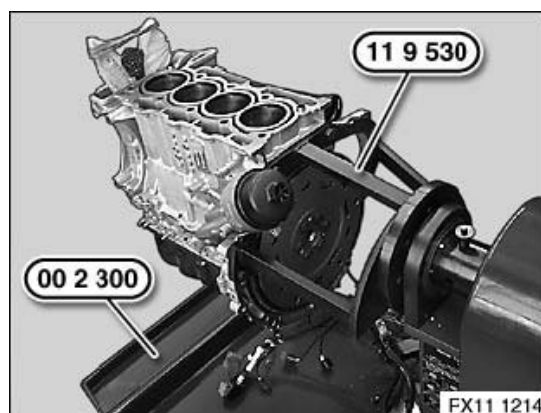
- ^ 00 2 300
- ^ 11 9 530

Necessary preliminary tasks:

- ^ Remove engine.

Bolt engine or engine block to special tool 11 9 530.

Mount engine with special tool 11 9 530 on special tool 00 2 300.



### 11 00 670 Securing Engine In Installation Position

#### 11 00 670 Securing engine in installation position (N12, N14)

Special tools required:

- ^ 00 0 200
- ^ 00 0 202
- ^ 00 0 204
- ^ 00 0 208
- ^ 00 0 490

#### Warning:

#### Risk of injury!

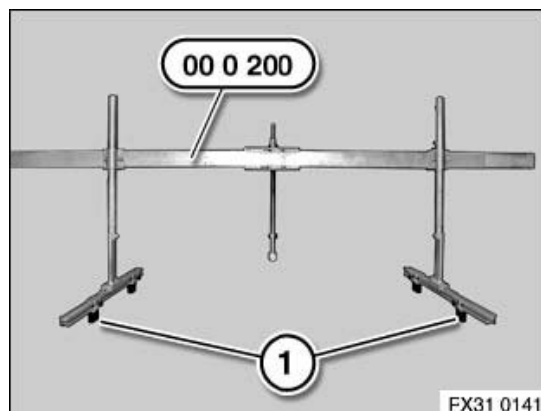
Observe following instructions relating to special tool:

1. Prior to each use, check the special tools for defects, modifications and operational reliability.
2. Damaged/modified special tools must not be used!
3. No changes or modifications may be made to the special tools!
4. Keep special tools dry, clean and free of grease.

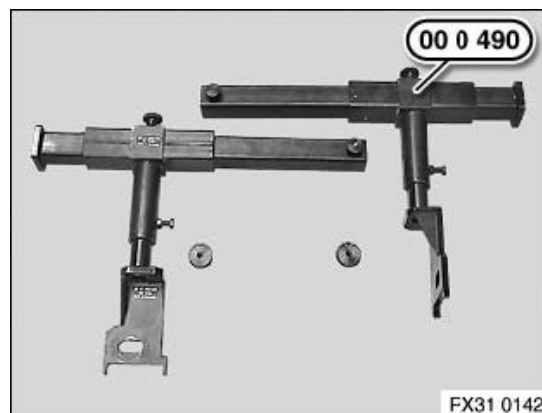
Assemble cross member 00 0 200 with special tools 00 0 202, 00 0 204, 00 0 208.

Modification:

Remove front supports (1).

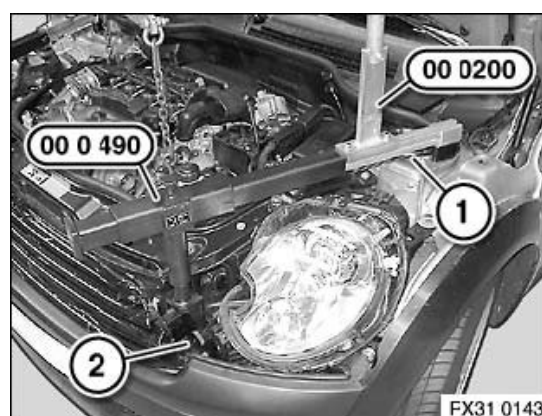


Attach special tool 00 0 490 on left and right to cross member 00 0 200.



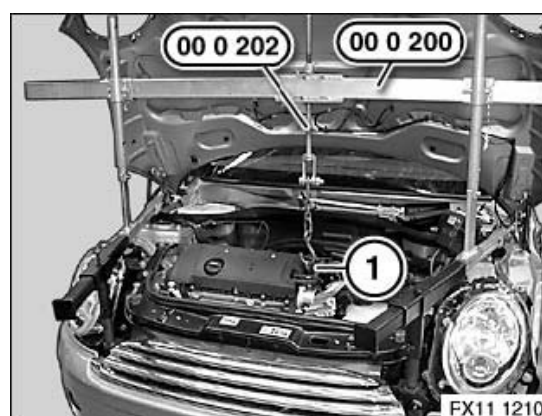
**Important:**  
Do not damage Bowden cable (1)!

With the aid of an assistant, place cross member 00 0 200 on spring strut tower and secure special tool 00 0 490 with knurled screws (2) on engine support.

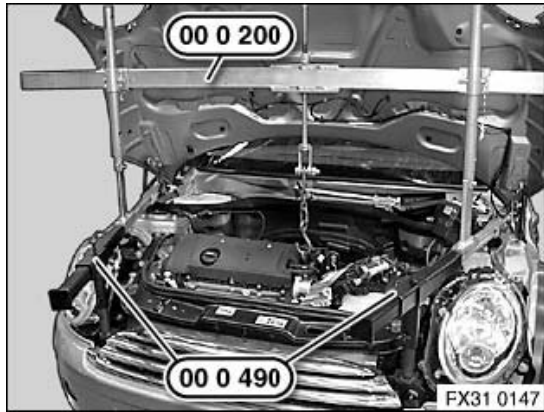


**Important:**  
Avoid a change of engine position in the transverse or longitudinal direction.  
Always make sure there is sufficient clearance between the engine (or its attachment parts) and the body.

Align cross member 00 0 200 such that the spindle 00 0 202 is positioned correctly over the lifting eye.  
Secure suitable chain to spindle 00 0 200 and attach to lifting eye (1).



**Warning:**  
Risk of injury!  
Tighten all adjusting screws, knurled screws and nuts on cross member 00 0 200 and on special tool 00 0 490.



**Important:**  
Complete the following tasks without fail before raising the engine.

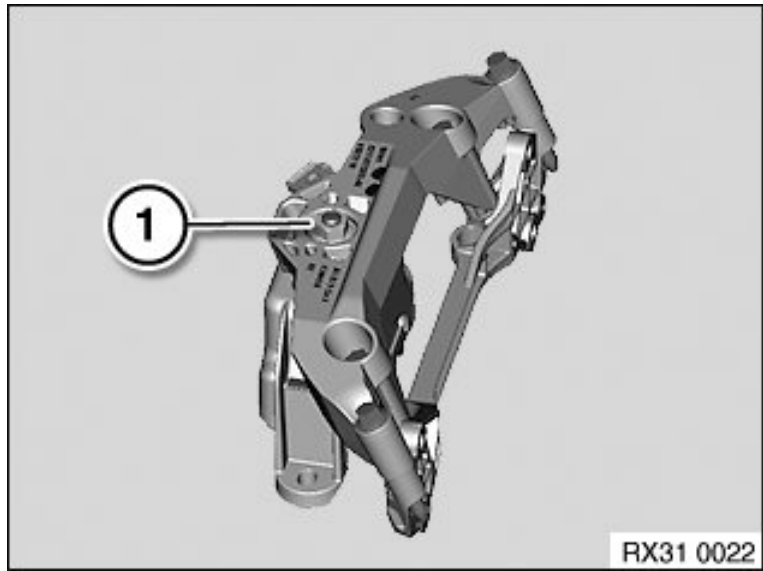
**Left side only:**  
Remove transmission support bracket

**Right side only:**  
Slacken nut (1).

**Installation:**  
Replace self-locking nut.

**Tighten Engine mounting bracket to adapter plate**  
**2AZ Engine mounting bracket to adapter plate**

M10 8.8 screw ..... 38Nm



**Important!**  
Avoid overelongation of rubber mounts in bracket (1) when raising.

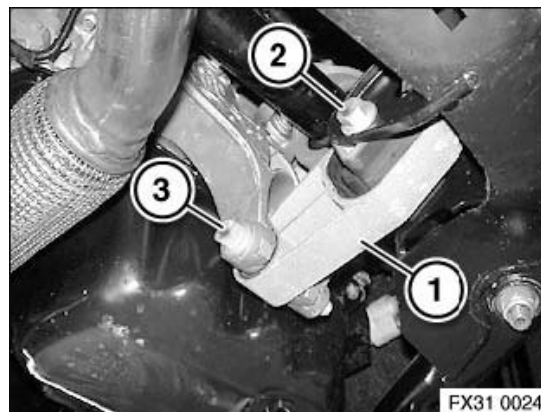
Slacken screws (2) and (3).

**Installation:**  
Secure engine first to engine or transmission mounts and then tighten down bolts (2) and (3).

**Tighten Stabilizer link to bracket**  
**6AZ Stabilizer link to bracket**

M12x90 screw ..... 108 Nm

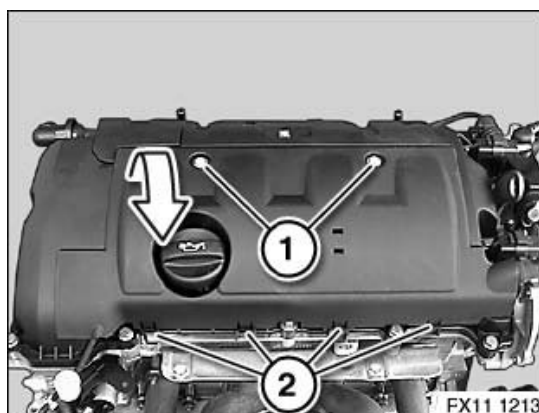




## Engine: Removal and Replacement

### Removing and Installing/Replacing Acoustic Cover

#### Removing and Installing/Replacing Acoustic Cover (N14)



Release screws (1).

Tightening Acoustic cover to cylinder head cover

11AZ Acoustic cover to cylinder head cover

M6x40 ..... 8.5 Nm

Release acoustic cover at retainers (2).

Lift off acoustic cover in direction of arrow.

## 11 00 050 Removing and Installing Engine

### 11 00 050 Removing and installing engine (N14)

Special tools required:

^ 11 0 260

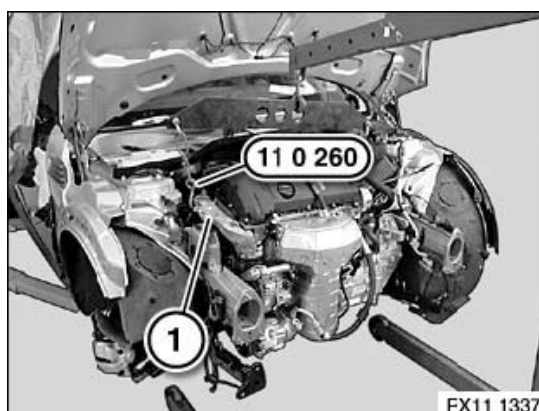
Necessary preliminary tasks:

- ^ Remove exhaust system.
- ^ Drain engine oil.
- ^ Disconnect negative battery lead.
- ^ Remove both output shafts.
- ^ Remove air cleaner housing.
- ^ Detach all coolant hoses from engine.
- ^ Detach vacuum line from brake booster.
- ^ Unfasten engine wiring harness and lay to one side.
- ^ Remove complete front panel

Attach special tool 11 0 260 to lifting eye (1) on engine.

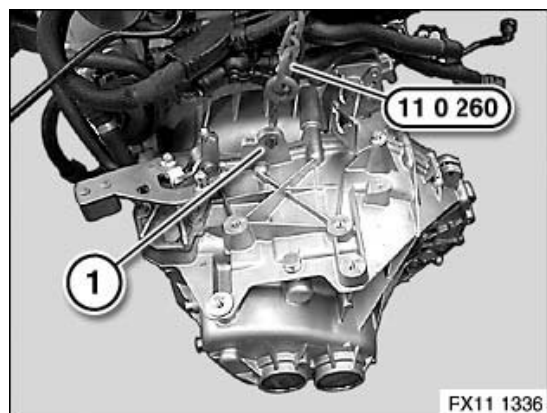
**Note:**

Pictures show N12.



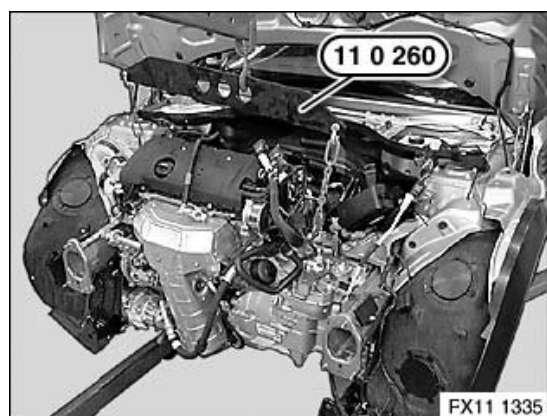
Attach special tool 11 0 260 to lifting eye (1) at transmission end.

**Note:**  
Pictures show N12.



Remove engine with special tool 11 0 260 towards front.

**Note:**  
Pictures show N12.

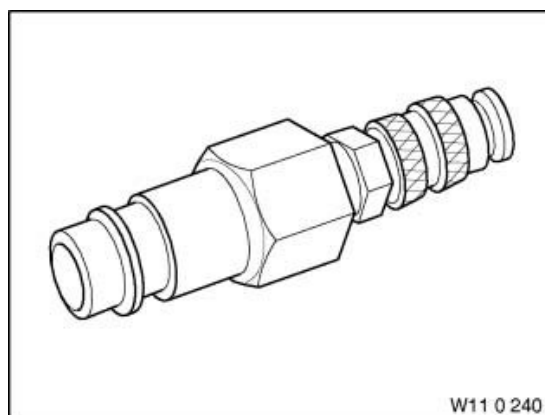


Assemble engine.  
Check function of DME.

## Engine: Tools and Equipment

### 11 0 240 Coupling

#### 11 0 240 Coupling



In conjunction with: 11 0 222, 11 0 226, 11 0 227, 11 0 225

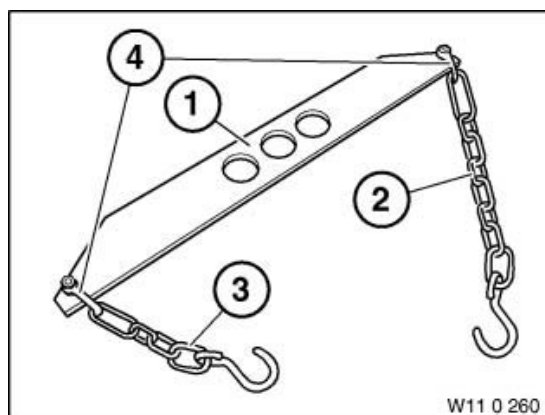
**Note:** For adapting test probes to pressure gauge 11 0 162

Engine: All models

Order number: 11 0240 Coupling

### 11 0 260 Engine Hoist

#### 11 0 260 Engine hoist



**Note:** For removing and installing engine

Engine: N12, N14, S62

SI number: 1 23 98(390)

Order number: 11 0 260 Engine hoist

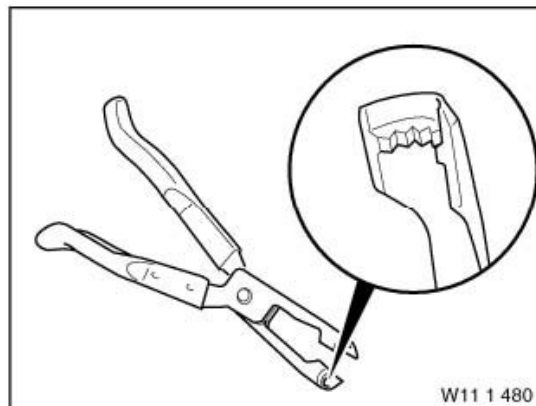
Consisting of:

1 = 11 0 261 Lifting beam

### 11 1 480 Pliers

#### 11 1 480 Pliers

**Minimum set: Mechanical tools**



**Note:** For removing valve stem seal

Engine: M40, M41, M42, M43, M44, M50, M51, M52, M52TU, M54, M56, M60, M62, M70, M73, N12, N14, N43, N45, N47, N47S, N52, N53, N54, S38, S50B30, S50B32, S50US, S52US, S54, S62, W10, W11

Storage location: B10

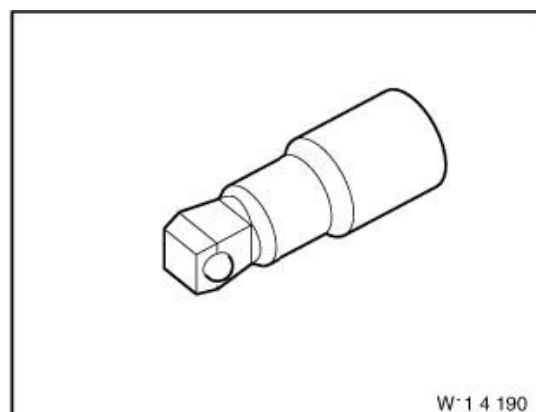
SI number: 1 01 93(621)

Order number: 11 1 480 Pliers

## 11 4 190 1/4" Extension Piece

### 11 4 190 1/4" Extension Piece

**Minimum set: Mechanical tools**



In conjunction with: 11 3 390, 00 2 050

**Note:** M73 For removing and installing pedal travel sensor M60 Pretensioning timing chain E53 Mounting airbag control unit

Series: All models

Storage location: B6

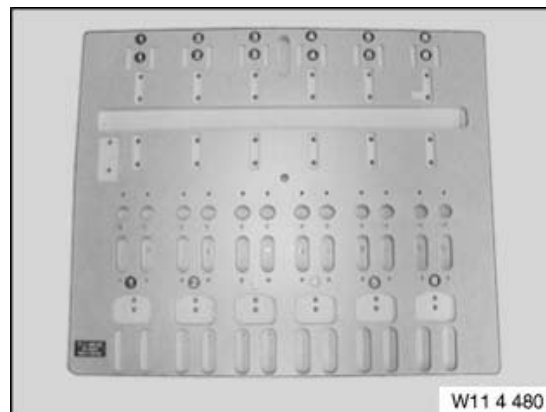
SI number: 1 06 94(801)

Order number: 11 4 190 1/4" extension piece

## 11 4 480 Placement Boards

### 11 4 480 Placement Boards (2 x)

**Minimum set: Mechanical tools**



**Note:** For storing individual components of cylinder head.

Engine: N12, N14, N43, N45T, N47, N47S, N51, N52, N52K, N53, N54

SI number: 1 17 04(130)

Order number: 11 4 480 Placement boards (2 x)

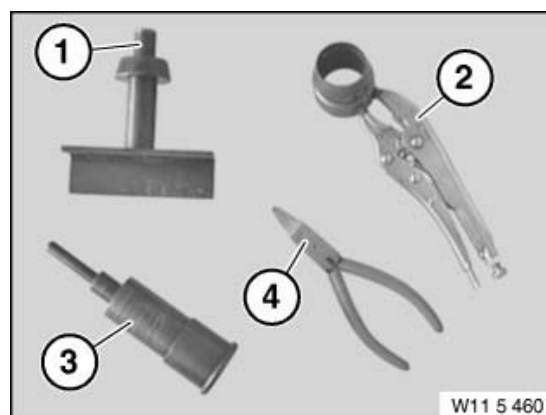
Consisting of:

1 = 11 4 481 Placement board, inlet side

2 = 11 4 482 Placement board, exhaust side

## 11 5 461 Installation Holder

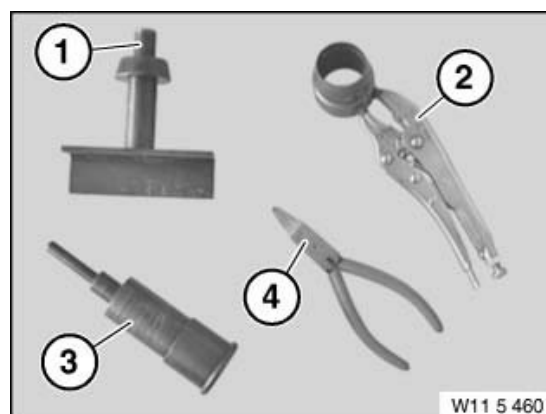
### 11 5 461 Installation holder



Order number: 11 5 461 Installation holder

## 11 5 462 Installation Pliers

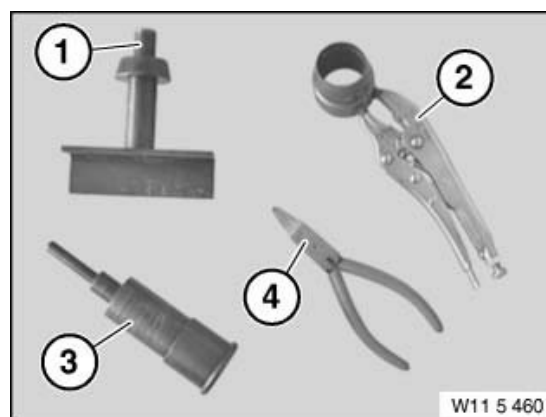
### 11 5 462 Installation Pliers



Order number: 11 5 462 Installation pliers

## 11 5 463 Installation Drift

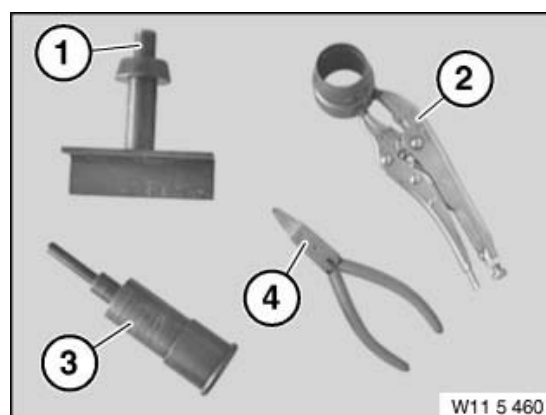
### 11 5 463 Installation Drift



Order number: 11 5 463 Installation drift

## 11 5 464 Removal Pliers

11 5 464 Removal Pliers

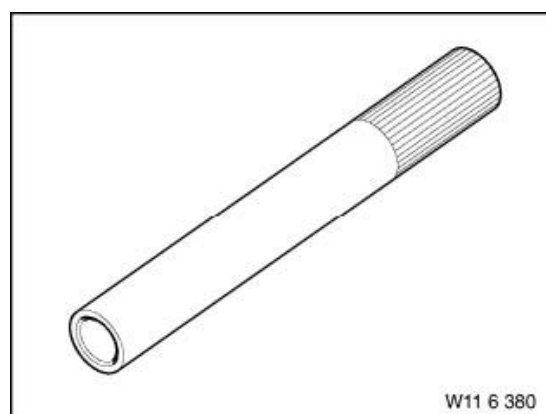


Order number: 11 5 464 Removal pliers

## 11 6 380 Bush

11 6 380 Bush

Minimum set: Mechanical tools



**Note:** For fitting valve stem seal

Engine: M47, M47TU, M57, M57T2, M57TU, N12, N14, N40, N42, N43, N45, N45T, N46, N46T, N47, N47S, N51, N52, N52K, N53, N54, N62, N73

Storage location: B15

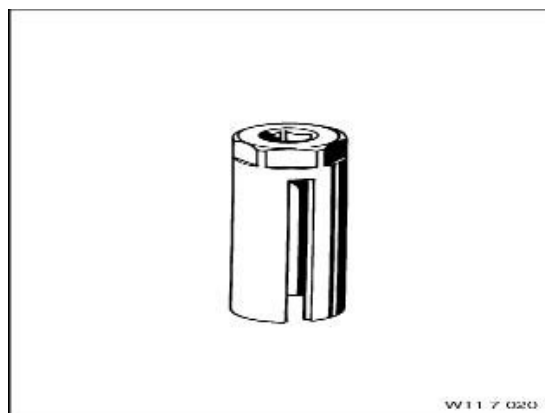
SI number: 1 06 98 (306)

Order number: 11 6 380 Bush

## 11 7 020 Socket Wrench Socket WAF 22

**11 7 020 Socket Wrench Socket WAF 22**

Minimum set: Mechanical tools

**Note:** For loosening and tightening oxygen sensor

Engine: M10, M20, M30, M40, M42, M50, M52TU, M54, M56, M57, M57T2, M60, M70, M73, N12, N14, N42, N45, N46, N47, N47S, N53, N54, S14, S38, S50B30, S50B32, S50US, S52US, S54, W16

Storage location: A9

Order number: 11 7 020 Socket wrench socket WAF 22

**11 8 730 Adapter****11 8 730 Adapter**

Minimum set: Mechanical tools



In conjunction with: 11 0 220

**Note:** For compression testing.

Engine: N12, N14, N43, N53, N54, N63

SI number: 1 04 07 (352)

Order number: 11 8 730 Adapter

Consisting of:

1 = 11 8 731 Adapter

2 = 11 8 732 Sealing ring

**Note:** For firmly connecting test probe 11 0 222 and adapter 11 8 730/731.**11 9 000 Cylinder Head Expander Tool****11 9 000 Cylinder Head Expander Tool**

Minimum set: Mechanical tools





Engine: M10, M20, M20B25, M20B27, M21, M30, M30B34, M30Tur, M40, M41, M42, M43, M43TU, M44, M47, M47TU, M50, M51, M52, M52TU, M54, M56, M57, M57D25, M57D30, M57T2, M57TU, M60, M62, M62VAN, M67, M70, M73, M88, N12, N14, N40, N42, N45, N46, N51, N52, N53, N54, N62, N62TU, N73, S14, S38, S50B30, S50B32, S50US, S52US, S54, S62, S85, W10, W11, W17

SI number: 1 03 02 (833)

Order number: 11 9 000 Cylinder head expander tool

1 = 11 9 001 Fixture

2 = 11 9 002 Rod

3 = 11 9 003 Sliding block with M10 thread

4 = 11 9 004 Tab

5 = 11 9 005 Quick tensioner

6 = 11 9 006 aluminum profile insert

7 = 11 9 007 Slide

8 = 11 9 008 Profile plastic part

9 = 11 9 009 Lever

10 = 11 9 011 Hook

11 = 11 9 012 Valve spring cage

**Note:** Engine M41, M51, S50

12 = 11 9 013 Valve spring cage

**Note:** Engine M43, M73

13 = 11 9 014 Valve spring cage

**Note:** Engine M44, M52, M54, M56, M62, S52, S54, S62

14 = 11 9 015 Valve spring cage

**Note:** Engine M47, M47TU, M57, M57TU, N40, N42, N62, N73

15 = 11 9 016 Valve spring cage

**Note:** Engine M21, M40

16 = 11 8 421 Valve spring cage

**Note:** Engine: W10, W11, W17

17 = 11 9 017 Valve spring cage

**Note:** Engine N52

## 11 9 150 Special Wrench

## 11 9 150 Special Wrench

### Minimum set: Mechanical tools



In conjunction with: 11 7 030

**Note:** For releasing and tightening down oxygen sensors

Engine: M54, M56, N12, N14, N42, N45, N46, N53, N54, N62, N62TU, N73, S54, S85

Storage location: A42

SI number: 01 15 00 (609)

Order number: 11 9 150 Special wrench

## 11 9 280 Holder

### 11 9 280 Holder

**Minimum set: Mechanical tools**



**Note:** For crankshaft when releasing/tightening central bolt

Engine: N12, N14, N40, N42, N43, N45, N46, N51, N52, N52K, N53, N63

Storage location: A43, B43, C43

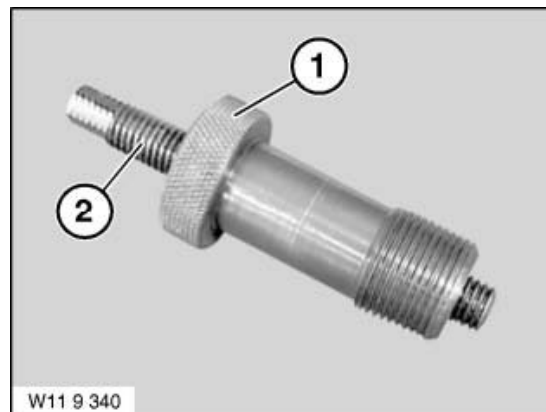
SI number: 1 01 01 (662)

Order number: 11 9 280 Holder

## 11 9 340 Chain Tensioner, Complete

### 11 9 340 Chain Tensioner, Complete

Minimum set: Mechanical tools



**Note:** For tensioning timing chain when adjusting timing

Engine: N12, N14, N40, N42, N43, N45, N45T, N46, N46T, N51, N52, N52K, N53, N54

Storage location: B43

SI number: 1 01 01 (662)

Order number: 11 9 340 Chain tensioner, complete

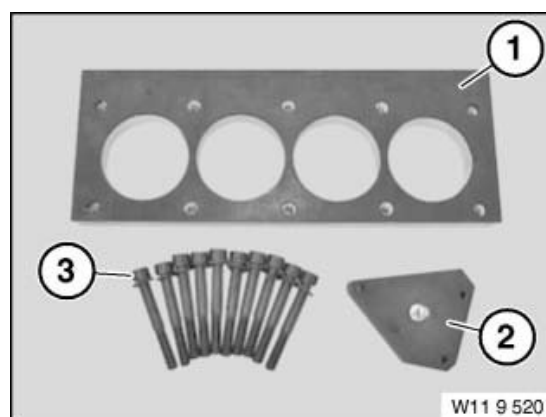
Consisting of:

1 = 11 9 341 Screw

2 = 11 9 342 Spindle

## 11 9 520 Pressure-testing Fixture

### 11 9 520 Pressure-testing Fixture



**Note:** For leak-testing cylinder head.

Engine: N12, N14

SI number: 1 26 06 321

Order number: 11 9 520 Pressure-testing fixture

Consisting of:

1 = 11 9 521 Baseplate with seal

2 = 11 9 522 Adapter plate with seal

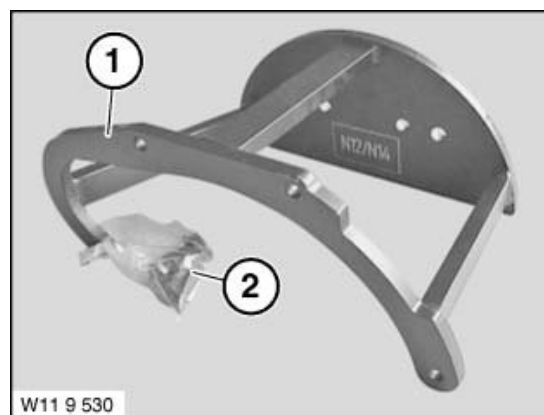
3 = 11 9 523 Set of screws

4 = 11 9 524 Replacement seal for baseplate

5 = 11 9 525 Replacement seal for adapter plate

## 11 9 530 Engine Support Plate

### 11 9 530 Engine Support Plate



In conjunction with: 00 2 300" 00 1 450

**Note:** For supporting engine on assembly stand.

Engine: N12, N14, W16

SI number: 1 26 06 321

Order number: 11 9 530 Engine support plate

Consisting of:

1 = 11 9 531 Engine support plate

2 = 11 9 532 Set of screws

## 11 9 550 Gauge

### 11 9 550 Gauge

#### Minimum set: Mechanical tools

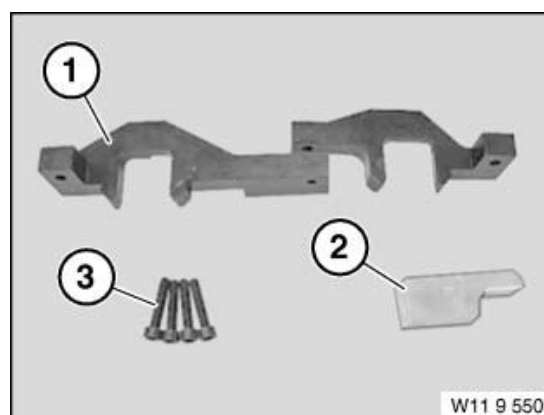
**Note:** For locating camshaft in TDC position.

Engine: N14

Storage location: A86

SI number: 1 26 06 321

Order number: 11 9 550 Gauge



Consisting of:

1 = 11 9 551 Gauge

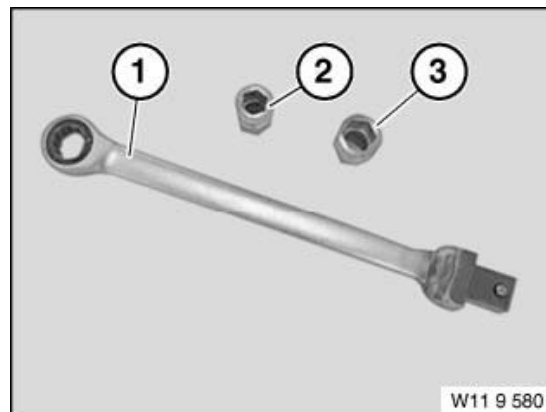
2 = 11 9 552 Counter-support

3 = 11 9 553 Set of screws

## 11 9 580 Socket Ring Wrench

### 11 9 580 Socket Ring Wrench

#### Minimum set: Mechanical tools



**Note:** For removing and installing friction gear and auxiliary water pump.

Engine: N12, N14

Storage location: A85

SI number: 1 26 06 321

Order number: 11 9 580 Socket ring wrench

Consisting of:

1 = 11 9 581 Ring wrench

2 = 11 9 582 Socket WAF 8

3 = 11 9 583 Socket WAF 10

## 11 9 590 Plug Mandrel

**11 9 590 Plug Mandrel**

**Minimum set: Mechanical tools**



**Note:** For locating crankshaft in TDC position.

Engine: N12, N14

Storage location: C85

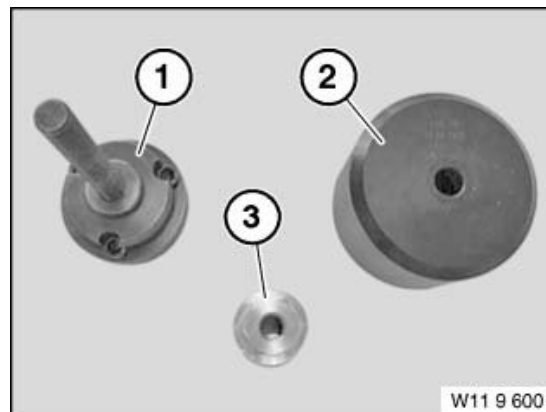
SI number: 1 26 06 321

Order number: 11 9 590 Plug mandrel

## 11 9 600 Installer

**11 9 600 Installer**

Minimum set: Mechanical tools



**Note:** For installing front crankshaft seal.

Engine: N12, N14

Storage location: C85

SI number: 1 26 06 321

Order number: 11 9 600 Installer

Consisting of:

1 = 11 9 601 Basic body

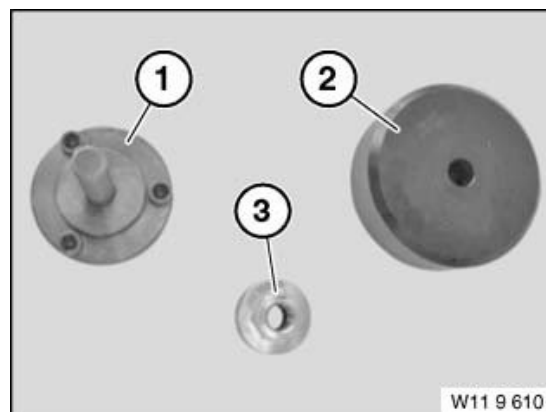
2 = 11 9 602 Pressure sleeve

3 = 11 9 603 Nut with bearing

## 11 9 610 Installer

### 11 9 610 Installer

**Minimum set: Mechanical tools**



**Note:** For installing rear shaft seal on crankshaft.

Engine: N12, N14

Storage location: C85, C86

SI number: 1 26 06 321

Order number: 11 9 610 Installer

Consisting of:

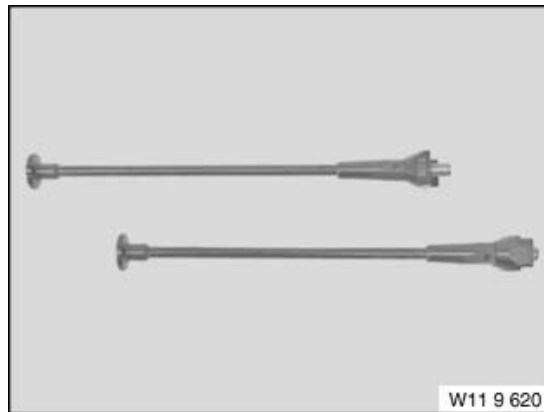
1 = 11 9 611 Basic body

2 = 11 9 612 Pressure sleeve

3 = 11 9 613 Nut with bearing

## 11 9 620 Insertion Tool

### 11 9 620 Insertion Tool



**Note:** For installing Piston with conrod in crankcase.

Engine: N12, N14

SI number: 1 26 06 321

Order number: 11 9 620 Insertion tool

## 11 9 630 Support Bracket

### 11 9 630 Support Bracket

Minimum set: Mechanical tools



**Note:** For supporting the engine when removing the cylinder head.

Engine: N12, N14

SI number: 01 14 07 (389)

Order number: 11 9 630 Support bracket

## 11 9 660 Press-Down Device

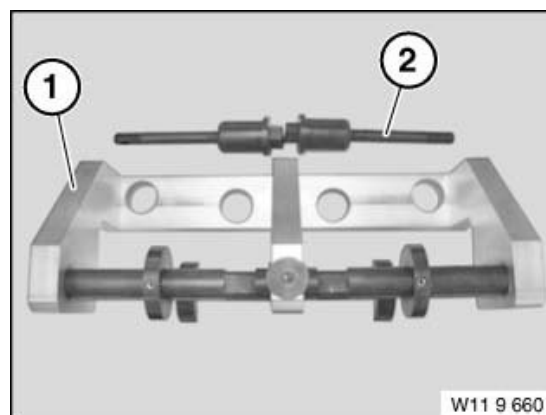
### 11 9 660 Press-down device

**Note:** For pressing down camshafts during removal and installation.

Engine: N14

SI number: 1 26 06 321

Order number: 11 9 660 Press-down device



Consisting of:

1 = 11 9 661 Basic body

2 = 11 9 662 Set of screws

## 11 9 670 Slip Bush

### 11 9 670 Slip Bush



**Note:** For installing Piston in crankcase.

Engine: N12, N14

SI number: 1 26 06 321

Order number: 11 9 670 Slip bush

## 11 9 680 Assembly Tool

### 11 9 680 Assembly Tool

Minimum set: Mechanical tools



**Note:** For fitting the ribbed alternator belt (elasto-belt).

For vehicles without A/C systems only.

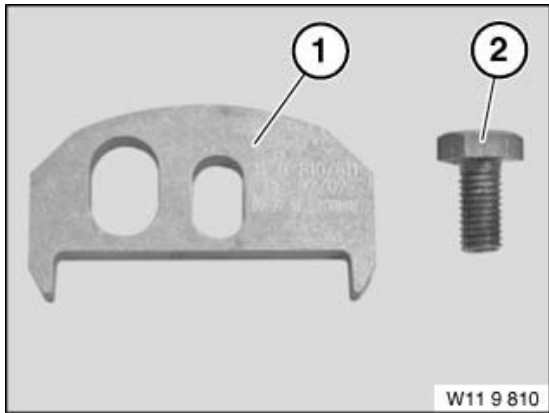
Engine: N12, N14

SI number: 01 17 07 (393)



## 11 9 811 Holder

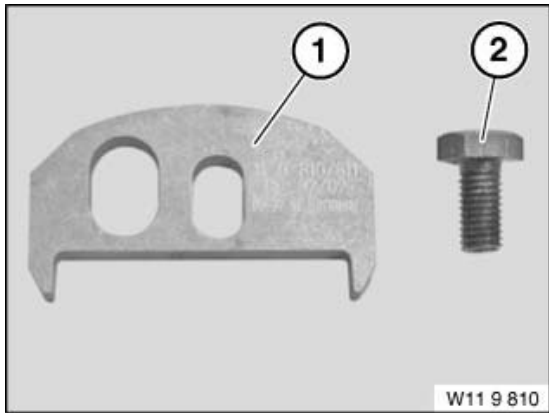
### 11 9 811 Holder



Order number: 11 9 811 Holder

## 11 9 812 Screw

### 11 9 812 Screw



Order number: 11 9 812 Screw

# Variable Valve Timing Actuator: Service and Repair

## 11 36 042 Removing and installing/replacing inlet adjustment unit (N14)

Special tools required:

- ^ 00 9 120
- ^ 11 9 550
- ^ 11 9 551
- ^ 11 9 552
- ^ 11 9 590

### Important:

Mount special tool 11 9 550 to open central bolts on adjustment units and camshafts.

The timing is not determined at firing TDC of cylinder no. 1.

Modified procedure for timing adjustment.

All pistons are in the 90 ° position.

Check locking of adjustment units.

Necessary preliminary tasks:

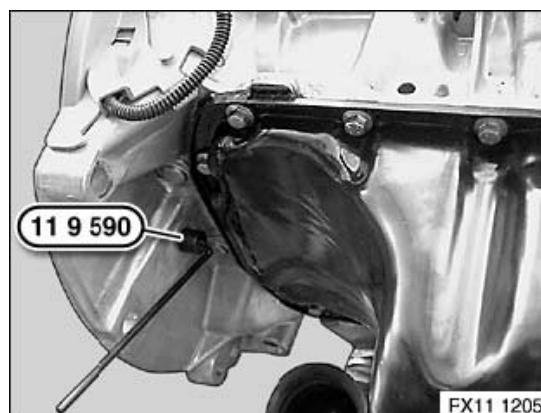
- ^ Remove cylinder head cover.

Slide in special tool 11 9 590 in direction of arrow.

Rotate flywheel (1) at central bolt until firing TDC position at 1st cylinder is reached.

### Important:

The TDC bore can be mixed up in automatic transmissions.



### Important:

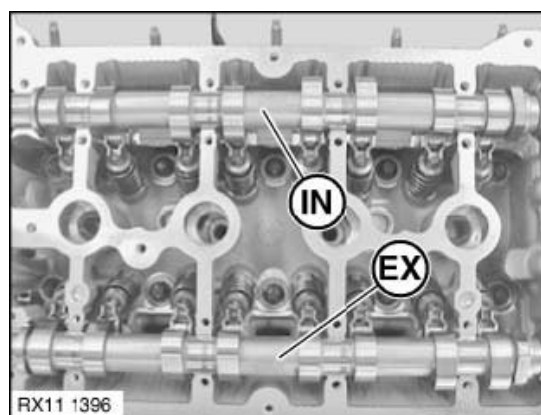
Check locking on VANOS adjustment unit.

Attempt to rotate inlet camshaft in direction of rotation at hexagon head.

The adjustment unit is locked in the initial position when the camshaft is non-positively connected to the adjustment unit.

If no fixed connection to the camshaft can be established, the adjustment unit is faulty and must be replaced.

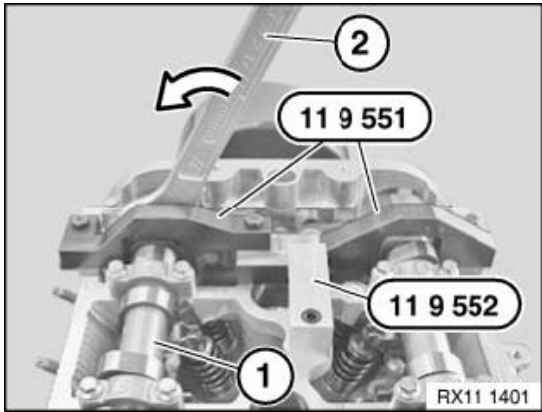
Crank engine at central bolt in direction of rotation until designations (IN and EX) can be read from above.



Position special tool 11 9 551 on exhaust camshaft and secure with special tool 11 9 552.

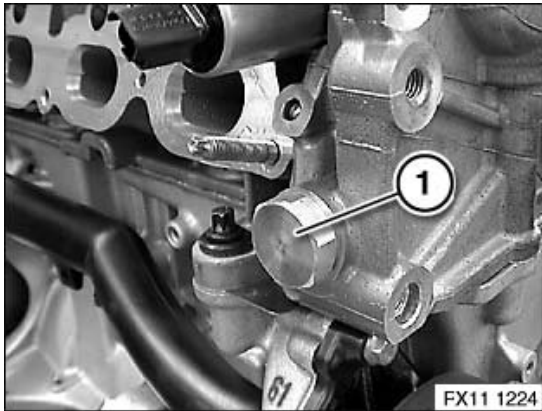
Before fitting special tool, check locking on adjustment unit.

Position special tool 11 9 551 on inlet camshaft and secure with both screws.

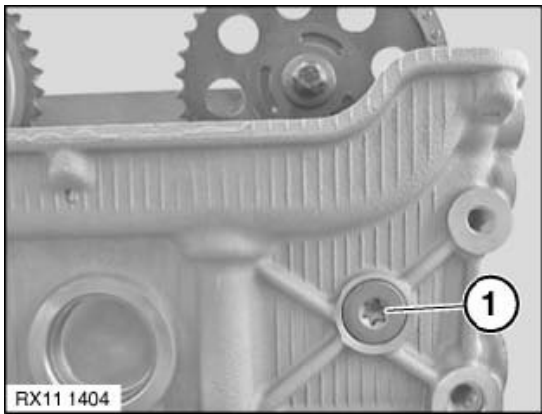


Release chain tensioner (1) (have a cleaning cloth ready).

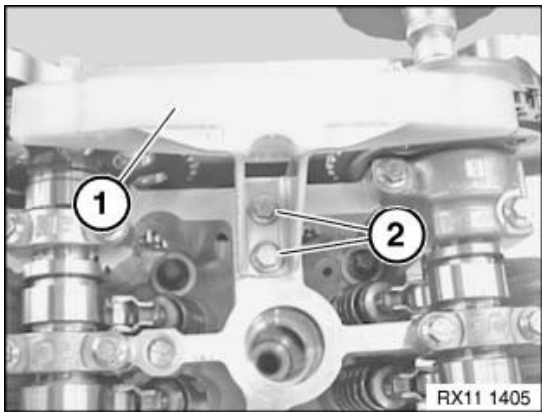
Tightening torque: 11 31 4AZ.



Release screw (1).

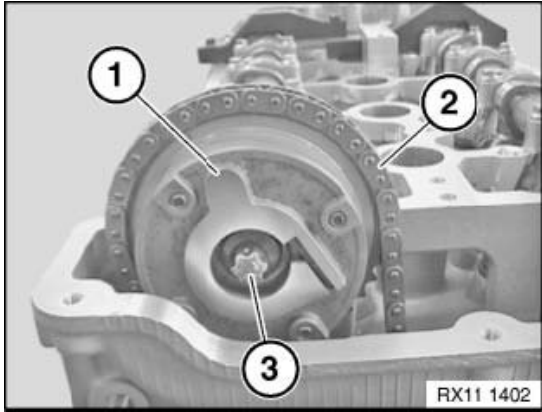


Release screws (2).  
Remove slide rail (1).

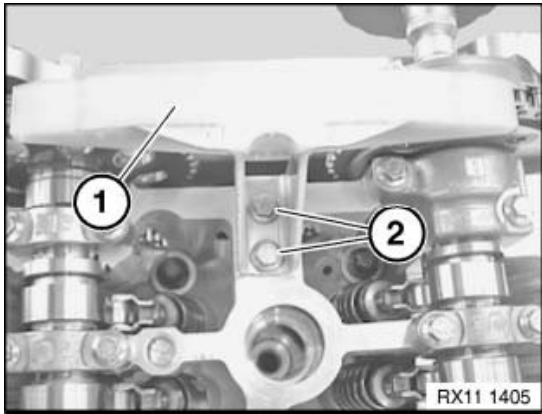


**Important:**  
Release and secure central bolts with special tool 11 9 550 only.

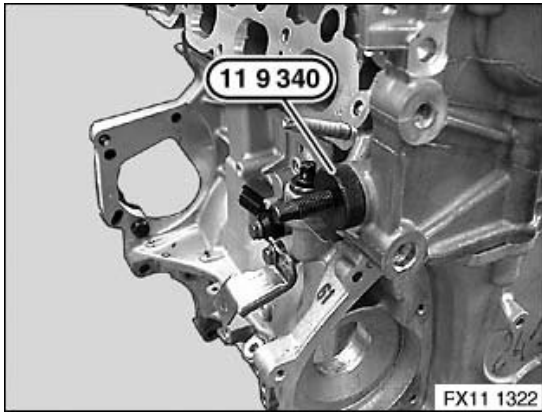
Release central bolt (3).  
Remove VANOS adjustment unit (1) from timing chain (2). VANOS adjustment unit of inlet camshaft is marked with the letters IN.



Install slide rail (1).  
Insert screws (2).  
  
Tightening torque: 11 31 2AZ.



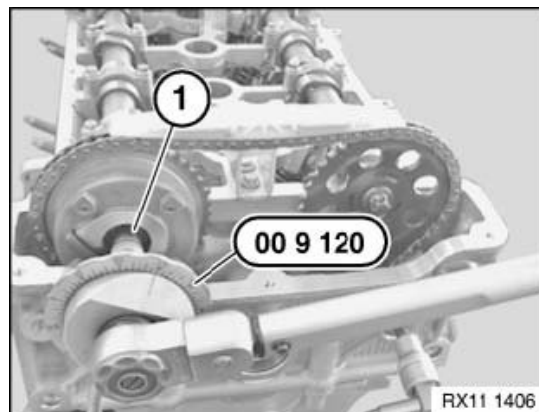
Screw special tool 11 9 340 into cylinder head.  
Pretension timing chain with special tool to 0.4 Nm.



Installation:  
Installation position of adjustment unit can be freely selected.  
Secure central bolt (1) with special tool 00 9 120.

Tighten VANOS to inlet camshafts  
1AZ VANOS to inlet camshafts  
M10x52

Jointing torque .....	20 Nm
Torque angle .....	180 °



Fit chain tensioner.  
Check timing.  
Assemble engine.

# Variable Valve Timing Solenoid: Service and Repair

## 11 36 655 Removing and installing/replacing both solenoid valves (N14)

### Important:

Always check that the solenoid valves are clean during removal and installation.

Possible malfunction if valves are contaminated:

- ^ Rough running.
- ^ OBD fault entry.
- ^ Exhaust emission behavior.
- ^ Low engine power.

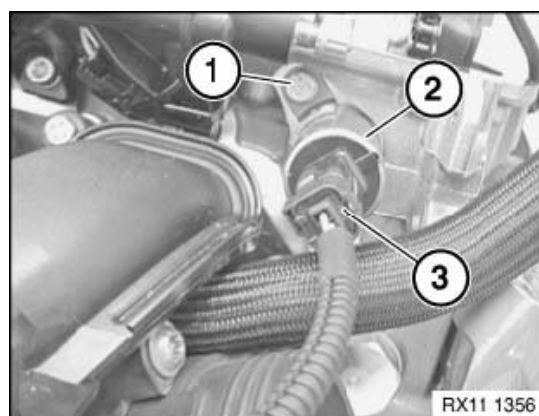
Necessary preliminary tasks:

- ^ Remove acoustic cover

Disconnect plug connection for solenoid valve (3) - inlet.

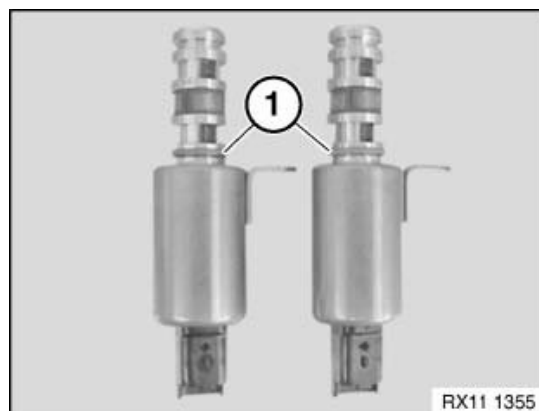
Release screw (1).

Remove solenoid valve (2) for inlet side.



Installation:

Replace sealing ring on solenoid valve.



Assemble engine.

Check function of DME.

# Compression Check: Testing and Inspection

## Checking compression of all cylinders (N12, N14)

- Read out fault memory of DME control unit
- Check stored faults
- Rectify faults
- Clear fault memory

**Important:**

**High tension - mortal danger!**

**Interrupt power supply to ignition coils.**

**Read and comply with notes on compression pressure check.**

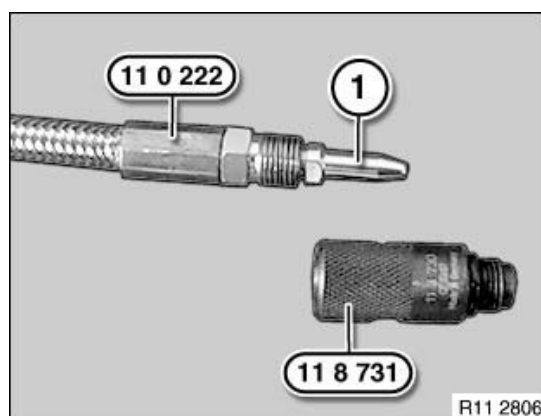
Necessary preliminary tasks:

- ^ Remove spark plugs.

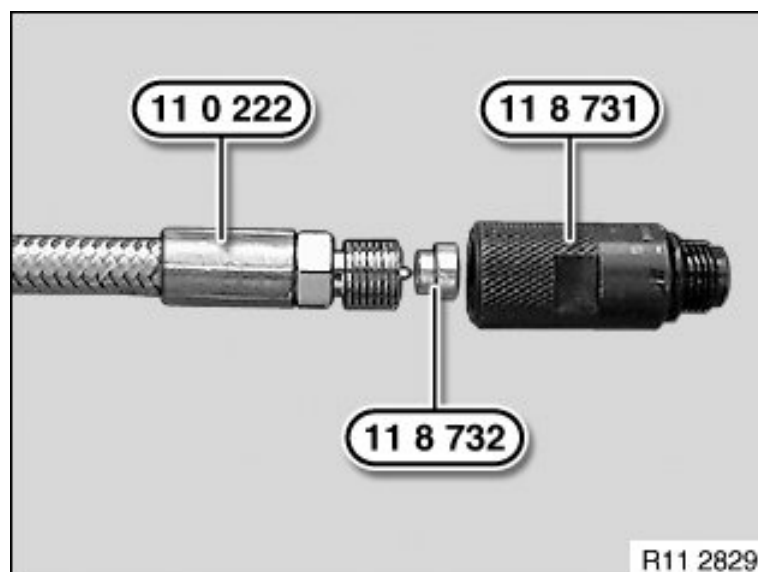
Unscrew tip (1) from special tool 11 0 222.

**Important:**

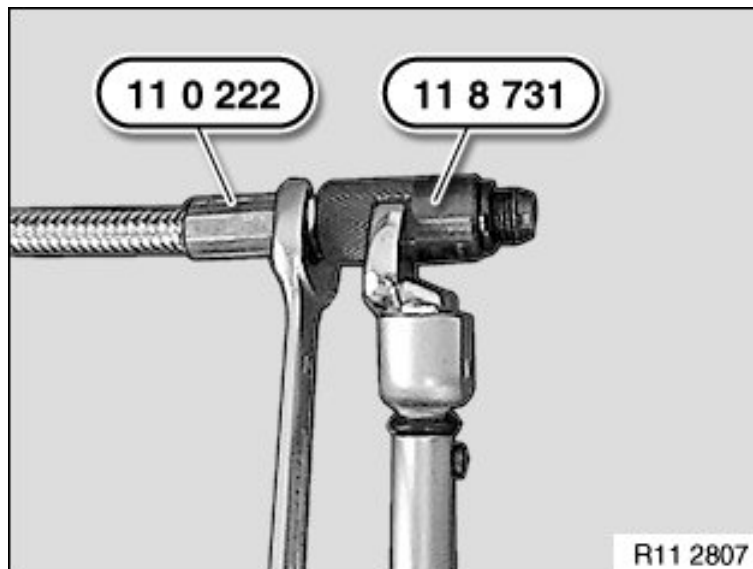
**Then check the Schrader valve that is now visible for secure seating.**



Prepare special tool 11 0 222 in conjunction with 11 8 732 and 11 8 731.



Screw special tool 11 0 222 onto special tool 11 8 731 to 10 Nm.

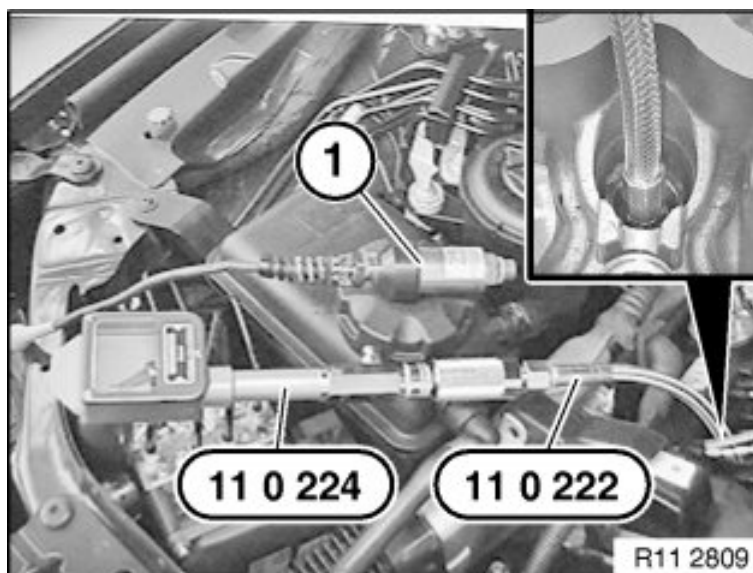
**Important:**

**Do not forget to oil spark plug thread of special tool 11 8 731.**

Screw special tool 11 0 222 by hand into spark plug thread and connect special tool 11 0 224.

Use adapter lead (1) if the compression pressure is being checked with the BMW diagnosis system.  
Depress accelerator pedal and actuate starter until compression pressure stops rising.

^ Nominal values, compression pressure



Assemble engine  
Now clear the fault memory.



# Camshaft: Testing and Inspection

## 11 31 005 Checking camshaft timing (N14)

Special tools required:

- ^ 11 9 522
- ^ 11 9 551
- ^ 11 9 590

### Important:

**Modified procedure for timing.**

**The timing is not determined at firing TDC of cylinder no. 1.**

**All pistons are in the 90 ° position.**

**Check locking of adjustment unit.**

Necessary preliminary tasks:

- ^ Remove cylinder head cover.

### Important:

**Danger of mixing up special tool bore.**

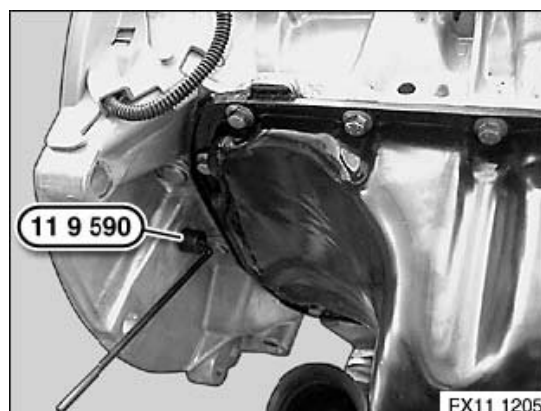
**Balance hole and special tool bore can be mixed up; all pistons must be in the 90 ° position.**

**If necessary, determine by means of spark plug bore.**

Rotate crankshaft at central bolt.

Position crankshaft with special tool 11 9 590.

Do not remove special tool 11 9 590 during repair work.



### Important:

**Check locking on VANOS adjustment unit.**

**Attempt to rotate camshaft in direction of rotation at hexagon head.**

**The adjustment unit is locked in the initial position when the camshaft is non-positively connected to the adjustment unit.**

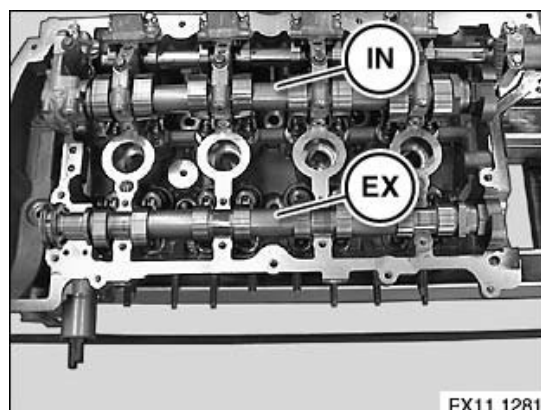
**The adjustment unit is faulty if no fixed connection to the camshaft is established.**

Both camshafts are in the correct installation position when the designation (IN) for inlet camshaft points upwards.

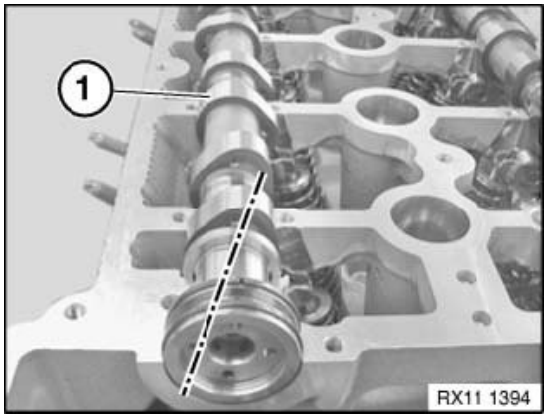
In the case of the exhaust camshaft, the designation (EX) must point upwards.

### Note:

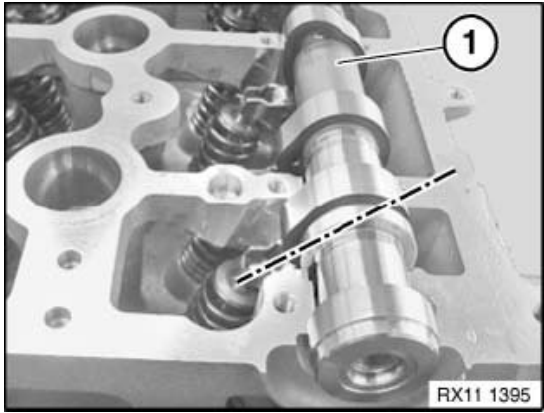
Pictures show N12.



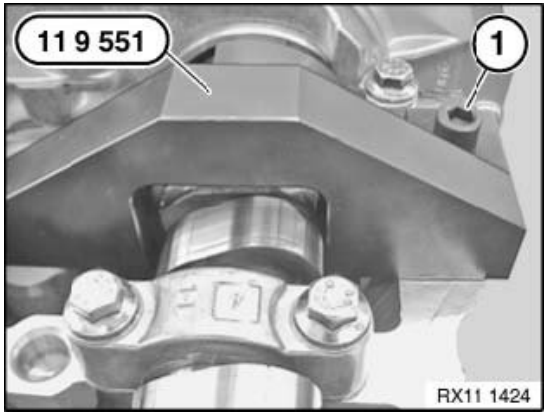
Position of inlet camshaft (1) points at an angle to the right in an upper inward direction.



Position of exhaust camshaft (1) points at an angle to the right in an upper inward direction.

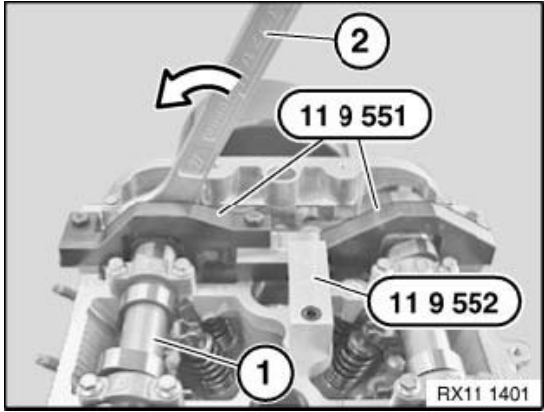


Position special tool 11 9 551 (exhaust) on twin surface of exhaust camshaft and secure with a screw (1).



Mount special tool 11 9 522 on cylinder head.

Position special tool 11 9 551 (inlet) on twin surface of inlet camshaft and secure with two screws.



If necessary, adjust valve timing.

# Camshaft: Adjustments

## 11 31 505 Adjusting camshaft timing (N14)

Special tools required:

- ^ 00 9 120
- ^ 00 9 250
- ^ 11 9 340
- ^ 11 9 551
- ^ 11 9 590

**Important:**

**Modified procedure for timing adjustment.**

**The timing is not determined at firing TDC of cylinder no. 1.**

**All pistons are in the 90 ° position.**

**Check locking of adjustment units.**

**To open the central bolt at the camshaft, grip hexagon on rear of camshaft.**

**Risk of damage!**

Necessary preliminary tasks:

- ^ Remove cylinder head cover.

**Important:**

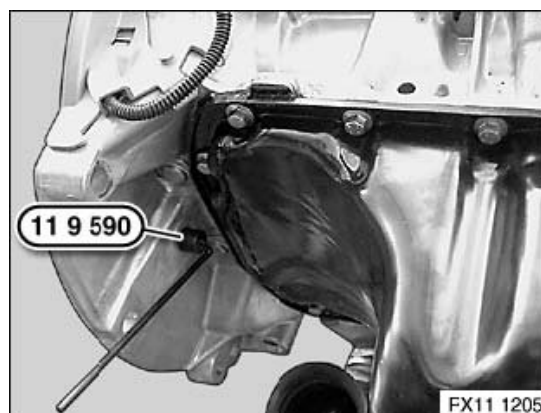
**Danger of mixing up special tool bore.**

**Balance hole and special tool bore can be mixed up; all pistons must be in the 90 ° position.**

**If necessary, determine by means of spark plug bore.**

Rotate crankshaft at central bolt.

Slide in special tool 11 9 590 in direction of arrow and block crankshaft.

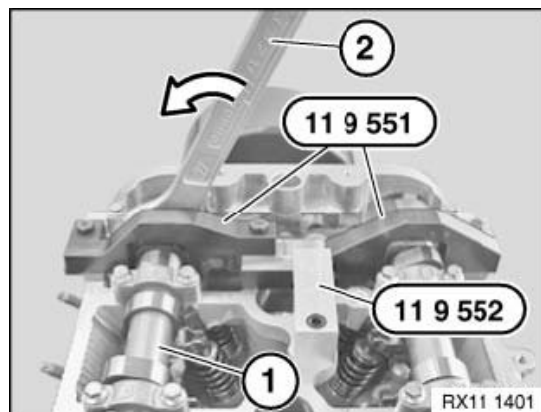


**Important:**

**Risk of damage! to chain drive.**

**To open central bolt, mount special tool 11 9 551 on camshaft.**

**If the setting gauges cannot be positioned, grip the camshaft with an open-end wrench to release the central bolt.**



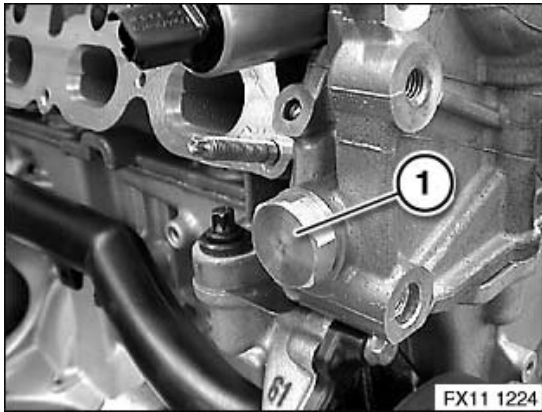
Release chain tensioner (have a cleaning cloth ready).

Tighten Chain tensioner to cylinder head

4AZ Chain tensioner to cylinder head

M22x1.5 ..... 65 Nm

**Note:** Replace sealing ring.



To open central bolts (3), mount special tool 11 9 551 on camshafts.  
Release central bolts (3).

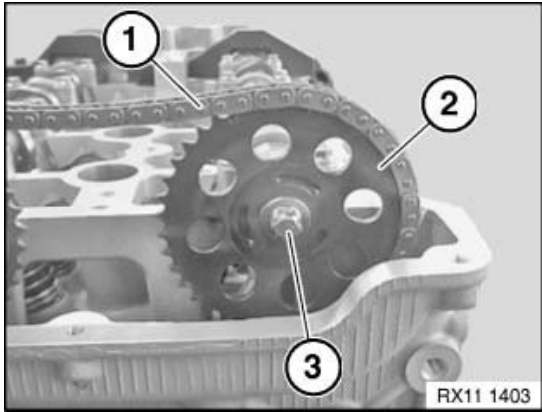
Tighten Sprocket wheel to exhaust camshafts  
2AZ Sprocket wheel to exhaust camshafts

M10x30

Joining torque ..... 20 Nm

Torque angle ..... 90°

**Note:** Replace Screw



To open central bolts (3), mount special tool 11 9 551 on camshafts.  
Release central bolts (3).

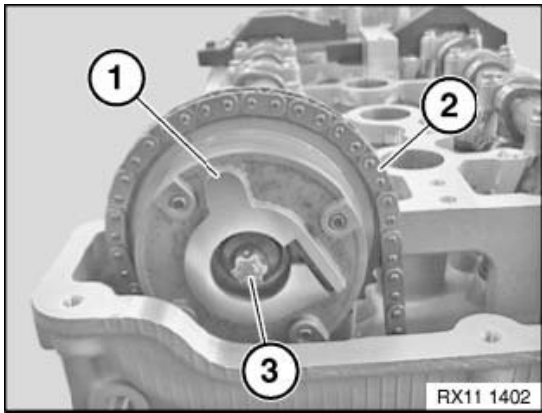
Tighten VANOS to inlet camshafts  
1AZ VANOS to inlet camshafts

M10x52

Joining torque ..... 20 Nm

Torque angle ..... 180°

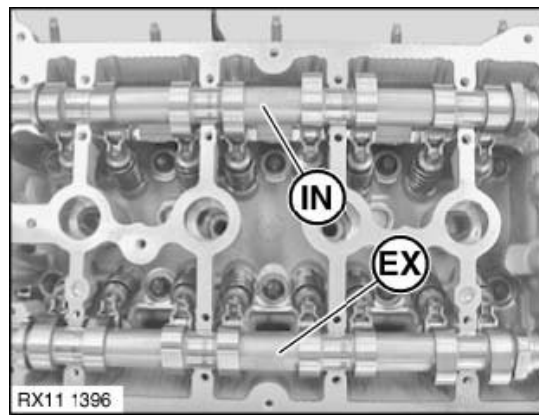
**Note:** Replace Screw



The designations for the inlet camshaft (IN) and exhaust camshaft (EX) point upwards.  
Both camshafts (inlet and exhaust) have three machined surfaces to enable special tool 11 9 551 to be mounted.  
The fourth surface is not machined and is crescent-shaped - it must point downwards.

**Note:**

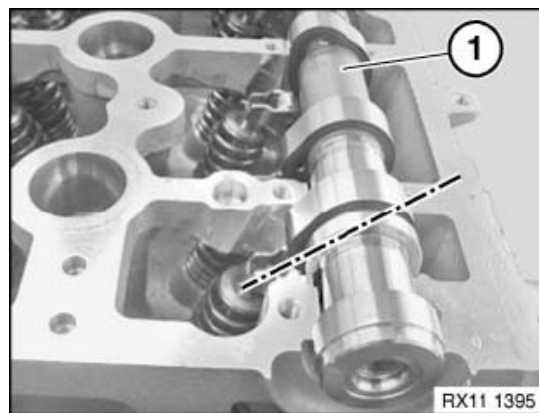
Picture shows



Position of exhaust camshaft (1) points at an angle to the right in a lower inward direction.

**Note:**

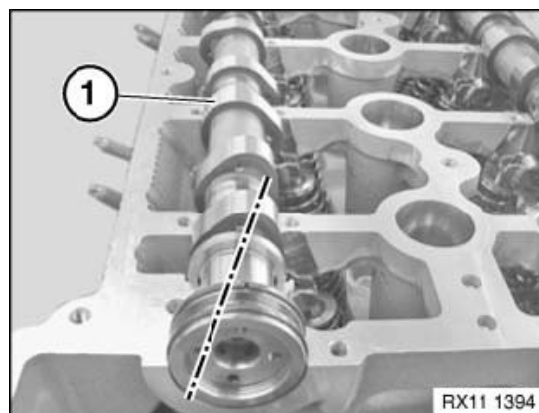
Picture shows sprocket wheel removed.



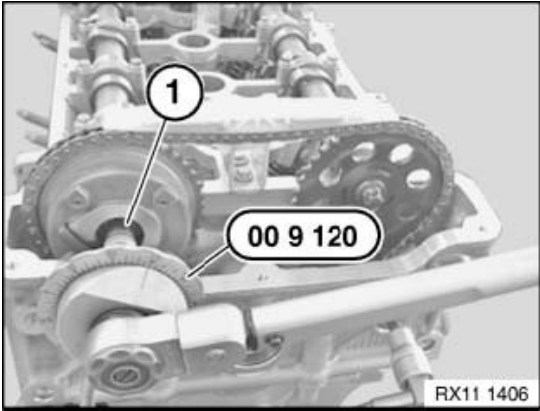
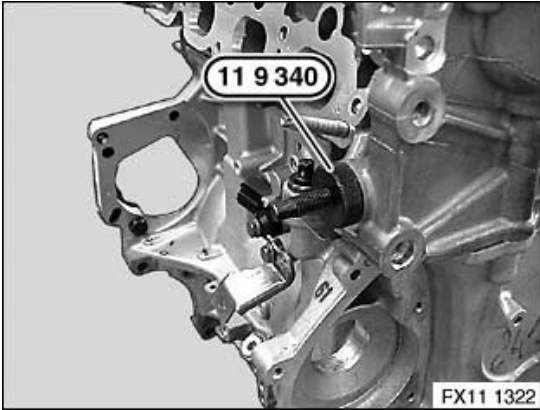
Position of inlet camshaft (1) points at an angle to the left in an upper inward direction.

**Note:**

Picture shows VANOS adjustment unit removed.



Screw special tool 11 9 340 into cylinder head.  
Pretension timing chain with special tool 00 9 250 to 0.6 Nm.



Secure central bolt (1) with special tool 00 9 120 or an electronic torque wrench.

Tighten VANOS to inlet camshafts

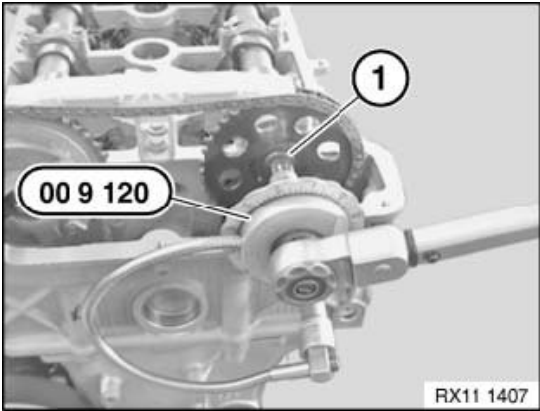
1AZ VANOS to inlet camshafts

M10x52

Joining torque ..... 20 Nm

Torque angle ..... 180°

**Note:** Replace Screw



## Camshaft: Service and Repair

### 11 31 025 Removing and Installing/Replacing Inlet Camshaft

#### 11 31 025 Removing and installing/replacing inlet camshaft (N14)

Special tools required:

- ^ 11 4 480
- ^ 11 9 000
- ^ 11 9 551
- ^ 11 9 552
- ^ 11 9 661
- ^ 11 9 662

#### Important:

**It is absolutely essential to follow an exact procedure for removing and installing the inlet camshaft.**

**In order to avoid incorrect timing adjustment, it is essential to check the locking of the adjustment unit and if necessary perform locking by rotating the camshaft.**

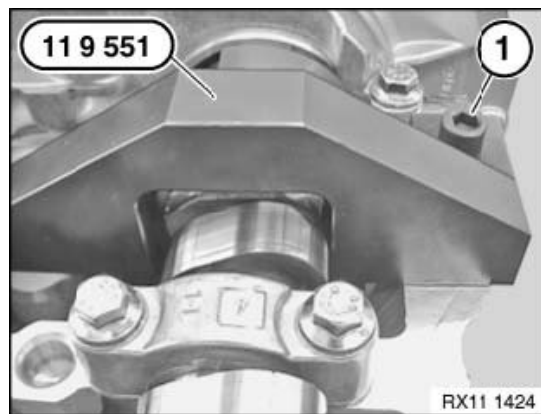
Necessary preliminary tasks:

- ^ Remove cylinder head cover.
- ^ Check timing.
- ^ Remove chain tensioner.

To release central bolts, always use special tool 11 9 551 of exhaust camshaft.

Position special tool 11 9 551 on twin surface of exhaust camshaft.

Secure special tool 11 9 551 with a screw (1).



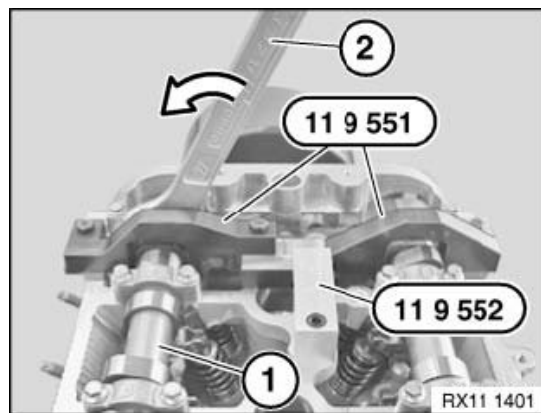
#### Important:

**Check function of adjustment unit locking by rotating camshaft.**

Mount special tool 11 9 551 on inlet and exhaust camshafts.

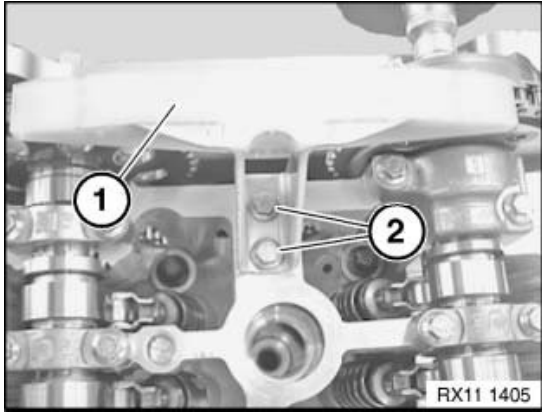
Screw in special tool 11 9 552 on cylinder head with a screw.

To release central bolts, always use special tool 11 9 551.



Release screws (2).

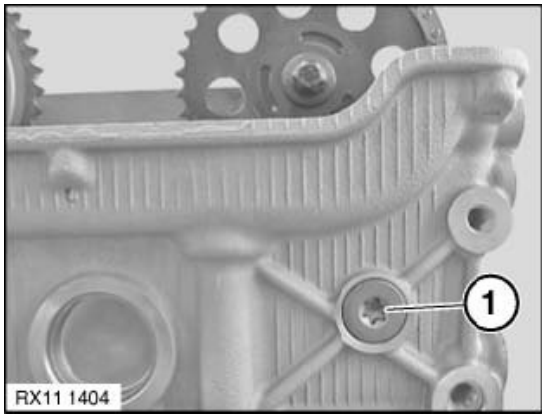
Remove clamping rail (1).



Release screw (1).

Tighten screw plug, timing case upper section  
3AZ Screw plug, timing case upper section

M22x1.5 ..... 35 Nm



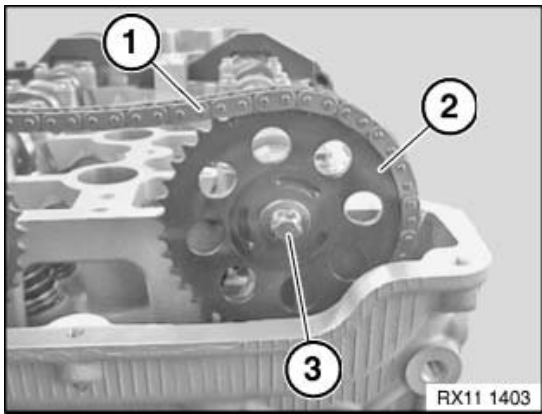
Release central bolt (3).

Tighten Bedplate, observe tightening specification  
2AZ Bedplate, observe tightening specification.

M6  
Jointing torque ..... 9 Nm

**Note:** Replace screws

Feed out sprocket wheel (2) from timing chain (1) towards front.



Release central bolt (3).

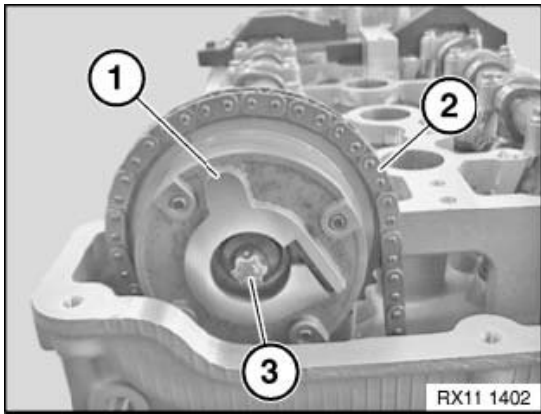
Tighten main bearing screws, observe tightening specification.  
1AZ Main bearing screws, observe tightening specification.

M9x115  
Jointing torque ..... 30 Nm  
Torque angle ..... 150 °

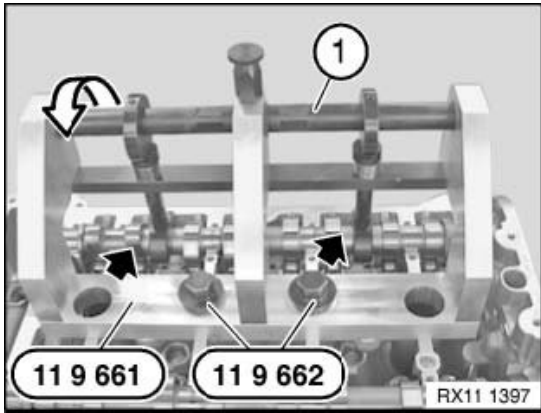
**Note:** Replace screws

Set down VANOS adjustment unit on special tool 11 4 480.





**Important:**  
**Removed cylinder head:**  
When using special tool 11 9 000, it will be necessary to remove the aluminum profile insert.



Screw special tool 11 9 661 with special tools 11 9 662 into spark plug holes.  
Turn eccentric shaft (1) in direction of ring and lock.

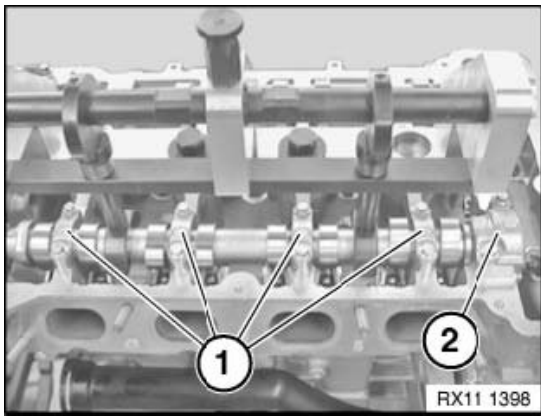
Release all screws on bearing caps (1).

Tighten Inlet camshaft bearing cap to cylinder head  
6AZ Inlet Camshaft bearing cap to cylinder head

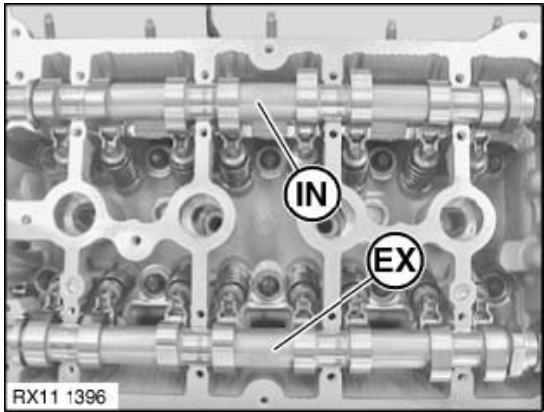
M6 ..... 10 Nm

**Note:** Replace seal

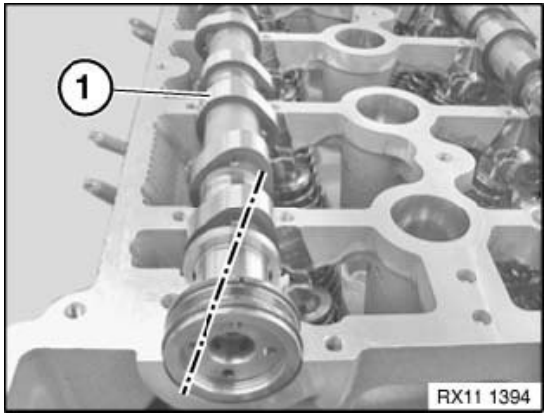
Bearing cap (2) is a thrust bearing and has the number (5).  
All bearing caps (1) are identified with numbers from (6 to 9).



Inlet camshaft is identified with designation (IN).  
Insert inlet camshaft so that designation (IN) can be read from above.



Position inlet camshaft (1) so that cam of inlet camshaft (1) points upward at an angle.  
Installation:  
Lubricate all bearing points with engine oil.



Assemble engine.  
Installation:  
Adjust valve timing.

## Camshaft: Service and Repair

### 11 31 028 Removing and Installing/Replacing Exhaust Camshaft

#### 11 31 028 Removing and installing/replacing exhaust camshaft (N14)

Special tools required:

- ^ 11 9 000
- ^ 11 9 551
- ^ 11 9 552
- ^ 11 9 661
- ^ 11 9 662

#### Important:

**It is absolutely essential to follow an exact procedure for removing and installing the exhaust camshaft.**

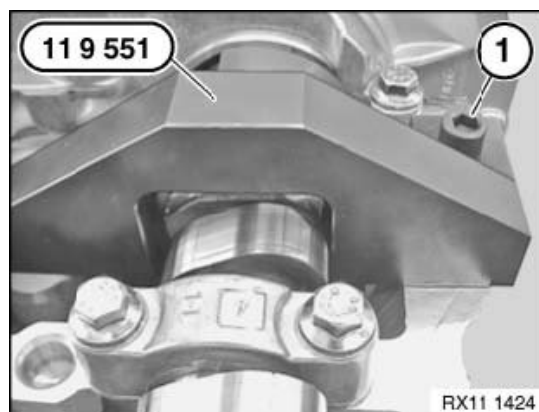
Necessary preliminary tasks:

- ^ Remove cylinder head cover.
- ^ Check timing.
- ^ Remove chain tensioner.

To release central bolts, always use special tool 11 9 551 of exhaust camshaft.

Position special tool 11 9 551 on twin surface of exhaust camshaft.

Secure special tool 11 9 551 with a screw (1).



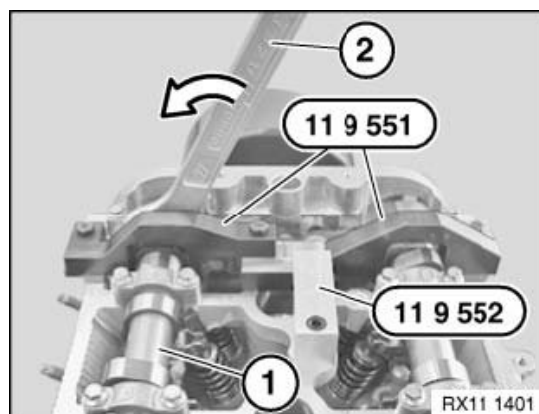
#### Important:

**Check function of adjustment unit locking by rotating camshaft.**

Mount special tool 11 9 551 on inlet and exhaust camshafts.

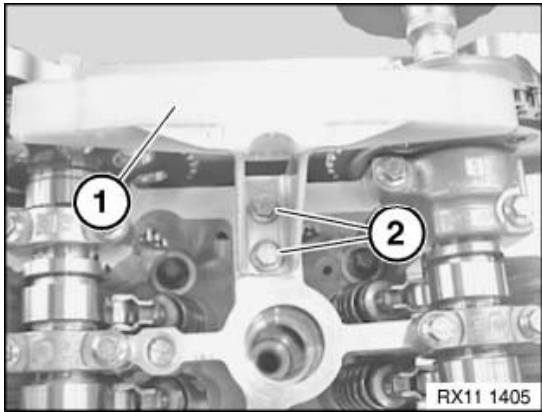
Screw in special tool 11 9 552 on cylinder head with a screw.

To release central bolts, always use special tool 11 9 551.



Release screws (2).

Remove clamping rail (1).

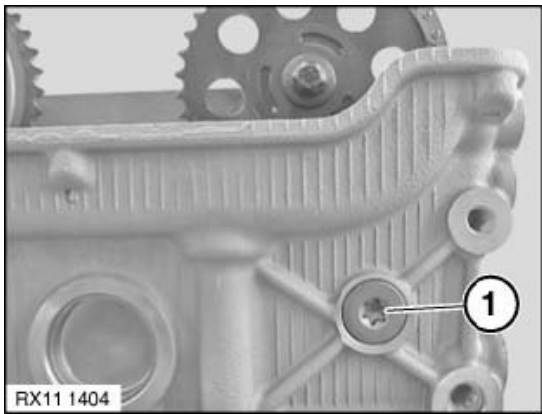


Release screw (1).

Tighten cylinder head bolts  
3AZ Cylinder head bolts

M8x35 ..... 30 Nm

**Note:** Replace screws



Release central bolt (3).

Tighten cylinder head bolts  
2AZ Cylinder head bolts

M10x145

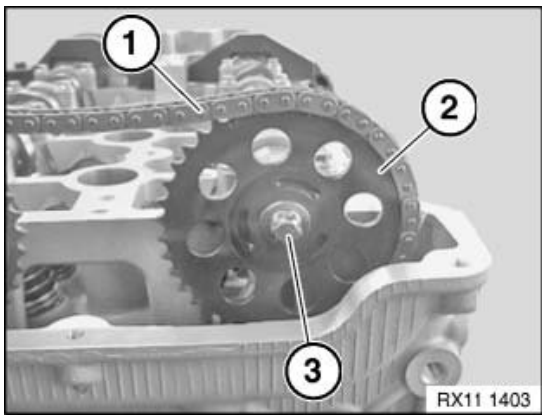
Jointing torque 30 Nm

1st angle of rotation ..... 90 °

2. Angle of rotation ..... 90 °

**Note:** Replace screws

Feed out sprocket wheel (2) from timing chain (1) towards front.



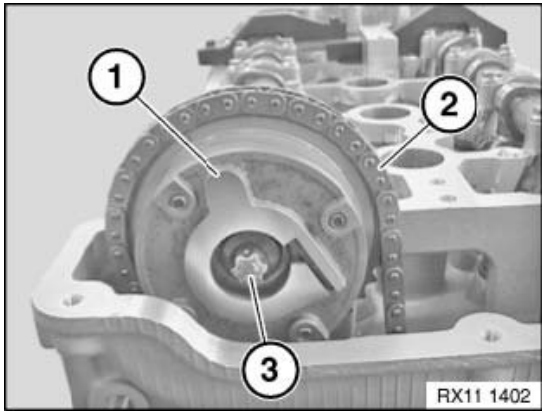
**Note:**

Do not remove VANOS adjustment unit.

Release central bolt (3).

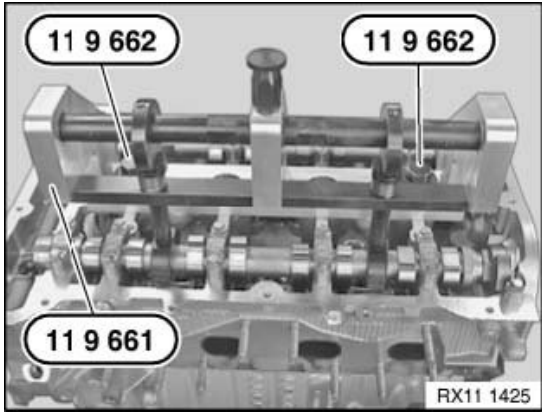
Tighten cylinder head bolts  
1AZ Cylinder head bolts

Mini Cooper S (R56) L4-1.6L Turbo (N14)	46
M8x95	
Jointing torque 15 Nm	
1st angle of rotation .....	90 °
2. Angle of rotation .....	90 °
<b>Note:</b> Replace screws	



**Important:**  
**Removed cylinder head:**  
 When using special tool 11 9 000, it will be necessary to remove the aluminum profile insert.

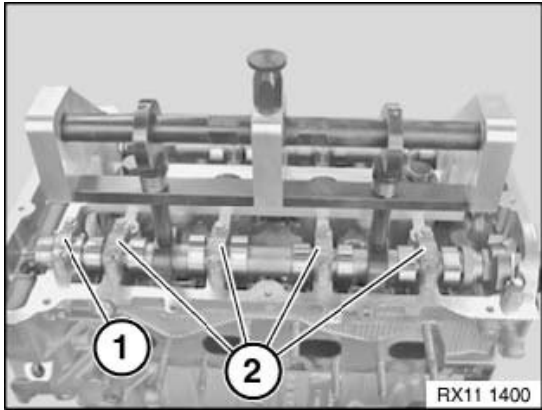
Screw special tool 11 9 661 with special tools 11 9 662 into spark plug holes.



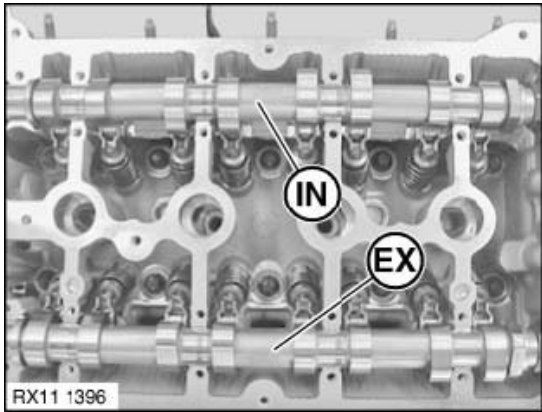
Release all screws on bearing caps (1 and 2).

Tighten exhaust camshaft bearing cap to cylinder head	
7AZ Exhaust camshaft bearing cap to cylinder head	
M6 .....	10 Nm

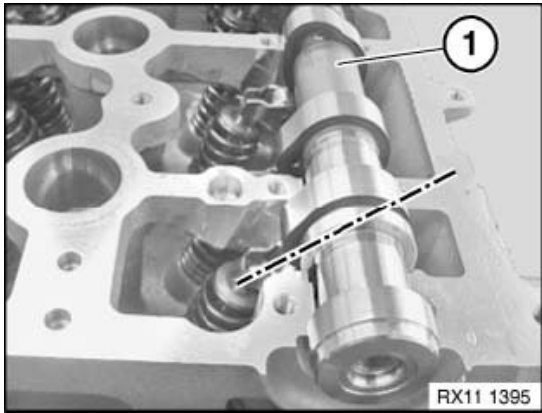
Bearing cap (1) is a thrust bearing and has the number (0).  
 All bearing caps (2) are identified with numbers from (1 to 4).



Exhaust camshaft is identified with designation (EX).  
 Insert exhaust camshaft so that designation (EX) can be read from above.



Position exhaust camshaft (1) so that cam of exhaust camshaft (1) points inward at an angle.  
Installation:  
Lubricate all bearing points with engine oil.



Assemble engine.  
Installation:  
Adjust valve timing.

# Rocker Arm Assembly: Service and Repair

## 11 33 050 Removing and installing/replacing all cam followers (N14)

### Special tools required:

^ 11 4 480

### Important:

Rocker arms (1) are divided into bearing categories.

The tolerance classes are identified in numbers from 1 to 6.

Already used roller cam followers (1) may only be reused in the same position.

A classification is not necessary in the N14 engine; in the event of replacement, all numbers from 1 to 6 can alternatively be installed.

### Necessary preliminary tasks:

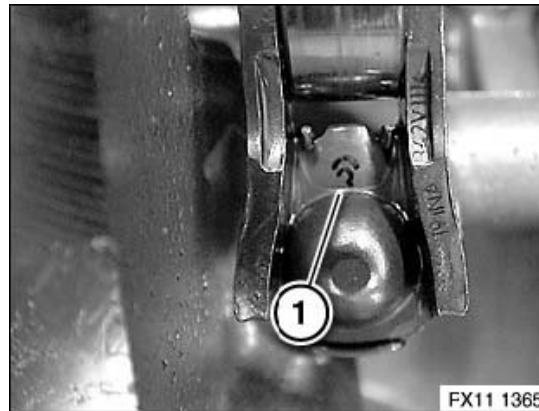
^ Remove cylinder head cover.

^ Remove inlet camshaft.

^ Remove exhaust camshaft.

### Important:

Already used roller cam followers (1) may only be reused in the same position.



### Important:

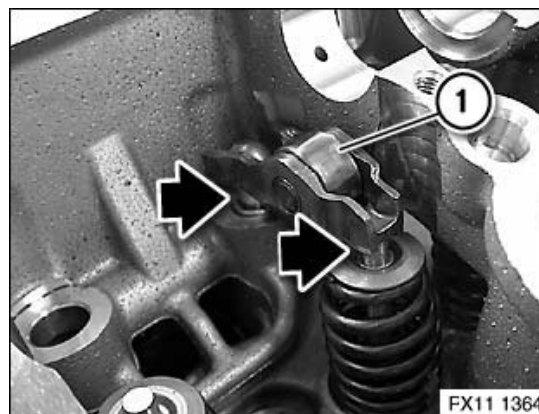
Already used roller cam followers (1) may only be reused in the same position.

Detach roller cam followers (1) from HVCA element and remove.

Place roller cam followers (1) in neat order in special tool 11 4 480.

### Installation:

Before installing camshafts, make sure roller cam followers are correctly seated (see arrow).



Assemble engine.

# Crankshaft Main Bearing: Service and Repair

## 11 21 531 Replacing all crankshaft main bearings (N 14)

Special tools required:

^ 11 4 470

### Important:

**Modified assignment of bearings.**

**Bearing (1) is at the output end (clutch end)**

**Determine main bearing colours; the designations on the crankcase and crankshaft are always required and can only be determined using the table.**

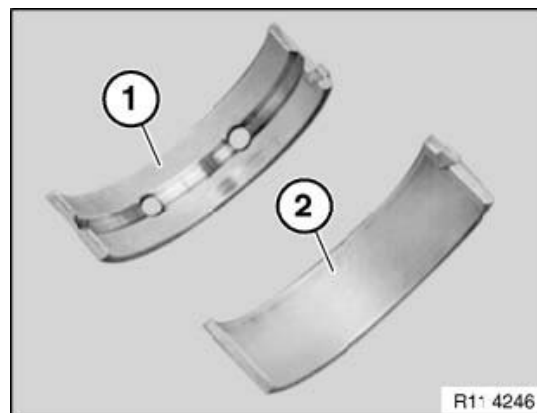
Necessary preliminary tasks:

^ Remove crankshaft.

Installation:

Bearing shell (1) with lubricant groove must be fitted in crankcase upper section.

Bearing shell (2) without lubricant groove must be fitted in crankcase lower section (bed plate).



### Important:

**Modified assignment of bearings.**

**Bearing (1) is at the output end (clutch end)**

Bearings (1 to 5).

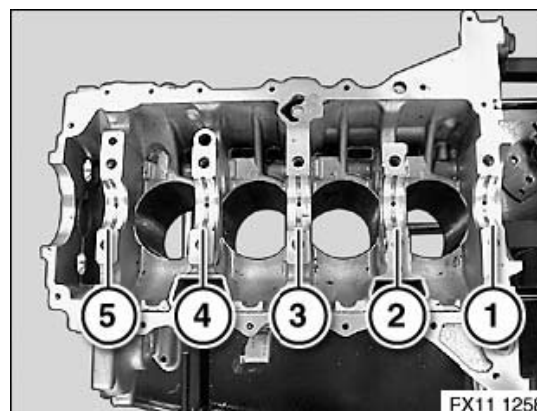
Bearing (2) is a guide bearing.

### Important:

**Clean sealing surfaces.**

**Do not clean sealing faces with a metal cutting tool.**

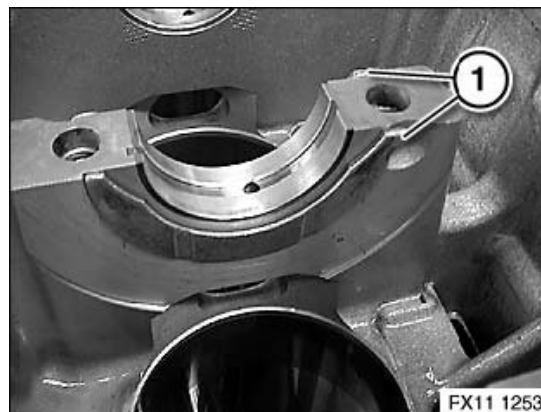
Clean sealing faces with special tool 11 4 470 only.



Insert guide rings (1) in crankcase at bearing block (2) with groove facing outwards.

If necessary, attach with engine oil to crankcase.



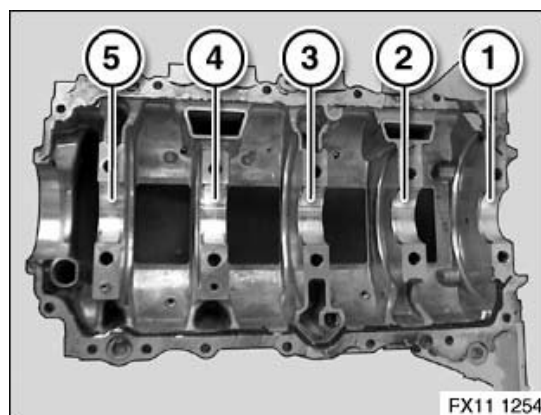


**Important:**  
**Modified assignment of bearings.**  
**Bearing (1) is at the output end (clutch end)**

Bearings (1 to 5).

**Important:**  
**Clean sealing surfaces.**  
**Do not clean sealing faces with a metal-cutting tool.**

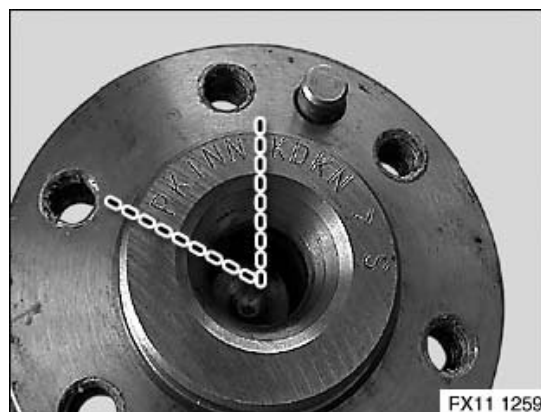
Clean sealing faces with special tool 114 470 only.



Bearing classification on crankcase upper half:  
 Bearing allocation 1-5: the designations on the crankcase and crankshaft are always required.  
 Refer to the table for the color code.

Example:

Bearing 1. Letter P  
 Bearing 2. Letter K  
 Bearing 3. Letter I  
 Bearing 4. Letter N  
 Bearing 5. Letter N



Bearing classification on crankcase upper half:  
 Bearing allocation 1-5: the designations on the crankcase and crankshaft are always required.  
 Refer to the table for the color code.

Example:

**Mini Cooper S (R56) L4-1.6L Turbo (N14)**

Bearing 1. Letter T  
Bearing 2. Letter Q  
Bearing 3. Letter Q  
Bearing 4. Letter R  
Bearing 5. Letter R



Table overview of bearing classification: upper half																		
Identifying letter of crankshaft																		
Bearings 1-5		A	B	C	D	E	G	H	I	K	M	N	P	Q	R	S	T	U
Crankcase	A	Gr	Gr	Gr	Gr	Gr	Sw	Sw	Sw	Sw	Sw	Sw	Sw	Sw	Bl	Bl	Bl	Bl
	B	Gr	Gr	Gr	Gr	Gr	Gr	Sw	Sw	Sw	Sw	Sw	Sw	Sw	Sw	Bl	Bl	Bl
	C	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Sw	Sw	Sw	Sw	Sw	Sw	Sw	Sw	Bl	Bl
	D	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Sw	Sw	Sw	Sw	Sw	Sw	Sw	Sw	Bl
	E	Ge	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Sw	Sw	Sw	Sw	Sw	Sw	Sw	Sw
	G	Ge	Ge	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Sw	Sw	Sw	Sw	Sw	Sw	Sw
	H	Ge	Ge	Ge	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Sw	Sw	Sw	Sw	Sw	Sw
	I	Ge	Ge	Ge	Ge	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Sw	Sw	Sw	Sw	Sw
	K	Ge	Ge	Ge	Ge	Ge	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Sw	Sw	Sw	Sw
	M	Ge	Ge	Ge	Ge	Ge	Ge	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Sw	Sw	Sw
	N	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Sw	Sw
	P	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Sw
	Q	Or	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Gr
	R	Or	Or	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Gr	Gr	Gr	Gr	Gr	Gr
	S	Or	Or	Or	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Gr	Gr	Gr	Gr	Gr
	T	Or	Or	Or	Or	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Gr	Gr	Gr	Gr
	U	Or	Or	Or	Or	Or	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Gr	Gr	Gr	Gr
	X	Or	Or	Or	Or	Or	Or	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Gr	Gr	Gr
	Y	Or	Or	Or	Or	Or	Or	Or	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Gr	Gr
	Z	Or	Or	Or	Or	Or	Or	Or	Or	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Gr

Crankshaft bearing colours:

BL= Blue.  
 SW= Black.  
 Gr= Green.  
 Ge Yellow.  
 Or Orange.

Bearing classification on crankcase lower half:

Bearing allocation 1-5: the designations on the crankcase and crankshaft are always required.

Refer to the table for the color code.

Example:

Bearing 1. Letter P

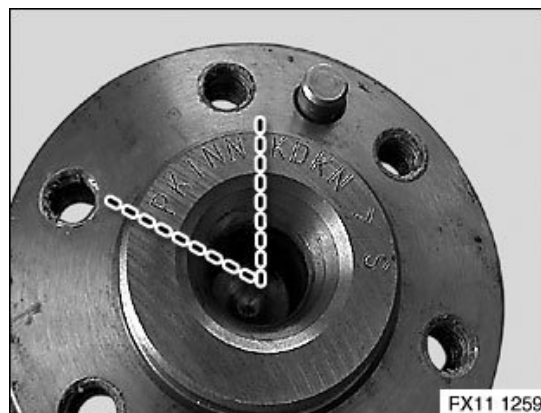
Bearing 2. Letter K

Mini Cooper S (R56) L4-1.6L Turbo (N14)

Bearing 3. Letter I

Bearing 4. Letter N

Bearing 5. Letter N



Bearing classification on crankcase lower half:

Bearing allocation 1-5: the designations on the crankcase and crankshaft are always required.

Refer to the table for the color code.

Example:

Bearing 1. Letter T

Bearing 2. Letter Q

Bearing 3. Letter Q

Bearing 4. Letter R

Bearing 5. Letter R



Table overview of bearing classification: lower half																
Bearings 1-5	Crankshaft															
	A	B	C	D	E	G	H	I	K	M	N	P	Q	R	S	T
Crankcase	A	Gr	Sw	Sw	Sw	Sw	Sw	Sw	Sw	Bl	Bl	Bl	Bl	Bl	Bl	Bl
	B	Gr	Gr	Sw	Sw	Sw	Sw	Sw	Sw	Bl	Bl	Bl	Bl	Bl	Bl	Bl
	C	Gr	Gr	Gr	Sw	Sw	Sw	Sw	Sw	Sw	Bl	Bl	Bl	Bl	Bl	Bl
	D	Gr	Gr	Gr	Sw	Sw	Sw	Sw	Sw	Sw	Sw	Bl	Bl	Bl	Bl	Bl
	E	Gr	Gr	Gr	Gr	Sw	Sw	Sw	Sw	Sw	Sw	Sw	Bl	Bl	Bl	Bl
	G	Gr	Gr	Gr	Gr	Gr	Sw	Sw	Sw	Sw	Sw	Sw	Sw	Bl	Bl	Bl
	H	Gr	Gr	Gr	Gr	Gr	Gr	Sw	Sw	Sw	Sw	Sw	Sw	Sw	Bl	Bl
	I	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Sw	Sw	Sw	Sw	Sw	Sw	Sw	Bl
	K	Ge	Gr	Gr	Gr	Gr	Gr	Gr	Sw	Sw	Sw	Sw	Sw	Sw	Sw	Sw
	M	Ge	Ge	Gr	Gr	Gr	Gr	Gr	Gr	Sw	Sw	Sw	Sw	Sw	Sw	Sw
	N	Ge	Ge	Ge	Gr	Gr	Gr	Gr	Gr	Sw	Sw	Sw	Sw	Sw	Sw	Sw
	P	Ge	Ge	Ge	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Sw	Sw	Sw	Sw	Sw
	Q	Ge	Ge	Ge	Ge	Gr	Gr	Gr	Gr	Gr	Gr	Sw	Sw	Sw	Sw	Sw
	R	Ge	Ge	Ge	Ge	Ge	Gr	Gr	Gr	Gr	Gr	Gr	Sw	Sw	Sw	Sw
	S	Ge	Ge	Ge	Ge	Ge	Ge	Gr	Gr	Gr	Gr	Gr	Gr	Sw	Sw	Sw
	T	Ge	Ge	Ge	Ge	Ge	Ge	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Sw	Sw
	U	Or	Ge	Ge	Ge	Ge	Ge	Ge	Gr	Gr	Gr	Gr	Gr	Gr	Gr	Gr
	X	Or	Or	Ge	Ge	Ge	Ge	Ge	Ge	Gr	Gr	Gr	Gr	Gr	Gr	Gr
	Y	Or	Or	Or	Ge	Ge	Ge	Ge	Ge	Ge	Gr	Gr	Gr	Gr	Gr	Gr
	Z	Or	Or	Or	Or	Ge	Ge	Ge	Ge	Ge	Ge	Ge	Gr	Gr	Gr	Gr

Crankshaft bearing colours:

BL= Blue.

SW= Black.

Gr= Green.

Ge Yellow.

Or Orange.

Example: Crankcase upper half:

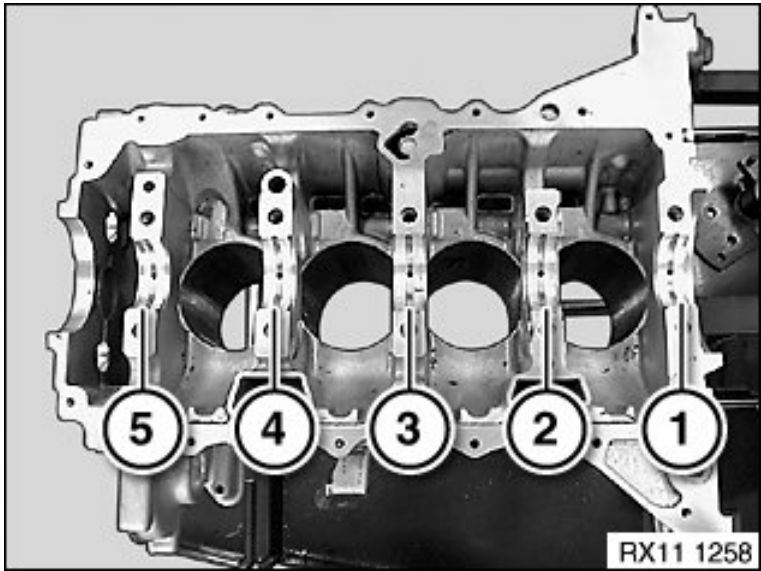
Combining the dots of the designations of the crankshaft and crankcase produces the following color combinations.

Bearing 1: The letters (P and T) produce in the crankcase upper half the color Ge= Yellow with lubricant groove.

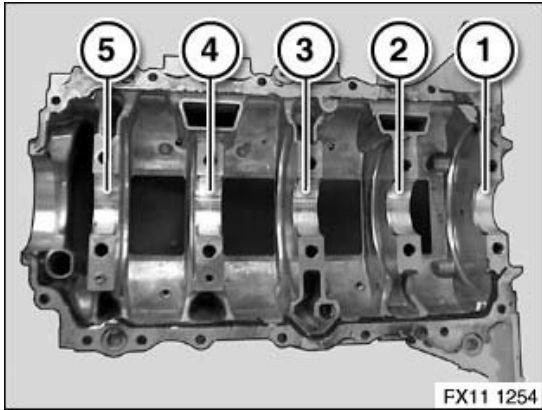
Bearing 2: K and Q= Ge= Yellow.

Bearing 3: I and Q= Ge= Yellow.

Bearing 4: N and R= Gr= Green.



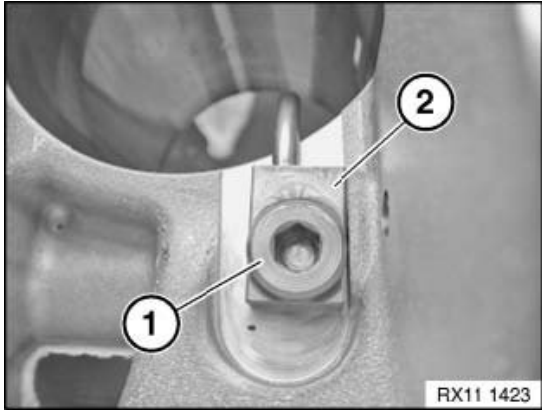
Example: Crankcase lower half:  
Combining the dots of the designations of the crankcase and crankshaft produces the following color combinations.  
Bearing 1: The letters P. and T. produce in the crankcase lower half the color Gr= Green without lubricant groove.  
Bearing 2: K and Q= Gr= Green.  
Bearing 3: I and Q= Gr= Green.  
Bearing 4: N and R= Gr= Green.  
Bearing 5: N and R= Gr= Green.



Check spray nozzle (2) for damage, replace if necessary.  
Release screw (1).

Tighten Oil spray nozzle to crankcase upper section  
8AZ Oil spray nozzle to crankcase upper section  
M10 ..... 20 Nm

Remove oil spray nozzle (2).  
Installation:  
Oil spray nozzle (2) is turned when screw (1) is tightened and then rests with its upper corner against crankcase.



Install crankcase lower section.  
Assemble engine.

# Crankshaft: Service and Repair

## 11 21 500 Replacing crankshaft (N14)

Special tools required:

- ^ 00 9 120
- ^ 11 4 471
- ^ 11 4 472
- ^ 11 6 251
- ^ 11 6 252
- ^ 23 1 240

### Warning:

**Rotating components (danger or injury!).**

**It is absolutely essential to follow the procedure described below and the instructions on handling the special tools.**

### Important:

**Jointing torque and angle of rotation must be observed without fail (risk of damage).**

Necessary preliminary tasks:

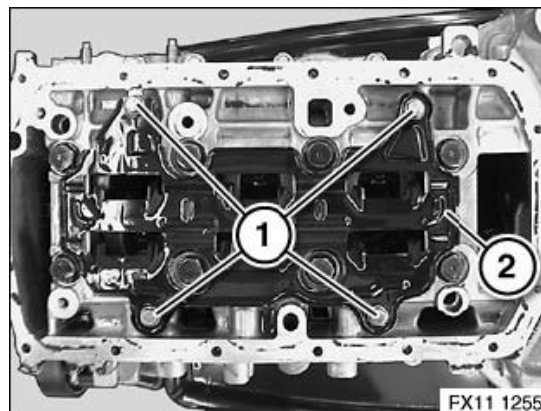
- ^ Remove engine.
- ^ Mount engine on assembly stand.
- ^ Remove vibration damper.
- ^ Removing oil pan.
- ^ Remove oil pump.
- ^ Remove timing chain.
- ^ Remove cylinder head.
- ^ Remove flywheel.

Release screws (1).

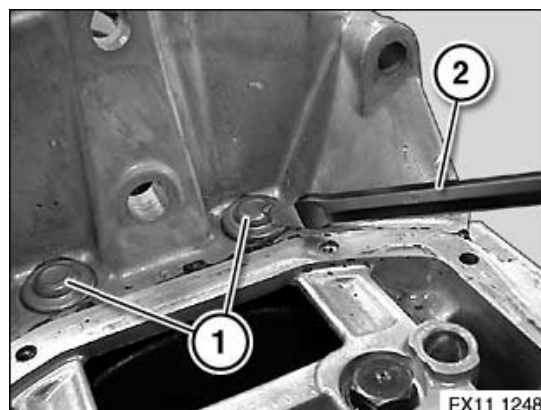
Tightening torque: 11 13 5AZ.

Remove oil deflector (2).

Remove all pistons.



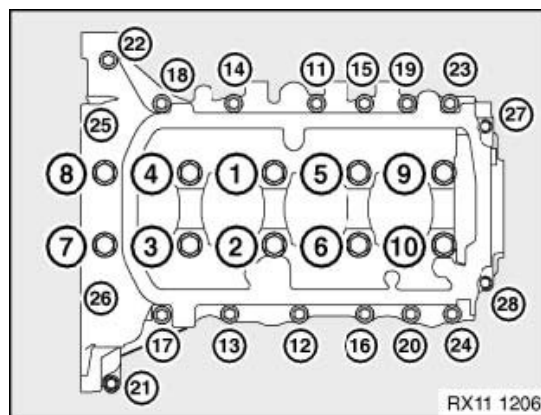
Drive out cover plates (1) with a cross-chisel (2).



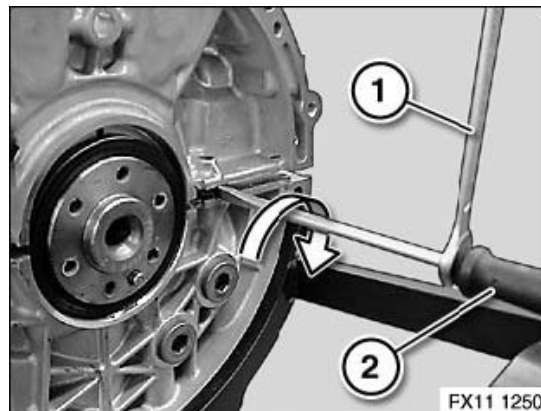
Release screws (28 to 11).

Release screws (10 to 1).

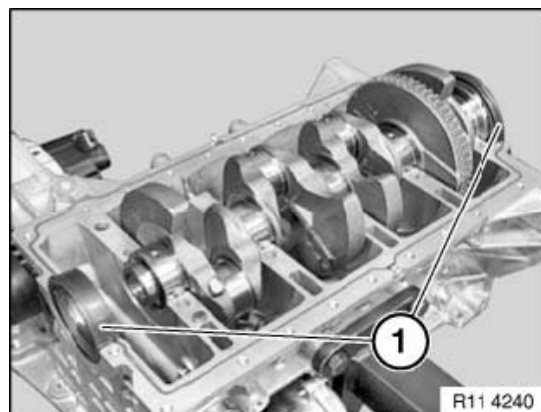




Release crankcase lower half in direction of arrow with a regular screwdriver (2) and an open-end wrench (1) at press-off lug.



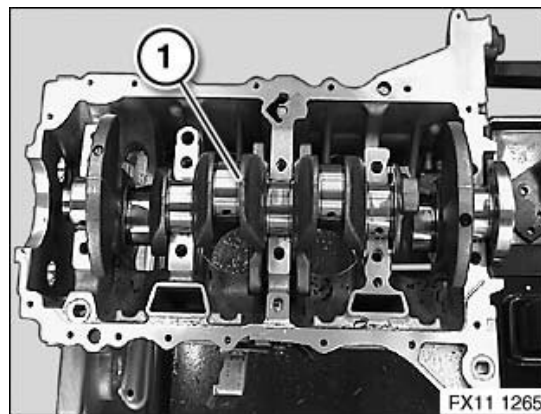
Remove both radial shaft seals (1).



Remove crankshaft (1).

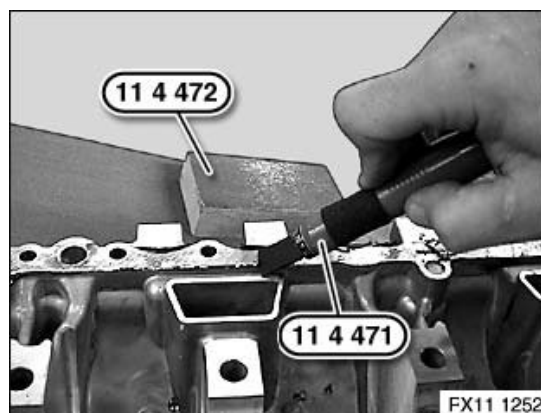
**Important:**  
**Remove crankshaft with aid of a second person.**  
**Weight of crankshaft approx. 19 kg.**

Remove main bearing shells, replace if necessary.

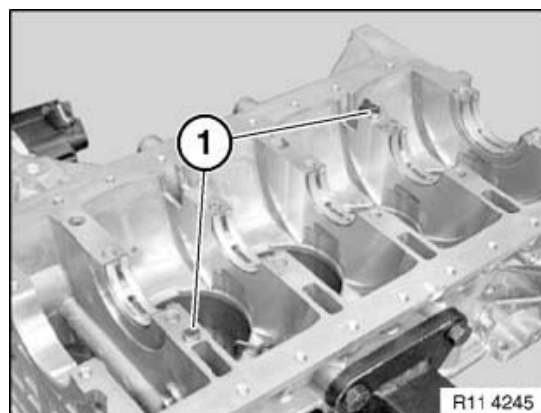


**Important:**  
Do not clean sealing faces with a metal-cutting tool.

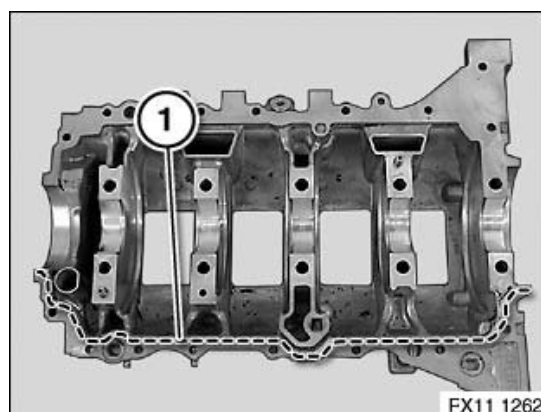
Clean sealing faces with special tools 11 4 471 and 11 4 472.



Check guide sleeves (1) for damage and correct seating.

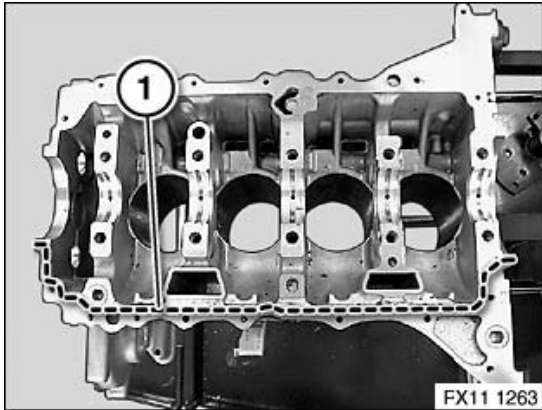


Apply sealing bead (1) to crankcase lower half (see picture) with Loctite 5970 sealing compound (see BMW Parts Service).  
Installation:  
Follow manufacturer's instructions (Loctite).



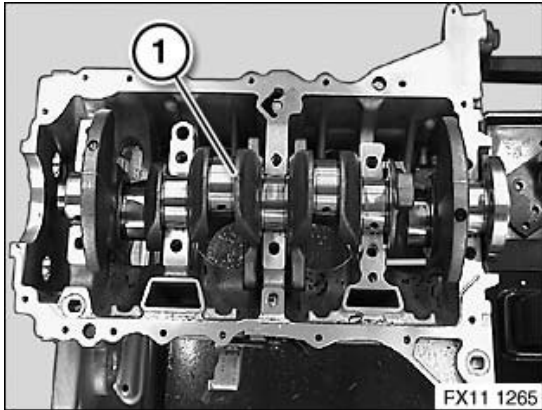
Apply sealing bead (1) to crankcase upper half (see picture) with Loctite 5970 sealing compound (see BMW Parts Service).

Mini Cooper S (R56) L4-1.6L Turbo (N14)  
Installation:  
Follow manufacturer's instructions (Loctite).

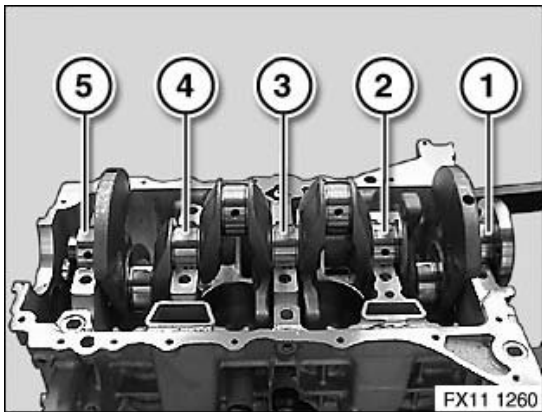


Insert crankshaft (1).

**Important:**  
**Rotating component (danger of injury!)**  
**Insert crankshaft with aid of a second person.**  
**Weight of crankshaft approx. 19 kg.**



Lubricate all bearings from 1 to 5 with engine oil.  
Install crankcase lower half.



Tighten bolts (1 to 10).

Tighten Main bearing screws, observe tightening specification  
1AZ Main bearing screws, observe tightening specification.

M9x115

Jointing torque ..... 30 Nm

Torque angle ..... 150 °

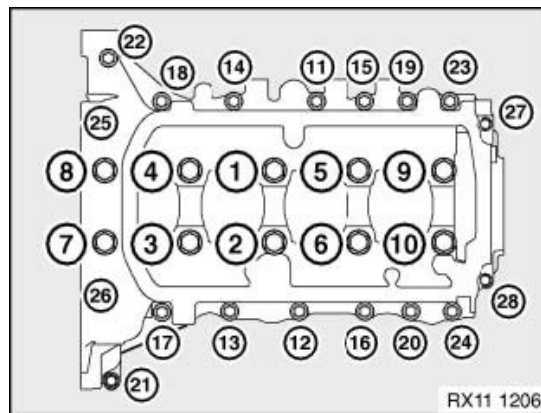
**Note:** Replace screws

Tighten bolts (11 to 28).

Tighten Bedplate, observe tightening specification  
2AZ Bedplate, observe tightening specification.

M6

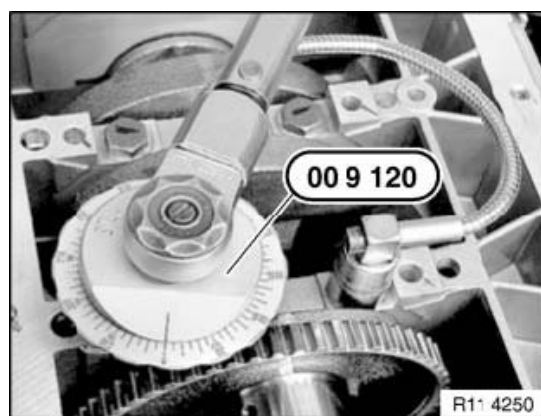
Jointing torque ..... 9 Nm

**Note:** Replace screws

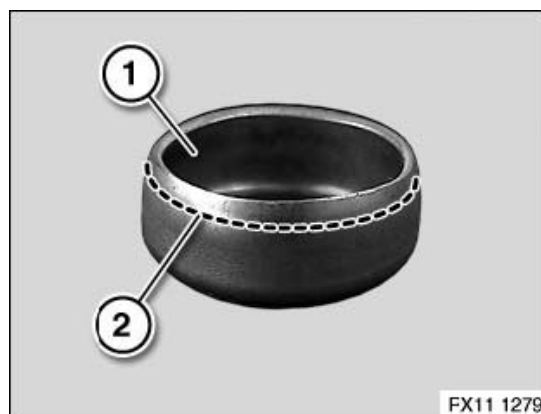
Tighten bolts exclusively with special tool 00 9 120.

**Important:**

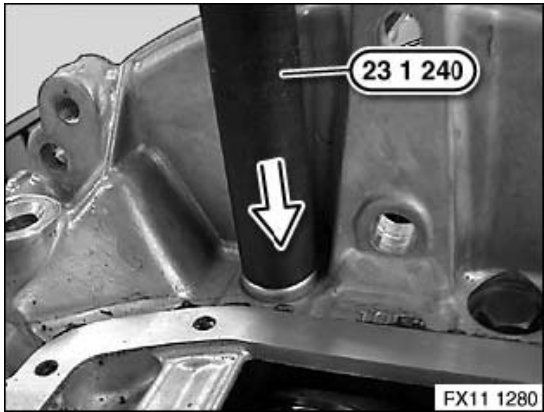
Jointing torque and angle of rotation must be observed without fail.



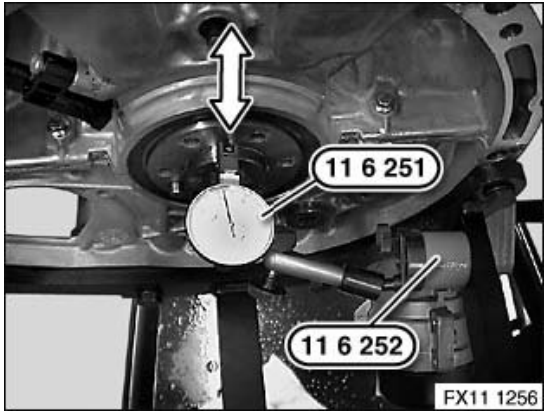
To prevent oil leakage, apply a thin coating of Loctite 273 to cover sleeve (1) in area (2).



Drive cover sleeves firmly home with special tool 23 1240.



Determine crankshaft axial clearance.  
Attach special tool 11 6 252 with magnet.  
Set special tool 11 6 251 to zero.  
Press crankshaft in direction of rotation up to stop.  
Refer to Technical Data.



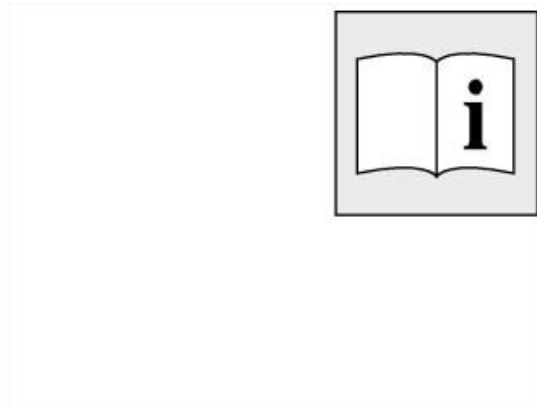
Replace radial shaft seal at front.  
Replace radial shaft seal at rear.  
Assemble engine.

# Harmonic Balancer - Crankshaft Pulley: Service and Repair

## 11 23 010 Removing and installing or replacing vibration damper (N14)

Necessary preliminary tasks:

- ^ Remove right wheel arch line.
- ^ Remove drive belt.



Release screws (1).

Tighten torsion damper to crankshaft hub.

1AZ Torsion damper to crankshaft hub

M8x16 ..... 28 Nm

Remove vibration damper.

Assemble engine.

# Piston: Service and Repair

## 11 25 530 Removing and installing/replacing all pistons (N14)

Special tools required:

- ^ 00 9 120
- ^ 11 9 620
- ^ 11 9 670

**Warning:** Protective goggles must be worn when working on the gudgeon pin circlip.

### Important:

If pistons, connecting rods and bearing shells are reused, they must be reinstalled in the same places. connecting rods and connecting rod bearing caps are denoted with the same pairing letters; mixing them up will result in engine damage.  
Piston and gudgeon pins are paired and must not be fitted individually.

Necessary preliminary tasks:

- ^ Remove engine.
- ^ Mount engine on assembly stand.
- ^ Remove intake air manifold.
- ^ Remove cylinder head.
- ^ Remove engine oil sump.
- ^ Remove oil pump.

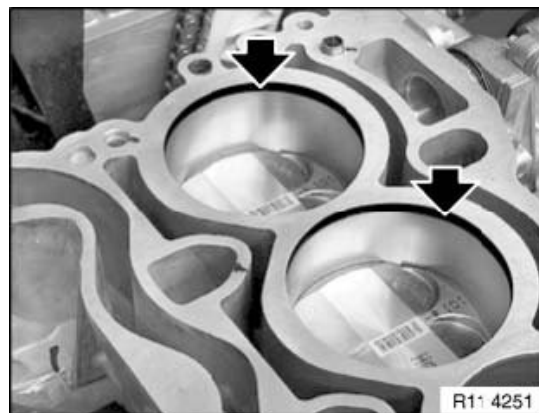
### Note:

In event of heavy oil carbon residue:

Carefully remove oil carbon residue from cylinder wall.

### Note:

Illustrations show N46.



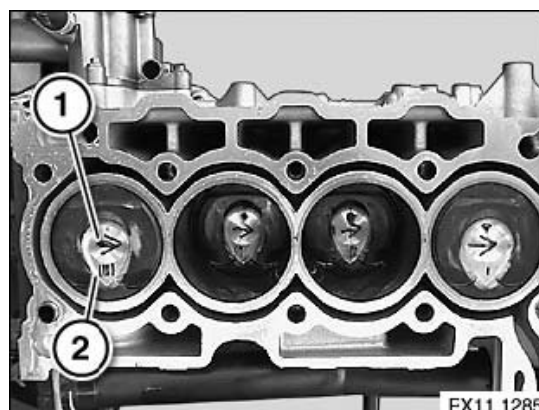
### Note:

Mark all pistons and conrods with a pen prior to removing.

Example:

Direction of arrow (1) points to camshaft drive.

Cylinder allocation (2) per cylinder.



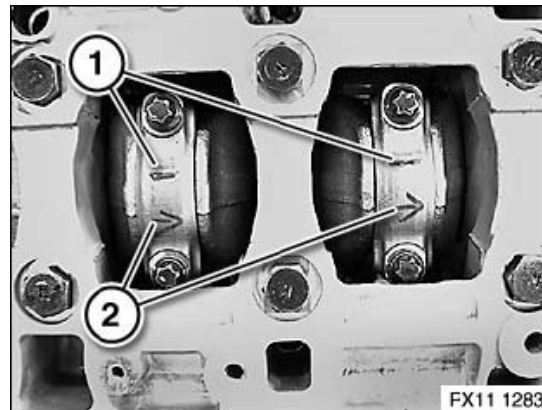
### Note:

Mark all pistons and conrods with a pen prior to removing.

Example:

Mark cylinder allocation (1) per cylinder.

Direction of arrow (2) points to camshaft drive.

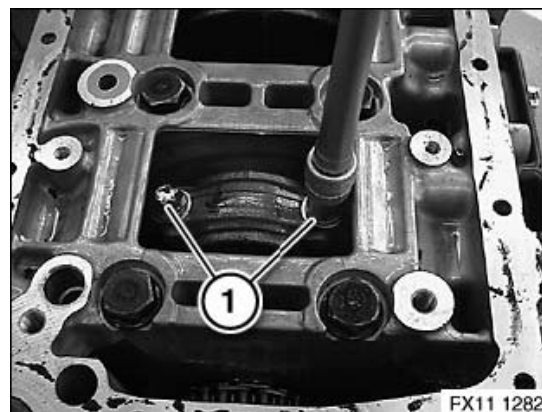


Release connecting rod bolts (1).

Tightening torque, 11 24 1AZ.

Remove conrod bearing cap.

**Important:**  
connecting rods and connecting rod bearing caps are denoted with the same pairing letters; mixing them up will result in engine damage.



**Important:**  
Risk of damage! to oil spray nozzle.  
Attach special tool 11 9 620 in conrod big end.  
Press out connecting rod and piston to cylinder head side.

**Warning:** Protective goggles must be worn for the next work step.

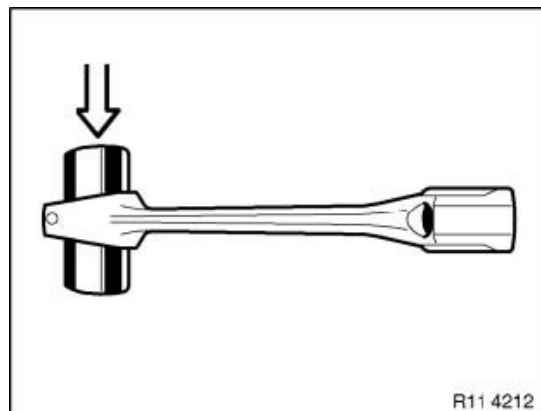


**Warning:** Protective goggles must be worn.

**Important:** Piston and gudgeon pins are paired and must not be fitted individually.



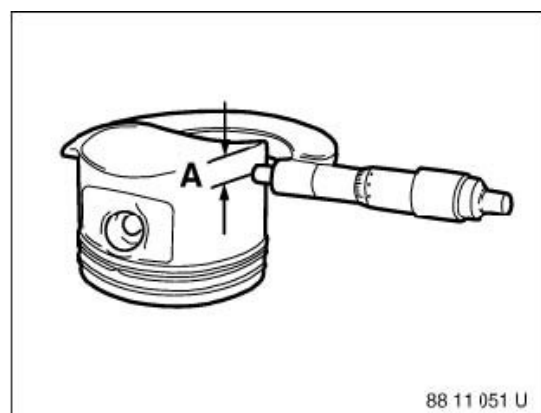
Lever out piston pin circlip with a screwdriver in direction of arrow.



If necessary, replace connecting rods.

Installation:

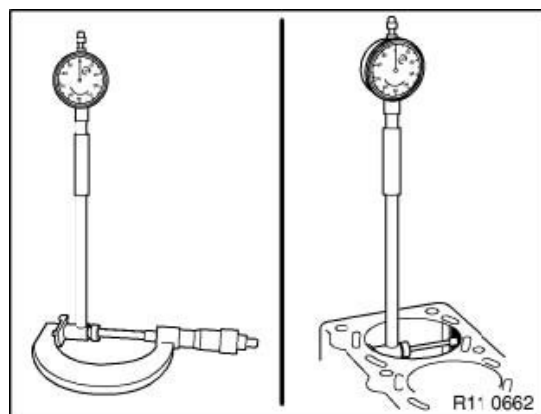
The gudgeon pin must be able to be pressed through the liner by hand with little force and must not display any significant play.



Measure piston installation clearance:

Measure piston diameter with micrometer at measuring point A from bottom edge of piston and offset at 90 ° to the axis of the gudgeon pin.

Piston diameter at measuring point A.



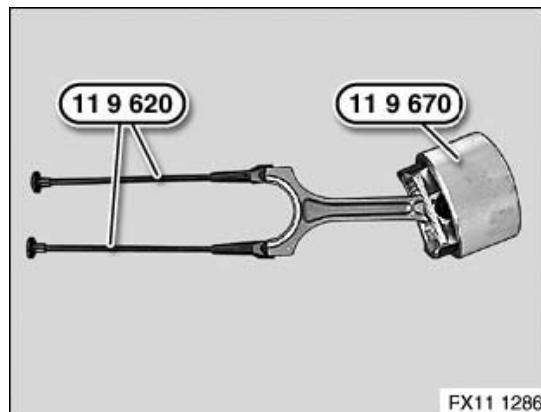
Adjust micrometer to cylinder bore of engine block. Set internal caliper on micrometer to zero. Measure bottom, center and top of cylinder bore in direction of travel and direction of engine rotation.

Diameter of cylinder bore.

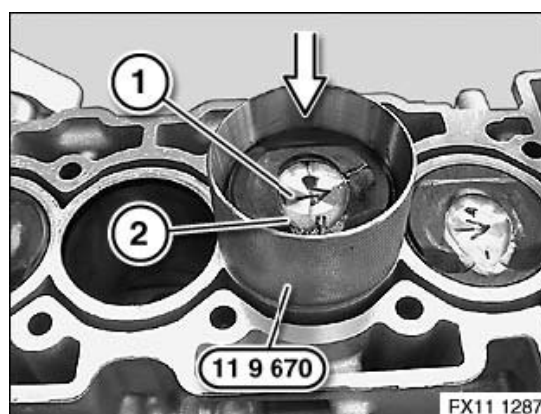
Piston installation clearance.

Total permissible wear tolerance.

If necessary, replace piston.



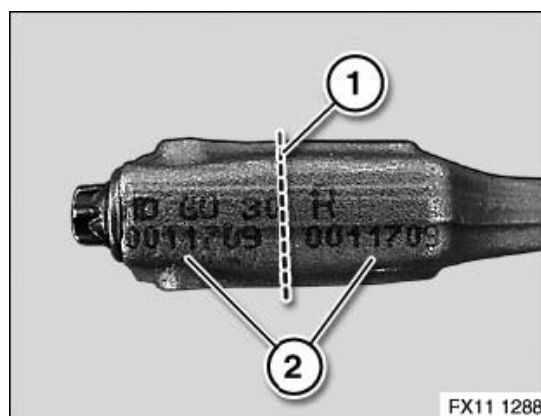
Install all piston rings.  
 Install all bearing shells.  
 Coat piston and piston rings with oil.  
 Pre-install piston in special tool 11 9 670.  
 Screw special tool 11 9 620 into conrod.  
 Installation:  
 Check protective lugs on special tool 11 9 620 for correct position and damage.



Insert piston with connecting rod in cylinder.

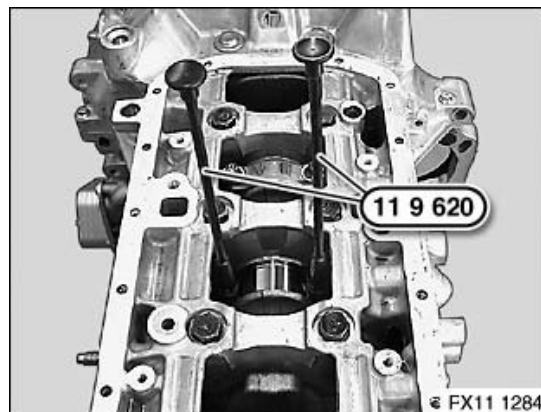
**Important:**  
**Danger of piston ring failure.**  
 Press in piston with finger pressure only, do not drive in (see arrows).

Insert piston (1) so that arrow on piston crown points to camshaft drive.  
 If reusing the pistons, assign cylinder allocation (2) to correct cylinder.  
 Press in piston with special tool 11 9 670.

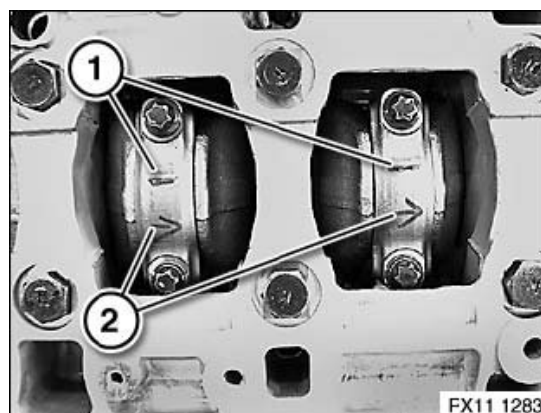


**Important:**  
**Point of fracture (1) on conrod.**  
 Conrod and conrod bearing cap are identified with pairing letters (2) and must not be mixed up.  
 Mixing them up or incorrectly fitting the conrod bearing cap on the big end will result in engine damage.

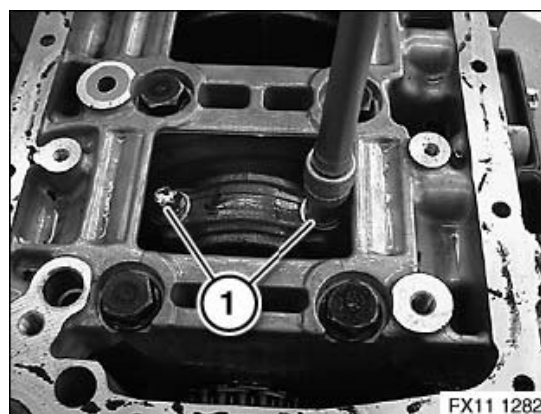
Both pairing letters (2) must be together on one side.



Apply a light coat of oil to crank pin.  
 Assemble connecting rod and crank pin.  
 Remove special tool 11 9 620.



Fit bearing caps (2) so that pairing letters match up.  
 Check cylinder identification markings (1).  
 Direction of arrow (2) points to camshaft drive.



Install new connecting rod bolts (1).  
 Carry out torsion angle tightening of conrods with special tool 00 9 120.

Tightening torque: 11 24 1AZ

Assemble engine.

# Piston Ring: Service and Repair

## 11 25 671 Replacing piston rings on all pistons (N14)

Special tools required:

^ 11 9 670

Necessary preliminary tasks:

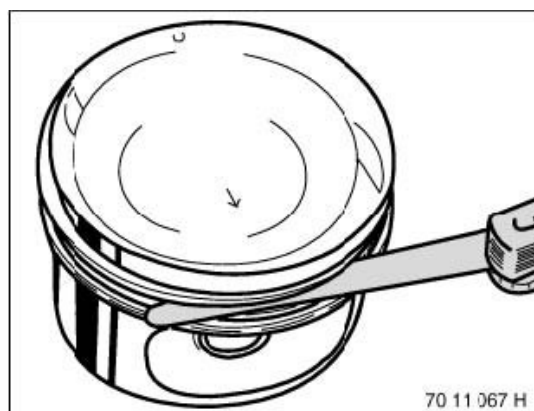
^ Remove all pistons.

Measuring axial clearance of piston rings in piston ring groove.

Technical Data.

### Note:

It is not possible to measure the axial clearance of the oil scraper rings.



Remove compression ring and stepped ring upwards with piston ring pliers.

Oil scraper ring comprises two steel band rings and a support spring.

### Note:

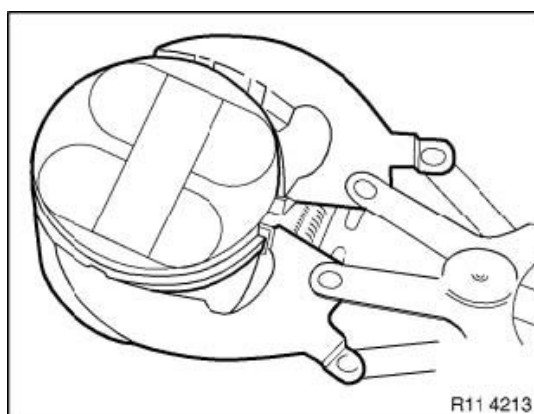
Oil scraper ring cannot be removed with piston ring pliers.

Put aside piston rings in correct sequence and installation position.

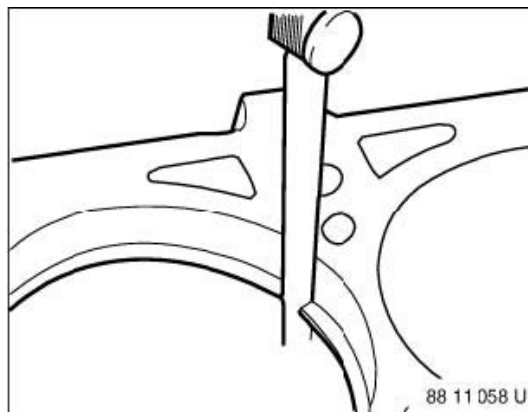
It might not be possible to find the identification on used piston rings.

Installation:

New pistons may only be installed together with new piston rings.

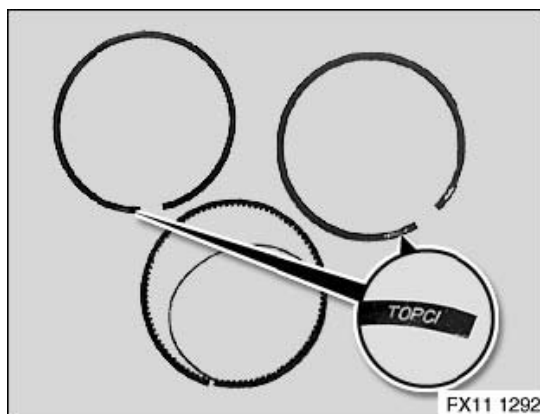


Determine gap with a feeler gauge.



Installation:

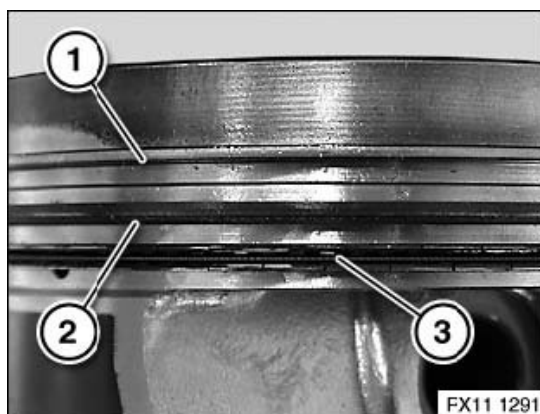
Piston rings with "TOP" identification must point to piston crown.



Installation:

Piston rings with "TOP" identification must point to piston crown.

1. Plain compression ring
2. Taperface ring
3. Two-part oil scraper ring

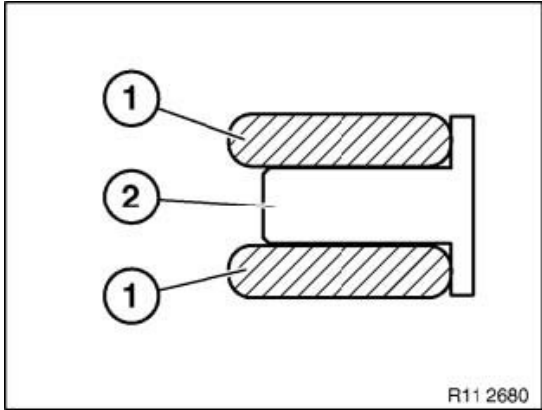


**Note:**

Oil control ring comprises two steel band rings (1) and a support spring (2).

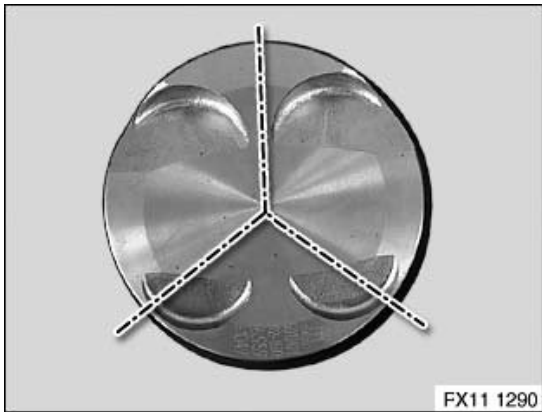
Installation:

Insert support spring (2) into piston ring groove and then fit steel band rings (1) so that contact points are offset by approx. 120 °.



Offset the contact points (1) of the piston rings by approx. 120° to each other but do not position above the piston pin boss.  
Coat special tool 11 9 670 with sufficient engine oil. Risk of damage to piston rings!

**Note:**  
See illustration.



Assemble engine.

# Cylinder Head Assembly: Testing and Inspection

## 11 12 729 Checking cylinder head for water leaks (N 14)

Special tools required:

- ^ 11 9 521
- ^ 11 9 522
- ^ 11 9 523

### Important:

**Pressure-test cylinder head to max. 3 bar.**

**Heat cylinder head to 60 °.**

**Check for bubble formation in a water bath.**

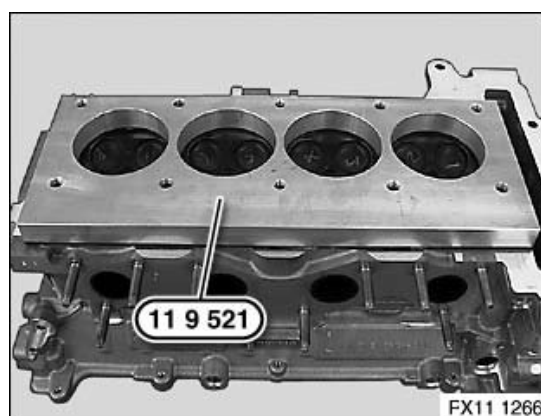
Necessary preliminary tasks:

- ^ Remove cylinder head.
- ^ Disassemble cylinder head.

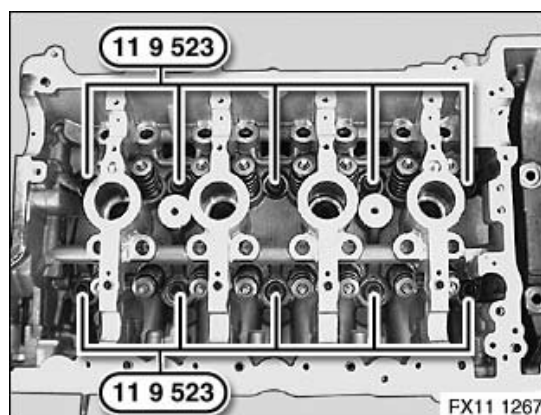
Mount special tool 11 9 521 with bolts 11 9 523.

Installation:

Install special tool 11 9 521 so that all water ducts are sealed.



Secure bolts 11 9 523 to 25 Nm.



Screw special tool 11 9 522 into place with existing screws (1 and 3) of coolant thermostat.

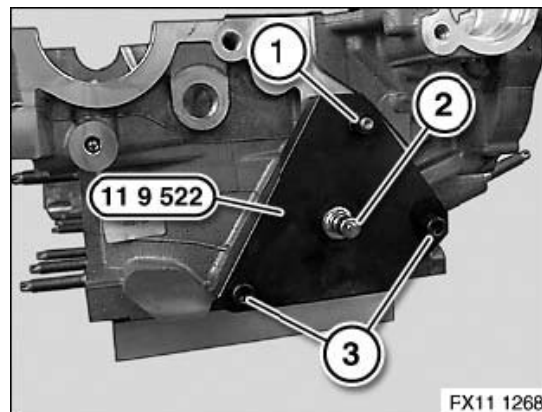
### Note:

Sealing flange 11 9 522 must rest flat.

Compressed air at valve (2) must not exceed 3 bar.

Heat cylinder head to 60 °.

Check for bubble formation in a water bath.



Assemble engine.



# Cylinder Head Assembly: Procedures

## 11 12 719 Resurfacing cylinder head sealing face (N14)

Necessary preliminary tasks:

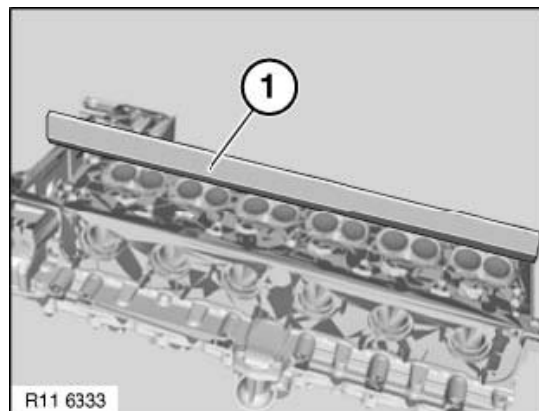
- ^ Remove cylinder head.
- ^ Remove exhaust camshaft.
- ^ Remove inlet camshaft.

Check evenness of cylinder head sealing face with a standard straight-edge (1).

**Note:**

Max. deviation from level (longitudinal) 0.10 mm

Illustration shows N52.

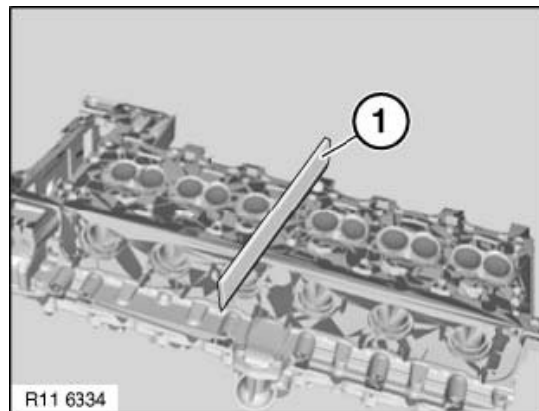


Check evenness of cylinder head sealing face with a standard straight-edge (1).

**Note:**

Max. deviation from level (transversal) 0.05 mm

Illustration shows N52.



Check cylinder head for water leaks.

# Cylinder Head Assembly: Removal and Replacement

## 11 12 100 Removing and Installing/Sealing Cylinder Head

### 11 12 100 Removing and installing/sealing cylinder head (N14)

Special tools required:

- ^ 11 2 250
- ^ 11 4 471
- ^ 11 4 472
- ^ 11 9 590
- ^ 11 9 630

#### Important:

**Fit new cylinder head screws.**

**Do not wash off bolt coating.**

**There must not be any coolant, water or oil present in the pocket holes (risk of corrosion and cracking).**

Necessary preliminary tasks:

- ^ Remove exhaust system.
- ^ Drain coolant.
- ^ Drain engine oil.
- ^ Remove intake air manifold.
- ^ Remove oil dipstick.
- ^ Detach coolant hoses from cylinder head.
- ^ Remove oil dipstick guide tube.
- ^ Remove cylinder head cover.
- ^ Remove solenoid valve from adjustment unit.
- ^ Remove inlet adjustment unit.

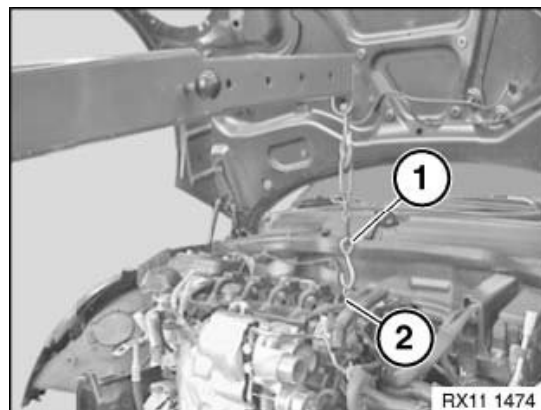
Secure crankshaft with special tool 11 9 590.



#### Note:

Remove and install cylinder head in installed state.

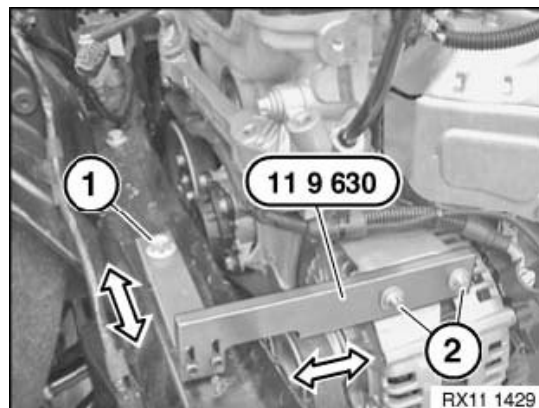
Suspend engine with engine crane (1) from lifting eye (2).



#### Note:

Remove and install cylinder head in installed state.

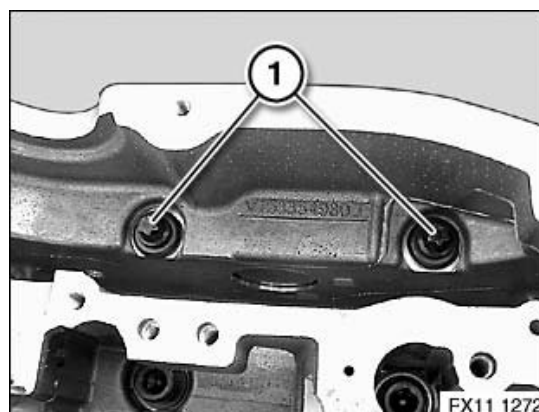
Move front panel into assembly position.  
 Release upper alternator screws, do not remove alternator.  
 Remove right engine mount.  
 Secure special tool 11 9 630 with standard bolts (1 and 2).



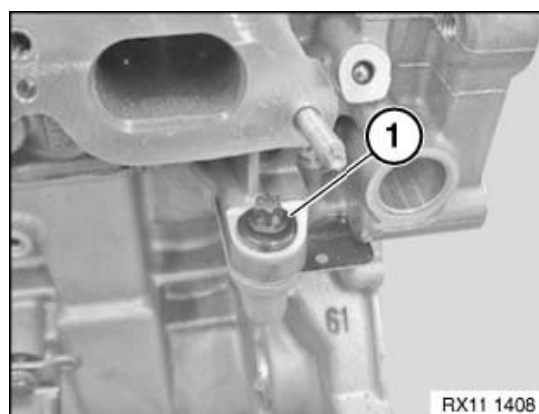
Release screws (1).

**Important:**  
 If the timing chain is stowed in the gear case, the crankshaft must no longer be rotated.  
 The timing chain may jam on the crankshaft gear.

Installation:  
 Only during assembly is the timing chain lifted out with a hook.

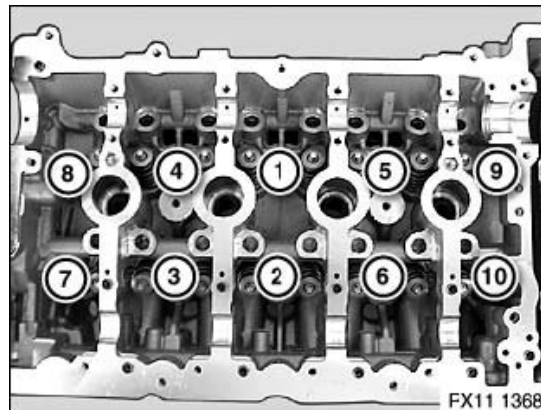


Release screw (1).



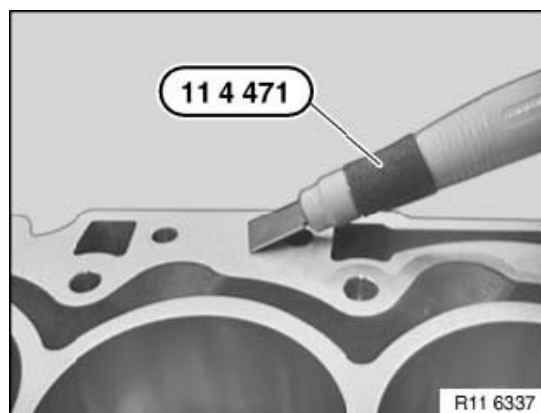
Release cylinder head bolts with special tool 11 2 250.  
 Release cylinder head bolts from outside inwards (10 to 1).

**Note:**  
 Remove shims with a magnet.  
 Illustration shows camshafts removed.



Use special tool 11 4 471 to remove coarse gasket remnants from sealing faces of cylinder head and crankcase.

**Important:**  
Do not use any metal-cutting tools.

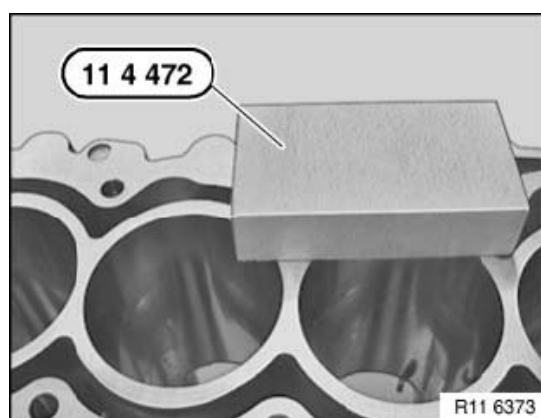


Remove fine gasket remnants with special tool 11 4 472.

**Important:**  
Do not use any metal-cutting tools.

There must not be any coolant, water or oil present in the pocket holes (risk of corrosion and cracking).  
Clean all pocket holes.

Replace cylinder head gasket

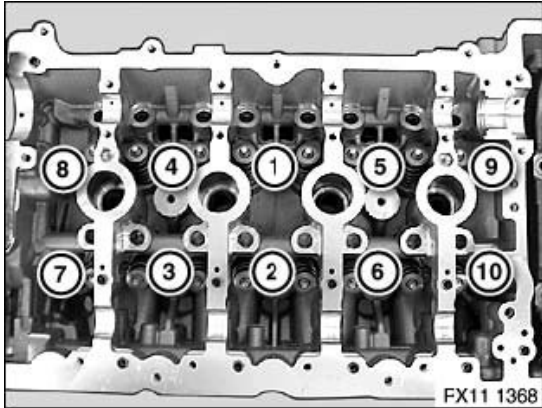


**Important:**  
Fit new cylinder head screws.  
Do not wash off bolt coating.  
Attach shims to cylinder head bolts.  
Shims can drop into the engine (risk of damage!).

Secure cylinder head bolts from inside outwards (1 to 10).

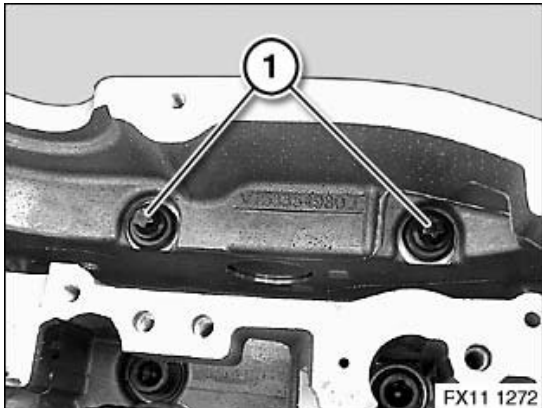
Tighten cylinder head bolts  
2AZ Cylinder head bolts  
M10x145

Mini Cooper S (R56) L4-1.6L Turbo (N14)	78
Jointing torque .....	30 Nm
1st angle of rotation .....	90 °
2. Angle of rotation .....	90 °
<b>Note:</b> Replace screws	



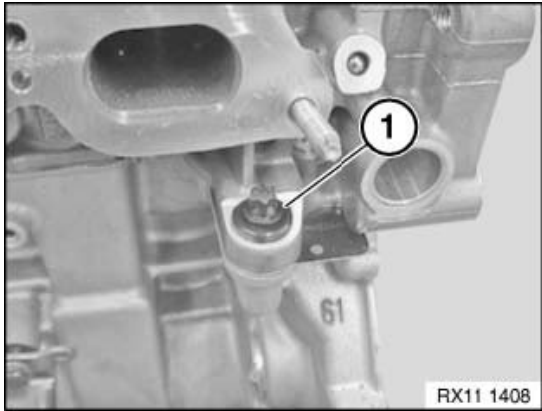
Secure bolts (1).

Tighten cylinder head bolts	
1AZ Cylinder head bolts	
M8x95	
Jointing torque .....	15 Nm
1st angle of rotation .....	90 °
2. Angle of rotation .....	90 °
<b>Note:</b> Replace screws	



Tighten the screw (1).

Tighten cylinder head bolts	
3AZ Cylinder head bolts	
M8x35 .....	30 Nm
<b>Note:</b> Replace screws	



Assemble engine.

## 11 12 101 Replacing cylinder head gasket (N14)

Special tools required:

^ 11 4 470

Necessary preliminary tasks:

^ Remove cylinder head.

Remove remnants of oil and dirt from pocket holes (1).

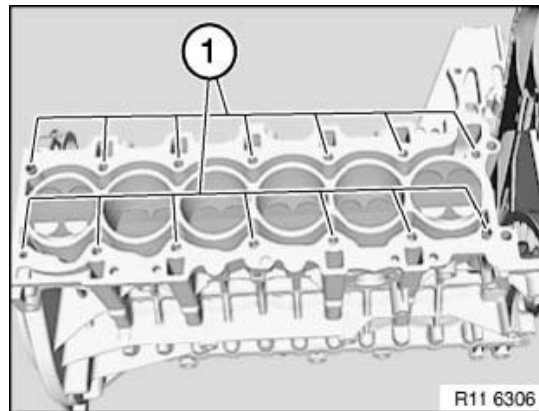
**Important:**

Work on sealing face on engine block and on cylinder head with special tool 11 4 470 only.

Do not use any metal-cutting tools.

**Note:**

Illustration shows N52.

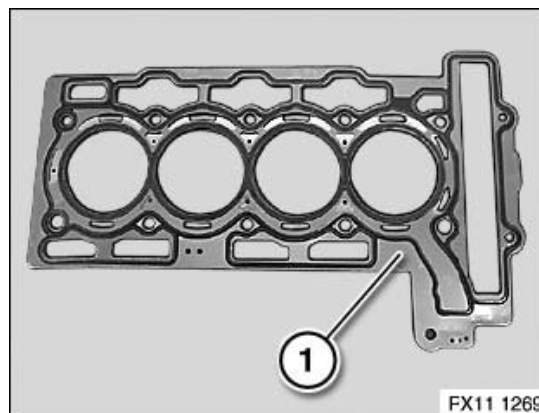


Identification (1) of head gasket (N14).

**Important:**

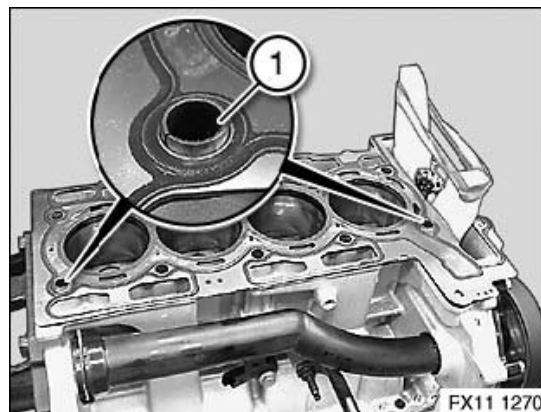
Rubber coating on cylinder head gasket must not be damaged under any circumstances.

If the cylinder head is remachined, a thicker coating + 0.3 mm is also available for service personnel.



Check adapter sleeves (1) for damage and firm seating.

Lay cylinder head gasket on engine block.



**Note:**

Check cylinder head for deviation from flatness.  
Check cylinder head for water leaks.

Assemble engine.

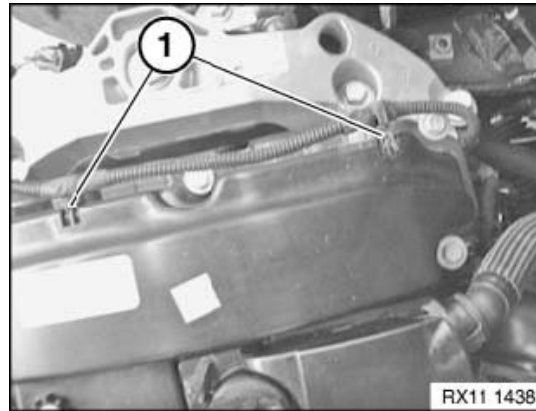
# Valve Cover: Service and Repair

## 11 12 000 Removing and installing/sealing cylinder head cover (N14)

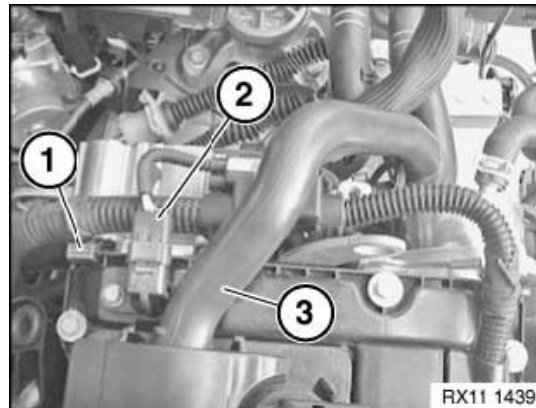
Necessary preliminary tasks:

- ^ Unclip ignition wiring harness on cylinder head.
- ^ Remove rod-type ignition coils.
- ^ Remove suction filter housing

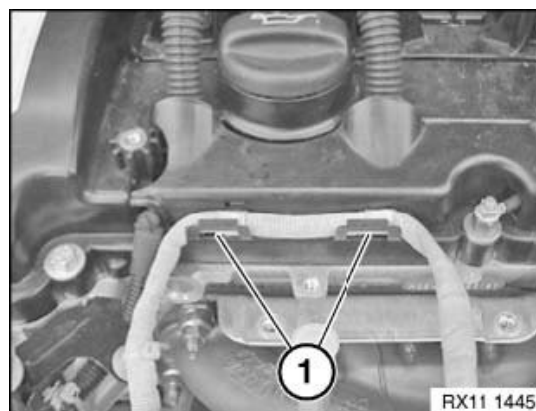
Unclip engine wiring harness with holders (1).



Unclip engine wiring harness holder (1).



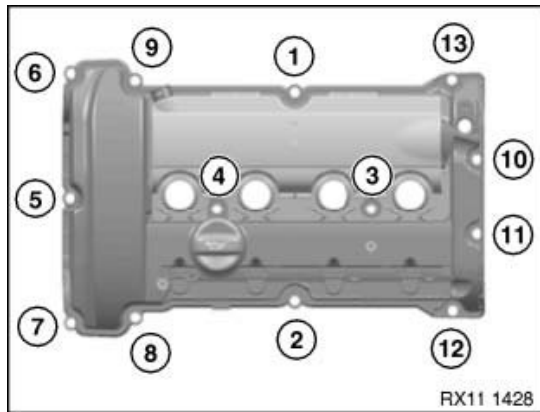
Release oxygen sensors on cylinder head (1).



Detach grounding cable at bolt connection (2).

Undo cylinder head cover bolts in the sequence 13 to 1.





Replace seal (1).

Replace all seals (2).

Installation:

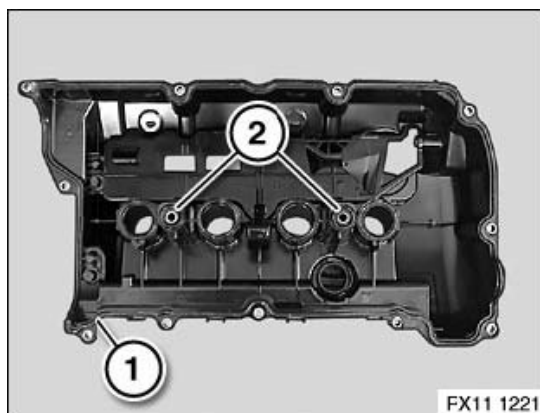
Clean all sealing surfaces.

Installation:

Seal all edges and joints on the cylinder head with sealing compound Drei Bond 1209.

**Note:**

Pictures show N12.

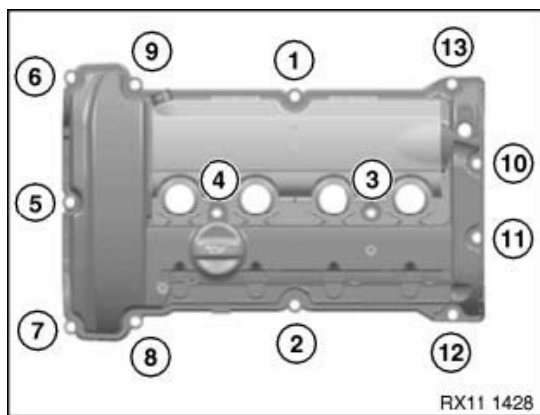


Secure bolts for cylinder head cover in sequence 1 to 13.

Tighten Cylinder head cover to cylinder head

4AZ Cylinder head cover to cylinder head

M6x30 ..... 10 Nm



Assemble engine.

# Valve Spring: Service and Repair

## 11 34 715 Replacing all valve springs (N14)

Special tools required:

- ^ 11 4 480
- ^ 11 9 000
- ^ 11 9 006
- ^ 11 9 007
- ^ 11 9 017

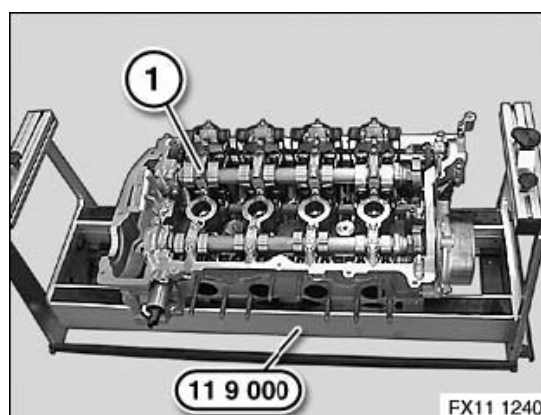
Necessary preliminary tasks:

- ^ Remove cylinder head cover.
- ^ Remove cylinder head.
- ^ Remove exhaust camshaft.
- ^ Remove inlet camshaft.
- ^ Remove roller cam follower.

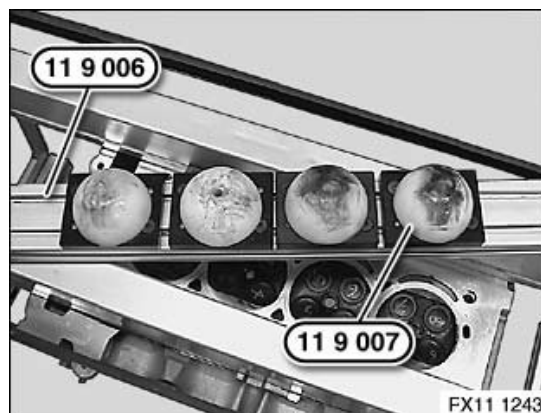
Place cylinder head (1) on special tool 11 9 000.

### Note:

Illustration shows: N12.

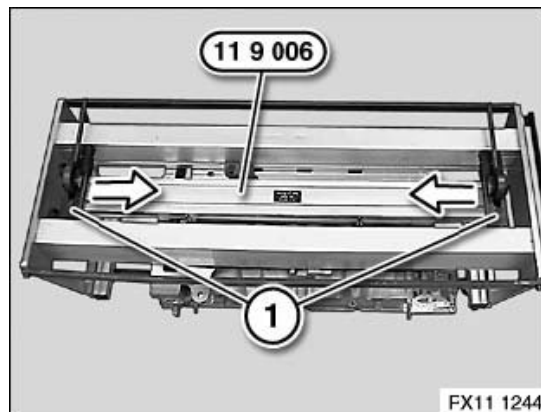


Prepare special tool 11 9 007 on special tool 11 9 006.

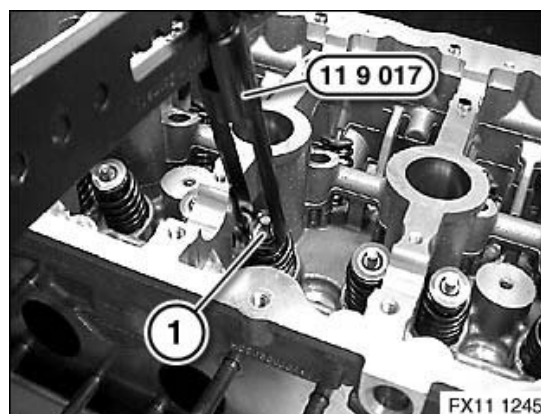


Align special tool 11 9 006.

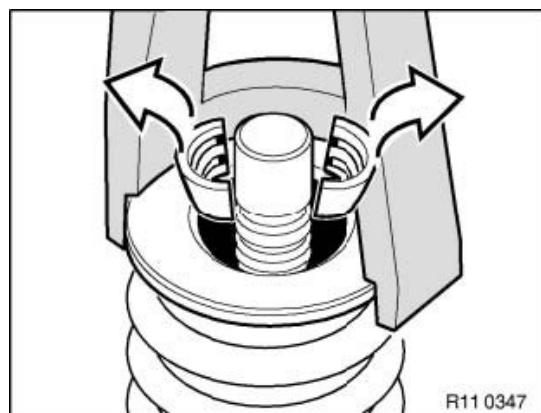
Lock eccentrics (1) on special tool 11 9 000 in direction of arrow.



Press down valve spring and spring retainer (1) with special tool 11 9 017.

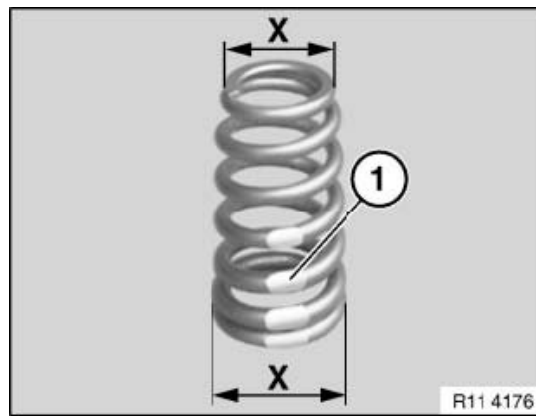


Remove valve tapers with a magnet.  
Remove valve spring and spring retainer.  
Set down on special tool 11 4 480 in a tidy and orderly fashion.



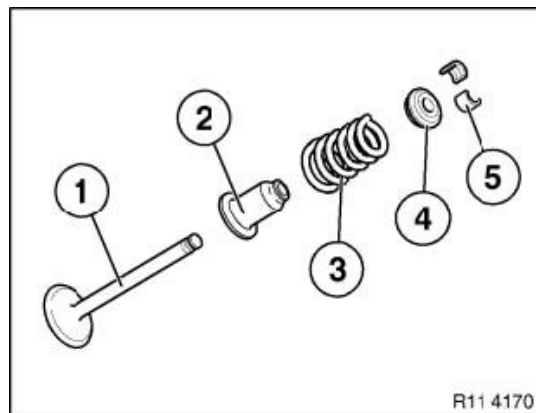
**Important:**  
**Incorrect installation possible.**  
**Incorrect installation will result in valve spring breakage.**

Color marking (1) is normally on lower end of valve spring.  
The larger diameter must point downwards to the valve stem seal.



Arrangement:

- 1) Valve
- 2) Valve stem seal with spring plate, bottom
- 3) Valve spring
- 4) Top plate spring
- 5) Valve tapers



Assemble engine.  
Check function of DME.

## Valve: Service and Repair

### 11 34 552 Removing and installing or replacing all valves (N14)

Special tools required:

^ 11 4 480

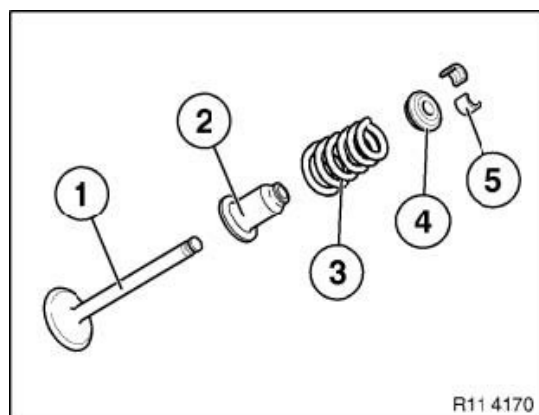
Necessary preliminary tasks:

- ^ Remove cylinder head.
- ^ Remove inlet camshaft.
- ^ Remove exhaust camshaft.
- ^ Remove roller cam follower.
- ^ Remove valve springs.
- ^ Remove valve stem seals.

Arrangement:

- 1) Valve
- 2) Valve stem seal with spring plate, bottom
- 3) Valve spring
- 4) Top plate spring
- 5) Valve tapers

If the valves are to be reused, set them down in special tool 114 480 in a tidy and orderly fashion.



Assemble engine.

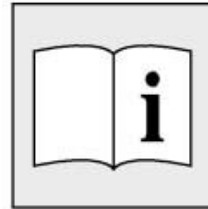
Check function of DME.

# Drive Belts, Mounts, Brackets and Accessories: Service and Repair

## 22 31 005 Removing and installing/replacing transmission support bracket

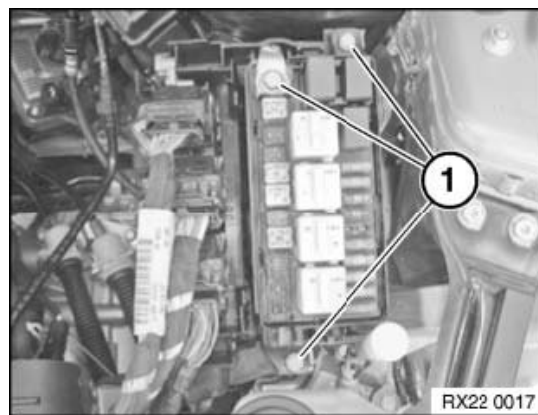
Necessary preliminary tasks:

- ^ Disconnect battery
- ^ Remove intake filter housing
- ^ Remove control unit
- ^ Support engine and gearbox



Release screws (1).  
Push fuse box to one side.

Tightening torque 61 13 1AZ



Release screws (1).  
Remove holder (2).  
Release screws (1).

Tightening torque 22 32 2AZ.

Slacken nut (2).

Tightening torque 22 32 3AZ.

Remove transmission support bracket.

# Mini Cooper S (R56) L4-1.6L Turbo (N14)

## Drive Belt: Service and Repair

### 11 28 010 Alternator Drive Belt

#### 11 28 010 Replacing alternator drive belt (N14)

Necessary preliminary tasks:

- ^ Remove right wheel arch cover
- ^ Remove right headlight
- ^ Remove lock bridge

Bring belt tensioner (1) with wrench (2) into assembly position. Secure assembly position of belt tensioner (1) by sliding locating pin (3) in direction of arrow.

#### Warning:

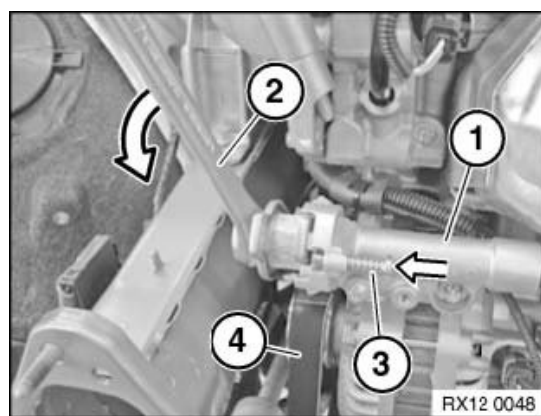
**Danger of injury!**

**Remove wrench (1) again from belt tensioner.**

Remove drive belt (4) from alternator.

#### Note:

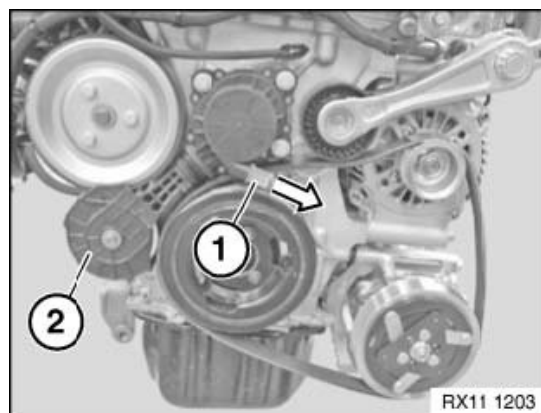
For reasons of clarity, illustration and text show front wall removed.



Move friction wheel (2) into servicing position.

In order to release the frictional connection between crankshaft and coolant pump, it is necessary to move the friction gear (2) into the servicing position.

Firmly pull handle (1) in direction of arrow until friction gear (2) is separated from belt pulley.



## Drive Belt: Service and Repair

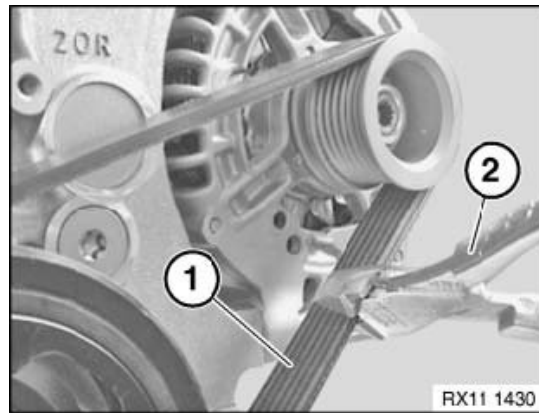
### 11 28 012 Replacing Drive Belt (Without A/C System)

#### 11 28 012 Replacing drive belt (without A/C system)

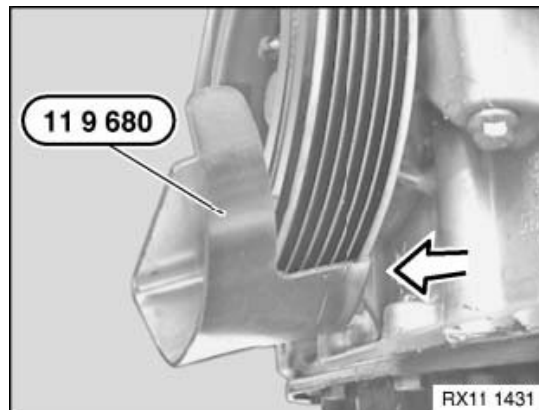
Necessary preliminary tasks:

^ Remove right wheel arch line.

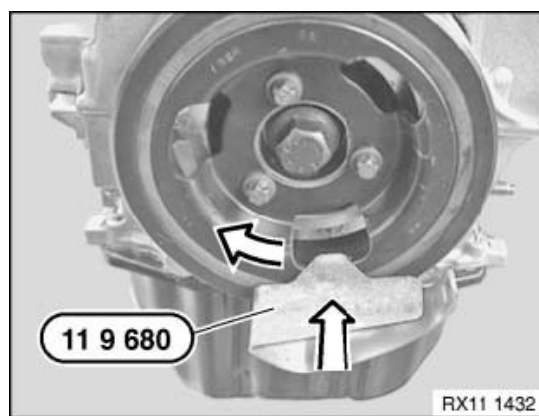
Cut through ribbed V-belt (1) with a suitable tool (2).



Position supplied tool (1) on vibration damper (see arrow).

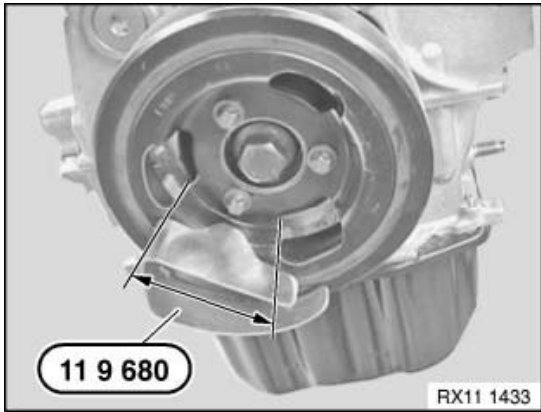


Attach installation tool in direction of arrow and slide further in direction of arrow.

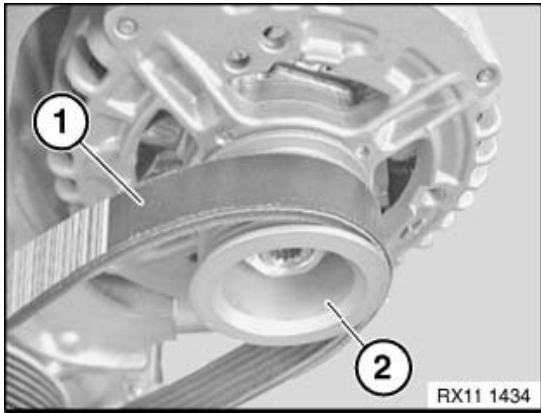


Bring installation tool (1) on vibration damper into installation position.



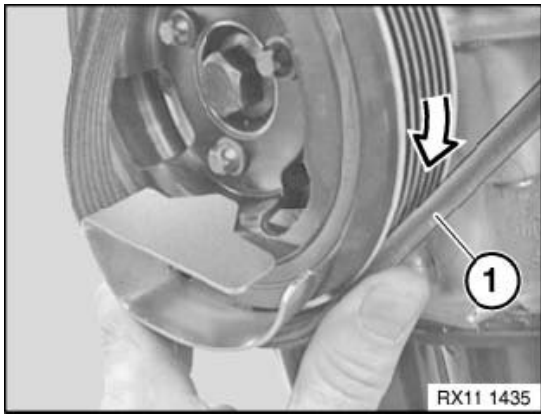


Place ribbed V-belt (1) on alternator (2).



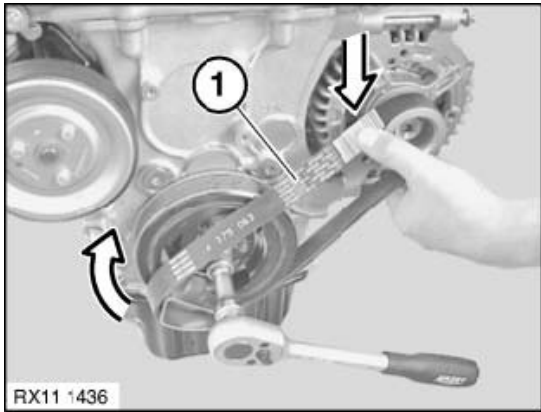
Place ribbed V-belt (1) in direction of arrow on vibration damper.

**Note:**  
See illustration.



Turn vibration damper in direction of arrow.  
Press ribbed V-belt (1) inwards by hand or with a tyre iron (see arrow).

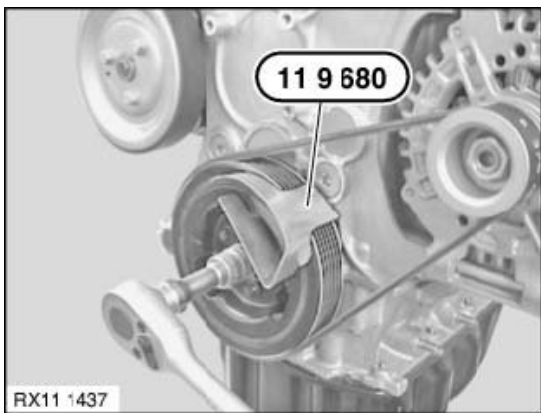
**Important:**  
**Danger of injury!**



Turn vibration damper until ribbed V-belt is fully engaged.  
Remove installation tool (1) from vibration damper.

**Note:**  
Installation tool is no longer needed.

Add final details to vehicle.



# Drive Belt Tensioner: Service and Repair

## 11 28 035 Removing and Installing/Replacing Friction Gear

### 11 28 035 Removing and installing/replacing friction gear (N14)

Special tools required:

^ 11 9 581

^ 11 9 583

Necessary preliminary tasks:

^ Remove right wheel arch cover

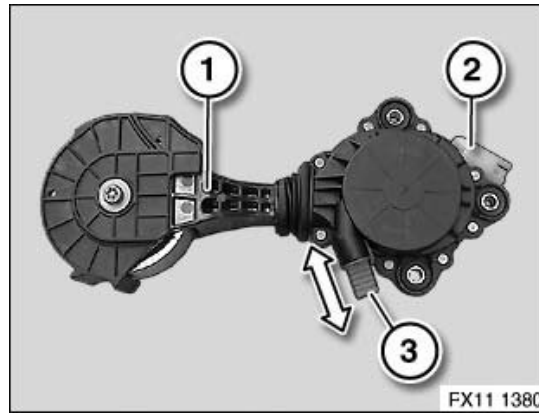
Pull out friction gear with mechanical release (3) in direction of arrow and lock on locking hook.

Friction gear (1) lifts mechanically off belt drive.

Disconnect plug connection (2) on friction gear.

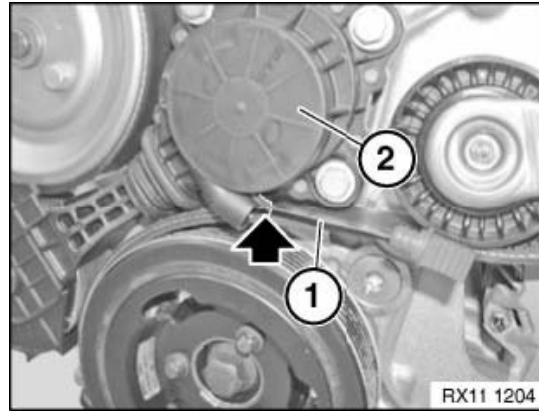
#### Note:

Picture shows friction gear removed.



Move friction wheel (2) into servicing position.

To secure friction gear in servicing position, suspend pull cable (1) on housing (2).



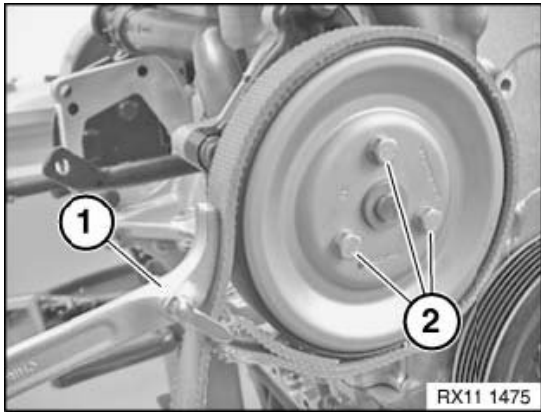
Secure belt pulley of water pump with an oil filter band (1).

Release bolts (2) with special tools 11 9 581 and 11 9 583.

Tighten water pump gear to water pump

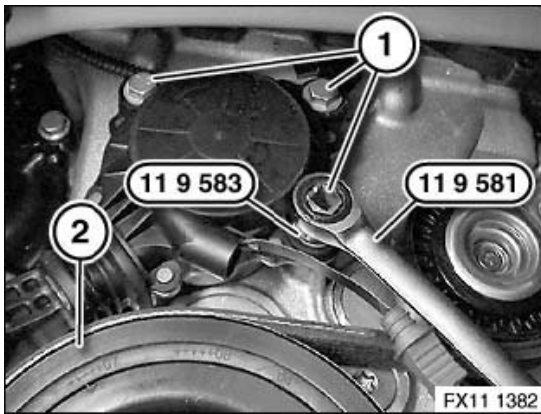
2AZ Water pump gear to water pump

M6x12 ..... 8 Nm

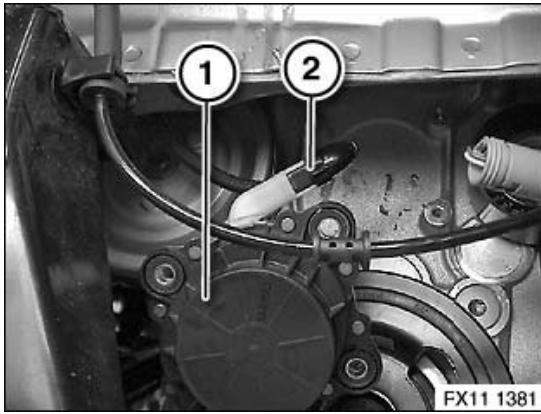


Release bolts (1) with special tools 11 9 583 and 11 9 581.

**Note:**  
Drive belt does not have to be removed.



Remove friction gear (1) towards bottom.  
Disconnect plug connection (2).



Assemble engine.  
Installation:  
Check cable routing for correct installation position (risk of damage!).

# Drive Belt Tensioner: Service and Repair

## 11 28 020 Replacing Tensioning Device For Alternator Drive Belt

### 11 28 020 Replacing tensioning device for alternator drive belt (N14)

**Warning:**

Tensioning device subject to spring bias (danger of injury!).

Necessary preliminary tasks:

- ^ Bring front panel into service position.
- ^ Disconnect lambda oxygen sensor cable.

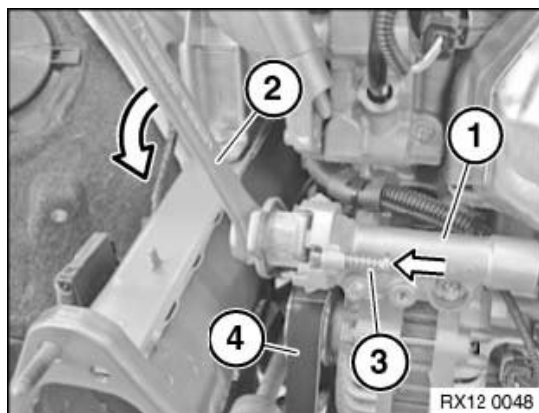
Pretension tensioning device (1) with tool (2) in direction of arrow.

Press in locking pin (3) in direction of arrow and hold.

Release tool (2) slowly and secure locking pin (3) in position.

**Note:**

Locking pin (3) holds tensioning device (1) at pretension.



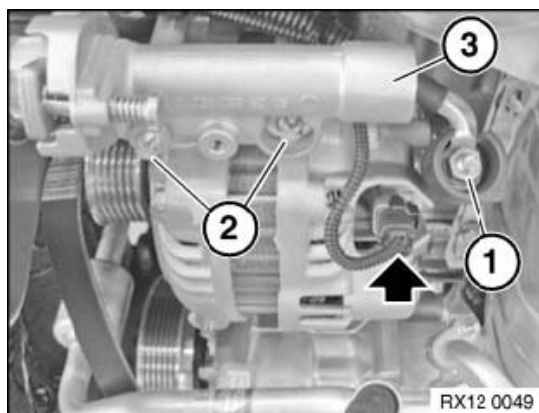
Release screws (2).

Tighten belt tensioner to alternator

1AZ Belt tensioner to alternator

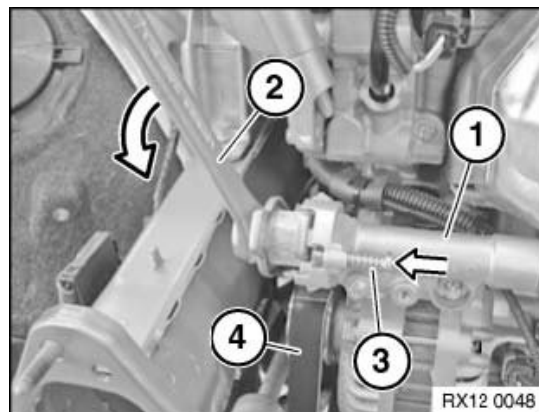
M8x110 ..... 20 Nm

Remove tensioner (3).

**Installation:**

Lever tensioning device (1) with tool (2) in direction of arrow.

Locking pin (3) is pretensioned with a spring and is automatically relieved during unlocking.



Assemble engine.

# Engine Mount: Service and Repair

## 22 11 001 Engine Mount Right

### 22 11 001 Replacing right engine mount

- Necessary preliminary tasks:
- Remove right engine support bracket.

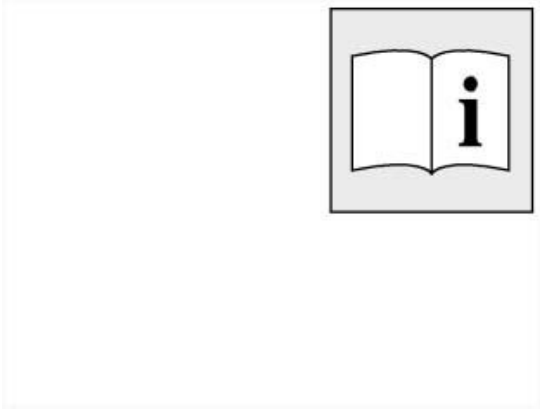
Release screws (1).

Tighten Engine mount to body

4AZ Engine mount to body

M10 10.9 screw .....	56 Nm
M12 8.8 screw .....	68 Nm

Remove engine mount.



## Engine Mount: Service and Repair

### 22 11 070 Removing and Installing/Replacing Engine Mounting Bracket

#### 22 11 070 Removing and installing/replacing engine mounting bracket

Necessary preliminary tasks:

- ^ In assembly position
- ^ Support engine and transmission with car jack

Release nut (1) and remove grounding strap.

Tighten grounding cable to engine support bracket

7AZ Grounding cable to engine support bracket

M8 nut ..... 15 Nm

Release screws (2) and nuts (3).

Tighten engine support bracket to engine mount

1AZ Engine support bracket to engine mount

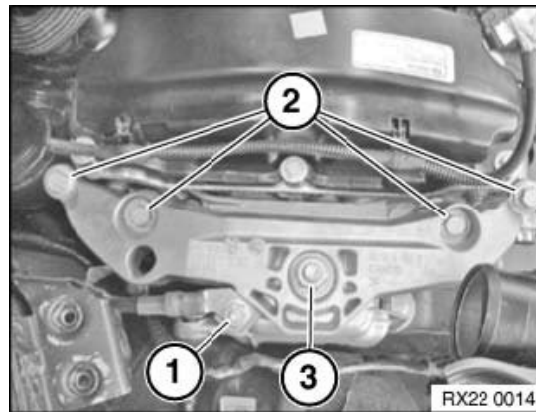
M12 x 1.5 - 10.9 nut ..... 100 Nm

Tighten engine mounting bracket to adapter plate

2AZ Engine mounting bracket to adapter plate

M10 8.8 screw ..... 38 Nm

Remove engine support bracket.





## Engine Mount: Service and Repair

### 22 11 080 Removing and Installing/Replacing Adapter Plate

#### 22 11 080 Removing and installing/replacing adapter plate

Necessary preliminary tasks:

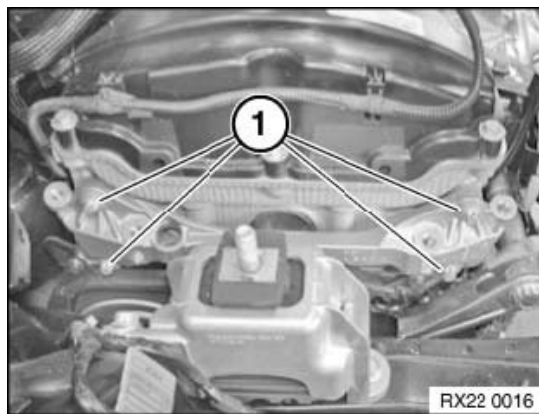
^ Remove engine mounting bracket

Release screws (1).

Tighten adapter plate to engine

3AZ Adapter plate to engine

M10 8.8 screw ..... 41 Nm



## Engine Mount: Service and Repair

### 22 11 090 Replacing Lower Engine Carrier Bracket Holder

#### 22 11 090 Replacing lower engine carrier bracket holder

Necessary preliminary tasks:

- ^ Remove lower engine carrier bracket.
- ^ Remove right output shaft.

Release screws.

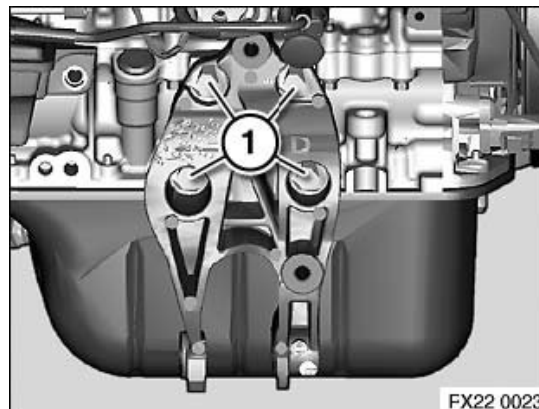
Tighten bracket, stabilizer link to engine

5AZ Bracket, stabilizer link to engine

M10 8.8 screw ..... 38 Nm

#### Note:

Illustration similar.



**Engine Mount: Service and Repair**  
**22 11 095 Replacing Lower Engine Carrier Bracket**  
22 11 095 Replacing lower engine carrier bracket

**Important:**  
**Support engine with transmission lifter.**

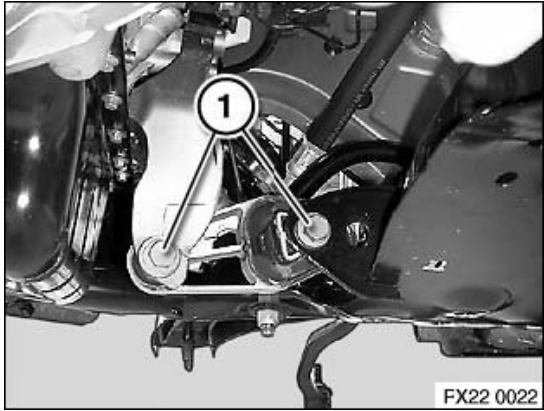
Release bolts (1) and remove engine carrier bracket.

Tighten stabilizer link to bracket  
6AZ Stabilizer link to bracket

M12x90 screw ..... 108 Nm

Tighten stabilizer link to front axle carrier  
9AZ Stabilizer link to front axle carrier

M12x90 screw ..... 108 Nm



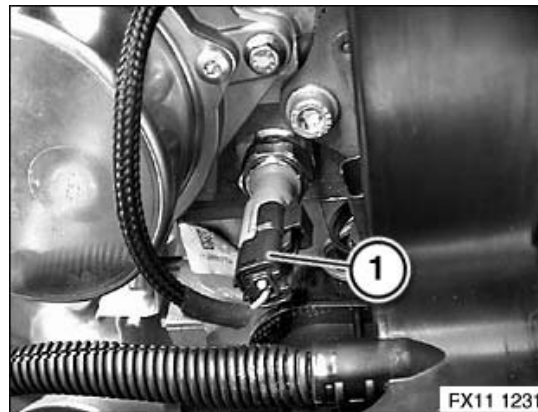
# Engine Oil Pressure: Testing and Inspection

## 11 40 000 Checking engine oil pressure (N14)

Special tools required:

- ^ 11 7 020
- ^ 11 9 560
- ^ 13 3 061
- ^ 13 3 063
- ^ 13 6 051
- ^ 13 6 054

Disconnect plug connection on oil pressure switch (1)



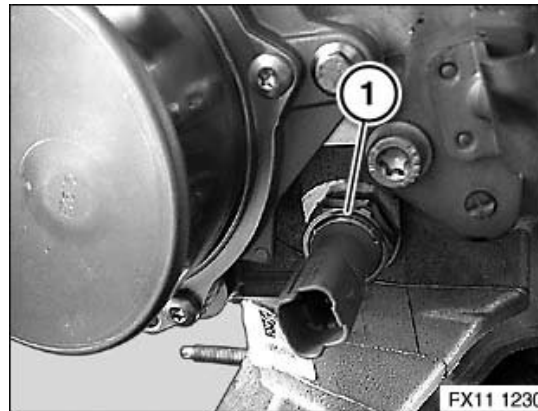
Release oil pressure switch (1) with special tool 11 7 020.

Tighten Oil pressure switch

1AZ Oil pressure switch

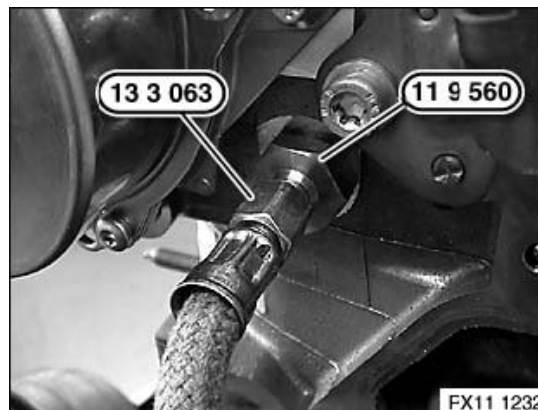
Sealing ring oiled

M16 ..... 20 Nm



Screw in special tool 11 9 560 with sealing ring on cylinder head.

Secure pressure gauge 13 3 063 to special tool 11 9 560.



Check engine oil pressure with diagnosis tester.

Connect special tools 11 9 560 / 13 6 054 and 13 6 051.

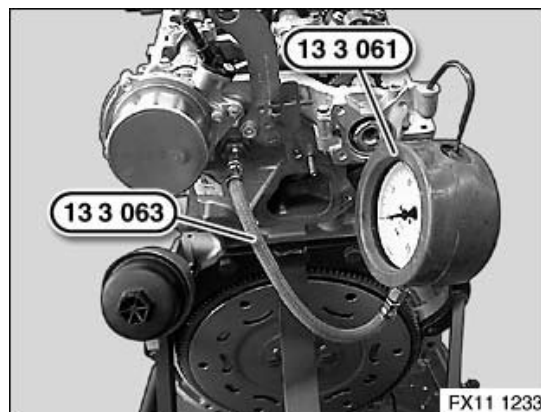
**Mini Cooper S (R56) L4-1.6L Turbo (N14)**

Check engine oil pressure with pressure gauge.

Connect special tools 11 9 560 / 13 3 063 and 13 3 061.

Start engine and check engine oil pressure.

Specified values.



Assemble engine.

# Engine Oil Dip Stick - Dip Stick Tube: Service and Repair

## 11 43 000 Removing and installing/replacing guide tube for dipstick (N14)

Necessary preliminary tasks:

^ Pull dipstick out of guide tube.

Release screw (2).

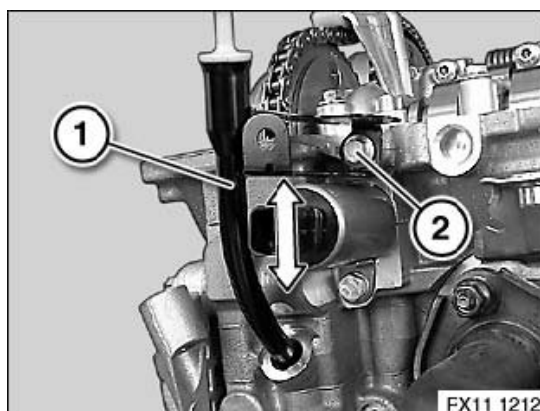
Tighten oil dipstick to cylinder head

1AZ Oil dipstick to cylinder head ..... 9 Nm

Pull dipstick (1) up in direction of arrow.

Installation:

Replace O-ring.



Assemble engine.

Check engine oil level, top up if necessary

# Oil Pan: Service and Repair

## 11 13 000 Removing and installing, sealing or replacing oil sump (N14)

Special tools required:

- ^ 11 4 470
- ^ 11 9 581
- ^ 11 9 582

Necessary preliminary tasks:

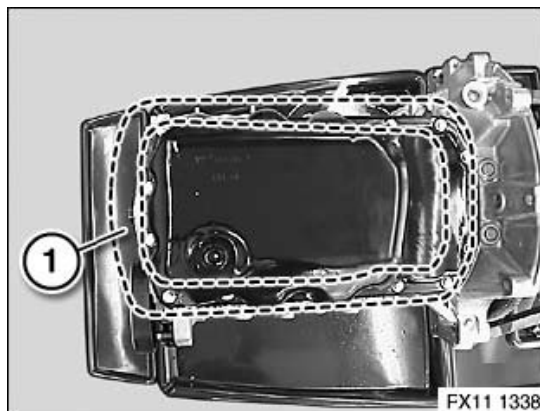
- ^ Drain engine oil.

Release oil sump bolts in area of line (1).

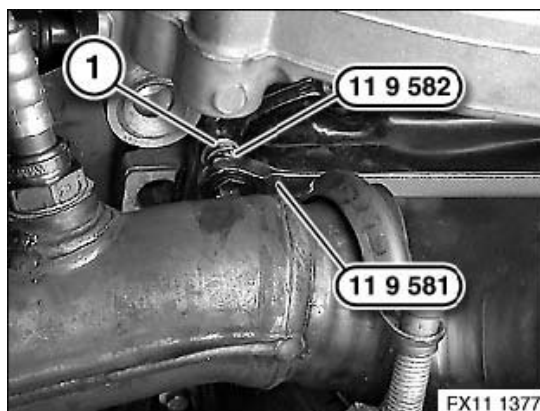
Tighten Oil sump to crankcase

2AZ Oil sump to crankcase

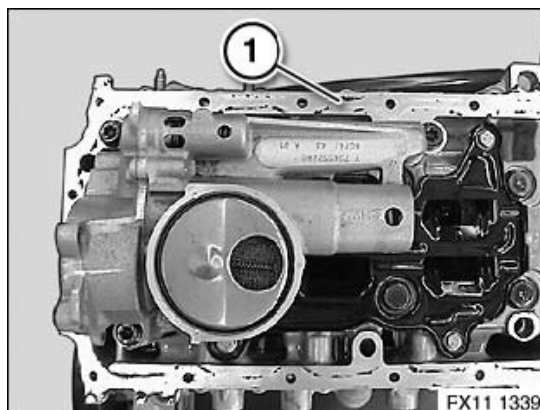
M6x16 ..... 12 Nm



Release screw (1) over exhaust manifold with special tools 11 9 582 and 11 9 581.



Clean sealing face (1) with special tool 11 4 470.



**Important:**

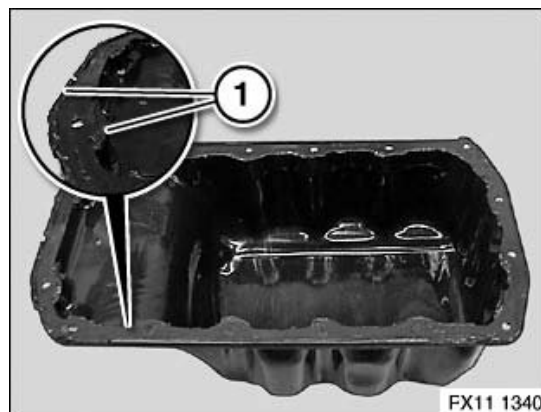
**Do not use adhesive sealing bead.**

Remove protruding or sticking-out sealing beads (1) with a sharp knife.

**Installation:**

Do not use liquid seal.

A metal substrate gasket is available for repairs.



Assemble engine.



# Oil Pump: Service and Repair

## 11 41 000 Removing and installing oil pump (N14)

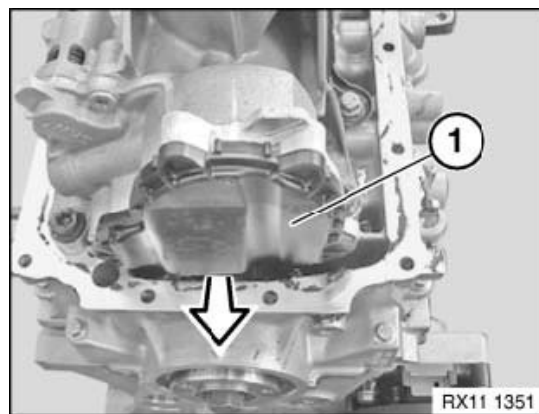
Necessary preliminary tasks:

^ Removing oil pan.

Pull off cover (1) in direction of arrow.

Installation:

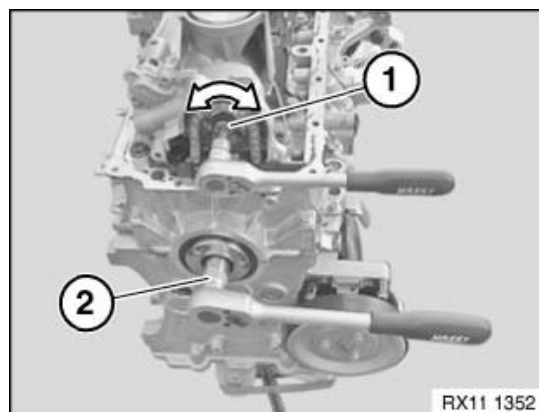
Replace cover (1).



Release screw (1).

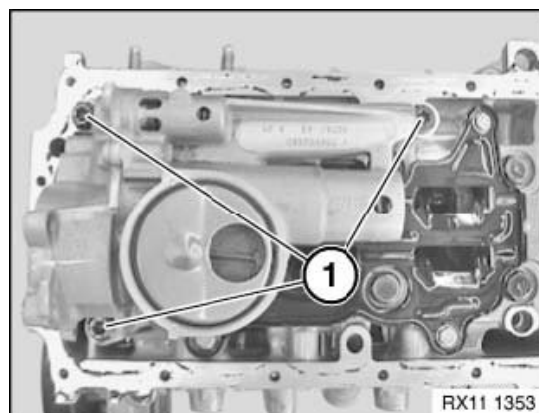
Tightening torque: 11 41 2AZ.

Grip crankshaft central bolt (2) to release central bolt (1).



Release screws (1).

Tightening torque: 11 41 1AZ.



Assemble engine.

# Intake Manifold: Service and Repair

## 11 61 050 Removing and installing intake air manifold (N14)

Necessary preliminary tasks:

- ^ Disconnect battery negative lead.
- ^ Remove suction filter housing.

### Note:

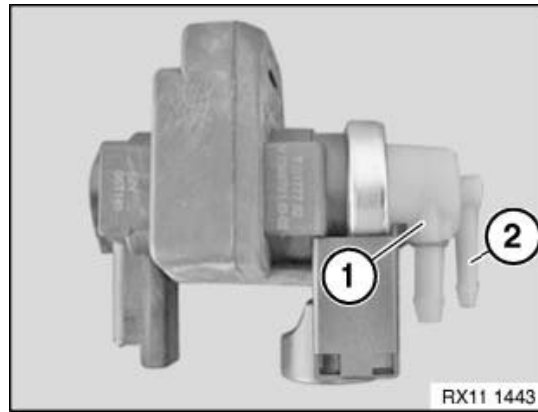
Picture shows EPPC removed.

Disconnect vacuum lines on vacuum connection (1 and 2).

Disconnect plug connection at EPPC.

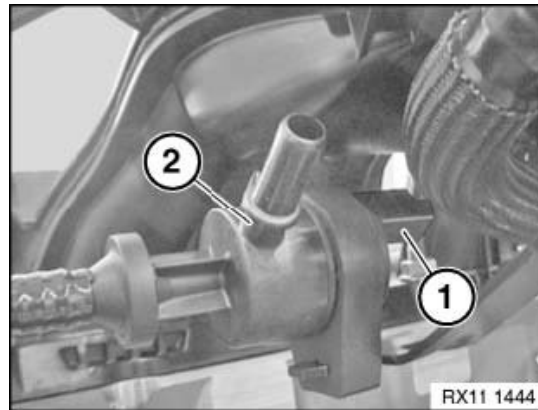
Installation:

OUT connector (1) is identified with a green ring.



Disconnect plug connection (1) on tank vent valve (2).

Detach hose from tank vent valve (2).



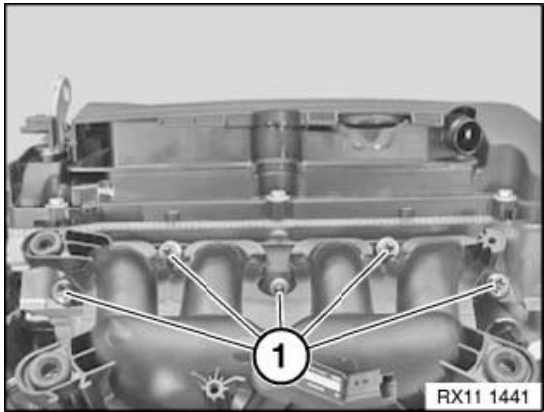
Unscrew nuts (1).

Tighten intake manifold to cylinder head

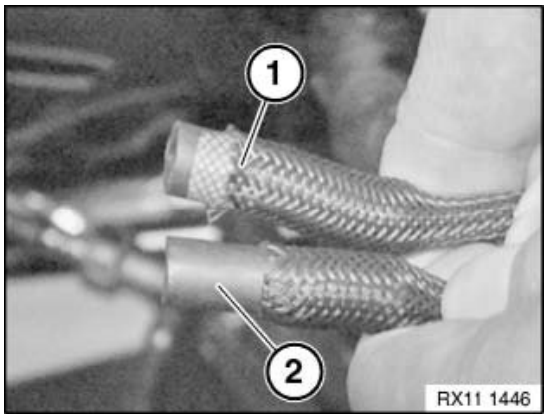
1AZ Intake manifold to cylinder head

M8x125 .....	15 Nm
AM7 .....	20 Nm

**Note:** Hexagon nut



Installation:  
OUT connector on EPPC is identified with a green ring.  
Vacuum line (1) is fitted with a green ring (OUT).  
Vacuum line (2) without green ring (VAC).



Installation:  
Replace all seals.  
Assemble engine.

# Front Crankshaft Seal: Service and Repair

## 11 14 005 Replacing Front Crankshaft Radial Seal

### 11 14 005 Replacing front crankshaft radial seal (N 14)

Special tools required:

- ^ 11 9 601
- ^ 11 9 602
- ^ 11 9 603

**Important:**

**PTFE ring is supplied with a supporting ring.**

**Supporting ring is required as an installation tool; do not touch inner surface of PTFE ring with fingers (risk of damage!).**

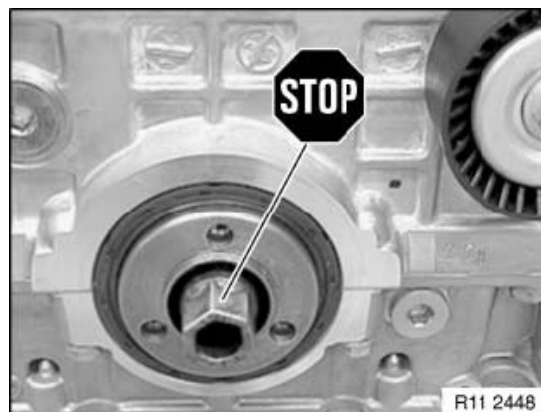
Necessary preliminary tasks:

- ^ Remove A/C line from compressor.
- ^ Remove vibration damper.

**Important:**

**Do not release central bolt.**

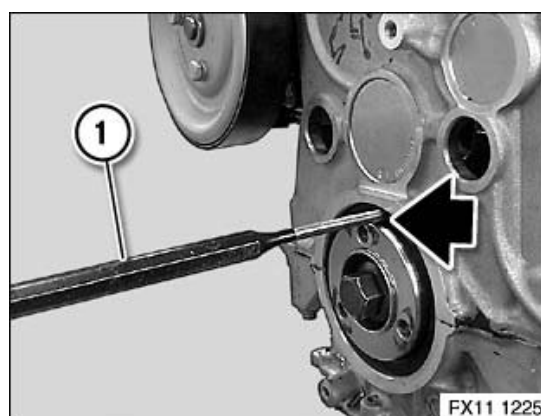
If the central bolt is released, the sprocket wheels of the timing chain and the oil pump will no longer be non-positively connected to the crankshaft. The camshafts can warp in relation to the crankshaft (risk of damage!).



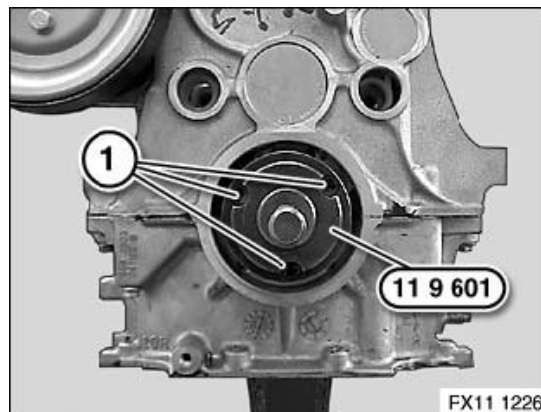
Drive PTFE ring inwards with a drift (1) until PTFE ring tilts outwards at bottom.

**Important:**

**PTFE ring can slip inwards.**



Secure special tool 11 9 601 with screws (1) to crankshaft to 15 Nm.

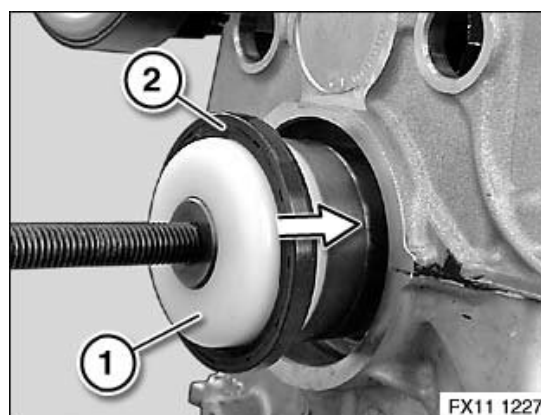


**Installation:**

Apply a light coating of oil to special tool 11 9 601.

Position PTFE ring (2) with supporting ring (1) on special tool 11 9 601.

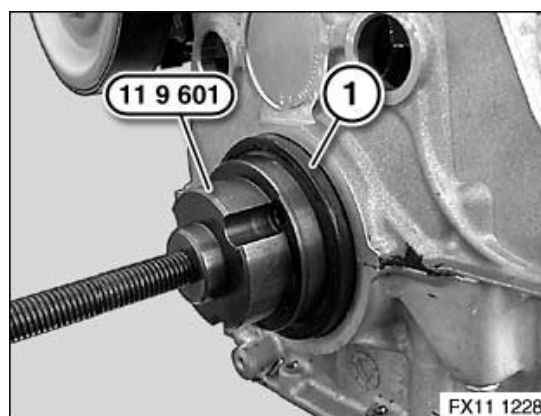
Push PTFE ring (2) over supporting ring (1) in direction of arrow up to crankcase.



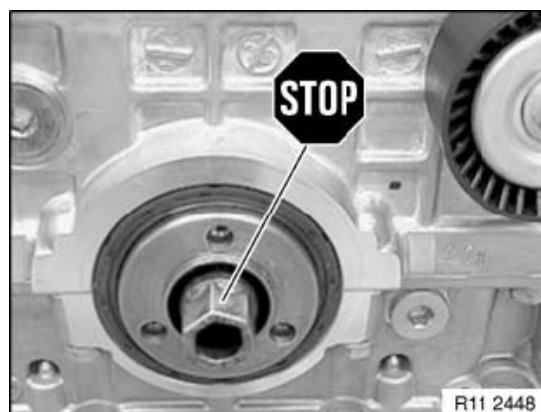
Remove supporting ring from special tool 11 9 601.

**Note:**

Supporting ring is no longer needed.



Draw in PTFE ring with special tool 11 9 602 in conjunction with special tool 11 9 603 until flush.



Assemble engine.

# Front Crankshaft Seal: Service and Repair

## 11 14 151 Replacing Crankshaft Radial Seal

### 11 14 151 Replacing crankshaft radial seal (N14)

Special tools required:

- ^ 11 9 611
- ^ 11 9 612
- ^ 11 9 613

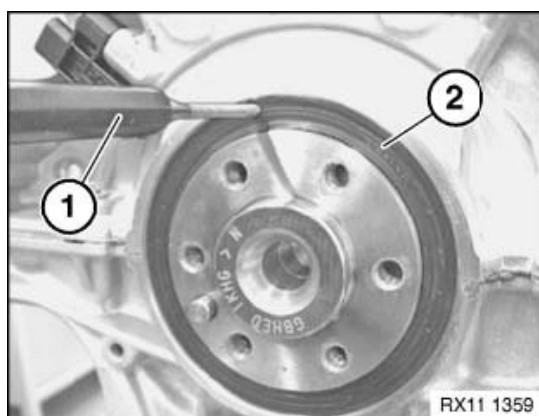
Necessary preliminary tasks:

- ^ Remove transmission.
- ^ Remove flywheel.

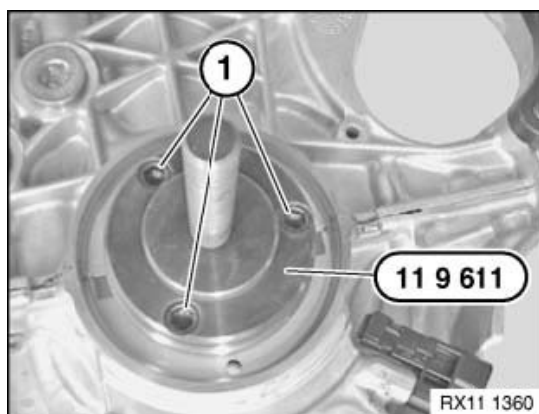
Brake off PTFE ring (2) with a drift (1).

**Important:**

**Risk of damage to crankcase and to crankshaft!**

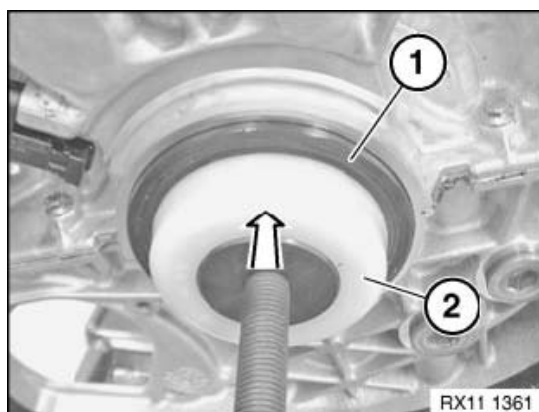


Secure special tool 11 9 611 with supplied screws (1) to crankshaft.



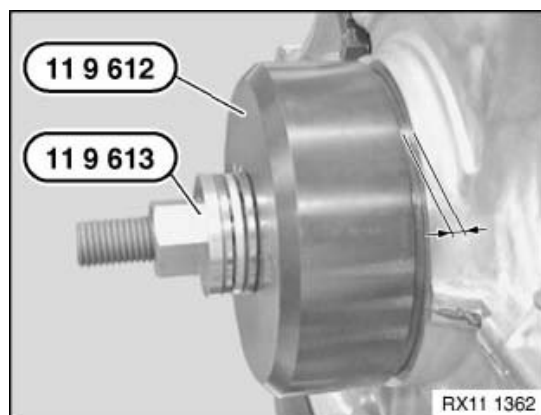
Position PTFE ring (1) with supporting ring (2) on special tool 11 9 611.

Push PTFE ring (1) in direction of arrow over supporting ring (2) onto crankshaft.

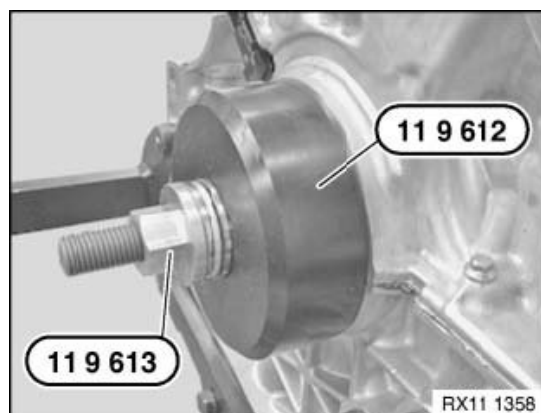


Attach special tool 11 9 612.

Draw in PTFE ring with special tool 11 9 613.



Screw in special tool 11 9 612 up to engine block.



Assemble engine.



# Valve Guide Seal: Service and Repair

## 11 34 560 Replacing all valve stem seals (N14)

Special tools required:

- ^ 11 1 480
- ^ 11 6 380

Necessary preliminary tasks:

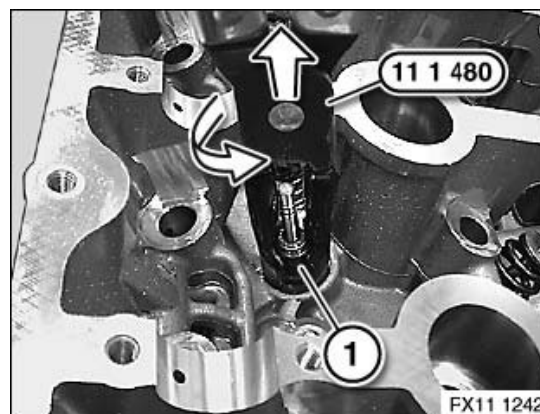
- ^ Remove cylinder head.
- ^ Remove inlet camshaft.
- ^ Remove exhaust camshaft.
- ^ Remove roller cam follower.
- ^ Remove all valve springs.

Firmly press special tool 11 1480 onto old valve stem seals.

Detach valve stem seal from valve stem by turning and simultaneously pulling special tool 11 1480.

Installation:

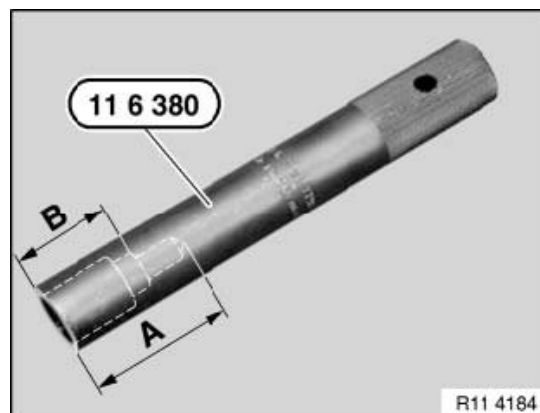
Insert all valves.



### Note:

For use on the N54 engine, special tool 11 6 380 must be remachined according to the sketch with a 10 mm dia. drill bit to a depth of B = approx. 23 mm.

This modification has already been taken into account for reordering.

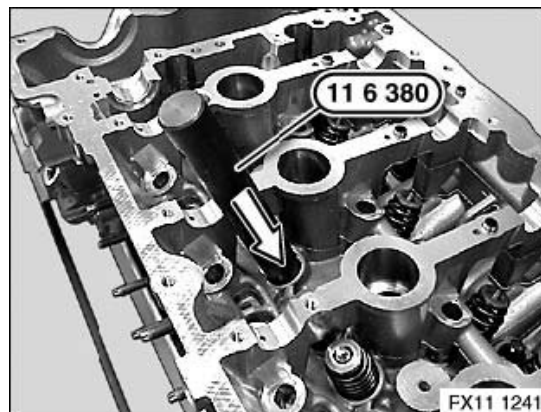


Installation:

Fit the mounting sleeves (plastic sleeves) supplied in the spare part on the valve stem end

Lubricate mounting sleeve.

Press on valve stem seal by hand with special tool 116 380 as far as it will go.



Assemble engine.

# Timing Chain: Service and Repair

## 11 31 051 Replacing Timing Chain

### 11 31 051 Replacing timing chain (N14)

This article has been updated by Technical Service Bulletin (TSB) M 11 02 10 dated April 2010.

The final torque angle (11 21 1AZ) has changed from 100 degrees to 180 degrees.

Special tools required:

- ^ 00 9 120
- ^ 11 9 280
- ^ 11 9 550
- ^ 11 9 590

#### Important:

**Modified procedure for timing adjustment.**

**The timing is not determined at firing TDC of cylinder no. 1.**

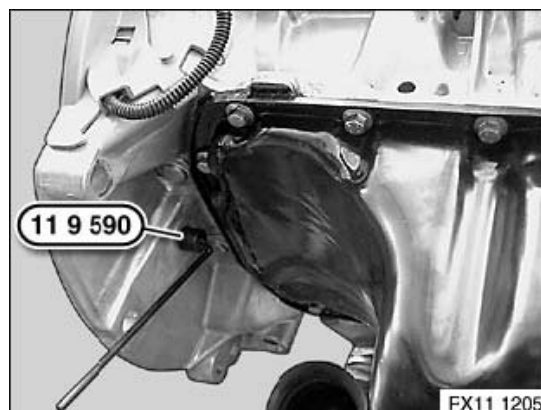
**All pistons are in the 90 ° position.**

Necessary preliminary tasks:

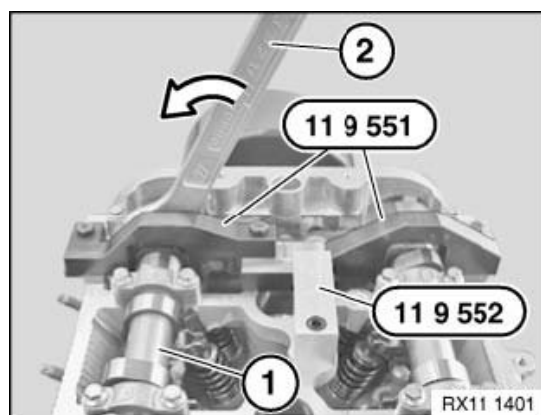
- ^ Remove cylinder head cover.
- ^ Remove all spark plugs.
- ^ Remove vibration damper.
- ^ Remove chain tensioner.
- ^ Remove VANOS adjustment unit.
- ^ Remove sprocket wheel for exhaust camshaft.
- ^ Remove PTFE ring at front.
- ^ Remove belt tensioner.

Position crankshaft with special tool 11 9 590.

Do not remove special tool 11 9 590 during repair work.



Do not remove special tool 11 9 550.

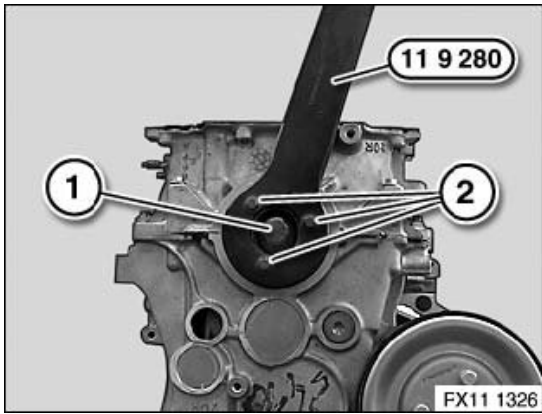


#### Important:

**Employ a second person for gripping when releasing central bolt (1).**

Fit special tool 11 9 280 on hub for vibration damper with screws (2).

Release central bolt (1).



Release central bolt in direction of arrow.

Tighten torsion damper (hub) to crankshaft (central bolt)

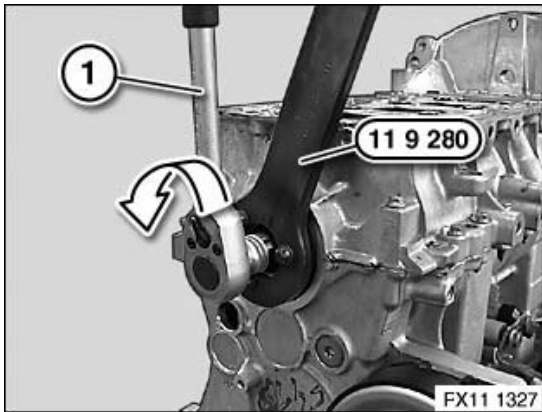
11 21 1AZ Torsion damper (hub) to crankshaft (central bolt)

M14 x1.5 x74

Jointing torque ..... 50 Nm

Torque angle ..... 180 °

**Note:** Replace screws, Lightly oil screws and threads



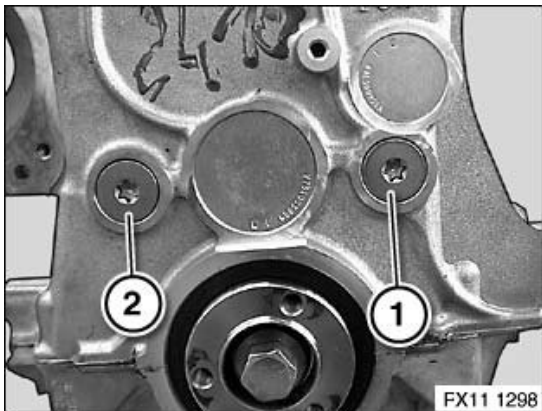
Release bearing pins (1 and 2).

Tighten Screw plug, timing case lower section

6AZ Screw plug, timing case lower section

M16x1.5 ..... 30 Nm

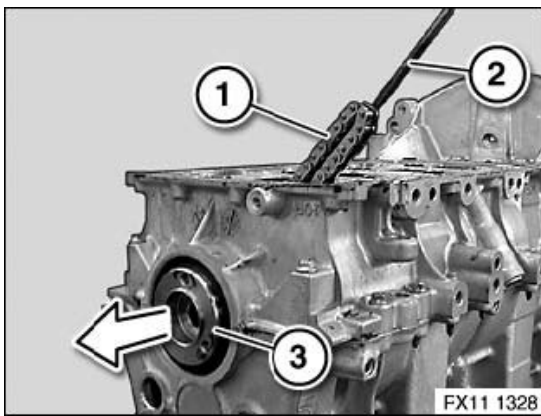
**Note:** Replace seal.



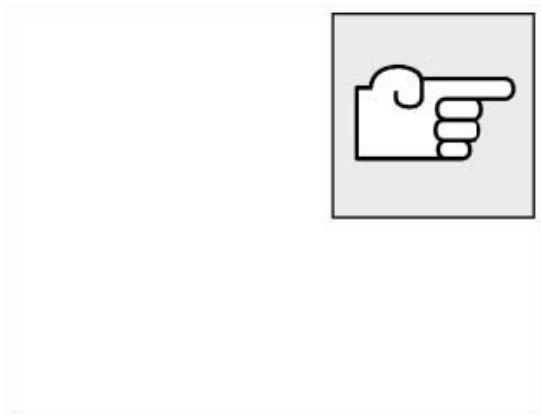
Remove hub (3) towards front.

Remove chain module with timing chain.

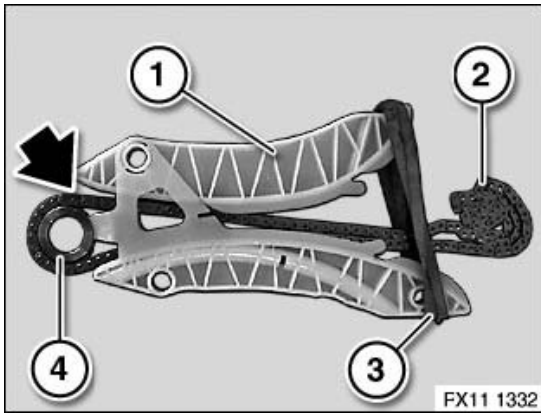
Using a hook (2), pull oil pump chain (1) upwards.



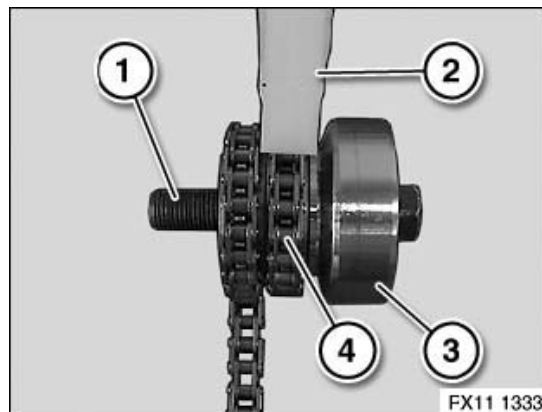
Sprocket wheel (1) of timing chain.  
Sprocket wheel (2) of oil pump.



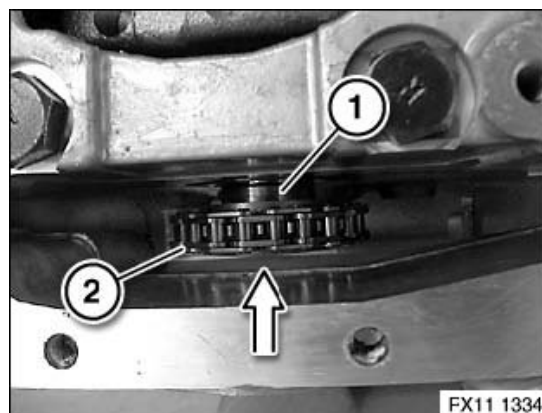
Secure chain module (1) with rubber (3) to facilitate assembly.  
Pull timing chain (2) upwards until sprocket wheel (4) rests against chain guide (1).  
Install timing chain (2) and sprocket wheel (4) in this position.  
Installation:  
Always keep timing chain (2) tensioned; it is possible for timing chain (2) to jam on chain module (1).



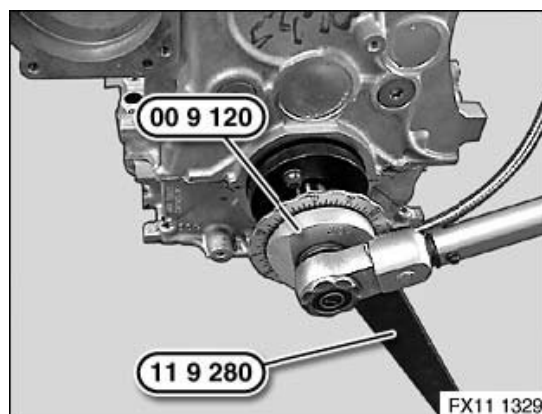
Installation position of both sprocket wheels.  
Sprocket wheel (1) of oil pump.  
Guide rail (2) of timing chain.  
Hub (3) on crankshaft.  
Sprocket wheel (4) of timing chain.



Attach oil pump sprocket wheel (2) in direction of arrow to crankshaft (1).  
 Insert chain module with timing chain and secure.  
 Attach crankshaft hub.  
 Screw in central bolt.



Remove special tool 11 9 280 from hub.  
 Secure central bolt with special tool 00 9 120.



Install VANOS adjustment unit.  
 Install sprocket wheel for exhaust camshaft.  
 Crank engine twice.  
 Check timing.  
 Install PTFE ring.  
 Assemble engine.

## Timing Chain: Service and Repair

### 11 31 090 Installing and Removing/Replacing Chain Tensioner Piston

#### 11 31 090 Installing and removing/replacing chain tensioner piston (N14)

Release chain tensioner (1).

Tightening torque: 11 31 4AZ.

#### Important:

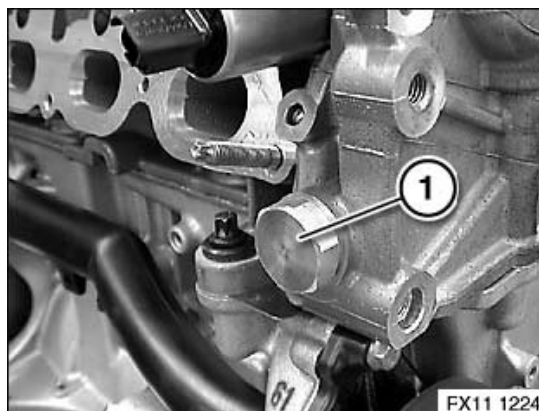
**Have a cleaning cloth ready. A small quantity of engine oil will emerge after the screw connection has been released.**

**Make sure no oil runs onto the belt drive.**

#### Installation:

No sealing ring is fitted during series-production assembly.

A sealing ring must be fitted by service personnel when the chain tensioner is fitted.



If the chain tensioner is reused, its oil chamber must be drained. Place chain tensioner on a level working surface and slowly compress. Repeat procedure twice.



Assemble engine.

## Timing Component Alignment Marks: Locations

The procedure for "Checking Camshaft Timing" can be found under Camshaft, Engine See: Camshaft, Lifters and Push Rods/Camshaft/Testing and Inspection

The following is taken from " Adjusting camshaft timing (N14)"

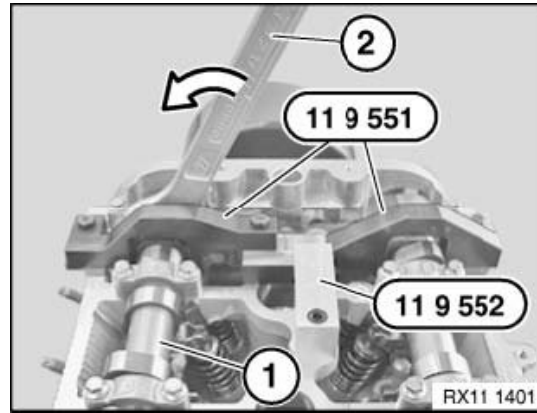
See: Camshaft, Lifters and Push Rods/Camshaft/Adjustments

**Important:**

Risk of damage! to chain drive.

To open central bolt, mount special tool 11 9 551 on camshaft.

If the setting gauges cannot be positioned, grip the camshaft with an open-end wrench to release the central bolt.





# Water Pump: Service and Repair

## 11 51 000 Removing and installing/replacing water pump (N14)

**Warning:****Danger of scalding!****Only perform these tasks on an engine that has cooled down.**

## Recycling:

Catch and dispose of drained coolant.

Observe country-specific waste-disposal regulations.

## Necessary preliminary tasks:

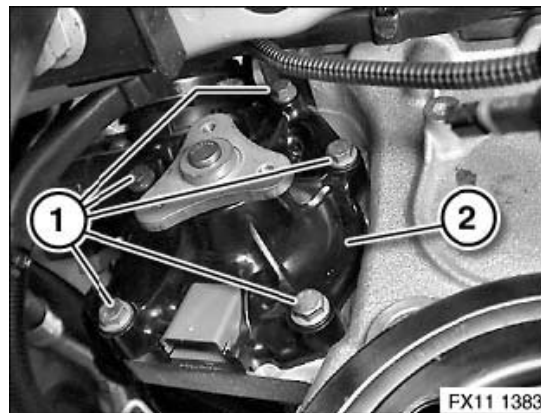
^ Remove friction gear.

Release screws (1).

## Installation:

Replace seal.

Clean sealing surfaces.



Assemble engine.

Vent cooling system and check for leaks.

# Cooling System: Testing and Inspection

## 17 00 009 Checking cooling system for leaks (N12, N14)

Special tools required:

- ^ 17 0 101
- ^ 17 0 102
- ^ 17 0 109
- ^ 17 0 115

### Warning:

**Risk of burning and scalding!**

**Only perform this work after engine has cooled down.**

### Important:

**Open cooling system only when it has cooled down.**

**Opening the cooling system while hot can result in air entering the system.**

**This can cause overheating with permanent damage to the engine!**

Necessary preliminary tasks:

Follow instructions for working on cooling system.

Checking pressure drop in cooling system:

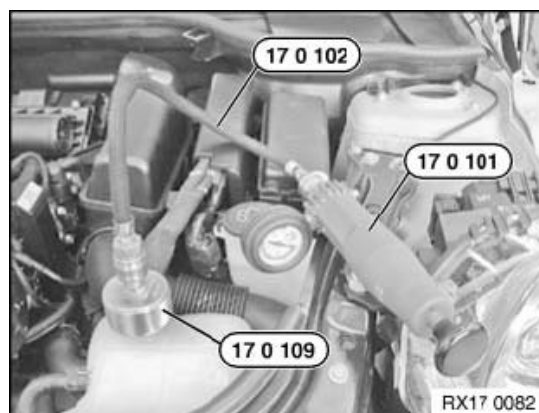
Unscrew cap from filler neck.

Connect special tool 17 0 109 to filler neck.

Connect special tools 17 0 102 and 17 0 101.

Build up gauge pressure and wait approx. 2 minutes.

Cooling system is tight if pressure drop does not exceed 0.1 bar.



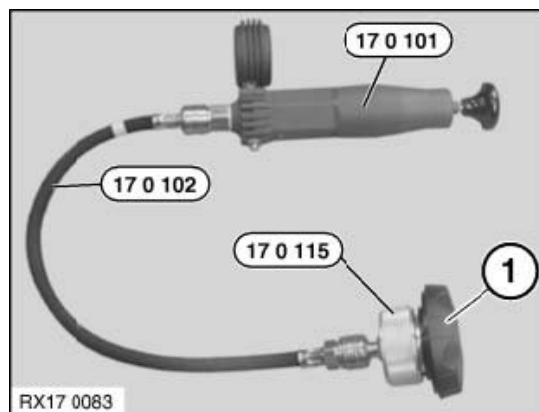
Checking pressure relief valve in cap:

Connect special tool 17 0 115 to cap (1).

Connect special tools 17 0 101 and 17 0 102.

Pressurize cap.

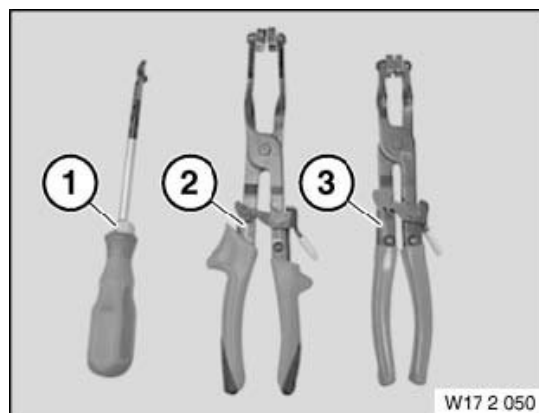
Compare opening pressure of pressure relief valve.

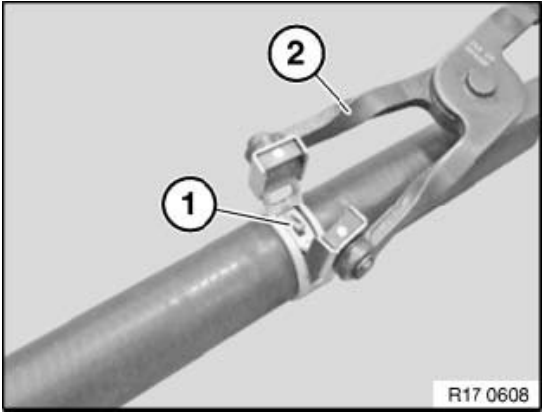


## Cooling System: Service and Repair

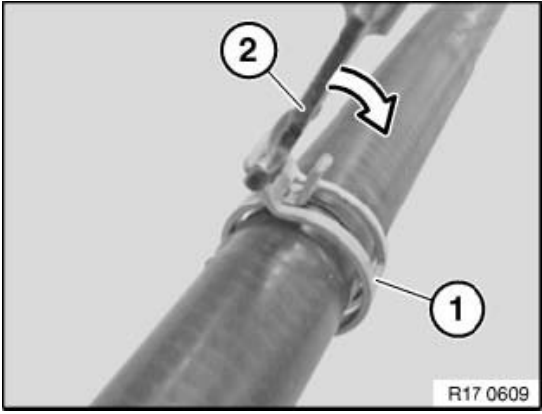
### 17 00 ... Instructions For Working on Cooling System

#### 17 00 ... Instructions for working on cooling system

**Warning:****Scalding hazard!****Only carry out work on the cooling system after the engine has cooled down!****Important:****Wear protective gloves and goggles.****Important:****Lifetime coolant filling:****Never reuse used coolant.****When replacing and removing components which rely on the corrosion protection effect of the coolant, it is essential to change the coolant. The cooling system must therefore be drained and refilled.****In the case of other removal work involving the draining of partial quantities of coolant, replace these quantities which have been drained with new coolant.****Important:****Open cooling system only when it has cooled down.****Opening the cooling system while hot can result in air entering the system.****This can cause overheating with permanent damage to the engine.****Important:****When working on the oil, coolant or fuel circuit, protect the alternator against contamination.****Cover alternator with suitable materials.****Failure to comply with this procedure may result in an alternator malfunction.****Important:****Do not fill coolant expansion tank over MAX level as overfilling will cause the coolant to overflow. This may give rise to traces of residual coolant on the expansion tank or in the engine compartment and wrongly suggest possible leakages.****Important:****Make sure without fail that coolant hoses are correctly routed. Risk of damage due to sharp edges or chafing.****Recycling:****Catch and dispose of drained coolant.****Observe country-specific waste-disposal regulations.****Special tool kit 17 2 050 for removing and installing spring band clamps for coolant hoses.****^ (1) Release tool****^ (2) Pliers (bent version)****^ (3) Pliers (straight version)****Release spring band clamp (1) with pliers (2).**



Unlock spring band clamp (1) with release tool (2).



# Auxiliary Water Pump: Service and Repair

## 11 53 590 Removing and installing/replacing auxiliary water pump (N14)

Special tools required:

^ 17 2 052

Necessary preliminary tasks:

^ Drain coolant from radiator.

Release hose clamps (1 and 2) with special tool 17 2 052.

Detach coolant hoses from auxiliary water pump.

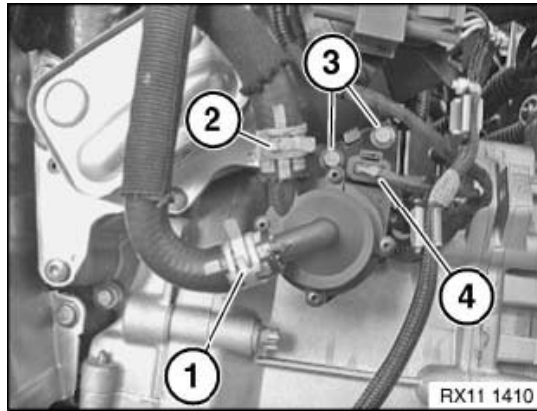
Disconnect plug connection (4).

Release screws (3).

Tighten auxiliary water pump to crankcase

3AZ Auxiliary water pump to crankcase

M6x100 ..... 8 Nm



Vent cooling system.

Assemble engine.

# Coolant: Service and Repair

## 17 00 005 Draining and adding coolant (N14)

Special tools required:

^ 17 2 052

### Warning:

**Danger of scalding!**

**Only carry out work on the cooling system after the engine has cooled down!**

### Important:

**Wear protective gloves and goggles.**

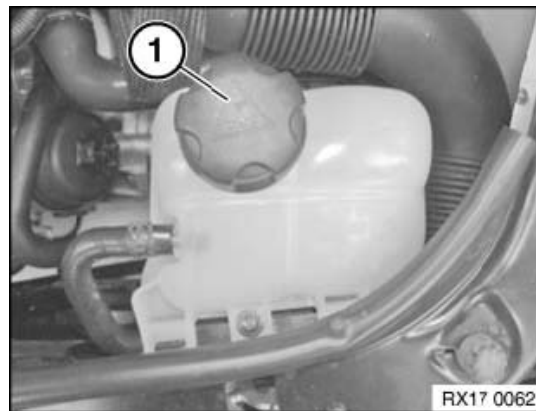
Necessary preliminary tasks:

Follow instructions for working on cooling system.

After adding coolant, check cooling system for leaks.

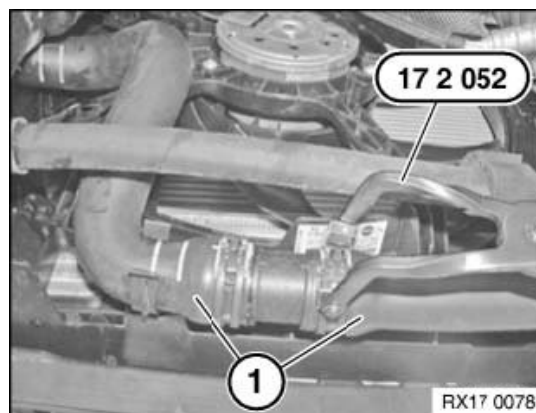
Draining coolant:

Unscrew cap (1) on coolant expansion tank.



Release spring strap on lower coolant hose (1) with special tool 17 2 052.

Detach coolant hose (1). Drain, catch and dispose of coolant.



Adding coolant:

### Note:

Before filling, turn on ignition and set heating control to maximum temperature.

Set fan to low setting.

Pour in coolant slowly.

Observe mixture ratio.

The cooling system is vented during filling.

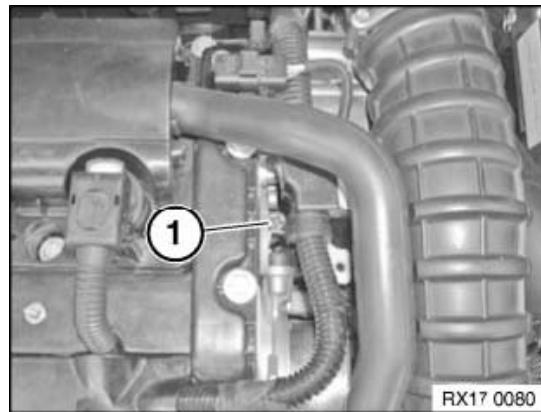
### Note:

^ Installation location of vent screw: thermostat housing.

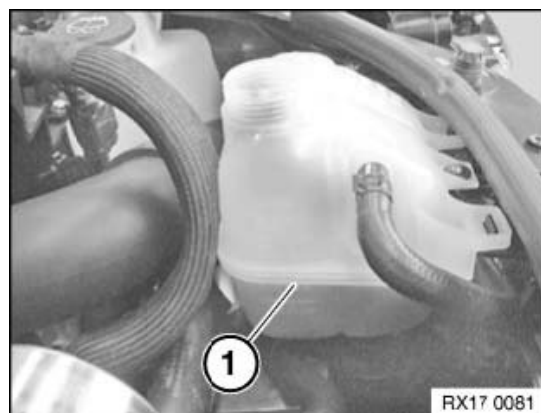
Release vent screw (1).

Pour in special coolant through expansion tank filler neck until bubble-free coolant emerges at vent screw (1).

Close bleed screw (1).



Continue topping up coolant in expansion tank to max. level (1).  
Start engine and run at idle speed. If the level drops, top up coolant until the level no longer drops.  
Switch off engine and if necessary top up coolant to max. level.  
Close expansion tank.



**Note:**  
Check cooling system for leaks

## Coolant Reservoir: Service and Repair

### 17 11 100 Removing and installing/replacing coolant expansion tank (N12, N14)

Special tools required:

^ 17 2 052

**Note:**

Follow instructions for working on cooling system

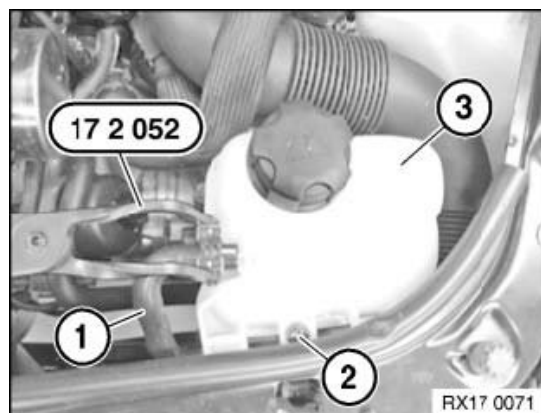
**Important:**

**Make sure without fail that coolant hoses are correctly routed. Risk of damage due to sharp edges or chafing.**

Release spring strap for hose (1) with special tool 17 2 052 and detach hose (1).

Release screw (2).

Release expansion tank (3) from rubber mount and raise slightly until lower coolant hose is accessible.

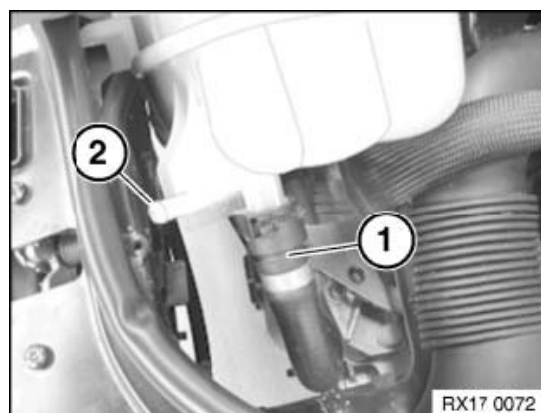


Unlock and detach lower coolant hose (1). Catch and dispose of escaping coolant.

Remove expansion tank.

Installation:

Make sure bearing pin (2) is installed in correct position in rubber mount.



**Note:**

Check coolant level



# Fan Shroud: Service and Repair

## 17 11 035 Removing and installing/replacing fan cowl with electric fan (N14)

### Warning:

**Scalding hazard!**

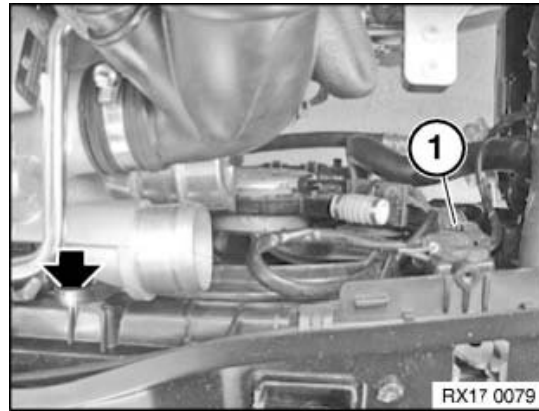
**Only perform this work after engine has cooled down.**

Necessary preliminary tasks:

Remove left charge-air duct

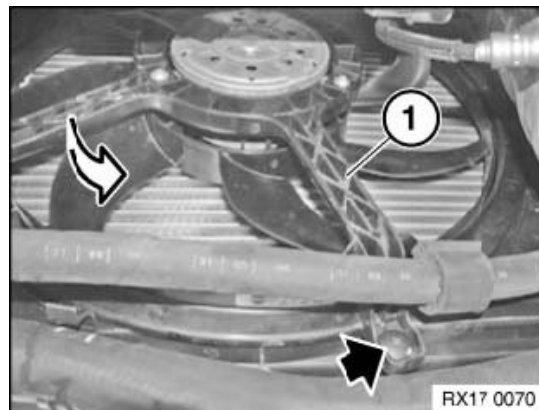
Release screw.

Unlock plug (1) and remove.



Release screw.

Unlock fan cowl (1) in direction of arrow, feed out in downward direction and remove.



# Thermostat: Service and Repair

## 11 53 000 Removing and installing/replacing coolant thermostat (N14)

Special tools required:

^ 17 2 050

### Warning:

**Danger of scalding!**

**Only perform these tasks on an engine that has cooled down.**

Recycling:

Catch and dispose of drained coolant.

Observe country-specific waste-disposal regulations.

Necessary preliminary tasks:

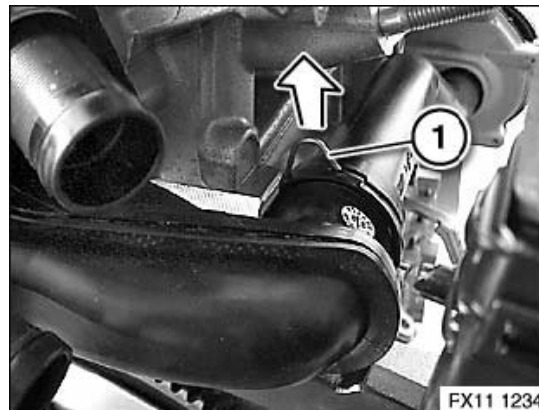
^ Drain coolant from radiator.

^ Remove intake air manifold.

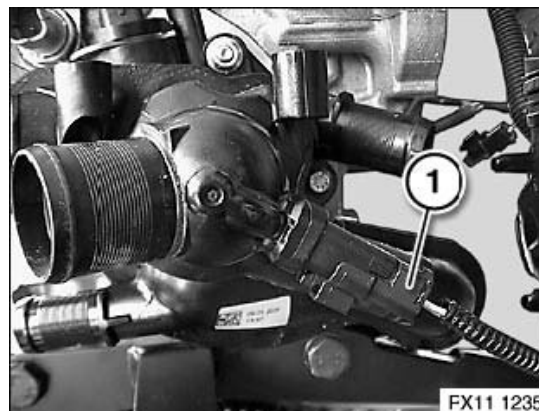
Release lock (1) on coolant pipe in direction of arrow.

### Note:

^ Release metal hose clamps with special tool 17 2 050.

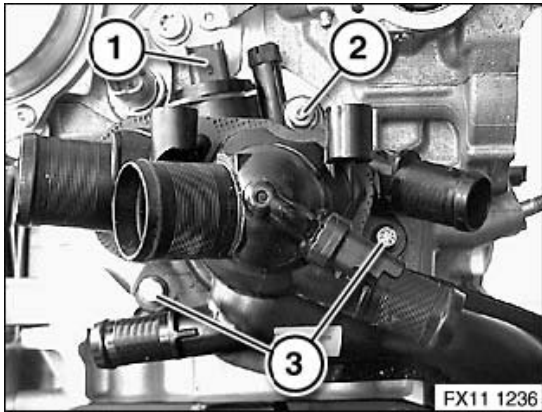


Disconnect plug connection (1) on coolant thermostat.

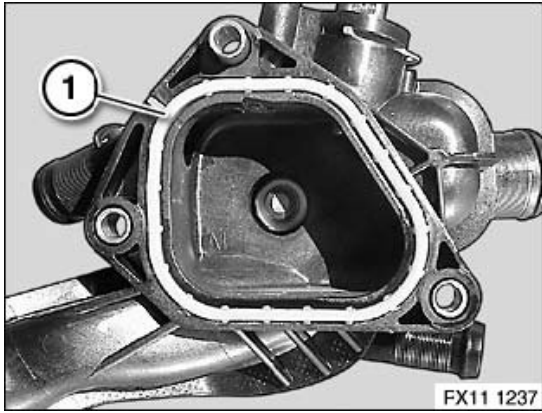


Disconnect plug connection (1) on coolant temperature sensor.

Unfasten screws (2 and 3).



Installation:  
Replace seal (1).



Tighten thermostat housing to cylinder head  
1AZ Thermostat housing to cylinder head  
M6 ..... 8 Nm

Assemble engine.

# Exhaust System: Service and Repair

## 18 00 020 Removing and installing complete exhaust system (N14)

### Warning:

**Danger of burning and other injuries!**

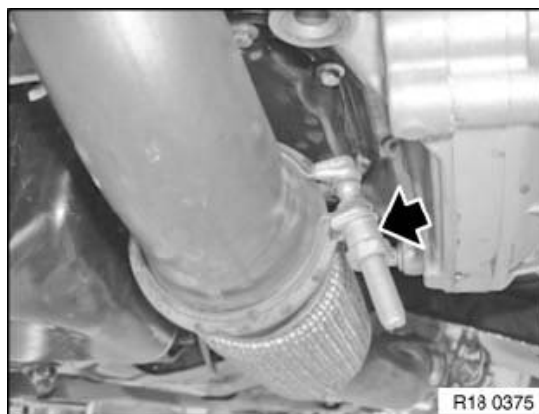
**These tasks should only be carried out on an exhaust system that has cooled down.**

**Removal of the exhaust system must be carried out with the assistance of a second person.**

Unfasten clip.

Tighten V-band clamp, exhaust system, to catalytic converter

5AZ V-band clamp, exhaust system, to catalytic converter ..... 25 +/- 5 Nm

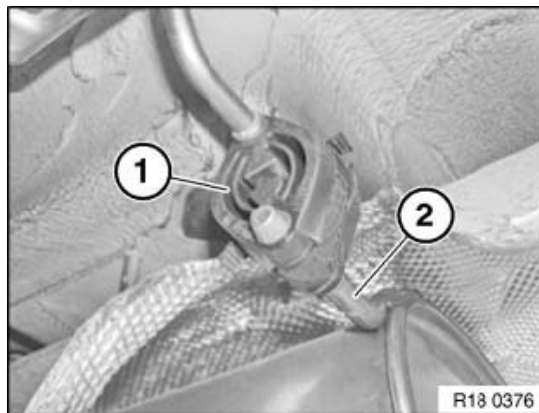


Spray rubber mount (1) with anti-seize agent and detach from rear muffler (2).

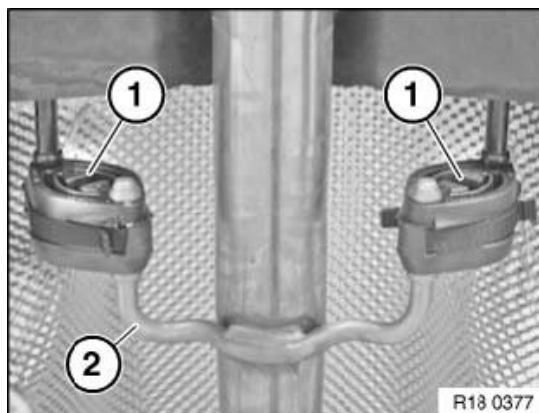
### Note:

Illustration shows and text refers to the left rubber mount.

The procedure is identical for the right filter side.



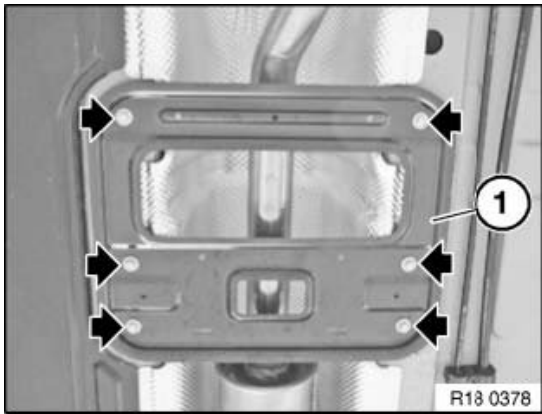
Spray rubber mount (1) with anti-seize agent and detach from exhaust pipe (2).



Support exhaust system with a suitable lifter.

Release screws and remove cross-brace (1).

Lower and remove exhaust system with assistance of a second person.



**Note:**  
Check rubber mount for damage, replace if necessary.

Catalytic Converter: Service and Repair

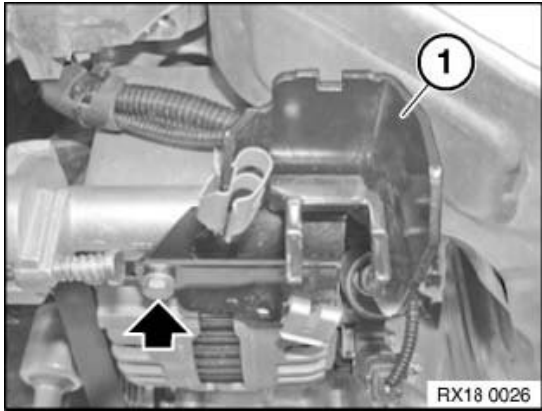
18 32 005 Removing and installing/replacing catalytic exhaust-gas converter (N14)

Warning!  
Scalding hazard!  
Only perform these tasks after exhaust system has cooled down.

Necessary preliminary tasks:  
^ Move front panel into assembly position

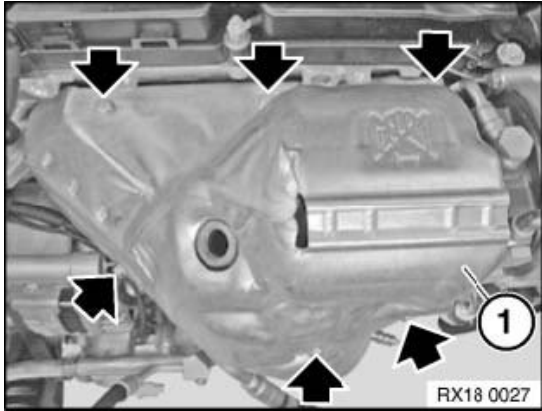
**Note:**  
The oxygen sensors are in danger of being damaged when the exhaust manifolds are removed and installed.  
Remove control sensor  
Remove monitor sensor

Release screw and remove holder (1).



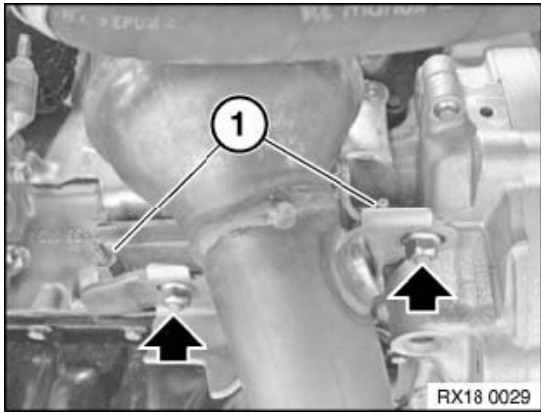
Release screws and remove upper heat shield (1).

Tighten front heat shield to rear heat shield  
7AZ Front heat shield to rear heat shield  
M6 x 100 ..... 4 Nm



Release screws and remove lower heat shield (1).

Tighten front heat shield to rear heat shield  
7AZ Front heat shield to rear heat shield  
M6 x 100 ..... 4 Nm



Unscrew nuts.  
Installation:  
Replace nuts.

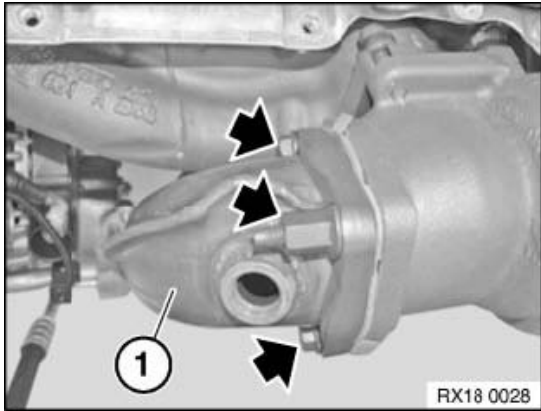
Tighten catalytic converter to bracket  
3AZ Catalytic converter to bracket

M8 ..... 20 ± 5 Nm  
**Note:** Replace nuts

Unscrew nuts (1).

Tighten bracket, catalytic converter, to crankcase  
4AZ Bracket, catalytic converter, to crankcase

M8 ..... 20 ± 5Nm



Loosen screws and nut.  
Remove exhaust manifold (1).

Installation:

- ^ Replace seal.
- ^ Clean sealing surfaces.
- ^ Apply a thin coat of copper paste to thread.
- ^ Tightening torque 18 31 1AZ.

# Exhaust Manifold: Service and Repair

## 18 40 040 Removing and installing/replacing exhaust manifold (N14)

Special tools required:

^ 17 2 051

### Warning!

#### Scalding hazard!

These tasks should only be carried out on an exhaust system that has cooled down.

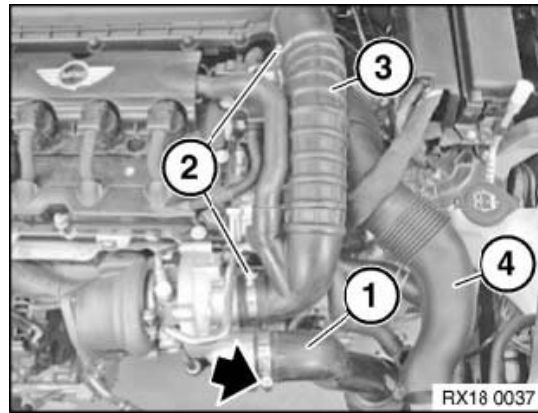
Necessary preliminary tasks:

- ^ Drain coolant
- ^ Remove coolant expansion tank
- ^ Remove catalytic exhaust-gas converter

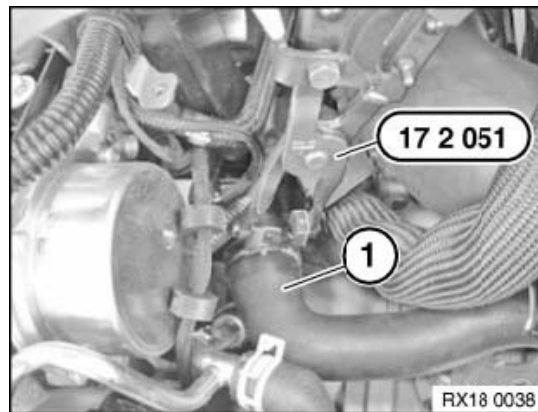
Release clamp and detach charge-air duct (1).

Release clamps (2) and detach air intake hose (3).

Remove clean air pipe (4).



Release spring strap with special tool 17 2 051 and detach coolant hose (1).



Release screws and detach lines (1).

Installation:

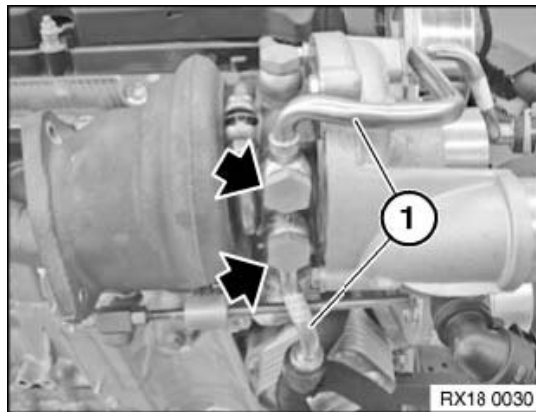
Replace seals.

Tighten coolant inlet and outlet lines to turbocharger

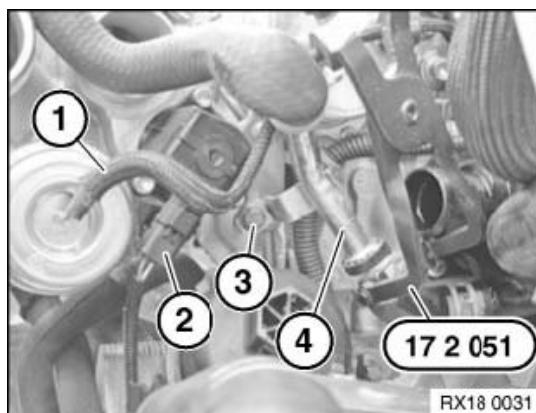
8AZ Coolant inlet and outlet lines to turbocharger

M14 x 1.5 banjo bolt .....	35 Nm
----------------------------	-------





Pull off hose (1).  
Unlock connector (2) and remove.  
Unscrew bolt (3).  
Release spring strap with special tool 17 2 051. Detach line (4) and remove.

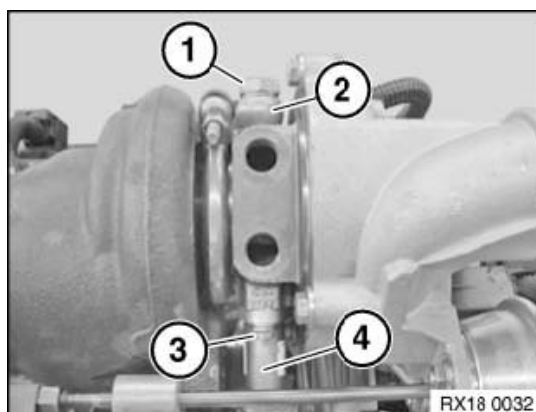


Release screw (1) and detach line (2).  
Installation:  
Replace seals.

Tighten oil feed to turbocharger  
4AZ Oil feed to turbocharger  
M12 x 1.5 Banjo bolt ..... 30 Nm

Release screw (3) and detach line (4).  
Installation:  
Replace sealing ring.

Tighten oil return to turbocharger  
5AZ Oil return to turbocharger  
M6 x 100 ..... 8 Nm



Release screw (1).

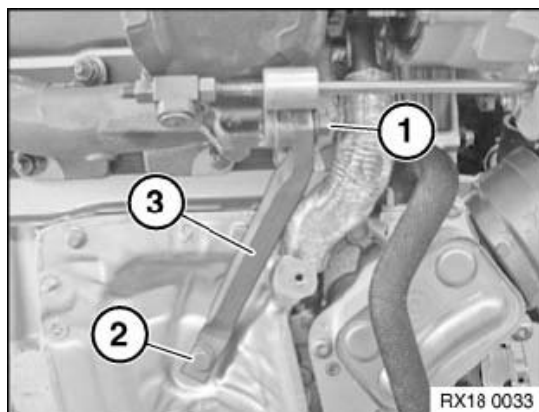
Tighten bracket to turbocharger  
3AZ Bracket to turbocharger  
M8 25 ±6 Nm

Release screw (2) and remove holder (3).

Tighten bracket to crankcase

6AZ Bracket to crankcase

M8 x 125 ..... 19 Nm



Release nuts and remove exhaust manifold (1).

Installation:

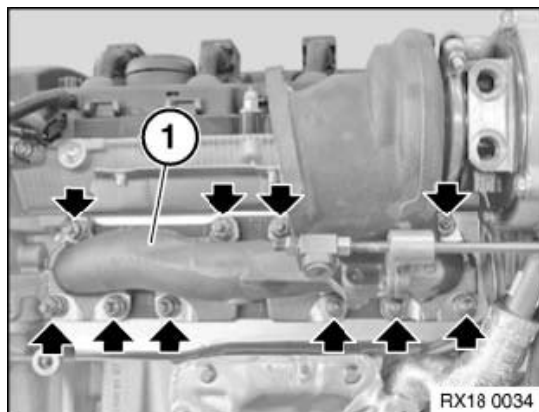
- ^ Replace seal and nuts.
- ^ Clean sealing surfaces.
- ^ Apply a thin coat of copper paste to thread.

Tighten Exhaust manifold to cylinder head

1AZ Exhaust manifold to cylinder head

M8 ..... 25 Nm

**Note:** Replace nuts, Coat threads with copper paste



Release nuts and remove turbocharger (1) from exhaust manifold (2).

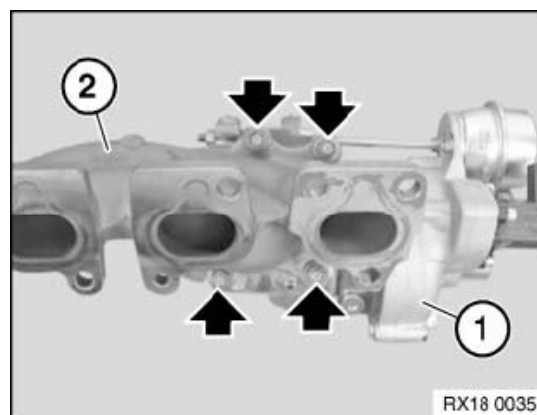
Installation:

- ^ Replace seal and nuts.
- ^ Clean sealing surfaces.
- ^ Apply a thin coat of copper paste to thread.

Tighten turbocharger to exhaust manifold

1AZ Turbocharger to exhaust manifold

M8 nut - 10.9 ..... 20 Nm

**Note:**

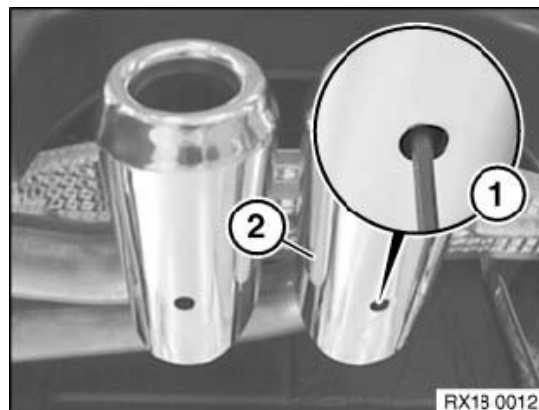
Assemble engine.  
Top up coolant.  
Check engine oil level.  
Clear DME fault memory.

## Exhaust Pipe: Service and Repair

### 18 10 ... Removing and installing/replacing chrome trim for exhaust pipe

Release screw (1).  
Detach trim (2).

Tightening torque 18 00 8AZ.



# Muffler: Service and Repair

## Front Muffler

### 18 12 040 Removing and installing/replacing front muffler (N12, N14)

Special tools required:

^ 00 2 210

#### Warning:

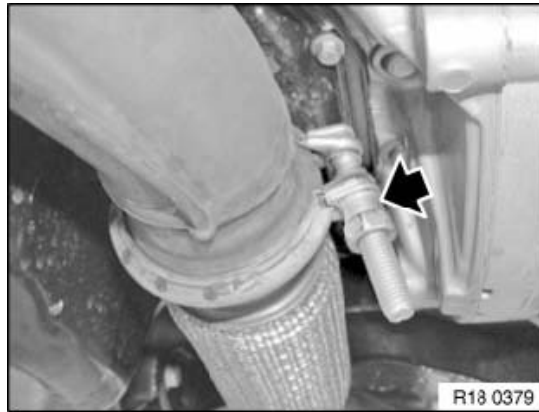
**Scalding hazard!**

**Only perform these tasks after exhaust system has cooled down.**

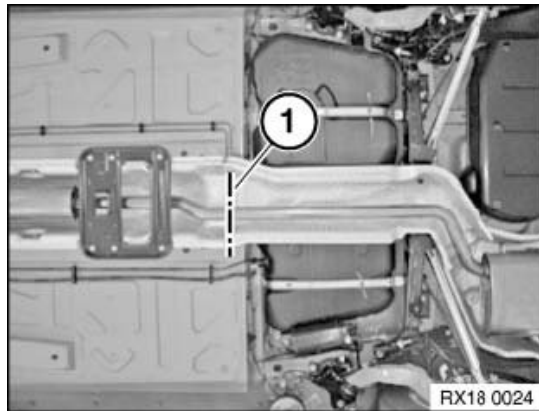
Unfasten clip.

Tighten V-band clamp, exhaust system, to catalytic converter

5AZ V-band clamp, exhaust system, to catalytic converter ..... 25 ±3  
Nm



Cutting line (1) for front muffler is designated by a notch in the pipe.

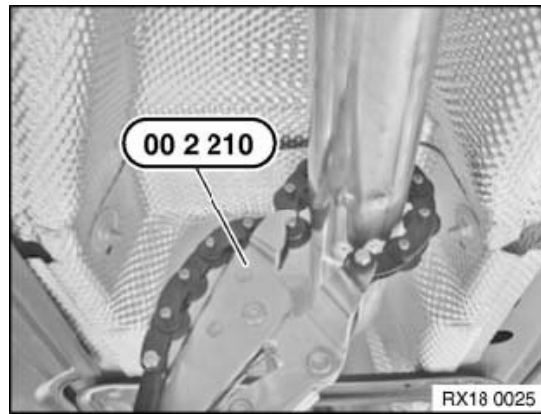


Cut exhaust pipe with special tool 00 2 210 at marked point and deburr.

#### Important:

**Risk of damage!**

**Secure exhaust pipe of rear muffler against falling down.**

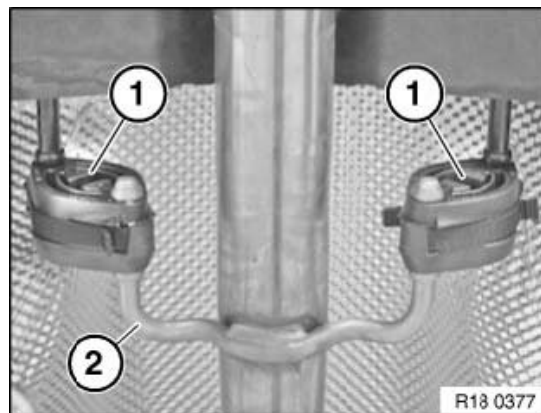


Spray rubber mount (1) with anti-seize agent and detach from exhaust pipe (2).

**Note:**

Check rubber mount for damage, replace if necessary.

Lower and remove front muffler with assistance of a second person.



**Installation:**

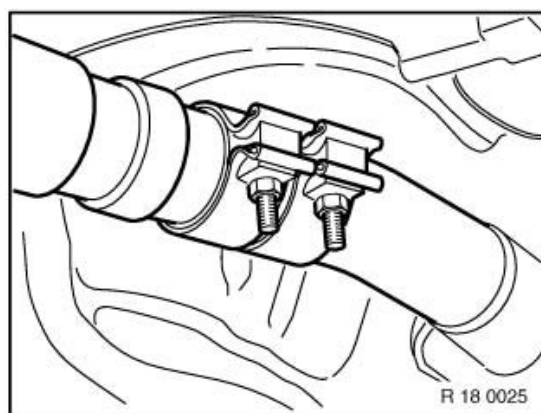
Connect rear muffler to front muffler by means of a clamp.

Align rear muffler to rear apron.

Align clamp and tighten down.

Tighten clamp

6AZ Clamp ..... 45 Nm



**Note:**

Check exhaust system for leaks.

# Muffler: Service and Repair

## Rear Muffler

### 18 12 030 Removing and installing/replacing rear muffler (N12, N14)

Special tools required:

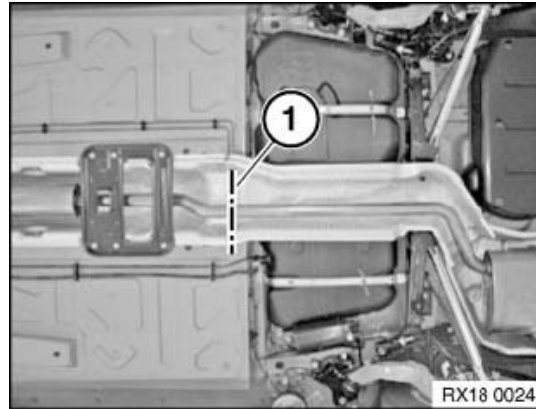
^ 00 2 210

**Warning:**

**Scalding hazard!**

**Only perform these tasks after exhaust system has cooled down.**

Cutting line (1) for rear muffler is designated by a notch in the pipe.

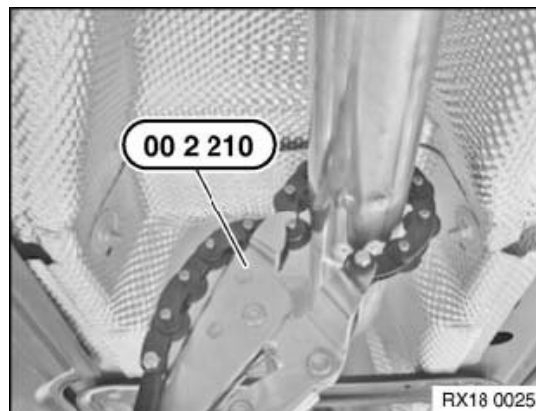


Cut exhaust pipe with special tool 00 2 210 at marked point and deburr.

**Important:**

**Risk of damage!**

**Secure exhaust pipe of rear muffler against falling down with assistance of a second person.**

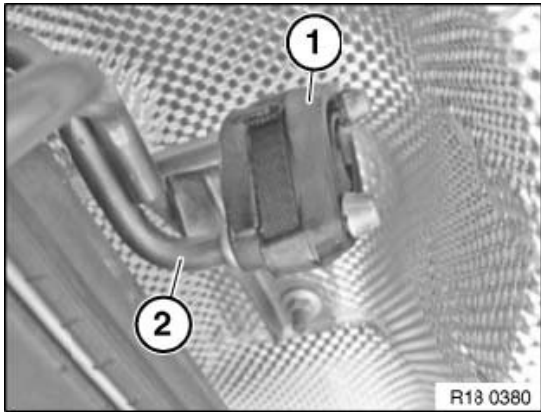


Spray rubber mount (1) with anti-seize agent and detach from rear muffler (2).

**Note:**

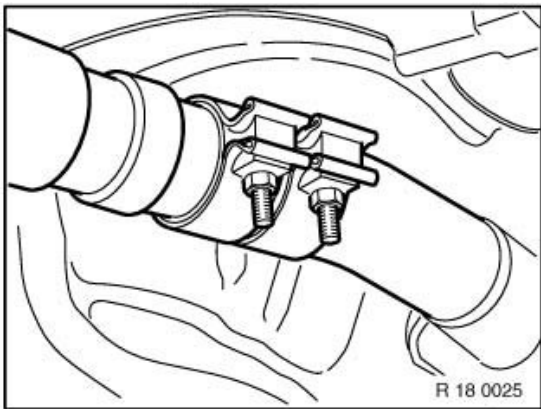
Illustration shows and text refers to the right rubber mount. The procedure is identical for the left side.

Lower and remove rear muffler with assistance of a second person.



Installation:  
Connect rear muffler to front muffler by means of a clamp.  
Align rear muffler to rear apron.  
Align clamp and tighten down.

Tighten Clamp  
6AZ Clamp ..... 45 Nm



**Note:**  
Check exhaust system for leaks.



# Powertrain Management: Description and Operation

## Motor Electronics (Petrol Engine)

## Adaptations and Equipment Variations

### Adaptations And Equipment Variations

The adaptation makes it possible that the engine control unit can learn certain values of components and thus compensate for certain component tolerances.

When used for the first time, the engine management system also learns equipment variations that are fitted.

The service function "Reset adaptation values" can be used to reset the adaptation values and equipment variations to their default settings; thereafter, they have to be relearned. Longer operation between idle speed and partial load is necessary, for example, in order to learn the mixture adaptation values.

- Deleting adaptations after repairs:  
in general, the adaptations should not be deleted after a repair (part replacement). On replacement of the throttle valve, the MDK adaptations are to be deleted to avoid a diagnostic fault code memory entry.
- Deleting equipment variations and adaptations after a conversion or vehicle upgrades:  
after a vehicle conversion, e.g. from manual to automatic transmission, or vehicle upgrade, e.g. retrofitting a trailer module or a multifunction steering wheel, the equipment variations and adaptations must be deleted and relearned.

### Examples of various adaptations

#### Fuel mixture adaptation

The mixture formed in the intake area requires some time before it reaches the oxygen sensor as exhaust emissions. This time decreases as load and engine speed increase. For this reason, the response time of the emission (Lambda) control system is also dependent on load and engine speed. Fuel-air mixture deviations detected by the oxygen sensor result in adaptation values (learned correction values) being stored. By way of the adaptations, the injection can be brought close to the nominal value in advance. A reduction in the response time is achieved in this way.

For example, if the basic fuel injection values of the engine control unit characteristic map are too low at idle speed to maintain the ideal fuel-air mixture, the oxygen-sensor control would have to continuously increase the fuel injection period. In this case, an adaptation value is learnt which corrects the basic injection value. The emission (Lambda) control then only needs to undertake the fine adjustment.

#### Idle mixture adaptation (additive)

If idling is detected in the off-load phase of the tank ventilation due to the throttle-valve position, an idling fuel mixture adaptation is made at certain intervals. As the idling and part-load fuel mixture adaptations mutually influence one another, complete adaptation requires a number of switches between idling and part-load.

#### Partial load mixture adaptation (multiplicative)

Also in the part-load range, a fuel mixture adaptation is carried out at regular intervals. The determined adaptation value is taken into consideration in all partial load ranges.

#### Tank venting adaptation

When the tank ventilation valve is open, an additional combustible mixture is supplied from the carbon canister to the engine. The shift in mixture detected by the oxygen sensor is completely corrected out by means of the tank ventilation adaptation value.

#### Idle speed adaptation

The idle speed adaptation is handled by the idle actuator. It uses the air volume to ensure a constant idle speed.

#### Sensor adaptation

Misfiring causes irregularities in the rotational speed of the crankshaft. These irregularities can be detected by way if changes in the segment time.

The crankshaft sensor continuously determines segment times (time in which a certain number of teeth of the increment gear run past the sensor). These segment times are constantly checked during engine operation. In the event of a fault, a corresponding fault code is stored in the fault code memory and the fuel injection is deactivated at the corresponding cylinder. Refer to misfiring detection.

To prevent incorrect evaluations, a sensor adaptation must be run after replacement of the DME control module or crankshaft sensor.

If the increment gear is replaced, the sensor adaptation must be deleted both before and after replacement.

The sensor wheel adaptation determines the irregularity of the increment wheel and takes it into consideration when evaluating the segment times.

## **Crankcase Ventilation: Overpressure or Underpressure**

### **Crankcase Ventilation: Overpressure Or Underpressure**

The combustion pressure presses gases out of the combustion chamber between the cylinder barrel and piston into the crankcase.

So that no overpressure occurs in the crankcase, the underpressure in the air intake system feeds the gases via the crankcase ventilation into the air intake system. The underpressure is limited by a pressure control valve.

Defects in the crankcase ventilation lead to high underpressure or overpressure in the crankcase.

The crankcase ventilation can be checked by measuring the pressure in the crankcase.

#### **Causes of excessive overpressure**

- Engine damage
- Obstruction of the crankcase ventilation
- Defective pressure control valve

#### **Causes of excessive underpressure**

- Defective pressure control valve

#### **Symptoms and consequences of excessive overpressure**

- Destruction of seals
- Slipping of dipstick (if present)
- Increased oil consumption
- Oil in the air intake system after the inlet point
- Oiled charge-air intake line on supercharged engines

#### **Symptoms and consequences of excessive underpressure**

- Destruction of seals
- Increased oil consumption
- Oil in the air intake system after the inlet point
- Rough idling speed
- Sucking or whistling noise from the engine
- Rising mixture adaptation values

#### **Measuring accuracy of the pressure sensor**

- Measuring range: 0 to 25 bar
- Absolute accuracy: 1 %, i.e. maximum deviation 250 mbar
- Resolution: 10 mbar

#### **Target values for petrol engines**

The pressure control valve sets the following pressure range:

Deviation to the current ambient pressure 0 to -30 mbar

On N73: 0 to -40 mbar

Component and measuring tolerances result in the following values for a proper state:

Deviation to the current ambient pressure: +20 mbar to -60 mbar

On N73: +20 mbar to -70 mbar

#### **Values in the event of a defect for petrol engines**

A defect causes significant deviations from the values for the proper state:

Crankcase ventilation "clogged": Ambient pressure +100 mbar

Crankcase ventilation "defective": ambient pressure -170 mbar

**NOTE:** Due to the relatively low accuracy of the pressure sensor ( $\pm 250$  mbar), the ambient pressure must always be determined using the measurement system of the BMW diagnosis system.

## **Automatic Engine Start-Stop (Automatic Engine Start-Stop)**

### **Engine Start Engine Start-Stop**

The new function of automatic engine start-stop (MSA) is a fundamental component of the measures package to reduce CO<sub>2</sub> emissions. The reduction in fuel consumption is achieved by automatic shutdown of the engine when the vehicle is at a standstill. The new start also takes place automatically as soon as the corresponding conditions required for switch-on are met.

The MSA will be deployed in the BMW 1 Series, 3 Series and MINI model series in conjunction with the manual transmission and four-cylinder engine.

**NOTE:** Bear in mind the designation used by marketing.

The marketing designation is automatic engine start-stop function.

### MSA function, principle

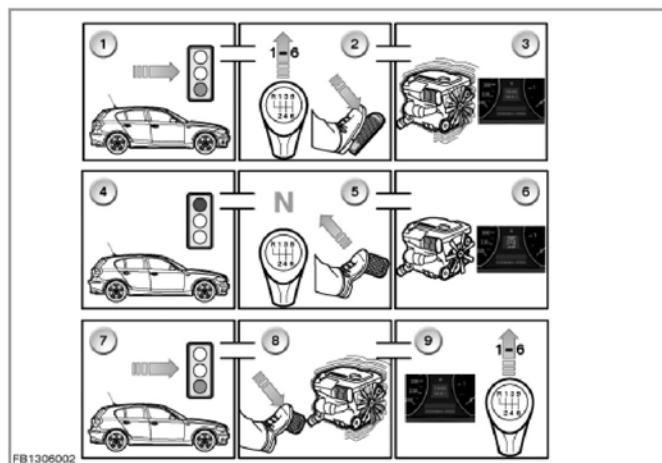
The MSA ensures automated shutdown of the engine while the vehicle is being driven if the vehicle comes to a standstill and a number of essential vehicle conditions are met to enable this shutdown.

Examples (matrix, see "System functions"):

- Vehicle stationary
- No gear is engaged
- Clutch not pressed
- Engine temperature not too low
- Ambient temperature greater than 3 °C
- Brake vacuum sufficient
- Battery charge status adequately high
- Driver's seat belt fastened
- No backing up has taken place

Just as automatic as this shutdown is the automatic restart of the engine as soon as the clutch is pressed again or there are other requirements.

Sample scenario: switching off the engine at a standstill at a red traffic light or in stop-and-go traffic.



Index	Explanation	Index	Explanation	Index	Explanation
1	Vehicle moving	2	Gear is engaged. The accelerator pedal is pressed.	3	The engine is running. The time and temperature are displayed in the instrument cluster.
4	The driver brakes until the vehicle comes to a standstill.	5	The driver engages neutral and releases the clutch pedal.	6	The engine stops. The symbol "Start/Stop" lights up in the instrument cluster.
7	The driver wants to continue the journey.	8	The driver presses the clutch pedal. The engine starts.	9	The gear can be engaged and the journey continued. The symbol "Start/Stop" goes out.

### IMPORTANT:

The automatic switch on of the engine on vehicles with MSA can also take place when the driver takes no action. Customer annoyance and customer complaints are not based on a malfunction! Situations in which the engine starts fully automatically without any action on the part of the driver are, for example:

- A/C-request signal: e.g. windscreen fogged over.
- Insufficient brake partial vacuum: insufficient brake partial vacuum can lead to safety risks during braking manoeuvres. To prevent this, the engine is started.
- Stalling of the engine.
- Battery almost fully discharged: flat batteries can lead to a complete breakdown of the vehicle. To prevent this, the engine is started.
- Vehicle at a standstill on an incline starts to roll: when the vehicle is switched off, many systems are inactive. Rolling vehicles without the supporting effect of the vehicle systems are a safety risk. To prevent this, the engine is started.

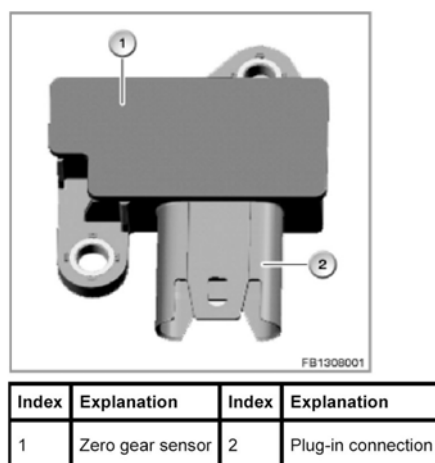
## Brief description of components

The MSA function is located in the engine electronics (DME or DDE). Various information from the bus systems is used for the MSA. New components are also necessary. The following components for the MSA are described:

- Zero gear sensor (new)
- Brake partial vacuum sensor (new)
- MSA button (new)
- DC/DC converter (new)
- AGM battery (new)
- Clutch Switch
- Bonnet contact switch
- Seat belt buckle contact (driver)
- Alternator
- Starter motor

### Zero gear sensor

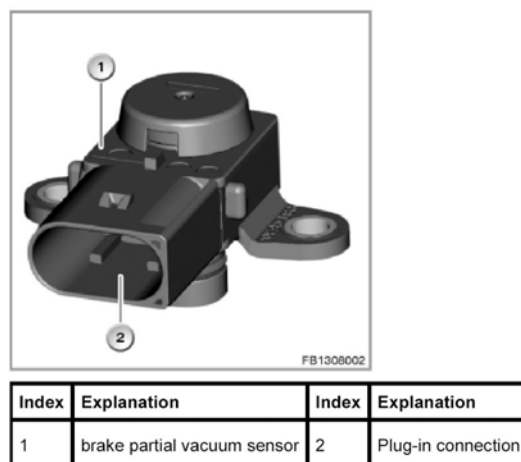
The zero gear sensor is mounted on top of the transmission case. The zero gear sensor detects the idle position of the gearstick.



### Brake vacuum sensor

In order to ensure adequate brake power assistance in every situation, the brake booster is equipped with a partial vacuum sensor.

The brake partial vacuum sensor is located beside the brake booster and is connected via a separate cable.



**IMPORTANT:** With a brake partial vacuum that is too low, the MSA also starts without activity on the part of the driver. Insufficient brake partial vacuum can lead to safety risks during braking manoeuvres, e.g. when rolling on an incline. To prevent this, the engine is started.

### MSA button

The MSA button (MSA OFF) on the centre console switch cluster can be used to deactivate the MSA function. With each terminal change "Terminal 15 On" or repeated pressing of the MSA button, the MSA is reactivated.

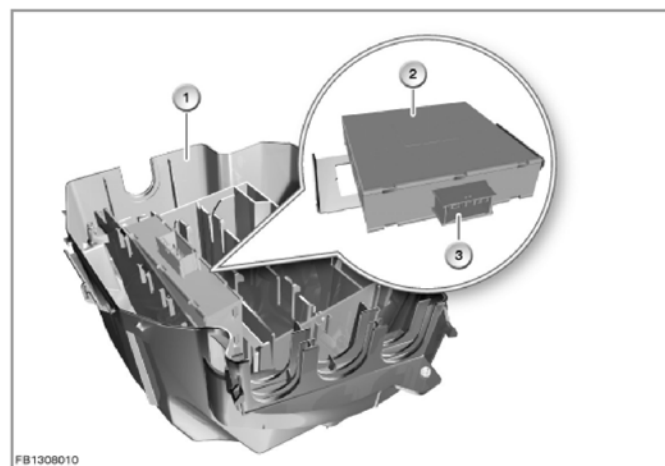


Index	Explanation	Index	Explanation
1	MSA button	2	Center Console Switch Center

## DC/DC converter

Due to the considerably more frequent occurrence of starting operations, the electrical load that occurs often leads to voltage dips in the vehicle network. In order to stabilize the power supply for certain voltage-sensitive electrical components, a DC/DC converter is used in conjunction with the MSA.

The DC/DC converter supplies the two relays "terminal 30g\_DC/DC" and "terminal 30g-f\_DC/DC" with a voltage that also remains constant during the starting operation.



Index	Explanation	Index	Explanation
1	E-box	2	DC/DC converter
3	Plug-in connection		

The DC/DC converter is fitted in the E-box in the engine compartment.

Via the test leads for input voltage and terminal 50, the electronics decide whether the power is supplied to the output via the bypass or the DC/DC converter.

In the bypass mode, the on-board supply voltage is not fed across the DC/DC converter, rather is transferred directly to the outputs. In the booster phase, the vehicle voltage is adapted.

## AGM battery

In all cases, the MSA comes with the intelligent alternator control. The much more frequent charge and discharge cycles mean that the load on the battery is very high. The cycle resistance of AGM batteries means that they achieve similar results with regard to service life despite the high load.



**IMPORTANT:** Ensure an AGM battery is fitted.

In all cases, an AGM battery must be installed and registered in the vehicle for the MSA to work perfectly.

**Clutch Switch**

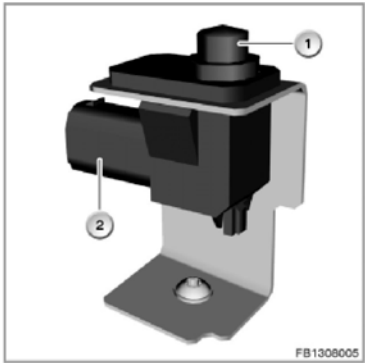
The present clutch switch is used as an input variable for the MSA to detect clutch operation.



Index	Explanation	Index	Explanation
1	Clutch Switch	2	Plug-in connection

**Bonnet contact switch**

The bonnet contact switch is included as an influencing factor in the calculation of the MSA. If the engine bonnet opened, the engine must not be started or stopped by the MSA for safety reasons.



Index	Explanation	Index	Explanation
1	Bonnet contact switch	2	Electrical connection

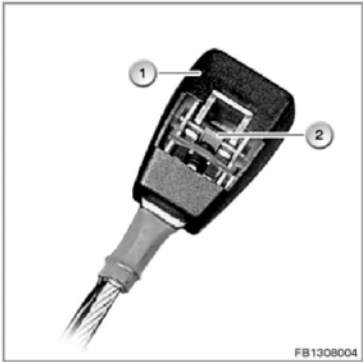
**IMPORTANT:**

- In the event of a defective bonnet contact switch, the MSA function is suppressed.
- If the bonnet contact switch is pulled upwards, the information "Switch closed" is displayed. The MSA is active and an automatic engine start can take place.

**Belt buckle switch (driver)**

Via the belt buckle switch, the MSA can detect that the driver has fastened his or her seat belt. If the driver has not fastened his or her seat belt, the MSA reacts as follows:

- With the engine running, a shutdown inhibitor is set.
- With MSA stop, the MSA is disabled. A new start is possible using the START-STOP button.



Index	Explanation	Index	Explanation
1	Seat belt buckle	2	Belt buckle switch

**Alternator**

The battery discharge during the engine shutdown by the MSA means that a more powerful alternator is installed.



**Starter motor**

In conjunction with the MSA, the starter motor must do a great deal more work. The starter motor is therefore configured for a significantly higher number (approx. 8 times) of start cycles. The components of the starter motor have been adapted to the higher requirements.

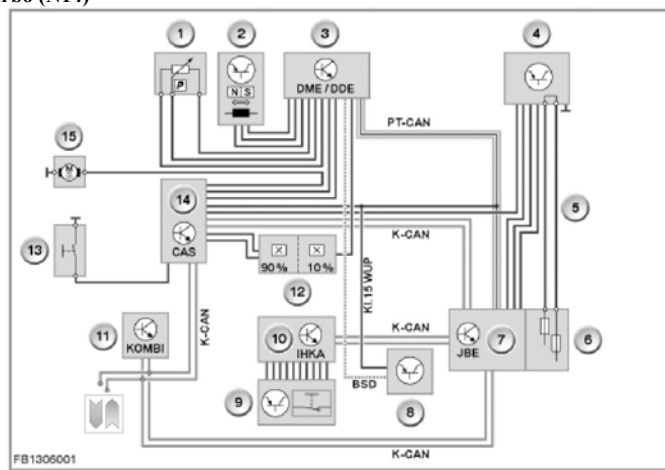


**System functions**

The following system functions for the MSA are described:

- System circuit diagram
- Operating strategy: Enable or shutdown of the MSA
- Display concept: Display in conjunction with the MSA
- Power management

**System circuit diagram**



Index	Explanation	Index	Explanation
1	brake partial vacuum sensor	2	Zero gear sensor
3	Engine management system (DME or DDE)	4	DC/DC converter
5	Input and output of the DC/DC converter to the distribution box	6	Distribution box (junction box)
7	Junction box electronics (JBE)	8	Intelligent battery sensor at the negative battery terminal
9	Centre console switch centre with MSA button	10	Integrated automatic heating and air conditioning system (IHKA)
11	Instrument cluster (KOMBI)	12	Clutch Switch
13	Bonnet contact switch	14	Car Access System (CAS)
15	Starter motor		

### Operating strategy: Enable or shutdown of the MSA

After every engine start, the function is automatically active and on stand-by. The MSA button (center console switching center) can be used to deactivate the function manually until the next terminal change. Pressing the button is confirmed by an LED lighting up.

During the diagnosis sessions, the MSA is temporarily disabled for safety reasons (this means until the next terminal change). This prevents the possibility of an automatic engine start during work in the engine compartment.

The status of a temporary shutdown can be read in the control-module functions at all times using "Detection shutdown MSA". Furthermore, the status of the non-detection of a vehicle with MSA can be read out in the control-module functions by means of "Check installation of MSA" as well as "Status coding MSA".

**IMPORTANT:** Pay attention to personal safety.

For reasons of personal safety, it must always be conscientiously determined that the engine start-stop function has been disabled before work in the engine compartment.

Shutdown request:

Condition	R55, R56	E8x, E9x	Only N43 Preparation for comfort stop
Driving speed less than 3 km/h	X	X	
Engine speed under threshold	X	X	
Minimum speed reached at least once	X	X	X
No gear is engaged	X	X	X
Clutch not pressed	X	X	
Steering wheel not moved		X	

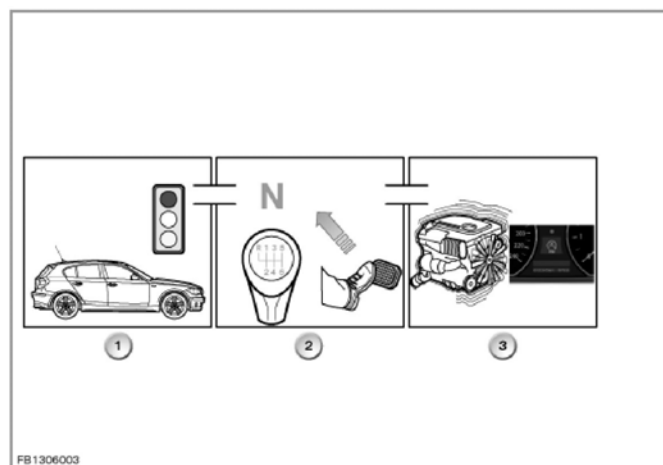
**NOTE:** Definition of comfort stop.

Low filling during comfort stop prevents the engine from "shaking". The comfort stop function empties the intake air collector (engine runs for 1 second longer).



**Shutdown inhibitor:**

Condition	E8x, E9x, R55, R56	Only N43 Comfort stop
Shutdown inhibitor from operating strategy (cross locking)	X	X
Adaptation of shutdown inhibitor	X	X
Engine fault	X	X
Shutdown inhibitor from power management	X	X
Activated charcoal filter too heavily loaded	X	X
Brake vacuum too low	X	
Catalytic converter temperature too low	Only N43	
Engine temperature too low	X	X
Outside temperature outside the operating window	X	X
Little fuel in the fuel tank	Only N43	
Time window closed (at least one shutdown inhibitor was active for too long during the stop attempt)	X	X
Diesel particle filter in regeneration	Only diesel	
Conditions for comfort stop not met	Only N43	
Shutdown inhibitor due to A/C-request signal	X	X



FB1306003

Index	Explanation
1	The driver brakes until the vehicle comes to a standstill.
2	The driver engages neutral and releases the clutch pedal.
3	The engine continues to run. There is a shutdown inhibitor.

**Switch-on request (simultaneously locks the preparation for comfort stop on the N43):****Condition** **E8x, E9x, R55, R56**

Clutch pressed more than 10 %	X
Vehicle starting to roll	X
Brake partial vacuum inadequate.	X
Switch-on request from power management	X
Switch-on request from A/C-request signal	X

**Switch-on inhibitor:****Condition** **E8x, E9x, R55, R56**

No idling or clutch pedal not in end position	X
---	---

Engine just stopped X  
(safety function to ensure  
safe engine runout. Otherwise,  
it can happen that the starter  
motor engages in the engine  
while it is still running out).

All conditions as well as general status information can be read out using the service function "system check MSA".

Reading out a history of the last stored shutdown inhibitors is possible by means of the service function "read AV memory". This enables a check of past customer complaints.

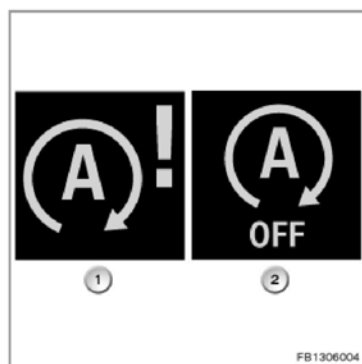
### Display concept: Display in conjunction with the MSA

If the MSA has shut down the engine, a display appears in the instrument cluster.

The following symbol is shown in the LC display between the dials:



There are also 2 Check Control messages available for the MSA.



Index	Explanation	Index	Explanation
1	ID 397: Automatic engine start/stop system failed!	2	ID 450: Automatic engine start/stop system disabled!

Condition	Shutdown, fault has occurred	Temporary shutdown without indication	Temporary shutdown with indication
	Check Control message: ID 397		Check Control message: ID 450
Fault in MSA cable	X		
Fault in zero gear sensor	X		
Fault 'zero gear position not yet learned'	X		
Fault in brake partial vacuum sensor	X		
Fault 'plausibility of zero gear sensor signal'	X		
Clutch switch signal not plausible	X		
CAN bus fault (relevant to MSA)			X
Radio remote control not within range or in the slot			X
Driver absent or engine bonnet open			X
Production mode active		X	
Transport mode active		X	
Workshop mode active		X	
MSA temporarily disabled via BMW diagnosis system		X	
Engine fault that is severe for MSA			X
Starting operation cancelled by CAS (protection of the starter motor)			X
Tow-starting detected		X	
MSA disabled via MSA button		X	
Engine not yet started after ignition ON		X	

A Check Control message appears if a system fault (with or without necessary component replacement) is active or the MSA is disabled.

Corresponding reading options are available through the service functions "system check MSA" as well as "read AV memory".

Other service functions serve as additional plausibility checks and checks of the function characteristics (exception: learn / write zero gear sensor).

## Power management

The battery status that is calculated in the Advanced Power Management (APM) is a major influencing factor on the MSA.

The aim is to enable a reliable start of the combustion engine after a defined parking period from the perspective of the vehicle energy system.

The APM monitors the following data:

- Battery charge condition
- Battery temperature
- Voltage dip on engine start
- Power requirement of switched-on consumer units

The result of the calculation can be a shutdown inhibitor or a switch-on request of the MSA.

In the event of engine shutdown, excessive power consumption must be avoided. To ensure this, at terminal 15 On and engine OFF the APM disables all large consumer units or reduces their consumption. The displays remain active.

The following consumer units are affected:

- Rear-window defroster (demister)
- Mirror heating
- Seat heating
- Heater fan

**IMPORTANT:** Automatic starting is possible.

If the battery charge state drops after an MSA engine shutdown to below a certain limit, the MSA starts the engine even without any action on the part of the driver.

**Note for Service department:****General information**

The MSA only works when certain requirements are met (see Operating conditions). In the event of a customer complaint, these requirements must always be checked.

**Automatic shut-down at terminal 15 as of 03/2007 in vehicles with automatic engine start-stop function (MSA - optional extra 1CC).**

Opening or closing the driver's door (engine OFF) automatically switches off terminal 15 via the signal from the door contact.

By subsequently pressing the START-STOP button, terminal 15 can be switched on again permanently.

Run this operation before programming or diagnosing a vehicle.

**Replacement of the zero gear sensor**

Replacement of the zero gear sensor may only be carried out according to the instructions in the service function "learn/write zero gear sensor". Without correct installation of the sensor, the functionality is inactive or faulty.

**Be sure to comply with safety measures for work on vehicles with MSA.**

Always ensure that the MSA has been switched off in order to prevent an automatic engine start during work in the engine compartment.

**Faults for the MSA**

Stored faults for the MSA deactivate the automatic engine start-stop.

**MSA and power management**

The MSA is strongly networked with the power management. In the event of battery replacement, disconnection of the battery or after programming the engine management system, the reference data regarding the battery charge state and battery condition can be lost.

They are only available again after a closed-circuit current measurement of approx. 6 hours (e.g. closed-circuit current measurement overnight without connected charger) in which the vehicle may not be wakened. In this time, the MSA is inactive.

The customer must be notified of this when the vehicle is handed over. The MSA switches back automatically to active as soon as the necessary routine have been completed successfully.

**Diagnosis instructions**

The following test modules exist to check the components:

- Zero gear sensor
- brake partial vacuum sensor
- Clutch Switch
- MSA button (networked with centre console switch cluster)
- Door contact MSA (networked with FRM)
- DC/DC converter (networked with JBE)
- Power management MSA (information on the vehicle energy system and the last shutdown inhibitors or switch-on requesters from power management)

The service function "read AV memory" can be used to read out a history of the last stored shutdown inhibitors.

**OBD Readiness Codes****OBDII Readiness Codes**

A complete check of the engine control system can only be run by the control module once certain operating states have been reached. For this purpose, a test drive should be carried out under the specified criteria.

The following preconditions must be met to ensure that all tests are conducted:

- No problems defined before test drive.
- Any stored fault codes were worked through beforehand.
- Fault memory of engine control module has been deleted.

Test drive procedure:

- Start a test drive in the cold state (for secondary air system test).
- Drive vehicle at a constant speed within the range between 65 and 95 km/h in 4th gear/selector lever position 4 for about 10 minutes (for oxygen sensors, oxygen sensor heating and catalytic converter monitoring)

The system tests for the secondary air pump and fuel tank leakage diagnosis pump can be additionally conducted directly by means of the test module, however, in this case, the readiness codes are not set.

The DME system is OK if all diagnosis functions are carried out and no fault codes are stored in the fault memory.

The Readiness Codes are reset on deletion of the fault memory.

# Powertrain Management: Description and Operation

## Power Management

### Power Management

#### Reduction or shutdown of individual current consumers

The power management a subsystem of the energy management. The power management is run from the engine control module (DME or DDE: digital engine electronics or digital diesel electronics). See also functional description or SBT 'Power supply'.

A function of the Advanced Power Management (APM) is the shutdown of individual consumer units or the reduction of power intake. The APM is only implemented in vehicles with the intelligent battery sensor.

#### System functions

The following system functions are described for power management ("Advanced Power Management"):

- Reduction or shutdown of individual current consumers.

#### Reduction or shutdown of individual current consumers

The cutoff of individual consumer units or reduction of the power consumption lowers the power consumption in critical situations. This prevents the battery from discharging.

**IMPORTANT:** When the shutdown of individual consumer units or the reduction of power consumption is activated, the displays remains active (LEDs remain lit).

With the engine running

With the engine running, the shutdown of individual consumer units or reduction in the power consumption is only activated under 2 conditions:

- Battery charge state in the critical range
- Alternator subjected to full load

The following measures are performed in sequence under the preconditions described:

Function	Operation	Control module (depending on model series and variant)
Rear-window defroster (demister)	Cyclic switching	IHR, IHS, IHKR, IHKS or IHKA
Seat heating	Stage 2	Seat module or JBE
Seat heating	50 %	Seat module or JBE
Active Seat	AUS	Seat module
Heater fan	75 %	IHR, IHS, IHKR, IHKS or IHKA
Heater fan	50 %	IHR, IHS, IHKR, IHKS or IHKA
Mirror heating and washer-nozzle heating	AUS	Door module, KGM, JBE or FRM
Rear-window defroster (demister)	AUS	IHR, IHS, IHKR, IHKS or IHKA
Seat heating	AUS	Seat module or JBE
Active seat ventilation	AUS	Seat module
Heater fan	AUS	IHR, IHS, IHKR, IHKS or IHKA

When the battery charge state moves out of the critical range, the functions are then 100 % available.

With the engine off and ignition switched on

With the engine off and ignition switched on, the shutdown of individual consumer units or reduction in the power consumption is only activated in the following model series and variants:

- E81, E82, E87, E90, E91, E92, E93: vehicles with N43 petrol engine and vehicle with N47 diesel engine and manual transmission.
- R55, R56: vehicles with manual transmission as of model year 08/2007.

In order to prevent excessive power consumption when the engine is switched off, on these vehicles the seat heating, mirror heating, washer-nozzle heating and heated rear window are switched off and the heater blower is reduced to 75 % power consumption. The displays remain active (LEDs still lit).

### Notes for Service department

#### General information

**NOTE:** Procedure in the event of a customer complaint with regard to malfunctions.

In the event of a customer complaint with regard to malfunctions in the functions described above, check the function with activation via the diagnosis (component activation) and, if necessary, inform the customer of the facts.

### **Diagnosis instruction**

#### **CAUTION: Activation via the diagnosis**

With the engine off and ignition switched on, activation via the diagnosis for the functions concerned continues to work, except in the case of the seat heating (seat module) in E81, E82, E87, E90, E91, E92 and E93: the component activation only works if the engine is running or the seat heating was switched off beforehand (LED OFF on the centre console switch cluster).

# Powertrain Management: Description and Operation

## Motor Electronics (N14 Engine)

## Exhaust System

### Exhaust System

The 4-cylinder petrol engine N14 complies with the exhaust emission regulations EURO 4 or LEVII in the US version (LEV = Low Emission Vehicle). The engine has an engine-proximate catalytic converter. In the US version, there is an additional catalytic converter on the underbody.

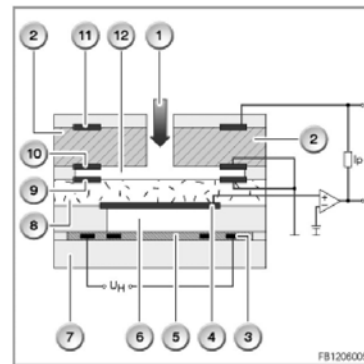
Two oxygen sensors are deployed for oxygen-sensor control. A broadband oxygen sensor (Bosch: type LSU 4.9) serves as the control sensor before the engine-proximate catalytic converter. A jump sensor (NTK: type FLO) serves as monitor sensor after the catalytic converter.

### Brief description of components

The following components are described for the exhaust system:

### Broadband oxygen sensor

The sensor system of the broadband oxygen sensor consists of ceramic layers of zirconium dioxide (laminate). The heating element inserted in the laminate rapidly ensures the required operating temperature of at least 750 °C. The broadband oxygen sensor has 2 cells, a so-called measurement cell and a reference cell. The two cells are coated with electrode made of platinum.



Index	Explanation	Index	Explanation
1	Exhaust gas	2	Measurement cell
3	Electrode for heating	4	Electrode of the measurement cell
5	Heating element	6	Gap with ambient air
7	Ceramic layer	8	Reference cell
9	Electrode of the reference cell	10	Electrode of the measurement cell
11	Electrode of the measurement cell	12	Measurement gap

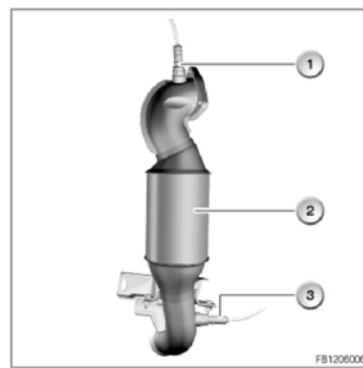
The broadband oxygen sensor can be used to steplessly measure a fuel-air ratio between 0.6 and 2.5 (constant characteristic curve). The broadband oxygen sensor works with a lower heat output than a conventional oxygen sensor. The broadband oxygen sensor is also operational more quickly. Current is applied at the measurement cell. This means that oxygen ions are pumped into the reference cell until a voltage of 450 mV settles between the electrode of the reference cell. The applied current at the measurement cell is the measured variable for the fuel-air ratio. This enables the oxygen-sensor control to set any desired fuel-air ratio in the combustion chamber.

### Engine-proximate catalytic converter

The catalytic converter reduces the pollutant emissions:

- The carbon monoxide (CO) is converted with oxygen (O<sub>2</sub>) into carbon dioxide (CO<sub>2</sub>).
- The hydrocarbon (HC) is converted with oxygen (O<sub>2</sub>) into carbon dioxide (CO<sub>2</sub>) and water (H<sub>2</sub>O).
- The nitrogen oxide (NO<sub>x</sub>) is converted into nitrogen (N) and oxygen (O<sub>2</sub>).





Index	Explanation	Index	Explanation
1	oxygen sensor before catalytic converter	2	Catalytic converter
3	oxygen sensor behind catalytic converter		

At all times, the Digital Engine Electronics (DME) regulate the fuel-air mixture with regard to the following criteria:

- Exhaust emissions
- Consumption
- Power output development -
- Catalytic-converter protection

Here, the DME picks up the oxygen content in the emissions via the oxygen sensors and corrects the injection rate on the basis of this data.

A model for the exhaust-gas temperature integrated in the DME meets (among others) the following specifications:

- The converter heater ensures rapid heating-up and the conversion capability of the catalytic converter after engine start-up.
- The effect of the catalytic-converter protection is that the exhaust-gas temperatures, in particular at full load, are regulated in such a way that a thermal overload of the catalytic converter is prevented.

## System functions

The following system function is described for the exhaust system:

### Lambda control

For complete and perfect combustion, a fuel-air ratio of 1 kilogram of fuel and approx. 14.7 kilograms of air is necessary. The air volume corresponds to around 11 cubic metres. The ratio of the air volume actually delivered to stoichiometric air volume is referred to as the Lambda. During normal operation of the vehicle, the Lambda value fluctuates. The engine has its best performance with a lack of air (Lambda approx. 0.9 = rich mixture). The engine has its lowest consumption with an air surplus (Lambda approx. 1.1 = lean mixture). The catalytic converter achieves the best reduction in the pollutant emissions when the mixture is in the range of Lambda = 1. The conversion rate, i.e. the proportion of converted pollutants, is 98 % to virtually 100 % in the case of modern catalytic converters. The Digital Engine Electronics (DME) control the optimized composition of the fuel-air mixture. The oxygen sensors deliver essential information on the composition of the emissions.

The front oxygen sensor continuously measures the residual oxygen in the exhaust gas. The fluctuation values of the residual oxygen are forwarded to the DME control module as a voltage signal. The DME corrects the mixture composition by means of fuel injection. A second oxygen sensor (monitoring sensor) is built in behind the catalytic converter. The catalytic converter has a high oxygen accumulation capability. This means there is only a little air behind the catalytic converter. The monitoring sensor supplies a virtually constant (attenuated) voltage. With increasing age, the oxygen accumulation capability of the catalytic converter declines. The control sensor then reacts increasingly to lambda deviation with voltage fluctuations. These characteristics are used by a special diagnosis function for catalytic converter monitoring. A malfunction of the catalytic converter is indicated by the emissions warning lamp.

## Notes for Service department

### General information

**IMPORTANT:** Protect the plug-in connection of the broadband oxygen sensor against soiling.

The broadband oxygen sensor requires ambient air inside the sensor. The ambient air enters the interior via the plug-in connection through the cable. This is why the plug-in connection must be protected against soiling, e.g. by wax or preserving agent. In the event of faults in the oxygen-sensor control, the plug-in connection on the broadband oxygen sensor must be checked for soiling. If necessary, the plug-in connection must be cleaned.

### Diagnosis instructions

The following monitoring functions check the state of the exhaust system:

### CO calibration

### Lambda adaptation

Lambda adaptation (fuel mixture adaptation) serves the purpose of compensating for component tolerances that influence the mixture and ageing effects. Factors such as excess air and fuel delivery pressure also affect the Lambda adaptation (partially compensation). For these reasons, no exact control limits can be specified for a fault.

In Lambda adaptation, a distinction is made as follows:

- additive fuel mixture adaptation
- multiplicative mixture adaptation

Additive fuel mixture adaptation is effective at idle speed and/or in the range close to idle speed. With increasing engine speed, the degree of influence declines. An important factor is e.g. the excess air. Multiplicative mixture adaptation affects the entire characteristic map. An important factor is e.g. the fuel delivery pressure.

The service function "Reset adaptation values" can be used to reset the adaptation values and equipment variations to the status on delivery. Thereafter, the adaptation values have to be relearned. Longer operation between idle speed and partial load is necessary in order to learn the mixture adaptation values.

### Catalytic converter diagnosis

The catalytic converter diagnosis works with constant oxygen sensors before and jump sensors after the catalytic converter. The diagnosis check the oxygen accumulation capability of the catalytic converter. The oxygen accumulation capability is a measurement for the conversion capability of the catalytic converter. To do so, a rich mixture is specified during the 1st phase of the catalytic converter diagnosis (approx. 3 seconds) until the oxygen-sensor voltage has reached a specified value. As rich emissions are low in oxygen, the oxygen accumulated in the catalytic converter is reduced. In the 2nd phase, a lean mixture with emissions rich in oxygen is set. The longer it takes to reach the maximum oxygen accumulation capability the higher the conversion capability of the catalytic converter.

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## Misfire Detection And Poor-Road-Surface Detection

### Misfire Detection And Poor-road-surface Detection

Smooth idle speed can only be evaluated with the engine running at idle speed (cold or hot). An individual cylinder with poor combustion is detected exactly.

The poor-road-surface detection detects the poor-road-surface mode on a poor stretch of road.

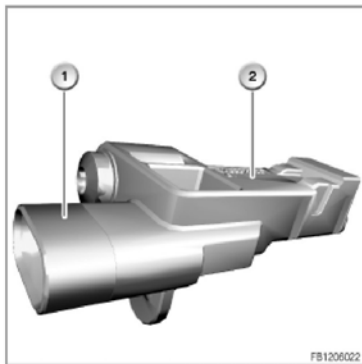
### Brief description of components

The following components are described for the misfire detection:

#### Crankshaft sensor

The crankshaft sensor picks up the position of the crankshaft by means of a sensor wheel bolted onto the crankshaft. The DME uses this to calculate the engine speed. The crankshaft sensor is necessary for the fully sequential injection system (fuel injection takes place individually for each cylinder at the specific point of ignition).

The signal from the crankshaft sensor means that the DME also evaluates the crankshaft acceleration. The crankshaft acceleration provides an indication of the combustion quality of individual cylinders.



Index	Explanation	Index	Explanation
1	3-pin plug-in connection	2	Crankshaft sensor

## System functions

The following system functions are described:

### Misfiring detection

The smooth-running values of the individual cylinders are indicated for troubleshooting purposes. The engine must run at idle speed for at least 3 minutes to ensure that the useful values are set. Smooth idle speed can only be evaluated with the engine running at idle speed (cold or hot). An individual cylinder with poor combustion is detected exactly. Random fluctuations in the smooth-running value of an individual cylinder can only be detected by close observation of the value. In the case of an engine with theoretically even combustion, the smooth-running values are 0 (averaged over all cylinders). An increase in the smooth-running values may be caused by various factors (e.g. misfiring, excess air, mixture deviations, faults in fuel supply system, low compression). For this reason, exact control limits cannot be specified. The crankshaft sensor is used to measure the engine speed at the increment gear. In addition to the engine speed detection, the smooth running of the engine (= misfire detection) is also monitored. For misfire detection, the increment gear in the DME control module is divided into 2 segments according to the firing interval (between 2 ignition operations). Within the DME control module, the periodic duration of the individual segments is measured and statistically evaluated. For each mapped value on the characteristic map, the maximum permissible values for irregular running are stored (as a function of engine speed, load and engine temperature). If these values are exceeded for a certain number of combustions, a fault memory entry is stored for a cylinder regarded as faulty.

### Poor-road-surface detection

The poor-road-surface detection detects the poor-road-surface mode on a poor stretch of road (driving over stones, gravel or potholes) on the basis of the transferred wheel acceleration. In the case of poor-road-surface detection, a fault is stored and the misfire detection is briefly disabled. The disabling is necessary, as vibrations in the drive train due to poor road surfaces can lead to erroneous misfire detection. Is it also possible that the poor-road-surface detection takes effect too late (only after a misfire has already been erroneously detected). In this case, the combustion misfires are recognized as an incorrect diagnosis by the poor-road-surface detection system.

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## Misfire Detection

### Test Module Evaluation

Please enter the applicable items

#### Test module completed without part replacement

- Combustion misfires due to fuel lack
- Secondary faults: combustion misfire remedied by remedying another fault
- No cause was found and the only measure was to delete the fault code memory in accordance with the instruction in the test module
- No cause was found and as measure. Technical Support was contacted, in accordance with the instruction in the test module

#### Non-electrical causes at the engine

- Engine mechanically defective
- Exhaust system mechanically defective
- Fuel system mechanically defective
- Poor compression
- Extraneous air
- Variable intake system mechanically defective

#### Ignition Coil

- Ignition coil with visible damage
- Ignition coil with non-visible damage, cause could be determined by cross-swapping
- BREMI ignition coils were fitted

#### Spark plug

- Spark plug with visible damage
- Spark plug with non-visible damage, cause could be determined by cross-swapping or replacement

#### Fuel injector

- Fuel injector with visible damage
- Fuel injector with non-visible damage, cause could be determined by cross-swapping or replacing

#### Motor control

- DME replacement

## Fuel Injection

### Fuel System

The N14 4-cylinder petrol engine works with direct fuel injection. Direct fuel injection increases performance. The fuel delivery pressure is a

The use of direct fuel injection creates a homogeneous mixture formation in the entire combustion chamber.

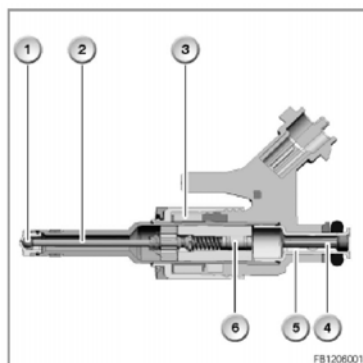
Homogeneous mixture formation means that the fuel-air ratio is regulated stoichiometrically in the same way as for intake pipe fuel injection ( $\lambda = 1$ ). "Stoichiometrically" refers to a fuel-air ratio of 14.7 kilograms of air to 1 kilogram of fuel. The homogeneous mixture formation means that conventional exhaust gas treatment can be deployed.

### Brief description of components

The following components are described for the fuel injection:

#### High-pressure fuel valve

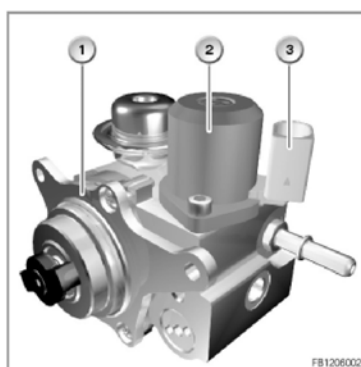
The high-pressure fuel valve is located on the side of the cylinder. In the case of fully sequential fuel injection, each high-pressure fuel valve is activated by the DME control module via a separate output stage. Here, the fuel injection time of each cylinder is adapted to the operating status (speed, load and engine temperature).



Index	Explanation	Index	Explanation
1	Valve seat	2	Needle
3	Coil	4	Connecting cable
5	Filter	6	Setting disc

#### High-pressure pump with volume control valve

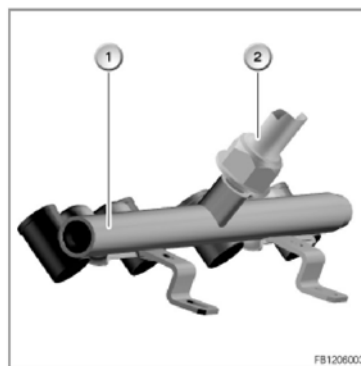
2 pistons in the high-pressure pump generate the necessary pressure in the fuel system. The inlet camshaft drives the high-pressure pump mechanically. The maximum fuel delivery pressure is 120 bar. There is a volume control valve on the high-pressure pump. The digital engine electronics control module activates the volume control valve.



Index	Explanation	Index	Explanation
1	High-pressure pump	2	Volume control valve
3	Plug-in connection		

#### Rail pressure sensor

The rail-pressure sensor fitted on the stainless steel rail. In the rail, the compressed fuel is stored temporarily and distributed to the high-pressure fuel valves. A silicon element on a metal membrane measures the fuel delivery pressure in the rail. The measuring range of the rail-pressure sensor is from 0 to 160 bar. The rail-pressure sensor delivers a proportional voltage over the entire measuring range.

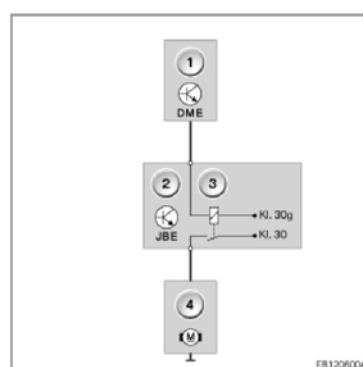


Index	Explanation	Index	Explanation
1	Rail	2	Rail pressure sensor

If the rail-pressure sensor fails, the volume control valve is activated in emergency operation by the DME.

### Electrical Fuel Pump

The electric fuel pump is an in-tank pump. The DME activates the fuel pump via the fuel-pump relay. The fuel-pump relay is in the junction box electronics.

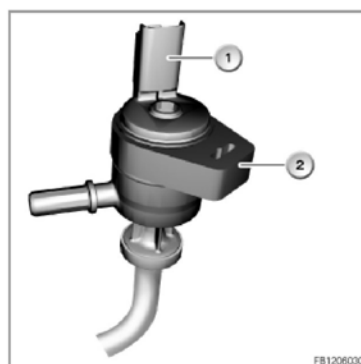


Index	Explanation	Index	Explanation
1	Digital Engine Electronics (DME)	2	Fuel pump relay
3	Junction box electronics (JBE)	4	Electrical Fuel Pump

With terminal 15 On, a fuel-pump relay switches on the electric fuel pump.

### Tank ventilation valve

The tank-ventilation valve regenerates the activated carbon filter by means of purge air. The purge air drawn through the activated carbon filter is enriched with hydrocarbon and then fed to the combustion engine.



Index	Explanation	Index	Explanation
1	2-pin plug-in connection	2	Tank ventilation valve

The tank vent valve is closed when in a flow-free state. This means that with the engine at a standstill no fuel vapours from the activated carbon filter enter the intake pipe.

### System functions

The following system functions are described for the fuel system:

### High-pressure control

The volume control valve adjusts the flow of fuel from the low-pressure side into the high-pressure side of the high-pressure pump. This achieves the desired rail pressure. The volume control valve is forced open hydraulically as of a certain pressure in the high-pressure side of the high-pressure pump. The volume control valve is a component of the high-pressure pump.

The signal from the rail-pressure sensor is an important input signal of the DME for activation of the volume control valve (component of the high-pressure pump). If the rail-pressure sensor fails, the volume control valve is activated in emergency operation by the DME.

### Bleeding the tank

The tank-ventilation valve controls the regeneration of the activated carbon filter by means of purge air. The purge air drawn through the activated carbon filter is enriched with hydrocarbon (HC) depending on the load of the activated carbon. The purge air is then fed to the engine for combustion.

The creation of hydrocarbons in the fuel tank depends on:

- Fuel temperature and ambient temperature
- Air pressure
- Fill level in the fuel tank

The tank vent valve is closed when in a flow-free state. This means that with the engine at a standstill no fuel vapours from the activated carbon filter enter the intake pipe.

### Notes for Service department

#### General information

**NOTE:** The volume control valve cannot be replaced individually.

Due to the risk of soiling, only the complete high-pressure pump may be replaced.

#### National version US

#### Diagnosis module for tank leakage (DMTL)

The leak test of the fuel system is run regularly after stopping the engine. The following processes run in the after-run time of the DME:

- Initial situation

During normal engine operation, the switchover valve in the diagnosis module is in the position "Regeneration". The fuel vapours are stored in the carbon canister and fed to the engine as a function of activation of the tank-venting valve (see also Tank ventilation).

- Check of start conditions

The necessary start conditions are checked after the engine is switched off:

- Engine OFF
- Battery voltage between 11.5 and 14.5 Volts
- No fault code memory entries in the DME for the diagnosis module for tank leakage as well as tank ventilation system
- Tank fill level greater than 10 % and less than 90 %
- Ambient temperature between 7 °C and 35 °C

With a positive result, the tank-leak diagnosis is started with a comparison measurement.

- Comparison measurement

The tank-venting valve is always closed after the engine is switched off. The switchover valve of the diagnosis module remains in the position "Regeneration". The electrical leakage diagnosis pump pumps fresh air from the environment via a defined leak of 0.5 mm diameter. The necessary current consumption is stored as a value. This is followed by the tank-leak diagnosis itself.

- Tank-leak diagnosis

The tank-venting valve remains closed. The switchover valve of the diagnosis module switches to the position "Diagnosis". The leak diagnosis pump pumps fresh air from the environment into the fuel tank, slowly raising the internal pressure. At the start of the tank-leak diagnosis, the internal pressure corresponds to the ambient pressure. The current consumption is thus low. With increasing internal pressure in the tank, the current consumption rises. The current consumption of the leak diagnosis pump is evaluated by the DME.

- Evaluation of the pump current

The DME evaluates the rise in the current consumption within a certain time. If the current consumption exceeds the stored value within this time, the fuel system is regarded as OK. The tank-leak diagnosis is terminated. If the current consumption does not reach the stored value, the fuel system is regarded as not OK. The tank-leak diagnosis enables a distinction between:

- Major leak, e.g. fuel filler cap missing
- Minor leak

- Minimal leak

The relevant fault is entered in the DME fault memory. Tank-leak diagnosis is then terminated.

- End of the tank-leak diagnosis

The switchover valve is switched back to the position "Regeneration". The after-run time of the DME is available for other functions.

The tank-leak diagnosis can also be started using the BMW diagnosis system. In this case, the processes take place as described above.

No liability can be accepted for printing or other faults. Subject to changes of a technical nature

## Fuel System

### Fuel System

The N14 4-cylinder petrol engine works with direct fuel injection. Direct fuel injection increases performance. The fuel delivery pressure is a maximum of 120 bar (idle speed: 50 bar, full load: 120 bar).

The use of direct fuel injection creates a homogeneous mixture formation in the entire combustion chamber.

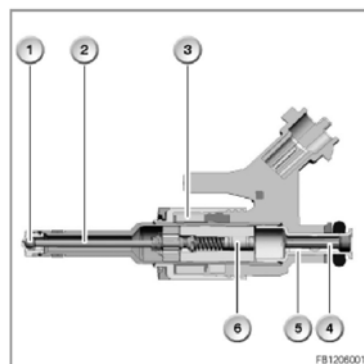
Homogeneous mixture formation means that the fuel-air ratio is regulated stoichiometrically in the same way as for intake pipe fuel injection ( $\lambda = 1$ ). "Stoichiometrically" refers to a fuel-air ratio of 14.7 kilograms of air to 1 kilogram of fuel. The homogeneous mixture formation means that conventional exhaust gas treatment can be deployed.

### Brief description of components

The following components are described for the fuel injection:

#### High-pressure fuel valve

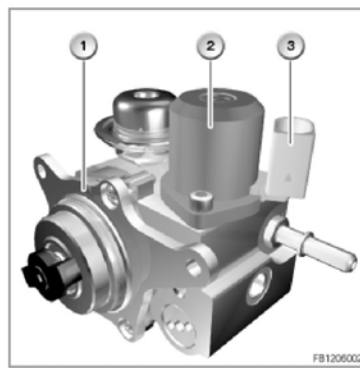
The high-pressure fuel valve is located on the side of the cylinder. In the case of fully sequential fuel injection, each high-pressure fuel valve is activated by the DME control module via a separate output stage. Here, the fuel injection time of each cylinder is adapted to the operating status (speed, load and engine temperature).



Index	Explanation	Index	Explanation
1	Valve seat	2	Needle
3	Coil	4	Connecting cable
5	Filter	6	Setting disc

#### High-pressure pump with volume control valve

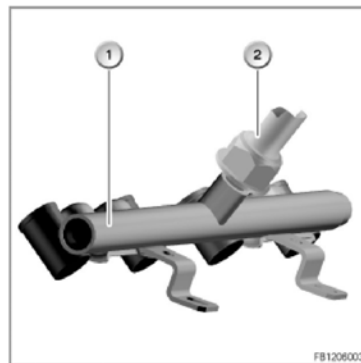
2 pistons in the high-pressure pump generate the necessary pressure in the fuel system. The inlet camshaft drives the high-pressure pump mechanically. The maximum fuel delivery pressure is 120 bar. There is a volume control valve on the high-pressure pump. The digital engine electronics control module activates the volume control valve.



Index	Explanation	Index	Explanation
1	High-pressure pump	2	Volume control valve
3	Plug-in connection		

### Rail pressure sensor

The rail-pressure sensor fitted on the stainless steel rail. In the rail, the compressed fuel is stored temporarily and distributed to the high-pressure fuel valves. A silicon element on a metal membrane measures the fuel delivery pressure in the rail. The measuring range of the rail-pressure sensor is from 0 to 160 bar. The rail-pressure sensor delivers a proportional voltage over the entire measuring range.

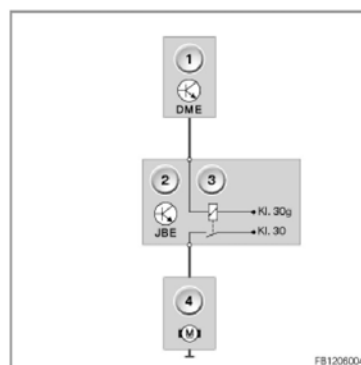


Index	Explanation	Index	Explanation
1	Rail	2	Rail pressure sensor

If the rail-pressure sensor fails, the volume control valve is activated in emergency operation by the DME.

### Electrical Fuel Pump

The electric fuel pump is an in-tank pump. The DME activates the fuel pump via the fuel-pump relay. The fuel-pump relay is in the junction box electronics.

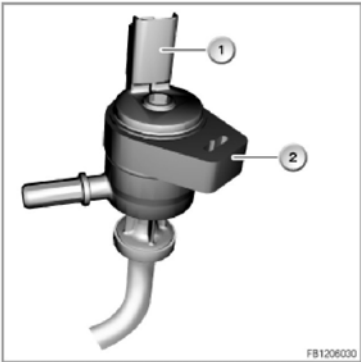


Index	Explanation	Index	Explanation
1	Digital Engine Electronics (DME)	2	Fuel pump relay
3	Junction box electronics (JBE)	4	Electrical Fuel Pump

With terminal 15 On, a fuel-pump relay switches on the electric fuel pump.

### Tank ventilation valve





Index	Explanation	Index	Explanation
1	2-pin plug-in connection	2	Tank ventilation valve

The tank vent valve is closed when in a flow-free state. This means that with the engine at a standstill no fuel vapours from the activated carbon filter enter the intake pipe.

### System functions

The following system functions are described for the fuel system:

### High-pressure control

The volume control valve adjusts the flow of fuel from the low-pressure side into the high-pressure side of the high-pressure pump. This achieves the desired rail pressure. The volume control valve is forced open hydraulically as of a certain pressure in the high-pressure side of the high-pressure pump. The volume control valve is a component of the high-pressure pump.

The signal from the rail-pressure sensor is an important input signal of the DME for activation of the volume control valve (component of the high-pressure pump). If the rail-pressure sensor fails, the volume control valve is activated in emergency operation by the DME.

### Bleeding the tank

The tank-ventilation valve controls the regeneration of the activated carbon filter by means of purge air. The purge air drawn through the activated carbon filter is enriched with hydrocarbon (HC) depending on the load of the activated carbon. The purge air is then fed to the engine for combustion.

The creation of hydrocarbons in the fuel tank depends on:

- Fuel temperature and ambient temperature
- Air pressure
- Fill level in the fuel tank

The tank vent valve is closed when in a flow-free state. This means that with the engine at a standstill no fuel vapours from the activated carbon filter enter the intake pipe.

### Notes for Service department

### General information

**NOTE:** The volume control valve cannot be replaced individually.

Due to the risk of soiling, only the complete high-pressure pump may be replaced.

### National version US

### Diagnosis module for tank leakage (DMTL)

The leak test of the fuel system is run regularly after stopping the engine. The following processes run in the after-run time of the DME:

- Initial situation

During normal engine operation, the switchover valve in the diagnosis module is in the position "Regeneration". The fuel vapours are stored in the carbon canister and fed to the engine as a function of activation of the tank-venting valve (see also Tank ventilation).

- Check of start conditions  
The necessary start conditions are checked after the engine is switched off:

- Engine OFF
- Battery voltage between 11.5 and 14.5 Volts
- No fault code memory entries in the DME for the diagnosis module for tank leakage as well as tank ventilation system
- Tank fill level greater than 10 % and less than 90 %
- Ambient temperature between 7 °C and 35 °C

With a positive result, the tank-leak diagnosis is started with a comparison measurement.

- Comparison measurement

The tank-venting valve is always closed after the engine is switched off. The switchover valve of the diagnosis module remains in the position "Regeneration". The electrical leakage diagnosis pump pumps fresh air from the environment via a defined leak of 0.5 mm diameter. The necessary current consumption is stored as a value. This is followed by the tank-leak diagnosis itself.

- Tank-leak diagnosis

The tank-venting valve remains closed. The switchover valve of the diagnosis module switches to the position "Diagnosis". The leak diagnosis pump pumps fresh air from the environment into the fuel tank, slowly raising the internal pressure. At the start of the tank-leak diagnosis, the internal pressure corresponds to the ambient pressure. The current consumption is thus low. With increasing internal pressure in the tank, the current consumption rises. The current consumption of the leak diagnosis pump is evaluated by the DME.

- Evaluation of the pump current

The DME evaluates the rise in the current consumption within a certain time. If the current consumption exceeds the stored value within this time, the fuel system is regarded as OK. The tank-leak diagnosis is terminated. If the current consumption does not reach the stored value, the fuel system is regarded as not OK. The tank-leak diagnosis enables a distinction between:

- Major leak, e.g. fuel filler cap missing
- Minor leak
- Minimal leak

The relevant fault is entered in the DME fault memory. Tank-leak diagnosis is then terminated.

- End of the tank-leak diagnosis

The switchover valve is switched back to the position "Regeneration". The after-run time of the DME is available for other functions.

The tank-leak diagnosis can also be started using the BMW diagnosis system. In this case, the processes take place as described above.

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## Electric Fuel Pump

### Air Supply

The 4-cylinder petrol engine is charged by an exhaust turbocharger. Here, the channels of 2 cylinders are each grouped separately in the exhaust manifold and in the exhaust turbocharger. This technology is referred to as "twin-scroll".

Increasing the gas dynamics in the exhaust manifold at low engine speeds means that the energy of the pulsing columns of air is better exploited. This sets the maximum torque even at 1600 rpm.

The effect is clearly noticeable. The 'turbo hole' that otherwise frequently occurs is almost completely avoided.

### Brief description of components

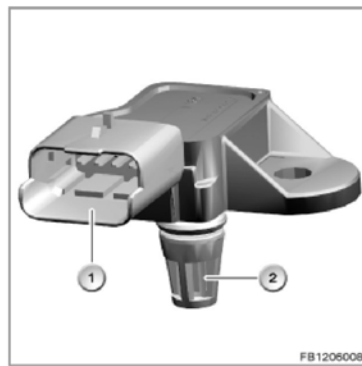
The following components are described for the air supply:

#### Intake temperature and charge-air pressure sensor

The combined sensor delivers the following information to the DME control module: temperature and pressure of the charge air before the throttle valve (absolute).

The intake temperature and charge-air pressure sensor are used for charge-air pressure control.

The DME control module also uses the signal of the intake-manifold pressure sensor to calibrate the position of the throttle valve.



Index	Explanation	Index	Explanation
1	4-pin plug-in connection	2	Intake temperature and charge-air pressure sensor

The intake temperature and charge-air pressure sensor is located in the air duct after the charge air cooler.

### Intake-manifold pressure sensor

The intake-manifold pressure sensor measures the (absolute) pressure in the intake system. The DME uses the signal from the intake-manifold pressure sensor to calculate the air mass taken in. The pressure also serves as a substitute value for the load signal.



Index	Explanation	Index	Explanation
1	3-pin plug-in connection	2	Intake-manifold pressure sensor

The intake-manifold pressure sensor is located on the air collector for intake air.

### Throttle-valve actuator

The digital engine electronics control module calculates the position of the throttle valve: from the position of the accelerator pedal as well as the torque request from other control modules. The position of the throttle valve is monitored in the throttle-valve actuator without contact by 2 Hall sensors. The throttle-valve actuator is opened or closed electrically by the DME control module.

The position of the throttle valve is also influenced by the charge-air pressure.



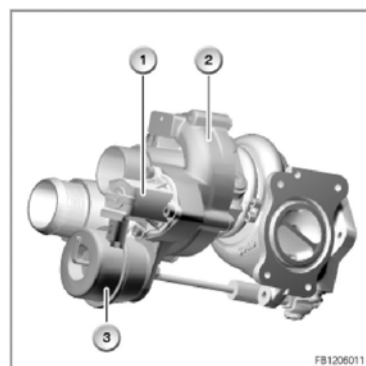
Index	Explanation	Index	Explanation
1	6-pin plug-in connection	2	Throttle-valve actuator

The throttle-valve actuator is secured to the air collector for intake air.

### Blow off valve

In order to avoid the occurrence of strong vibrations at the impeller in the case of suddenly closing of the throttle valve (e.g. during gearshift), the blow off valve opens. This creates a circuit around the compressor. The blow off valve prevents "pumping" against the closed throttle valve: improved engine acoustics.

Additional effect: the exhaust turbocharger reacts quickly when the throttle valve is opened again. Without the blow off valve, the exhaust turbocharger would work against the backpressure of the closed throttle valve and become slower. On opening the throttle valve, the exhaust turbocharger would react with a delay.



Index	Explanation	Index	Explanation
1	Blow off valve	2	Exhaust turbocharger
3	Wastegate valve (pneumatically activated)		

The blow off valve is attached with the wastegate valve to the exhaust turbocharger.

### Exhaust turbocharger with wastegate valve

The engine is equipped with a so-called twin scroll exhaust turbocharger. Here, the channels of 2 cylinders are each grouped separately in the exhaust manifold and in the exhaust turbocharger: cylinders 1 and 4, cylinders 2 and 3. Increasing the gas dynamics in the exhaust manifold at low engine speeds means that the energy of the pulsing columns of air is better exploited. This sets the maximum torque even at 1600 rpm. The 'turbo hole' that otherwise frequently occurs is almost completely avoided.

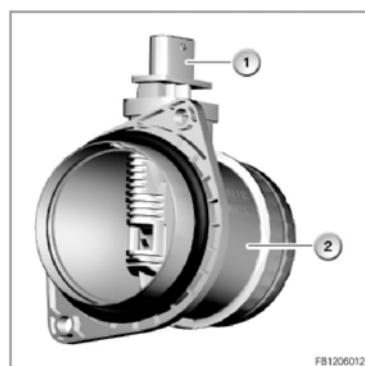
The charge-air pressure is regulated by the DME via a wastegate valve. The wastegate valve is adjusted pneumatically by a diaphragm can. An electropneumatic pressure converter applies a partial vacuum to the diaphragm can.

There are 2 connections each for cooling lubrication of the exhaust turbocharger. Two connections for the engine cooling circuit as well as 2 connections for the oil circuit. The exhaust turbocharger is cooled by a separate pump. The DME control module switches on the turbocharger coolant pump after stopping the engine.

### Hot-film air-mass sensor, only US version

The hot-film air-mass sensor is used in the US version. This increases the accuracy of the load identification. The measure is necessary due to exhaust emissions legislation. The signal of the intake air temperature sensor in the HFM is not used.

The hot-film air-mass sensor is behind the intake muffler.



Index	Explanation	Index	Explanation
1	3-pin plug-in connection	2	Hot-film air mass meter

### System functions

The following system function is described for the air supply system:

## Calculation of the air mass

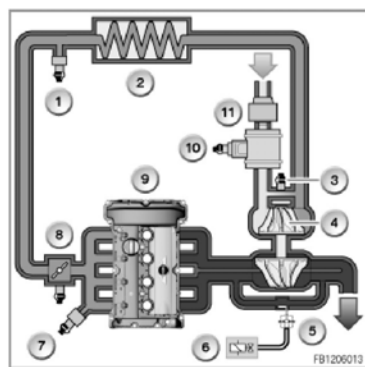
The air mass that is taken in is no longer measured directly with the mass air flow sensor, rather it is calculated by the DME. A filling calculation (filling model) has been programmed in the DME for this calculation. The following signals are included in this calculation:

- VANOS setting (load identification)
- Position of the throttle valve (choke action) -
- Intake-air temperature (correction of air density)
- Engine speed (cylinder fill levels)
- Air intake pressure (correction for choke action)
- Ambient pressure (air density divided by altitude correction)

The air mass calculated in this way is synchronized with:

- Signal of the oxygen sensor (fuel-air ratio)
- Fuel injection period (volume of fuel)

If necessary, the calculated air mass is corrected. In the event of failure of the oxygen sensor, a fault is entered in the fault memory of the DME (plausibility check of the air mass). In this case, there is no calibration of the calculated air mass.

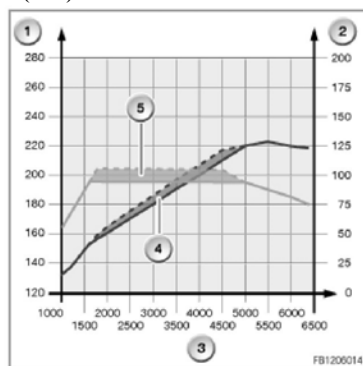


Index	Explanation	Index	Explanation
1	Intake temperature and charge-air pressure sensor	2	Charge air cooler
3	Blow off valve	4	Exhaust turbocharger (twin-scroll)
5	Wastegate	6	Electropneumatic pressure converter
7	Intake-manifold pressure sensor	8	Throttle-valve actuator
9	Engine	10	Hot-film air-mass sensor (only US)
11	Intake muffler		

## Charge-air-pressure control

The charge-air pressure is controlled by the DME by means of a wastegate valve to a maximum of 0.8 bar. A portion of the exhaust gases is fed via the wastegate valve to the turbine. The wastegate valve is adjusted pneumatically by a diaphragm can. The wastegate valve can be set variably. An electropneumatic pressure converter applies a partial vacuum to the diaphragm can. The DME controls the electropneumatic pressure transducer.

An additional function is available for charge-air pressure control. Here, the charge-air pressure is briefly increased by approx. 150 mbar (approx. 12 seconds). This increase in the charge-air pressure (overboost) is available between approx. 1600 rpm and approx. 5000 rpm. This enables a torque increase and power output increase with the engine speed remaining the same.



Index	Explanation	Index	Explanation
1	Torque	2	Power output
3	Engine speed	4	Output curve with increased charge-air pressure
5	Torque curve with increased charge-air pressure		

The increase in the charge-air pressure is activated by the DME when the accelerator pedal is pressed very quickly.

### Idle air control

The DSC control module delivers the driving speed signal across the PT-CAN to the DME control module. The signal is required for a number of functions, e.g. for idle speed control. For idle speed control, the DME activates the throttle-valve actuator.

If the vehicle is not stationary, the idle speed is regulated to a fixed value (slightly above the engine speed when the vehicle is at a standstill). If the driving speed equals 0 km/h, the idle speed is regulated (depending on air-conditioning compressor ON, engaged drive position for automatic transmission, light ON).

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## High Pressure Fuel System

### Fuel System

The N14 4-cylinder petrol engine works with direct fuel injection. Direct fuel injection increases performance. The fuel delivery pressure is a maximum of 120 bar (idle speed: 50 bar, full load: 120 bar).

The use of direct fuel injection creates a homogeneous mixture formation in the entire combustion chamber.

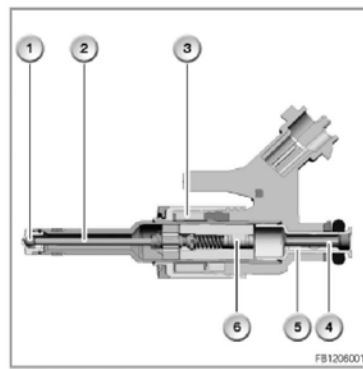
Homogeneous mixture formation means that the fuel-air ratio is regulated stoichiometrically in the same way as for intake pipe fuel injection ( $\lambda = 1$ ). "Stoichiometrically" refers to a fuel-air ratio of 14.7 kilograms of air to 1 kilogram of fuel. The homogeneous mixture formation means that conventional exhaust gas treatment can be deployed.

### Brief description of components

The following components are described for the fuel injection:

#### High-pressure fuel valve

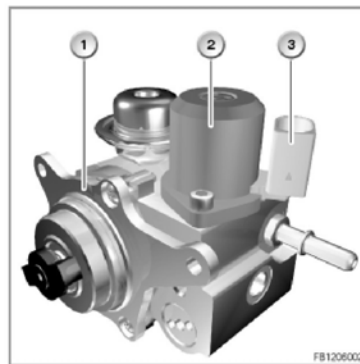
The high-pressure fuel valve is located on the side of the cylinder. In the case of fully sequential fuel injection, each high-pressure fuel valve is activated by the DME control module via a separate output stage. Here, the fuel injection time of each cylinder is adapted to the operating status (speed, load and engine temperature).



Index	Explanation	Index	Explanation
1	Valve seat	2	Needle
3	Coil	4	Connecting cable
5	Filter	6	Setting disc

### High-pressure pump with volume control valve

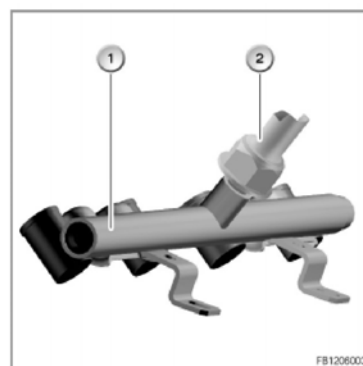
2 pistons in the high-pressure pump generate the necessary pressure in the fuel system. The inlet camshaft drives the high-pressure pump mechanically. The maximum fuel delivery pressure is 120 bar. There is a volume control valve on the high-pressure pump. The digital engine electronics control module activates the volume control valve.



Index	Explanation	Index	Explanation
1	High-pressure pump	2	Volume control valve
3	Plug-in connection		

### Rail pressure sensor

The rail-pressure sensor fitted on the stainless steel rail. In the rail, the compressed fuel is stored temporarily and distributed to the high-pressure fuel valves. A silicon element on a metal membrane measures the fuel delivery pressure in the rail. The measuring range of the rail-pressure sensor is from 0 to 160 bar. The rail-pressure sensor delivers a proportional voltage over the entire measuring range.

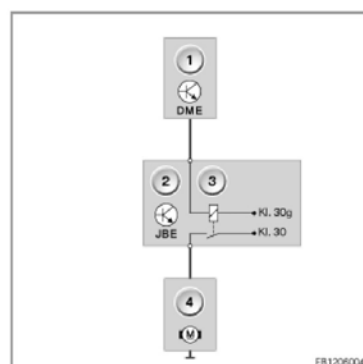


Index	Explanation	Index	Explanation
1	Rail	2	Rail pressure sensor

If the rail-pressure sensor fails, the volume control valve is activated in emergency operation by the DME.

### Electrical Fuel Pump

The electric fuel pump is an in-tank pump. The DME activates the fuel pump via the fuel-pump relay. The fuel-pump relay is in the junction box electronics.

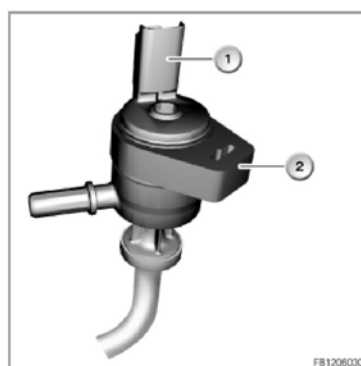


Index	Explanation	Index	Explanation
1	Digital Engine Electronics (DME)	2	Fuel pump relay
3	Junction box electronics (JBE)	4	Electrical Fuel Pump

With terminal 15 On, a fuel-pump relay switches on the electric fuel pump.

### Tank ventilation valve

The tank-ventilation valve regenerates the activated carbon filter by means of purge air. The purge air drawn through the activated carbon filter is enriched with hydrocarbon and then fed to the combustion engine.



Index	Explanation	Index	Explanation
1	2-pin plug-in connection	2	Tank ventilation valve

The tank vent valve is closed when in a flow-free state. This means that with the engine at a standstill no fuel vapours from the activated carbon filter enter the intake pipe.

### System functions

The following system functions are described for the fuel system:

#### High-pressure control

The volume control valve adjusts the flow of fuel from the low-pressure side into the high-pressure side of the high-pressure pump. This achieves the desired rail pressure. The volume control valve is forced open hydraulically as of a certain pressure in the high-pressure side of the high-pressure pump. The volume control valve is a component of the high-pressure pump.

The signal from the rail-pressure sensor is an important input signal of the DME for activation of the volume control valve (component of the high-pressure pump). If the rail-pressure sensor fails, the volume control valve is activated in emergency operation by the DME.

#### Bleeding the tank

The tank-ventilation valve controls the regeneration of the activated carbon filter by means of purge air. The purge air drawn through the activated carbon filter is enriched with hydrocarbon (HC) depending on the load of the activated carbon. The purge air is then fed to the engine for combustion.

The creation of hydrocarbons in the fuel tank depends on:

- Fuel temperature and ambient temperature



- Air pressure
- Fill level in the fuel tank

The tank vent valve is closed when in a flow-free state. This means that with the engine at a standstill no fuel vapours from the activated carbon filter enter the intake pipe.

## Notes for Service department

### General information

**NOTE:** The volume control valve cannot be replaced individually.

Due to the risk of soiling, only the complete high-pressure pump may be replaced.

### National version US

### Diagnosis module for tank leakage (DMTL)

The leak test of the fuel system is run regularly after stopping the engine. The following processes run in the after-run time of the DME:

- Initial situation

During normal engine operation, the switchover valve in the diagnosis module is in the position "Regeneration". The fuel vapours are stored in the carbon canister and fed to the engine as a function of activation of the tank-venting valve (see also Tank ventilation).

- Check of start conditions

The necessary start conditions are checked after the engine is switched off:

- Engine OFF
- Battery voltage between 11.5 and 14.5 Volts
- No fault code memory entries in the DME for the diagnosis module for tank leakage as well as tank-ventilation system
- Tank fill level greater than 10 % and less than 90 %
- Ambient temperature between 7 °C and 35 °C

With a positive result, the tank-leak diagnosis is started with a comparison measurement.

- Comparison measurement

The tank-venting valve is always closed after the engine is switched off. The switchover valve of the diagnosis module remains in the position "Regeneration". The electrical leakage diagnosis pump pumps fresh air from the environment via a defined leak of 0.5 mm diameter. The necessary current consumption is stored as a value. This is followed by the tank-leak diagnosis itself.

- Tank-leak diagnosis

The tank-venting valve remains closed. The switchover valve of the diagnosis module switches to the position "Diagnosis". The leak diagnosis pump pumps fresh air from the environment into the fuel tank, slowly raising the internal pressure. At the start of the tank-leak diagnosis, the internal pressure corresponds to the ambient pressure. The current consumption is thus low. With increasing internal pressure in the tank, the current consumption rises. The current consumption of the leak diagnosis pump is evaluated by the DME.

- Evaluation of the pump current

The DME evaluates the rise in the current consumption within a certain time. If the current consumption exceeds the stored value within this time, the fuel system is regarded as OK. The tank-leak diagnosis is terminated. If the current consumption does not reach the stored value, the fuel system is regarded as not OK. The tank-leak diagnosis enables a distinction between:

- Major leak, e.g. fuel filler cap missing
- Minor leak
- Minimal leak

The relevant fault is entered in the DME fault memory. Tank-leak diagnosis is then terminated.

- End of the tank-leak diagnosis

The switchover valve is switched back to the position "Regeneration". The after-run time of the DME is available for other functions.

The tank-leak diagnosis can also be started using the BMW diagnosis system. In this case, the processes take place as described above.

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## Other Interfaces

### Other Interfaces

The DME control module requires a number of other signals for engine management.

### Brief description of components

The following components for the other interfaces are described:

### Accelerator pedal module

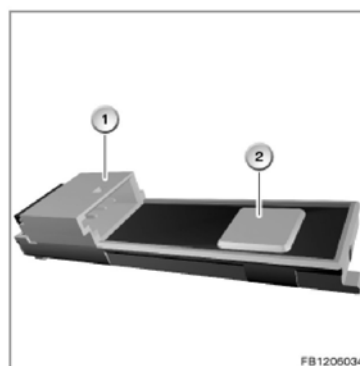
The accelerator pedal module detects the position of the accelerator pedal. The DME control module uses this to calculate the required position of the throttle valve, taking account of other factors.



Index	Explanation	Index	Explanation
1	6-pin plug-in connection	2	Accelerator pedal module

### Clutch module

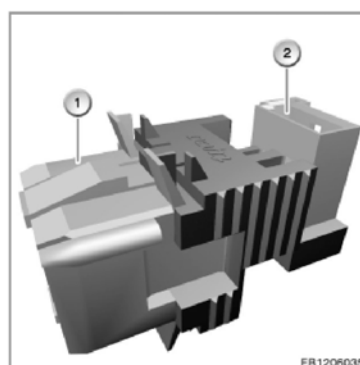
On vehicles with manual transmissions, the clutch module at the clutch pedal picks up the clutch position (clutch pressed: clutch switch open; clutch not pressed, clutch switch closed). The clutch module consists of a clutch switch and an electronic evaluation unit.



Index	Explanation	Index	Explanation
1	3-pin plug-in connection	2	Clutch module

### Brake light switch

Two switches are built into the brake-light switch: the brake-light switch and the brake-light test switch (redundancy for safety reasons). The signals indicate to the DME control module whether the brake pedal has been pressed.



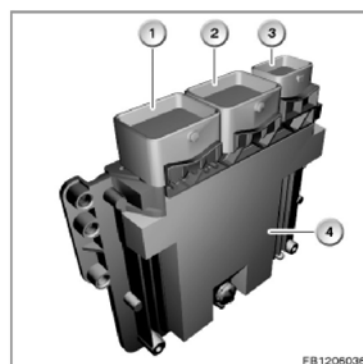
Index	Explanation	Index	Explanation
1	Brake light switch	2	4-pin plug-in connection

### DME control module

There are 3 other sensors on the board in the DME control module: a temperature sensor, an ambient-pressure sensor as well as a voltage sensor. The temperature sensor provides thermal monitoring of the components in the DME control module. The ambient pressure is required for calculation of the mixture composition. The ambient pressure falls the higher you go above sea level. The voltage sensor on the board of the DME

The DME control module is connected with the vehicle electrical system via the engine wiring harness and vehicle wiring harness (3 connector chambers).

The DME control module is connected via the PT-CAN (Powertrain CAN) across a gateway with the remaining bus system. The gateway is the junction box electronics (JBE).



Index	Explanation	Index	Explanation
1	53-pin plug-in connection	2	53-pin plug-in connection
3	32-pin plug-in connection	4	DME control module

## System functions

The following system functions are described:

### Electronic vehicle immobilization

The electronic immobilizer is both an anti-theft device and start release. On the MINI, a newly developed electronic immobilizer (4th generation) is introduced. This development uses a new and modern encryption method.

Each vehicle is assigned a 128-bit secret code. This secret code is stored in a BMW database. This means that the secret code is only known to BMW. The secret code is programmed and locked in the CAS control module and the DME control module. When the secret code is in the control modules, it can no longer be deleted or changed. This means that each control module is assigned to a certain vehicle. The CAS control module and the EWS control module mutually identify themselves with the secret number and the same algorithm.

If the identification data is correct, the CAS control module activates the starter motor via a relay in the control module. At the same time, the CAS control module sends the DME control module a coded release signal (changing code) for the engine start. The DME control module only enables the engine start if a correct enable signal is received from the CAS control module. These procedures may result in a slight start delay (up to half a second).

## Notes for Service department

### General information

**NOTE:** Procedure in the event of a defective control module.

If the CAS or DME is defective, a certain procedure must be followed.

The required control module must be ordered exactly for the vehicle. For this, the vehicle data (vehicle identification number) is required.

An EWS calibration is not necessary after renewing the control module.

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## Brake Light Switch

### Brake Light Switch

The brake-light switch serves to detect brake pedal operation.

### Function

The brake-light switch is a Hall sensor fitted at the brake pedal. The switch is supplied with voltage by the light module as of terminal R ON.

The brake light switch supplies two signals:

- S\_BLS Brake light switch
- S\_BLTS Brake light test switch

These signals are received and evaluated by the individual control modules (choice, see table below) independently of one another:

Signal	Brake light switch	Brake-light test switch
Receiving control module	Motor control	Motor control
	DSC	CAS
	EGS	
	SMG	
	LM	
	JBBE	

The redundant signal "Brake activated" as a directly wired signal and as a CAN message means that transmission is also ensured in the event of faults on a signal path.

In the engine management system, both signals of the brake-light switch are evaluated simultaneously. This direct comparison of the two signals makes it possible to establish definitely whether the brake pedal is being operated. Furthermore, a malfunction of the brake light switch can also be diagnosed.

The two signals of the brake-light switch behave in relation to one another according to the following table:

	Brake pedal operated	Brake pedal not operated
Status, brake-light switch	Open	Closed
Status of brake-light test switch	Closed	Open

The following signal levels can be measured at the two outputs of the brake light switch:

	Brake pedal operated	Brake pedal not operated
Signal, brake light switch	Battery voltage	0 V
Signal of brake-light test switch	Battery voltage	0 V

## Diagnosis

The signals of the brake-light switch are continuously checked by the engine management system as regards plausibility. In the event of faults, a fault is entered in the fault memory of the engine management system. Cruise control is also deactivated at the same time.

## Knock Control

### Knock Control

For a turbocharged engine, the N14 is comparatively highly compressed (compression ratio of 10.5 : 1).

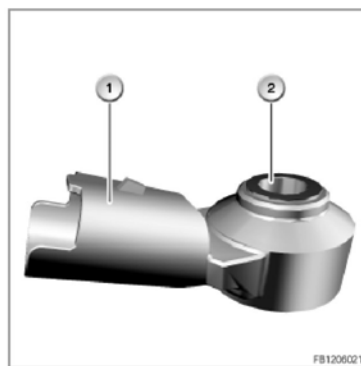
For this reason, knock control monitors the combustion process. The functions of the knock control have been extended. The DME control module also detects super-knocking (special form of spontaneous ignition).

### Brief description of components

The following components are described for the knock control:

#### Knock sensor

The knock sensor detects the combustion knock. Spontaneous ignition is an unwanted ignition caused by glowing parts in the cylinder. Spontaneous ignition can occur on engine with direct fuel injection. The knocking is detected on a cylinder-selective basis by the DME control module.



Index	Explanation	Index	Explanation
1	2-pin plug-in connection	2	Knock sensor

## System functions

The following system functions are described for the knock control:

### Knock Control

The engine is equipped with a cylinder-selective, adaptive knock control system. The knock sensor detects the combustion knock. The sensor signal is evaluated in the DME control module. Longer operation of an engine with knocking combustion can lead to severe damage.

Knocking is favoured by:

- Increased compression ratio
- High cylinder charge
- Poor fuel quality (RON/MON)
- High intake air and engine temperature

The compression ratio can also reach excessively high values due to deposits or production-related scatter. On engines without knock control, these unfavourable influences must be taken into consideration in the ignition design by providing a safety distance to the knock limit. However, this results in unavoidable losses in efficiency in the upper load range. Knock control prevents knocking. It retards the ignition timing of the affected cylinder(s) (cylinder-selective) only as far as necessary and only if there is an actual risk of knocking. In this way, the ignition angle characteristic map can be adapted to the optimum consumption values (without having to take the knock limit into consideration). A safety distance is no longer necessary. The knock control system carries out all knock-related corrections to the ignition timing and enables perfect operation also with regular grade fuel (minimum RON 91). The knock control provides:

- Protection against damage resulting from engine knock (also under unfavourable conditions)
- Lower consumption and higher torque over the entire upper load range (corresponding to the fuel quality used).
- High efficiency due to optimum utilization of the fuel quality and consideration of the relevant engine status

Self-diagnosis of the knock control system includes the following checks:

- Check for disrupted signal, e.g. break in wiring or plug-in connection defective
- Self-test of evaluation circuit
- Check of the noise level picked up by the knock sensor for the engine

The knock control system is switched off if a fault is found during the course of one of these checks. The emergency program adopts the task of controlling the ignition timing. At the same time, the relevant fault is entered in the DME fault memory. The emergency program ensures damage-free operation as from minimum RON 91. It depends on the engine load, speed and engine temperature.

### Super-knocking

Super-knocking is irregular combustion that occurs on highly turbocharged engines. Here, the maximum combustion pressure of approx. 100 bar rises to up to 200 bar. The causes of this are impurities in the combustion chamber (oil, residual gas, carbon particles) that trigger inflammation of the mixture before the actual point of ignition. This is why super-knocking cannot be eliminated by means of ignition interventions.

If the DME detects super-knocking, the power output is reduced to protect against engine damage. Brief super-knocking caused by individual dirt particles does not lead to a fault memory entry.

## Notes for Service department

### General information

**NOTE:** 1 knock sensor for all 4 cylinders.

The knock sensor detects knock of a cylinder-selective basis.

No liability can be accepted for printing or other faults. Subject to changes of a technical nature

# Air Supply

## Air Supply

The 4-cylinder petrol engine is charged by an exhaust turbocharger. Here, the channels of 2 cylinders are each grouped separately in the exhaust manifold and in the exhaust turbocharger. This technology is referred to as "twin-scroll".

Increasing the gas dynamics in the exhaust manifold at low engine speeds means that the energy of the pulsing columns of air is better exploited. This sets the maximum torque even at 1600 rpm.

The effect is clearly noticeable. The 'turbo hole' that otherwise frequently occurs is almost completely avoided.

### Brief description of components

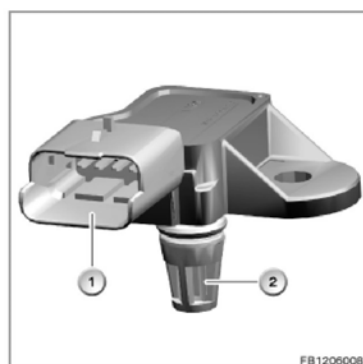
The following components are described for the air supply:

#### Intake temperature and charge-air pressure sensor

The combined sensor delivers the following information to the DME control module: temperature and pressure of the charge air before the throttle valve (absolute).

The intake temperature and charge-air pressure sensor are used for charge-air pressure control.

The DME control module also uses the signal of the intake-manifold pressure sensor to calibrate the position of the throttle valve.



Index	Explanation	Index	Explanation
1	4-pin plug-in connection	2	Intake temperature and charge-air pressure sensor

The intake temperature and charge-air pressure sensor is located in the air duct after the charge air cooler.

#### Intake-manifold pressure sensor

The intake-manifold pressure sensor measures the (absolute) pressure in the intake system. The DME uses the signal from the intake-manifold pressure sensor to calculate the air mass taken in. The pressure also serves as a substitute value for the load signal.

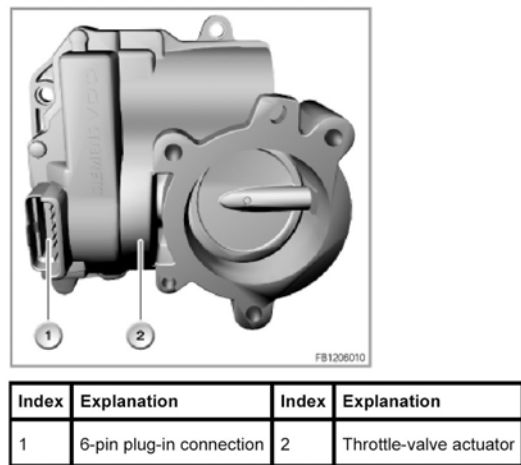


Index	Explanation	Index	Explanation
1	3-pin plug-in connection	2	Intake-manifold pressure sensor

The intake-manifold pressure sensor is located on the air collector for intake air.

#### Throttle-valve actuator

The position of the throttle valve is also influenced by the charge-air pressure.

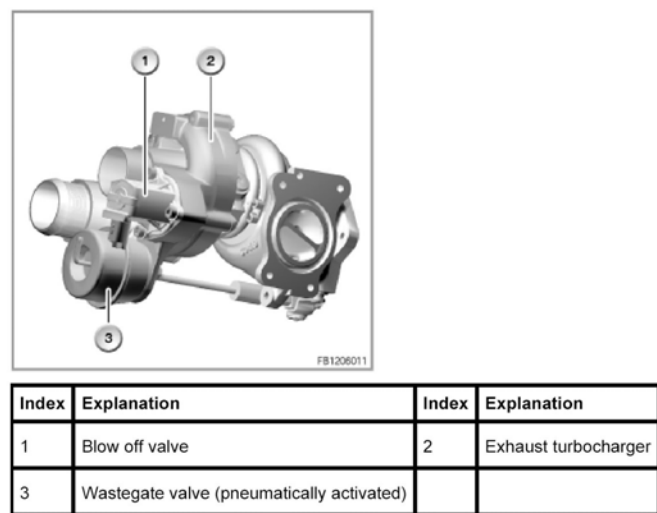


The throttle-valve actuator is secured to the air collector for intake air.

### Blow off valve

In order to avoid the occurrence of strong vibrations at the impeller in the case of suddenly closing of the throttle valve (e.g. during gearshift), the blow off valve opens. This creates a circuit around the compressor. The blow off valve prevents "pumping" against the closed throttle valve: improved engine acoustics.

Additional effect: the exhaust turbocharger reacts quickly when the throttle valve is opened again. Without the blow off valve, the exhaust turbocharger would work against the backpressure of the closed throttle valve and become slower. On opening the throttle valve, the exhaust turbocharger would react with a delay.



The blow off valve is attached with the wastegate valve to the exhaust turbocharger.

### Exhaust turbocharger with wastegate valve

The engine is equipped with a so-called twin scroll exhaust turbocharger. Here, the channels of 2 cylinders are each grouped separately in the exhaust manifold and in the exhaust turbocharger: cylinders 1 and 4, cylinders 2 and 3. Increasing the gas dynamics in the exhaust manifold at low engine speeds means that the energy of the pulsing columns of air is better exploited. This sets the maximum torque even at 1600 rpm. The 'turbo hole' that otherwise frequently occurs is almost completely avoided.

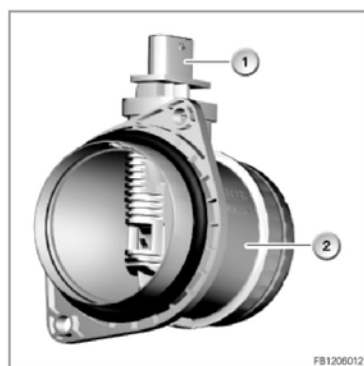
The charge-air pressure is regulated by the DME via a wastegate valve. The wastegate valve is adjusted pneumatically by a diaphragm can. An electropneumatic pressure converter applies a partial vacuum to the diaphragm can.

There are 2 connections each for cooling lubrication of the exhaust turbocharger. Two connections for the engine cooling circuit as well as 2 connections for the oil circuit. The exhaust turbocharger is cooled by a separate pump. The DME control module switches on the turbocharger coolant pump after stopping the engine.

### Hot-film air-mass sensor, only US version

The hot-film air-mass sensor is used in the US version. This increases the accuracy of the load identification. The measure is necessary due to exhaust emissions legislation. The signal of the intake air temperature sensor in the HFM is not used.

The hot-film air-mass sensor is behind the intake muffler.



Index	Explanation	Index	Explanation
1	3-pin plug-in connection	2	Hot-film air mass meter

## System functions

The following system function is described for the air supply system:

### Calculation of the air mass

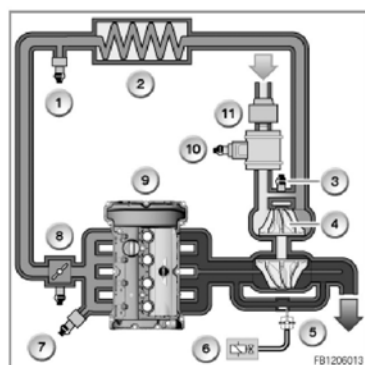
The air mass that is taken in is no longer measured directly with the mass air flow sensor, rather it is calculated by the DME. A filling calculation (filling model) has been programmed in the DME for this calculation. The following signals are included in this calculation:

- VANOS setting (load identification)
- Position of the throttle valve (choke action)
- Intake-air temperature (correction of air density)
- Engine speed (cylinder fill levels)
- Air intake pressure (correction for choke action)
- Ambient pressure (air density divided by altitude correction)

The air mass calculated in this way is synchronized with:

- Signal of the oxygen sensor (fuel-air ratio)
- Fuel injection period (volume of fuel)

If necessary, the calculated air mass is corrected. In the event of failure of the oxygen sensor, a fault is entered in the fault memory of the DME (plausibility check of the air mass). In this case, there is no calibration of the calculated air mass.



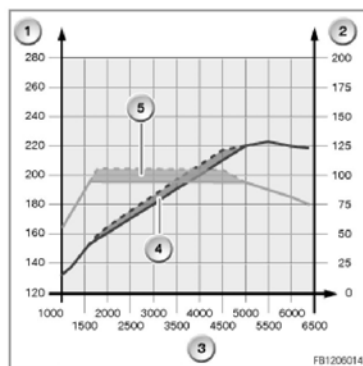
Index	Explanation	Index	Explanation
1	Intake temperature and charge-air pressure sensor	2	Charge air cooler
3	Blow off valve	4	Exhaust turbocharger (twin-scroll)
5	Wastegate	6	Electropneumatic pressure converter
7	Intake-manifold pressure sensor	8	Throttle-valve actuator
9	Engine	10	Hot-film air-mass sensor (only US)
11	Intake muffler		

## Charge-air-pressure control



The charge-air pressure is controlled by the DME by means of a wastegate valve to a maximum of 0.8 bar. A portion of the exhaust gases is fed via the wastegate valve to the turbine. The wastegate valve is adjusted pneumatically by a diaphragm can. The wastegate valve can be set variably. An electropneumatic pressure converter applies a partial vacuum to the diaphragm can. The DME controls the electropneumatic pressure transducer.

An additional function is available for charge-air pressure control. Here, the charge-air pressure is briefly increased by approx. 150 mbar (approx. 12 seconds). This increase in the charge-air pressure (overboost) is available between approx. 1600 rpm and approx. 5000 rpm. This enables a torque increase and power output increase with the engine speed remaining the same.



Index	Explanation	Index	Explanation
1	Torque	2	Power output
3	Engine speed	4	Output curve with increased charge-air pressure
5	Torque curve with increased charge-air pressure		

The increase in the charge-air pressure is activated by the DME when the accelerator pedal is pressed very quickly.

### Idle air control

The DSC control module delivers the driving speed signal across the PT-CAN to the DME control module. The signal is required for a number of functions, e.g. for idle speed control. For idle speed control, the DME activates the throttle-valve actuator.

If the vehicle is not stationary, the idle speed is regulated to a fixed value (slightly above the engine speed when the vehicle is at a standstill). If the driving speed equals 0 km/h, the idle speed is regulated (depending on air-conditioning compressor ON, engaged drive position for automatic transmission, light ON).

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## Engine-Speed Measurement

### Misfire Detection And Poor-road-surface Detection

Smooth idle speed can only be evaluated with the engine running at idle speed (cold or hot). An individual cylinder with poor combustion is detected exactly.

The poor-road-surface detection detects the poor-road-surface mode on a poor stretch of road.

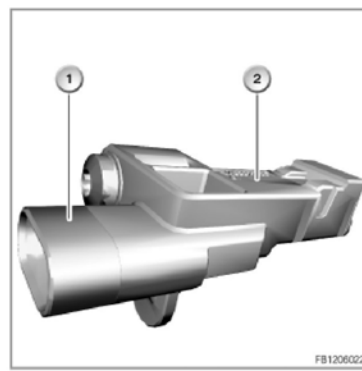
### Brief description of components

The following components are described for the misfire detection:

#### Crankshaft sensor

The crankshaft sensor picks up the position of the crankshaft by means of a sensor wheel bolted onto the crankshaft. The DME uses this to calculate the engine speed. The crankshaft sensor is necessary for the fully sequential injection system (fuel injection takes place individually for each cylinder at the specific point of ignition).

The signal from the crankshaft sensor means that the DME also evaluates the crankshaft acceleration. The crankshaft acceleration provides an indication of the combustion quality of individual cylinders.



Index	Explanation	Index	Explanation
1	3-pin plug-in connection	2	Crankshaft sensor

## System functions

The following system functions are described:

### Misfiring detection

The smooth-running values of the individual cylinders are indicated for troubleshooting purposes. The engine must run at idle speed for at least 3 minutes to ensure that the useful values are set. Smooth idle speed can only be evaluated with the engine running at idle speed (cold or hot). An individual cylinder with poor combustion is detected exactly. Random fluctuations in the smooth-running value of an individual cylinder can only be detected by close observation of the value. In the case of an engine with theoretically even combustion, the smooth-running values are 0 (averaged over all cylinders). An increase in the smooth-running values may be caused by various factors (e.g. misfiring, excess air, mixture deviations, faults in fuel supply system, low compression). For this reason, exact control limits cannot be specified. The crankshaft sensor is used to measure the engine speed at the increment gear. In addition to the engine speed detection, the smooth running of the engine (= misfire detection) is also monitored. For misfire detection, the increment gear in the DME control module is divided into 2 segments according to the firing interval (between 2 ignition operations). Within the DME control module, the periodic duration of the individual segments is measured and statistically evaluated. For each mapped value on the characteristic map, the maximum permissible values for irregular running are stored (as a function of engine speed, load and engine temperature). If these values are exceeded for a certain number of combustions, a fault memory entry is stored for a cylinder regarded as faulty.

### Poor-road-surface detection

The poor-road-surface detection detects the poor-road-surface mode on a poor stretch of road (driving over stones, gravel or potholes) on the basis of the transferred wheel acceleration. In the case of poor-road-surface detection, a fault is stored and the misfire detection is briefly disabled. The disabling is necessary, as vibrations in the drive train due to poor road surfaces can lead to erroneous misfire detection. It is also possible that the poor-road-surface detection takes effect too late (only after a misfire has already been erroneously detected). In this case, the combustion misfires are recognized as an incorrect diagnosis by the poor-road-surface detection system.

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## Engine Cooling

### Engine Cooling

A turbocharged engine with direct fuel injection makes strong demands on the engine cooling. On the N14, e.g., an additional coolant pump is used for the exhaust turbocharger.

### Brief description of components

The following components are described for engine cooling:

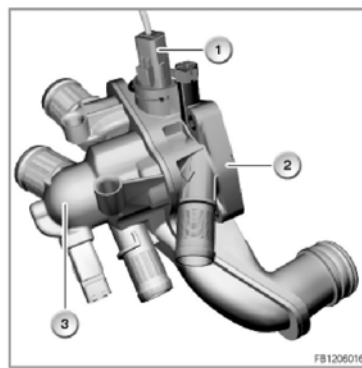
#### Electric Fan

The fan in the N14 is 2-stage.

There is a separate relay for each fan setting. The two relays are in the engine compartment distribution box.

#### Engine temperature sensor

The engine temperature sensor picks up the coolant temperature of the engine cooling circuit. The coolant temperature is one of the measured variables e.g. for the following calculations: fuel injection rate and nominal idle speed.



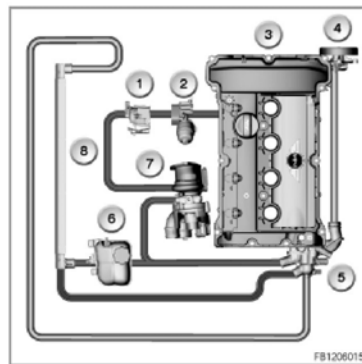
Index	Explanation	Index	Explanation
1	Engine temperature sensor	2	Thermostat housing
3	Characteristic map thermostat		

The engine temperature sensor is on the thermostat housing.

### Characteristic map thermostat

There is a heating element in the map thermostat.

The map thermostat opens and closes as regulated by a characteristic map. The opening temperature is 105 °C. The map thermostat sets a constant coolant temperature within its control range at the engine inlet.



Index	Explanation	Index	Explanation
1	Turbocharger coolant pump	2	Oil-water heat exchanger
3	Engine	4	Coolant pump
5	Characteristic map thermostat	6	Expansion tank
7	Exhaust turbocharger	8	Radiator

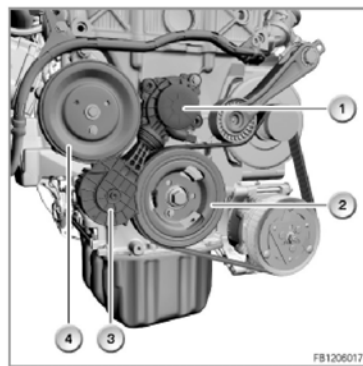
In driving states with low load, the map thermostat sets a high coolant temperature (favourable for consumption). At full load or high engine speed, the coolant temperature is lowered to approx. 85 °C to protect the components.

### Wheel and disk actuating drive

On the N14 engine, the coolant pump is driven for the first time by a frictional wheel. The back of the belt on the belt pulley of the crankshaft drives the frictional wheel. The frictional wheel drives the coolant pump.

This means that no second belt drive is necessary.

On the N14, the coolant pump runs in parallel under all operation conditions (cannot be switched).



Engine with air-conditioning compressor shown

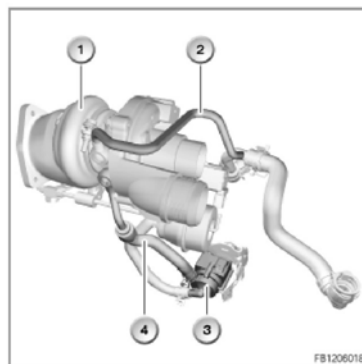
Index	Explanation	Index	Explanation
1	Wheel and disk actuating drive	2	Crankshaft drive gear
3	Frictional wheel	4	Coolant pump drive gear

The wheel and disk actuating drive means that the engine is very short and compact.

### Turbocharger coolant pump

The engine has an additional coolant pump. The DME control module switches on the turbocharger coolant pump after stopping the engine. This prevents a thermal overload of the exhaust turbocharger.

Even at high oil temperatures, the turbocharger coolant pump cools the exhaust turbocharger.



Index	Explanation	Index	Explanation
1	Exhaust turbocharger	2	Return line
3	Turbocharger coolant pump	4	Delivery line

### System functions

The following system functions are described for the engine cooling:

### Engine cooling

The map thermostat opens and closes, regulated by a characteristic map. This regulation can be divided into 3 operating ranges:

- Engine cold, map thermostat closed:  
The coolant only flows in the engine (short circuit). The cooling circuit is closed. The thermostat is not activated.
- Engine hot, map thermostat open:  
The entire volume of coolant flows via the radiator. This means that the maximum available cooling output is exploited. The thermostat is not activated.
- Control range of the map thermostat:  
Part of the coolant flows through the radiator. The map thermostat opens as of 105 °C and maintains a constant coolant temperature. In this operating range, the map thermostat can now be used to influence the coolant temperature specifically. This enables the setting of a higher coolant temperature in the part-load range of the engine. At higher operating temperatures in the part-load range, friction is reduced. This results in lower consumption and pollutant emissions. During full-load operation, higher operating temperatures involve disadvantages (retarding of the ignition due to knocking). For this reason, during full-load operation, the map thermostat is used to specifically set a coolant temperature of 85 °C.

### Notes for Service department

### General information

**NOTE:** Vehicles without air-conditioning compressor without belt tensioner.

On vehicles without an air-conditioning compressor, there is no belt tensioner.

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## Engine Oil

### Oil Supply

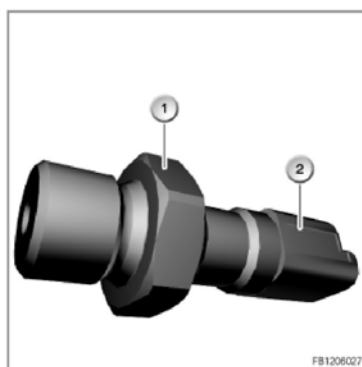
The oil supply in line with requirements only delivers the amount of engine oil that is actually needed. The volume-flow-regulated oil pump lowers fuel consumption by up to 1 %.

### Brief description of components

The following components are described for the oil supply:

#### Oil pressure switch

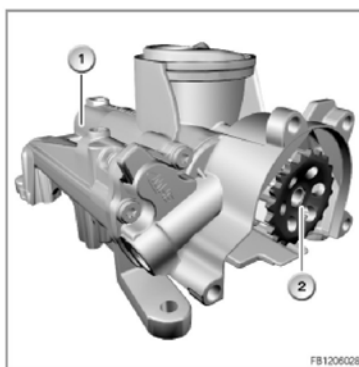
The oil-pressure sensor signals to the DME control module whether there is adequate oil pressure in the engine (switching point 0.5 bar).



Index	Explanation	Index	Explanation
1	Oil pressure switch	2	3-pin plug-in connection

#### Volume-flow-regulated oil pump

The engine has a volume-flow-regulated oil pump. This pump supplied exactly the amount of oil required by each operating range. The oil pump is an external gear pump. The oil pump is driven by a chain from the crankshaft.



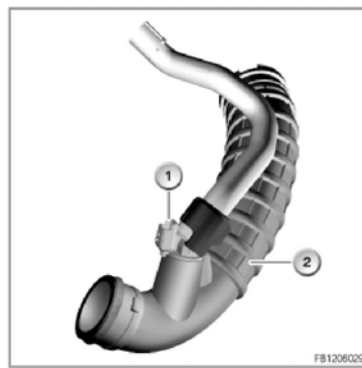
Index	Explanation	Index	Explanation
1	Volume-flow-regulated oil pump	2	Chain wheel

### System functions

The following system functions are described:

#### Engine ventilation heating

The N14 engine has engine ventilation heating. The engine ventilation heating is at the entry to the fresh air pipe. Engine ventilation heating is an optional extra (optional extra 842 cold country version).



Index	Explanation	Index	Explanation
1	Engine ventilation heating	2	Fresh air pipe

At terminal 87 (terminal 15 On), the DME control module activates the engine ventilation heating via the engine ventilation heating relay. This supplies the engine ventilation heating with terminal 30. The engine ventilation heating relay is in the distribution box in the engine compartment.

Switch-on conditions:

- Terminal 15 ON
- Ambient temperature less than 2 °C
- Time after engine start less than 360 seconds  
(time is extended depending on engine oil temperature, coolant temperature as well as driving speed)

## Notes for Service department

### General information

**NOTE:** engine ventilation heating depends on the fitted options.

Option 842 cold country version is compulsory in various cold countries.

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## Other Interfaces

### Other Interfaces

The DME control module requires a number of other signals for engine management.

### Brief description of components

The following components for the other interfaces are described:

### Accelerator pedal module

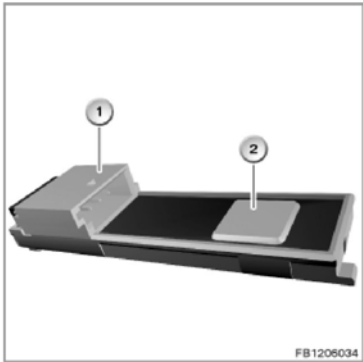
The accelerator pedal module detects the position of the accelerator pedal. The DME control module uses this to calculate the required position of the throttle valve, taking account of other factors.



Index	Explanation	Index	Explanation
1	6-pin plug-in connection	2	Accelerator pedal module

### Clutch module

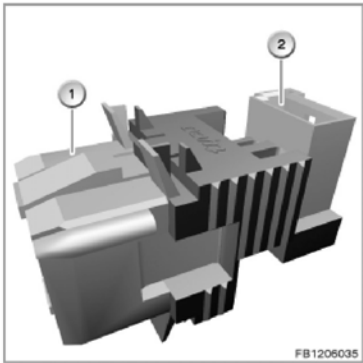
On vehicles with manual transmissions, the clutch module at the clutch pedal picks up the clutch position (clutch pressed: clutch switch open;



Index	Explanation	Index	Explanation
1	3-pin plug-in connection	2	Clutch module

### Brake light switch

Two switches are built into the brake-light switch: the brake-light switch and the brake-light test switch (redundancy for safety reasons). The signals indicate to the DME control module whether the brake pedal has been pressed.



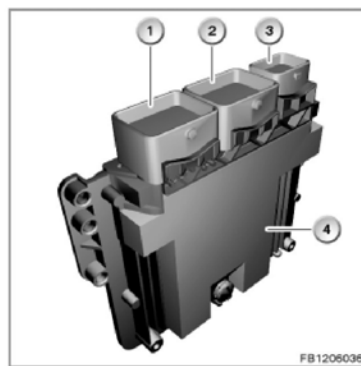
Index	Explanation	Index	Explanation
1	Brake light switch	2	4-pin plug-in connection

### DME control module

There are 3 other sensors on the board in the DME control module: a temperature sensor, an ambient-pressure sensor as well as a voltage sensor. The temperature sensor provides thermal monitoring of the components in the DME control module. The ambient pressure is required for calculation of the mixture composition. The ambient pressure falls the higher you go above sea level. The voltage sensor on the board of the DME control module monitors the power supply via terminal 87.

The DME control module is connected with the vehicle electrical system via the engine wiring harness and vehicle wiring harness (3 connector chambers).

The DME control module is connected via the PT-CAN (Powertrain CAN) across a gateway with the remaining bus system. The gateway is the junction box electronics (JBE).



Index	Explanation	Index	Explanation
1	53-pin plug-in connection	2	53-pin plug-in connection
3	32-pin plug-in connection	4	DME control module

## System functions

The following system functions are described:

### Electronic vehicle immobilization

The electronic immobilizer is both an anti-theft device and start release. On the MINI, a newly developed electronic immobilizer (4th generation) is introduced. This development uses a new and modern encryption method.

Each vehicle is assigned a 128-bit secret code. This secret code is stored in a BMW database. This means that the secret code is only known to BMW. The secret code is programmed and locked in the CAS control module and the DME control module. When the secret code is in the control modules, it can no longer be deleted or changed. This means that each control module is assigned to a certain vehicle. The CAS control module and the EWS control module mutually identify themselves with the secret number and the same algorithm.

If the identification data is correct, the CAS control module activates the starter motor via a relay in the control module. At the same time, the CAS control module sends the DME control module a coded release signal (changing code) for the engine start. The DME control module only enables the engine start if a correct enable signal is received from the CAS control module. These procedures may result in a slight start delay (up to half a second).

## Notes for Service department

### General information

**NOTE:** Procedure in the event of a defective control module.

If the CAS or DME is defective, a certain procedure must be followed.

The required control module must be ordered exactly for the vehicle. For this, the vehicle data (vehicle identification number) is required.

An EWS calibration is not necessary after renewing the control module.

No liability can be accepted for printing or other faults. Subject to changes of a technical nature

## Bit-Serial Data Interface

### Intelligent Battery Sensor (IBS)

#### Brief description:

The intelligent battery sensor (IBS) is a mechatronic component with its own microprocessor for monitoring the battery status.

The IBS is secured and connected to the negative terminal of the battery. The power supply for the IBS is fed across a separate cable. For data transmission, the IBS is connected to the DME (Digital Engine Electronics) or DDE (Digital Diesel Electronics) via the BSD (bit-serial data interface).

## Notes for Service department

### General information

#### Replacing the IBS.

The vehicle with the new IBS must be placed in the idle state for at least 3 hours: Only then can the new IBS determine the battery status.



The Check Control message <battery severely depleted> is then no longer displayed if the battery is adequately charged and the correct battery charge state can be displayed.

## Electronic Car Immobilization System

### Electronic Vehicle Immobilization

The electronic immobilizer (EWS) is both an anti-theft device and start release.

The 4th generation EWS is an enhancement of the EWS used to date. This enhancement uses a new and modern encryption method.

Each vehicle is assigned a 128-bit secret code. This secret code is stored in a BMW database. This means that the secret code is only known to BMW.

The secret code is programmed and locked in the following control module:

- CAS control module (not E83)  
The EWS is integrated in the CAS control module.
- EWS control module (only E83)  
The E83 has an EWS control module, but no CAS control module.
- DME/DDE control module

When the secret code is locked in the control modules, it can no longer be deleted or changed. This means that each control module is assigned to a certain vehicle. The control modules mutually identify themselves with the secret code and the same algorithm.

In the 4th generation EWS, there is no direct line (EWS data line) between DME/DDE and CAS (not E83). The CAN data line (PT-CAN and K-CAN) and the K bus (also called CAS bus) are used for data interchange of the EWS signal. The K bus is used when an EWS signal cannot be sent on the CAN data line.

> E83: As before, data interchange between the EWS control module and DME/DDE takes place across the direct EWS data line.

### Deployment of the EWS (4th generation):

Development model series	Engines	Engine control module
Performance stages: T = TOP O = top performance stage M = Medium performance stage U = Lower performance stage K = Smallest performance stage Revision relevant to approval: 0 = New development 1-9 = Revision		
E60, E61, E63, E64	N52B25U1, N52B25O1, N52B30M1, N52B30O1	MSV80
	N53B25U0, N53B30U0, N53B30O0, N54B30O0	MSD80
	N43B20O0	MSD80.2
	N46B20O2	MEV17.2.1
	N47D20O0	DDE70
E81, E82, E87, E88, E90, E90 M3, E91, E92, E92 M3, E93, E93 M3	N43B16, N43B20U0, N43B20O0	MSD80.2
	N45B16O2, N46B20U2, N46B20O2	MEV17.2.1
	N51B30M0, N52B25U1, N52B25O1, N52B30U0, N52B30M1, N52B30O1	MSV80
	N47D20U0, N47D20O0	DDE70
	N53B30U0, N53B30O0, N54B30O0	MSD80
	S65	MSS80
E83	N52B25O1, N52B30U1, N52B30O1	MSV80
	N46B20O2	MEV17.2.1
	N47D20O0	DDE70
E70	N52B30O1	MSV80
R55, R56	N12	MEV17.2
	N14	MED17.2

## Brief description of components

The following components are described for the EWS:

### Remote control with integrated transponder chip

A transponder chip is integrated in every remote control; this can both transmit and receive. The data transfer takes place in the same way as a transformer between the loop aerial in the insertion slot or ignition lock (only E83) and the transponder chip. The remote control sends data to the EWS or CAS control module and receives data from it.

The authorization of the remote control for each vehicle is also coded in the transponder chip.

The EWS or CAS control module can manage a maximum of 10 remote controls that match the control module, i.e. a maximum of 6 remote controls can be obtained as replacements.

The EWS or CAS control module can identify the individual remote controls. This means it is possible to disable or enable individual remote controls. If faults occur during communication between the EWS or CAS control module and the individual remote controls, these are stored in the fault memory - separately for each individual remote control.

### Loop antenna

The insertion slot for the remote control or around the ignition lock (only E83) is a ring antenna (coil) to query the transponder chip. The transponder chip and EWS or CAS control module communicate via the ring antenna.

### Electric Steering Lock

On vehicles with an electrical steering interlock, this is supplied with electrical current after authentication by the CAS. Only now can the steering be unlocked or locked. An engine start is only permitted when the electrical steering interlock has been unlocked and secured.

### EWS data line

> E83

The EWS control module and DME/DDE mutually authenticate one another across the EWS data line.

### Selector-lever position "P" or "N" with automatic transmission

On vehicles with automatic transmission, start release is only given by the EWS or CAS control module if the selector lever is in position "P" or "N".

The following control modules are involved in the electronic immobilizer (EWS):

### CAS: Car Access System

> not E83

The CAS control module is the master control module for the EWS. The EWS is integrated in the CAS.

The secret code is stored in the CAS control module and is secure against manipulation.

The CAS control module is attached to the bus on the K-CAN (body CAN) and the K bus (body bus).

The CAS control module is the interface to the insertion slot for the remote control.



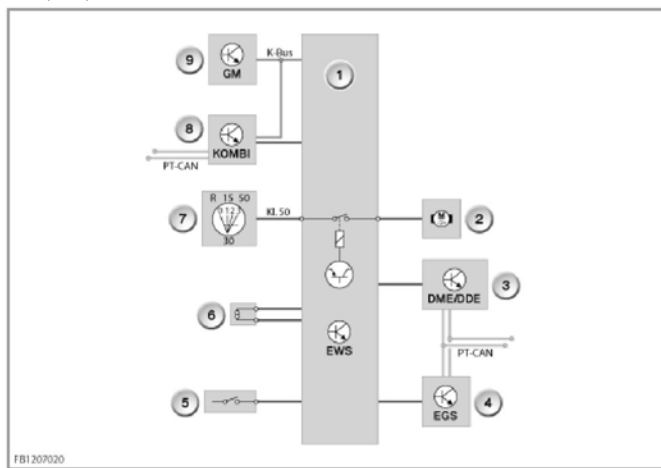
Index	Explanation	Index	Explanation
1	Comfort Access System (CAS)	2	Junction box electronics (JBE) or body gateway module (KGM)
3	Digital Engine Electronics (DME) or Digital Diesel Electronics (DDE)	4	Electronic Transmission Control (EGS) > only E70: Connection on the K bus
5	Comfort Access (CA: Comfort Access)	6	Remote control receiver
7	Electric Steering Lock	8	START-STOP button
9	Insertion slot with remote control	10	Starter motor
KI. 30L	Terminal 30L	KI. 50L	Terminal 50L
K bus	Body bus (also call the CAS bus)	K CAN	Body CAN
PT-CAN	Powertrain CAN		

## EWS control module

> only E83

The EWS control module is attached to the K bus (body bus).

The EWS control module is the interface to the ignition lock.



Index	Explanation	Index	Explanation
1	Electronic immobilizer (EWS)	2	Starter motor
3	Digital Engine Electronics (DME) or Digital Diesel Electronics (DDE)	4	Electronic Transmission Control (EGS)
5	Clutch switch with manual transmission (depending on national version)	6	Loop antenna (coil)
7	Ignition and starting switch	8	Instrument cluster (KOMBI)
9	Base module (BM)		
K bus	Body bus	Terminal 50	Terminal 50
PT-CAN	Powertrain CAN		

### DME/DDE: Digital Engine Electronics /Digital Diesel Electronics

The DME / DDE control module only enables the engine start if a correct enable signal is received from the EWS or CAS control module. The secret code is stored in the DME/DDE and is secure against manipulation.

### JBE: Junction box electronics

> E70, E81, E82, E87, E88, E90, E91, E92, E93, R55, R56

The JBE is the data interface between the PT-CAN (Powertrain CAN) and K-CAN (body CAN).

### KGM: Body Gateway Module

> E60, E61, E63, E64

The KGM is the data interface between the PT-CAN (Powertrain-CAN) and K-CAN (body CAN).

### KOMBI: Instrument cluster

> E83

The instrument cluster is the data interface between the PT-CAN (Powertrain-CAN) and K bus (body bus).

### EGS: Electronic transmission control

> only E70

The Electronic Transmission Control (EGS) is integrated in the 4th generation EWS as another immobilizer. The EGS control module is attached to the K bus.

The transmission function is only enabled when the CAS control module and EGS control module authenticate one another.

### CA: Comfort Access

With optional extra 322 "Comfort Access": An identification sensor is required instead of the usual remote control. The identification sensor also performs the usual functions of the remote control.

The control module for Comfort Access (CA control module) controls the vehicle interior aerials and the vehicle exterior aerials. An ID transmitter scan is carried out. At the same time, the FBD receiver is activated for any ID transmitters which may respond (FBD: remove control service).

The CAS control module is the master control module for all functions run by the Comfort Access optional extra.

## System functions

The following system functions are described for the EWS:

- Control of the electrical steering interlock
- Start enable

### Control of the electrical steering interlock

During the unlocking procedure, an authentication procedure is run between the Car Access System (CAS) and the electrical steering interlock. The electrical steering interlock may only commence unlocking after a positive result in the authentication procedure. For safety reasons, the electrical steering interlock is not supplied with current while the vehicle is being driven. The electrical steering interlock is only supplied with voltage for the unlocking procedure or locking procedure.

### Start enable

If the identification data is correct, the CAS control module activates the starter motor via a relay in the control module. At the same time, the CAS control module sends the DME control module a coded release signal for the engine start. The DME control module only enables the engine start if a correct enable signal is received from the CAS control module.

After inserting the ignition key in the ignition lock or the remote control in the insertion slot, the following sequence begins:

- The transponder in the ignition key or in the remote control is supplied with energy via the ring antenna and sends the key data to the EWS or CAS control module.
  - The EWS or CAS control module checks the correctness of the key data and only then enables activation of the starter by the DME/DDE.
  - The DME/DDE uses a random number and the secret code to calculate a request. The DME/DDE sends this request via the CAN data line (PT-CAN and K-CAN) and the K bus (also called CAS bus) to the CAS control module.
  - The CAS control module uses the request and the secret code to calculate the response. The response is sent by the CAS via the CAN data line (PT-CAN and K-CAN) and the K bus (also called CAS bus) to the DME/DDE.
  - The DME/DDE itself also calculates the response that the CAS control module expects. The DME/DDE then checks the response received from the CAS control module to ensure it matches the response it has calculated itself.
- If the responses match, the engine start is enabled.

Identical changing codes are stored in the control modules; their value changes after every starting operation. The changing code is formed from a random number and the secret code.

## Notes for Service department

### General information

#### Calibration of engine management system with electronic immobilizer

With the introduction of the new EWS (4th generation), the calibration between the engine control module and electronic immobilizer is no longer required.

- 6-cylinder petrol engines  
The elimination of the calibration takes effect with the engine control modules MSV80 and MSD80 as of 06/2006.
- Diesel engines  
Elimination of the calibration takes effect with the engine control modules DDE7 as of 03/2007.
- M-GmbH engines  
The elimination of the calibration takes effect with engine control module MSS60 as of 06/2007.

From this point onwards, certain control modules can only be replaced with control modules specifically ordered for each vehicle.

**NOTE:** Procedure in the event of a defective control module.

If the CAS, EWS (only E83) or DME / DDE is defective, a certain procedure must be followed.

The required control module must be ordered exactly for the vehicle. This requires the vehicle data (vehicle identification number).

An EWS calibration is not necessary after renewing the control module.

> E70

When replacing the Electronic Transmission Control, a calibration is necessary. During calibration, the CAS control module transfers an individual code to the EGS control module. This individual code is required for the authentication procedure to enable the transmission function.

**IMPORTANT:** A trial replacement of the control modules with secret code is not possible.

### Spare key

Spare keys can only be obtained through a BMW dealer with BMW Parts Service. There, one of the 6 spare keys is programmed to match the vehicle. This key is not a copy of the lost key, but rather a new key.

A total of no more than 6 spare keys that match the fitted EWS control module can be manufactured and delivered.

If a new key is inserted for the first time in the ignition lock, there is a noticeable start delay of 1 to 2 seconds. Thereafter, the starting operation must be without any delay.

Lost keys must be blocked via the diagnosis. Refer to "Special features of the diagnosis program".

**CAUTION: Each request for a key is documented so that inquiries from insurance companies and authorities can be followed up.**

### **Reprocurement after loss of all remote controls or ignition keys**

If all remote controls or ignition keys are lost, a new EWS or CAS control module is required.

### **Service functions**

#### **Blocking / releasing remote controls or ignition keys**

It is possible to electronically block or release individual remote controls or ignition keys via the diagnosis (service functions).

**IMPORTANT:** Electronically blocked means that both the starter and the engine control module are not enabled for a start. It must be borne in mind that an electronically blocked ignition key still fits mechanically, i.e. all flaps and door can still be opened.

#### **Display of the remote controls or ignition keys used in this vehicle**

Here, it is displayed whether each individual ignition key (remote control) managed by the EWS or CAS control module has already been detected at least once by the EWS or CAS control module, i.e. it is possible even in the case of older vehicles to recognize how many remote controls or ignition keys have already been used in this vehicle.

No liability can be accepted for printing or other faults. Subject to changes of a technical nature

## **Fuel System**

### **Fuel System**

The N14 4-cylinder petrol engine works with direct fuel injection. Direct fuel injection increases performance. The fuel delivery pressure is a maximum of 120 bar (idle speed: 50 bar, full load: 120 bar).

The use of direct fuel injection creates a homogeneous mixture formation in the entire combustion chamber.

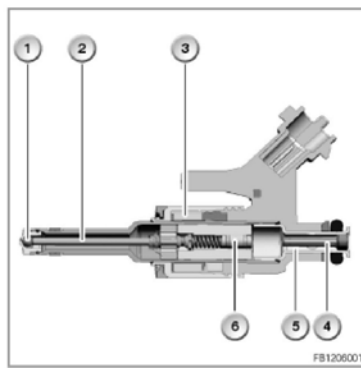
Homogeneous mixture formation means that the fuel-air ratio is regulated stoichiometrically in the same way as for intake pipe fuel injection ( $\Lambda = 1$ ). "Stoichiometrically" refers to a fuel-air ratio of 14.7 kilograms of air to 1 kilogram of fuel. The homogeneous mixture formation means that conventional exhaust gas treatment can be deployed.

### **Brief description of components**

The following components are described for the fuel injection:

#### **High-pressure fuel valve**

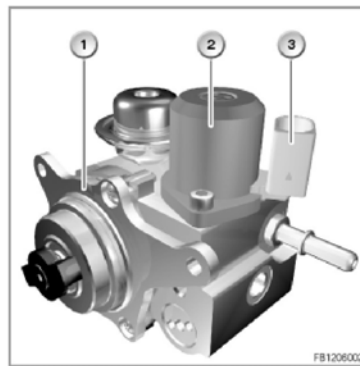
The high-pressure fuel valve is located on the side of the cylinder. In the case of fully sequential fuel injection, each high-pressure fuel valve is activated by the DME control module via a separate output stage. Here, the fuel injection time of each cylinder is adapted to the operating status (speed, load and engine temperature).



Index	Explanation	Index	Explanation
1	Valve seat	2	Needle
3	Coil	4	Connecting cable
5	Filter	6	Setting disc

### High-pressure pump with volume control valve

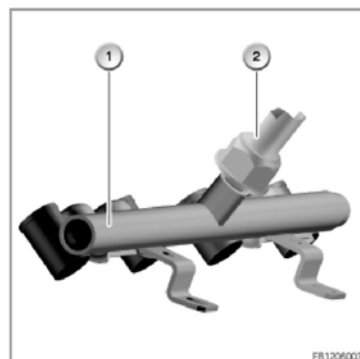
2 pistons in the high-pressure pump generate the necessary pressure in the fuel system. The inlet camshaft drives the high-pressure pump mechanically. The maximum fuel delivery pressure is 120 bar. There is a volume control valve on the high-pressure pump. The digital engine electronics control module activates the volume control valve.



Index	Explanation	Index	Explanation
1	High-pressure pump	2	Volume control valve
3	Plug-in connection		

### Rail pressure sensor

The rail-pressure sensor fitted on the stainless steel rail. In the rail, the compressed fuel is stored temporarily and distributed to the high-pressure fuel valves. A silicon element on a metal membrane measures the fuel delivery pressure in the rail. The measuring range of the rail-pressure sensor is from 0 to 160 bar. The rail-pressure sensor delivers a proportional voltage over the entire measuring range.

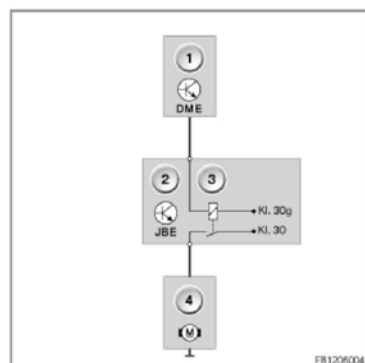


Index	Explanation	Index	Explanation
1	Rail	2	Rail pressure sensor

If the rail-pressure sensor fails, the volume control valve is activated in emergency operation by the DME.

### Electrical Fuel Pump

The electric fuel pump is an in-tank pump. The DME activates the fuel pump via the fuel-pump relay. The fuel-pump relay is in the junction box electronics.

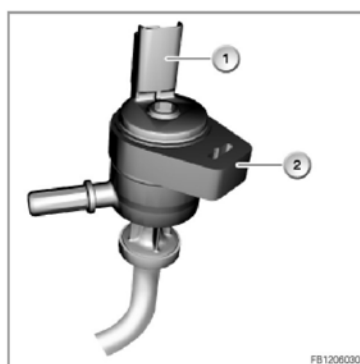


Index	Explanation	Index	Explanation
1	Digital Engine Electronics (DME)	2	Fuel pump relay
3	Junction box electronics (JBE)	4	Electrical Fuel Pump

With terminal 15 On, a fuel-pump relay switches on the electric fuel pump.

### Tank ventilation valve

The tank-ventilation valve regenerates the activated carbon filter by means of purge air. The purge air drawn through the activated carbon filter is enriched with hydrocarbon and then fed to the combustion engine.



Index	Explanation	Index	Explanation
1	2-pin plug-in connection	2	Tank ventilation valve

The tank vent valve is closed when in a flow-free state. This means that with the engine at a standstill no from the activated carbon filter enter the intake pipe.

### System functions

The following system functions are described for the fuel system:

#### High-pressure control

The volume control valve adjusts the flow of fuel from the low-pressure side into the high-pressure side of the high-pressure pump. This achieves the desired rail pressure. The volume control valve is forced open hydraulically as of a certain pressure in the high-pressure side of the high-pressure pump. The volume control valve is a component of the high-pressure pump.

The signal from the rail-pressure sensor is an important input signal of the DME for activation of the volume control valve (component of the high-pressure pump). If the rail-pressure sensor fails, the volume control valve is activated in emergency operation by the DME.

#### Bleeding the tank

The tank-ventilation valve controls the regeneration of the activated carbon filter by means of purge air. The purge air drawn through the activated carbon filter is enriched with hydrocarbon (HC) depending on the load of the activated carbon. The purge air is then fed to the engine for combustion.

The creation of hydrocarbons in the fuel tank depends on:

- Fuel temperature and ambient temperature



- Air pressure
- Fill level in the fuel tank

The tank vent valve is closed when in a flow-free state. This means that with the engine at a standstill no fuel vapours from the activated carbon filter enter the intake pipe.

## Notes for Service department

### General information

**NOTE:** The volume control valve cannot be replaced individually.

Due to the risk of soiling, only the complete high-pressure pump may be replaced.

### National version US

#### Diagnosis module for tank leakage (DMTL)

The leak test of the fuel system is run regularly after stopping the engine. The following processes run in the after-run time of the DME:

- Initial situation

During normal engine operation, the switchover valve in the diagnosis module is in the position **Regeneration**. The fuel vapours are stored in the carbon canister and fed to the engine as a function of activation of the tank-venting valve (see also Tank ventilation).

- Check of start conditions

The necessary start conditions are checked after the engine is switched off:

- Engine OFF
- Battery voltage between 11.5 and 14.5 Volts
- No fault code memory entries in the DME for the diagnosis module for tank leakage as well as tank-ventilation system
- Tank fill level greater than 10 % and less than 90 %
- Ambient temperature between 7 °C and 35 °C

With a positive result, the tank-leak diagnosis is started with a comparison measurement.

- Comparison measurement

The tank-venting valve is always closed after the engine is switched off. The switchover valve of the diagnosis module remains in the position **"Regeneration"**. The electrical leakage diagnosis pump pumps fresh air from the environment via a defined leak of 0.5 mm diameter. The necessary current consumption is stored as a value. This is followed by the tank-leak diagnosis itself.

- Tank-leak diagnosis

The tank-venting valve remains closed. The switchover valve of the diagnosis module switches to the position **"Diagnosis"**. The leak diagnosis pump pumps fresh air from the environment into the fuel tank, slowly raising the internal pressure. At the start of the tank-leak diagnosis, the internal pressure corresponds to the ambient pressure. The current consumption is thus low. With increasing internal pressure in the tank, the current consumption rises. The current consumption of the leak diagnosis pump is evaluated by the DME.

- Evaluation of the pump current

The DME evaluates the rise in the current consumption within a certain time. If the current consumption exceeds the stored value within this time, the fuel system is regarded as OK. The tank-leak diagnosis is terminated. If the current consumption does not reach the stored value, the fuel system is regarded as not OK.

The tank-leak diagnosis enables a distinction between:

- Major leak, e.g. fuel filler cap missing
- Minor leak
- Minimal leak

The relevant fault is entered in the DME fault memory. Tank-leak diagnosis is then terminated.

- End of the tank-leak diagnosis

The switchover valve is switched back to the position **Regeneration**. The after-run time of the DME is available for other functions.

The tank-leak diagnosis can also be started using the BMW diagnosis system. In this case, the processes take place as described above.

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## Diagnostic Module For Fuel Tank Leakage (USA\_LHD)

### Diagnostic Module, Tank Leakage - DMTL

The tank leak diagnostic module (DMTL) serves to identify leaks in the fuel system. Monitoring the fuel system for leaks is required by law within the framework of Onboard Diagnosis.

### Brief description of components

The tank leakage diagnostic module consists of the following components:

- Electric vane pump: For establishing the required overpressure in the tank for tank leak diagnosis
  - Changeover valve: For setting the various operating states
  - Module housing with integrated reference leak of 0.5 mm
  - Heater: For heating the vane pump to eliminate condensation
- The function of the tank leakage diagnostic module is controlled by the Digital Motor Electronics (DME).

## Function of tank leak diagnosis

The fuel system is regularly checked for leaks after the engine is switched off. In this case, the following processes take place in the DME run-on phase:

- Starting situation: During normal engine operation, the changeover valve in the diagnostic module is in the so-called regenerating position. The fuel vapors are stored in the carbon canister and fed to the engine as a function of activation of the tank venting valve (see also Tank ventilation).
- Checking start conditions: The necessary start conditions are checked after the engine is switched off:
  - Engine OFF
  - Battery voltage between 11.5 V and 14.5 V
  - No entries in the DME fault memory for the tank leakage diagnostic module and the tank venting system
  - Tank fill level greater than 10% and less than 90%
  - Ambient temperature between -7°C and 35°C

In the event of a positive result, tank leak diagnosis is started with the reference leak measurement

- Reference leak measurement: The tank venting valve is always closed after the engine is switched off. The changeover valve of the diagnostic module remains in the regenerating position. The electric vane pump pumps fresh air from the surrounding area over a reference leak of 0.5 mm in diameter. The pump current required for this is stored as the reference value. This is followed by the actual tank leakage check.
  - Tank leakage check: The tank venting valve remains closed. The changeover valve of the diagnostic module is switched into the diagnosis position. The vane pump pumps fresh air from the surrounding area into the tank, during which the internal tank pressure increases slowly. At the start of the tank leakage check, the internal tank pressure corresponds to the ambient pressure. The pump current is therefore low. It increases as the internal tank pressure rises. The pump current is evaluated by the DME.
  - Evaluation of pump current: The DME evaluates the increase in the pump current in a defined time interval. If the pump current exceeds the reference current within this time interval, the fuel system is evaluated as OK. Tank leakage diagnosis is terminated. If on the other hand the pump current fails to reach the reference current, the fuel system is evaluated as not OK. Diagnosis permits distinctions between:
    - Major leak/missing tank cap
    - Minor leak
    - Minimal leak
- The relevant fault is entered in the DME fault memory. Tank leak diagnosis is then terminated.
- End of tank leak diagnosis: The changeover valve is returned to the regenerating position. The DME run-on phase is available for further functions.

This function can also be initiated actively by means of the DIS Tester. In this case, the processes take place as described above.

## Diagnosis of module components

The components of the tank leakage diagnostic module are diagnosed by the DME. If a relevant fault occurs during engine operation, a corresponding fault is stored in the DME fault memory. The following faults can be diagnosed:

- Activation of solenoid valve
- Activation of pump motor
- Module fault
- Activation of heater for tank leakage diagnostic module

The diagnostic program offers the option of initiating the system test by means of the DIS Tester. In addition, the system components can be checked individually.

## Valve Gear

### Valve Train

The cylinder head is equipped with a conventional valve gear with 2 overhead camshafts. In addition, friction-optimising roller cam followers and a hydraulic valve clearance adjustment are used. The valve have a shaft diameter of 5 mm, whereby the exhaust valves are filled with sodium. A fully variable spread of the inlet camshaft (VANOS) ensures optimized power output and torque.

### Brief description of components

The following components are described for the valve gear:

#### Intake camshaft sensor



Index	Explanation	Index	Explanation
1	3-pin plug-in connection	2	Intake camshaft sensor

### VANOS solenoid valve, intake

The variable camshaft control serves to enhance the torque in the lower and middle engine speed range. The VANOS solenoid valve activates a VANOS adjustment unit on the inlet side. The VANOS solenoid valves are activated by the digital engine electronics control module.



Index	Explanation	Index	Explanation
1	4-pin plug-in connection	2	VANOS solenoid valve, intake

### System functions

The following system functions are described for the valve gear:

#### Variable camshaft timing control VANOS

The variable camshaft improves the torque in the lower and middle engine speed range. A greater valve overlap results in lower amounts of residual gas at idle speed. The internal exhaust-gas recirculation in the part-load range reduces the nitrogen oxides.

The following are also achieved:

- faster heating of the catalytic converters
- lower pollutant emissions after a cold start
- reduction in the fuel consumption

A regulated VANOS adjustment unit is fitted to the inlet camshaft.

A VANOS solenoid valve activates the VANOS adjustment unit. The required positions of the inlet and exhaust camshafts are calculated from the engine speed and the load signal (depending on the intake-air temperature and engine temperature). The DME control module activates the VANOS adjustment unit accordingly. The inlet camshaft can be variably regulated within its maximum adjustment range. When the correct camshaft position has been reached, the VANOS solenoid valve keeps the oil volume in the actuating cylinder in both chambers constant. This holds the inlet camshaft in this position. The variable camshaft control requires acknowledgement of the current position of the camshafts for the adjustment. A camshaft sensor on the inlet side picks up the position of the camshaft. On engine start, the inlet camshaft is in the end position ("late").

No liability can be accepted for printing or other faults. Subject to changes of a technical nature

### Ignition

#### Ignition

The N14 engine has 4 individual ignition coils. The ignition coils generate the ignition high voltage from the on-board supply voltage to ignite the mixture in the combustion chambers. The firing order is 1 - 3 - 4 - 2. The engine is installed laterally.

## Brief description of components

The following components for the ignition are described:

### Ignition coils

The ignition coils are activated by the DME control module. The ignition coils receive terminal 30 from the overload-protection relay of the ignition. Each ignition coil is seated on a spark plug.



Index	Explanation	Index	Explanation
1	3-pin plug-in connection	2	Ignition Coil
3	Spark plug		

## System functions

The following system functions are described:

### Ignition circuit monitoring

The firing circuit is monitored on the basis of the current in the primary coil of the ignition coil. The current must be within certain values during certain time thresholds for switching on. The following are monitored in the ignition diagnosis:

- Primary power circuit of the ignition coil
- Wiring harness for the ignition
- Secondary power circuit of the ignition coil with spark plug
- Duration of spark combustion

The following faults can be detected by the ignition-circuit monitoring:

- Short circuit on the primary side of the ignition coil
- Short circuit on the secondary side of the ignition coil
- Spark plug
- Break in wiring of the activation
- Defective ignition output stages

The following cannot be detected:

- Sporadic faults, such as loose contacts or activation line
- Flashovers in the high-tension circuit parallel to the spark gap without the formation of a coil short circuit

## Notes for Service department

### General information

**NOTE:** Multiple ignition only in the range close to idling.

The multiple ignition only takes place in the warm-up phase (maximum of 64 °C) as well as in the range close to idling.

No liability can be accepted for printing or other faults. Subject to changes of a technical nature

## Voltage Supply

### Voltage Supply

The power management is the most important component of the energy management. The power management is software in the engine control

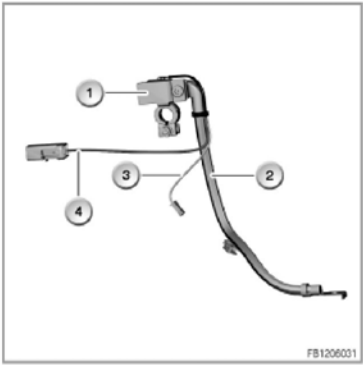
**Brief description of components**

The following components for power supply are described:

**Intelligent battery sensor**

The intelligent battery sensor (IBS) evaluates the current quality of the battery. The IBS has its own control module. The IBS is part of the battery negative terminal. The IBS regularly measures (cyclically) the following values:

- Battery voltage
- Charge current
- Discharge current
- Temperature of the battery



Index	Explanation	Index	Explanation
1	Intelligent battery sensor	2	Ground lead
3	Bit-serial data interface	4	Connection terminal 30

**Alternator**

The alternator is connected to the DME control module across a bit-serial data interface.

The alternator interchanges data with the DME control module across a bit-serial data interface. The alternator provides the DME control module with information, e.g. type and manufacturer. This enables the DME control module to adapt control of the alternator to the alternator model fitted.



Index	Explanation	Index	Explanation
1	Plug-in connection with bit-serial data interface	2	Alternator

**System functions**

The following system functions are described:

**Voltage supply**

The power supply of the DME control module is as follows:  
the ignition and starting switch signals terminal 15 On to the DME control module (separate pin). In response, the DME activates the DME main relay. The DME main relay thus supplies other inputs of the DME control module with voltage. The Digital Engine Electronics main relay also ensures the power supply for other control modules and components. For memory functions, the DME control module still requires a sustained power supply via terminal 30. The earth connection of the DME control module is ensured via a number of pins that are connected to one another in

## Activation of the alternator

For the alternator with bit-serial data interface, the following functions are implemented in the digital engine electronics control module:

- Switching the alternator on and off on the basis of defined parameters
- Specification of the maximum permitted power consumption of the alternator
- Calculation of the input torque for the alternator from the power consumption
- Control of the reaction of the alternator with addition of high power consumers (load-response function)
- Diagnosis of the data line between alternator and DME control module
- Storage of any faults that occur on the alternator in the fault memory of the DME control module
- Activation of the charge control lamp in the instrument cluster via bus connection

The main function of the alternator is also ensured in the event of interruption of the communication between the alternator and DME control module. The following fault causes are distinguishable by the fault code memory entries:

- Overheating protection:  
the alternator is overloaded. For safety reasons, the alternator voltage is reduced until the alternator has cooled down again (the charge control lamp does not light up).
- Mechanical fault:  
the alternator is mechanically blocked. Or the belt drive is defective.
- Electrical fault:  
defect in the exciter diode, interruption in the excitation coil, overvoltage due to defective regulator.
- Communication failure:  
defective cable between DME control module and alternator.

An interrupt or short circuit in the coils of the alternator cannot be detected.

No liability can be accepted for printing or other faults. Subject to changes of a technical nature

## Intelligent Battery Sensor

### Intelligent Battery Sensor (IBS)

#### Brief description:

The intelligent battery sensor (IBS) is a mechatronic component with its own microprocessor for monitoring the battery status.

The IBS is secured and connected to the negative terminal of the battery. The power supply for the IBS is fed across a separate cable. For data transmission, the IBS is connected to the DME (Digital Engine Electronics) or DDE (Digital Diesel Electronics) via the BSD (bit-serial data interface).

### Notes for Service department

#### General information

#### Replacing the IBS.

The vehicle with the new IBS must be placed in the idle state for at least 3 hours: Only then can the new IBS determine the battery status.

The Check Control message <battery severely depleted> is then no longer displayed if the battery is adequately charged and the correct battery charge state can be displayed.

## Engine Start Engine Start-Stop

### Engine Start Engine Start-stop

The new function of automatic engine start-stop (MSA) is a fundamental component of the measures package to reduce CO2 emissions. The reduction in fuel consumption is achieved by automatic shutdown of the engine when the vehicle is at a standstill. The new start also takes place automatically as soon as the corresponding conditions required for switch-on are met.

The MSA will be deployed in the BMW 1 Series, 3 Series and MINI model series in conjunction with the manual transmission and four-cylinder engine.

**NOTE:** Bear in mind the designation used by marketing.

The marketing designation is automatic engine start-stop function.

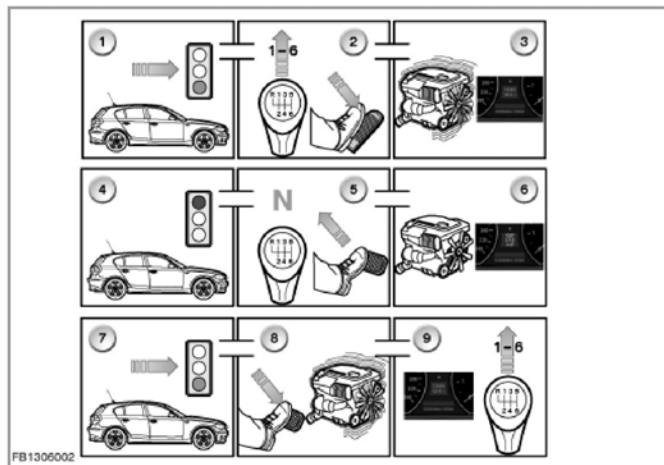
#### MSA function, principle

Examples (matrix):

- Vehicle stationary
- No gear is engaged
- Clutch not pressed
- Engine temperature not too low
- Ambient temperature greater than 3 °C
- Brake vacuum sufficient
- Battery charge status adequately high
- Driver's seat belt fastened
- No backing up has taken place

Just as automatic as this shutdown is the automatic restart of the engine as soon as the clutch is pressed again or there are other requirements.

Sample scenario: switching off the engine at a standstill at a red traffic light or in stop-and-go traffic.



Index	Explanation	Index	Explanation	Index	Explanation
1	Vehicle moving	2	Gear is engaged. The accelerator pedal is pressed.	3	The engine is running. The time and temperature are displayed in the instrument cluster.
4	The driver brakes until the vehicle comes to a standstill.	5	The driver engages neutral and releases the clutch pedal.	6	The engine stops. The symbol "Start/Stop" lights up in the instrument cluster.
7	The driver wants to continue the journey.	8	The driver presses the clutch pedal. The engine starts.	9	The gear can be engaged and the journey continued. The symbol "Start/Stop" goes out.

## IMPORTANT:

The automatic switch on of the engine on vehicles with MSA can also take place when the driver takes no action. Customer annoyance and customer complaints are not based on a malfunction. Situations in which the engine starts fully automatically without any action on the part of the driver are, for example:

- A/C-request signal: e.g. windscreen fogged over.
- Insufficient brake partial vacuum: insufficient brake partial vacuum can lead to safety risks during braking manoeuvres. To prevent this, the engine is started.
- Stalling of the engine.
- Battery almost fully discharged: flat batteries can lead to a complete breakdown of the vehicle. To prevent this, the engine is started.
- Vehicle at a standstill on an incline starts to roll: when the vehicle is switched off, many systems are inactive. Rolling vehicles without the supporting effect of the vehicle systems are a safety risk. To prevent this, the engine is started.

## Brief description of components

The MSA function is located in the engine electronics (DME or DDE). Various information from the bus systems is used for the MSA. New components are also necessary. The following components for the MSA are described:

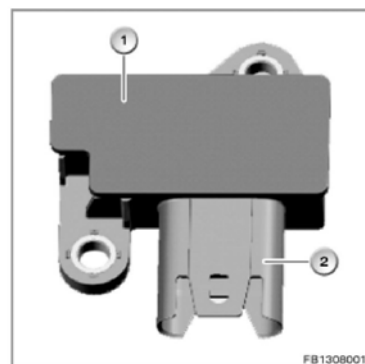
- Zero gear sensor (new)
- Brake partial vacuum sensor (new)
- MSA button (new)
- DC/DC converter (new)
- AGM battery (new)
- Clutch Switch

**Mini Cooper S (R56) L4-1.6L Turbo (N14)**

- Bonnet contact switch
- Seat belt buckle contact (driver)
- Alternator
- Starter motor

**Zero gear sensor**

The zero gear sensor is mounted on top of the transmission case. The zero gear sensor detects the idle position of the gearstick.

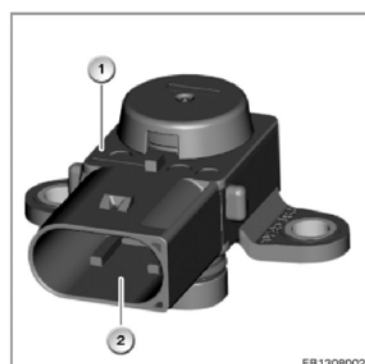


Index	Explanation	Index	Explanation
1	Zero gear sensor	2	Plug-in connection

**Brake vacuum sensor**

In order to ensure adequate brake power assistance in every situation, the brake booster is equipped with a partial vacuum sensor.

The brake partial vacuum sensor is located beside the brake booster and is connected via a separate cable.



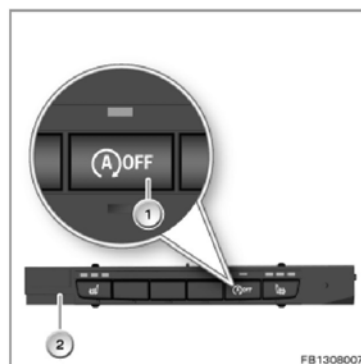
Index	Explanation	Index	Explanation
1	brake partial vacuum sensor	2	Plug-in connection

**IMPORTANT:** With a brake partial vacuum that is too low, the MSA also starts without activity on the part of the driver. Insufficient brake partial vacuum can lead to safety risks during braking manoeuvres, e.g. when rolling on an incline. To prevent this, the engine is started.

**MSA button**

The MSA button (MSA OFF) on the centre console switch cluster can be used to deactivate the MSA function. With each terminal change "Terminal 15 On" or repeated pressing of the MSA button, the MSA is reactivated.



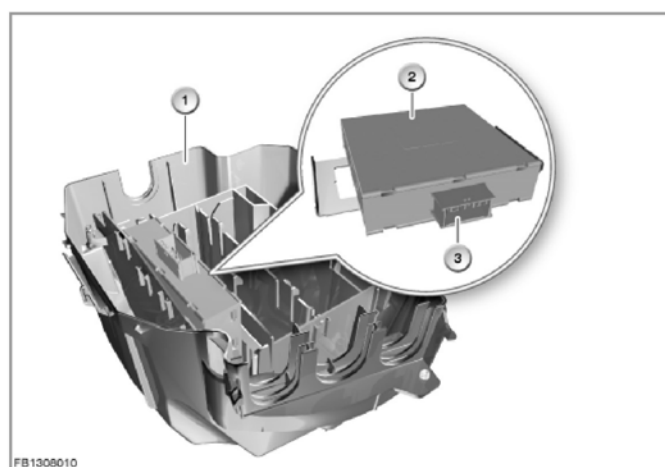


Index	Explanation	Index	Explanation
1	MSA button	2	Center Console Switch Center

## DC/DC converter

Due to the considerably more frequent occurrence of starting operations, the electrical load that occurs often leads to voltage dips in the vehicle network. In order to stabilize the power supply for certain voltage-sensitive electrical components, a DC/DC converter is used in conjunction with the MSA.

The DC/DC converter supplies the two relays "terminal 30g\_DC/DC" and "terminal 30g-f\_DC/DC" with a voltage that also remains constant during the starting operation.



Index	Explanation	Index	Explanation
1	E-box	2	DC/DC converter
3	Plug-in connection		

The DC/DC converter is fitted in the E-box in the engine compartment.

Via the test leads for input voltage and terminal 50, the electronics decide whether the power is supplied to the output via the bypass or the DC/DC converter.

In the bypass mode, the on-board supply voltage is not fed across the DC/DC converter, rather is transferred directly to the outputs. In the booster phase, the vehicle voltage is adapted.

## AGM battery

In all cases, the MSA comes with the intelligent alternator control. The much more frequent charge and discharge cycles mean that the load on the battery is very high. The cycle resistance of AGM batteries means that they achieve similar results with regard to service life despite the high load.

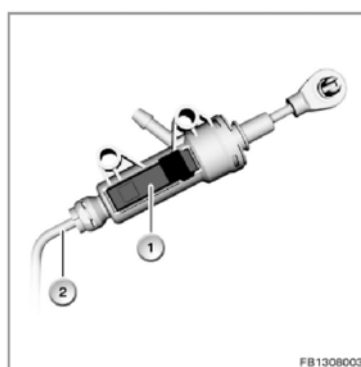


**IMPORTANT:** Ensure an AGM battery is fitted.

In all cases, an AGM battery must be installed and registered in the vehicle for the MSA to work perfectly.

### Clutch Switch

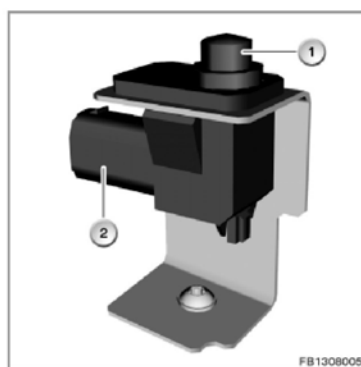
The present clutch switch is used as an input variable for the MSA to detect clutch operation.



Index	Explanation	Index	Explanation
1	Clutch Switch	2	Plug-in connection

### Bonnet contact switch

The bonnet contact switch is included as an influencing factor in the calculation of the MSA. If the engine bonnet is opened, the engine must not be started or stopped by the MSA for safety reasons.



Index	Explanation	Index	Explanation
1	Bonnet contact switch	2	Electrical connection

### IMPORTANT:

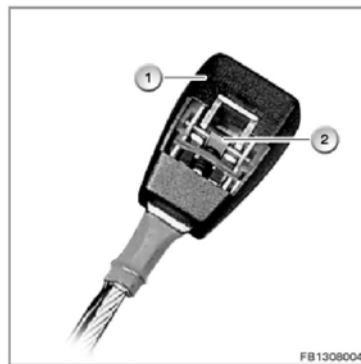
- In the event of a defective bonnet contact switch, the MSA function is suppressed.
- If the bonnet contact switch is pulled upwards, the information "Switch closed" is displayed. The MSA is active and an automatic engine start can take place.

### Belt buckle switch (driver)

Via the belt buckle switch, the MSA can detect that the driver has fastened his or her seat belt. If the driver has not fastened his or her seat belt, the MSA reacts as follows:

- With the engine running, a shutdown inhibitor is set.

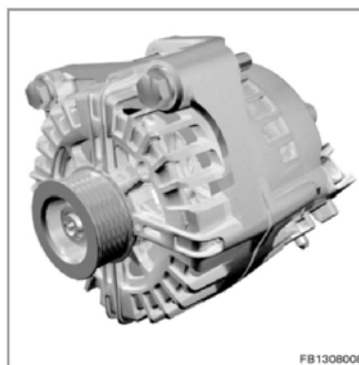
- With MSA stop, the MSA is disabled. A new start is possible using the START-STOP button.



Index	Explanation	Index	Explanation
1	Seat belt buckle	2	Belt buckle switch

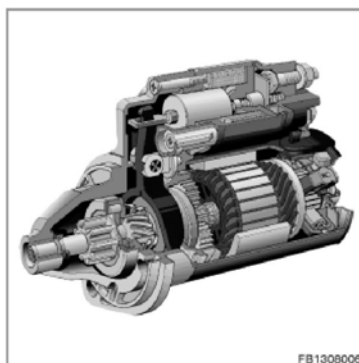
## Alternator

The battery discharge during the engine shutdown by the MSA means that a more powerful alternator is installed.



## Starter motor

In conjunction with the MSA, the starter motor must do a great deal more work. The starter motor is therefore configured for a significantly higher number (approx. 8 times) of start cycles. The components of the starter motor have been adapted to the higher requirements.

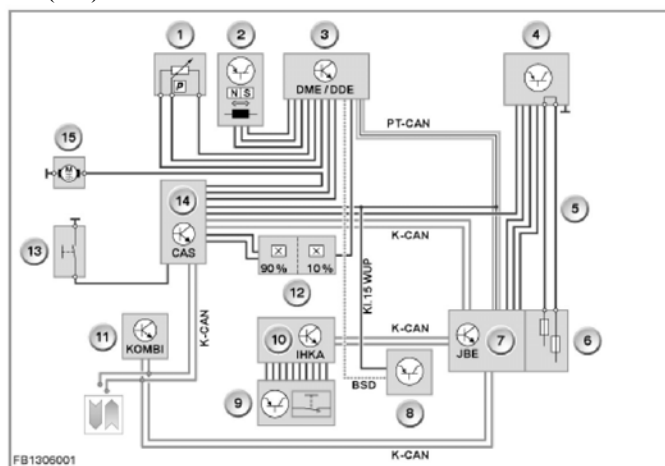


## System functions

The following system functions for the MSA are described:

- System circuit diagram
- Operating strategy: Enable or shutdown of the MSA
- Display concept: Display in conjunction with the MSA
- Power management

## System circuit diagram



Index	Explanation	Index	Explanation
1	brake partial vacuum sensor	2	Zero gear sensor
3	Engine management system (DME or DDE)	4	DC/DC converter
5	Input and output of the DC/DC converter to the distribution box	6	Distribution box (junction box)
7	Junction box electronics (JBE)	8	Intelligent battery sensor at the negative battery terminal
9	Centre console switch centre with MSA button	10	Integrated automatic heating and air conditioning system (IHKA)
11	Instrument cluster (KOMBI)	12	Clutch Switch
13	Bonnet contact switch	14	Car Access System (CAS)
15	Starter motor		

### Operating strategy: Enable or shutdown of the MSA

After every engine start, the function is automatically active and on stand-by. The MSA button (center console switching center) can be used to deactivate the function manually until the next terminal change. Pressing the button is confirmed by an LED lighting up.

During the diagnosis sessions, the MSA is temporarily disabled for safety reasons (this means until the next terminal change). This prevents the possibility of an automatic engine start during work in the engine compartment.

The status of a temporary shutdown can be read in the control-module functions at all times using "Detection shutdown MSA". Furthermore, the status of the non-detection of a vehicle with MSA can be read out in the control-module functions by means of "Check installation of MSA" as well as "Status coding MSA".

**IMPORTANT:** Pay attention to personal safety.

For reasons of personal safety, it must always be conscientiously determined that the engine start-stop function has been disabled before work in the engine compartment.

### Shutdown request:

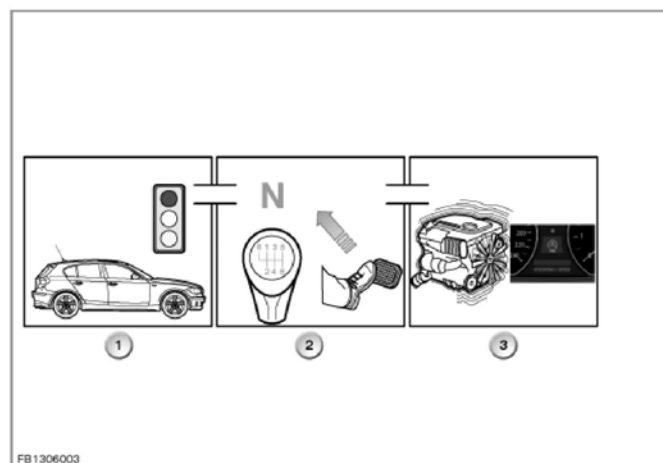
Condition	R55, R56	E8x, E9x	Only N43 Preparation for comfort stop
Driving speed less than 3 km/h	X	X	
Engine speed under threshold	X	X	
Minimum speed reached at least once	X	X	X
No gear is engaged	X	X	X
Clutch not pressed	X	X	
Steering wheel not moved		X	

**NOTE:** Definition of comfort stop.

Low filling during comfort stop prevents the engine from "shaking". The comfort stop function empties the intake air collector (engine runs for 1 second longer).

**Shutdown inhibitor:**

Condition	E8x, E9x, R55, R56	Only N43 Comfort stop
Shutdown inhibitor from operating strategy (cross locking)	X	X
Adaptation of shutdown inhibitor	X	X
Engine fault	X	X
Shutdown inhibitor from power management	X	X
Activated charcoal filter too heavily loaded	X	X
Brake vacuum too low	X	
Catalytic converter temperature too low	Only N43	
Engine temperature too low	X	X
Outside temperature outside the operating window	X	X
Little fuel in the fuel tank	Only N43	
Time window closed (at least one shutdown inhibitor was active for too long during the stop attempt)	X	X
Diesel particle filter in regeneration	Only diesel	
Conditions for comfort stop not met	Only N43	
Shutdown inhibitor due to A/C-request signal	X	X



Index	Explanation
1	The driver brakes until the vehicle comes to a standstill.
2	The driver engages neutral and releases the clutch pedal.
3	The engine continues to run. There is a shutdown inhibitor.

**Switch-on request (simultaneously locks the preparation for comfort stop on the N43):**

Condition	E8x, E9x, R55, R56
Clutch pressed more than 10 %	X
Vehicle starting to roll	X
Brake partial vacuum inadequate.	X
Switch-on request from power management	X
Switch-on request from A/C-request signal	X

**Switch-on inhibitor:**

Condition	E8x, E9x, R55, R56
No idling or clutch pedal not in end position	X
Engine just stopped (safety function to ensure safe engine runout. Otherwise, it can happen	X

All conditions as well as general status information can be read out using the service function "system check MSA".

Reading out a history of the last stored shutdown inhibitors is possible by means of the service function "read AV memory". This enables a check of past customer complaints.

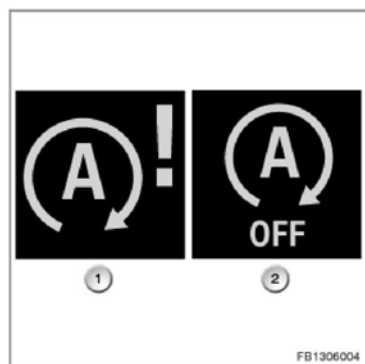
### Display concept: Display in conjunction with the MSA

If the MSA has shut down the engine, a display appears in the instrument cluster.

The following symbol is shown in the LC display between the dials:



There are also 2 Check Control messages available for the MSA.



Index	Explanation	Index	Explanation
1	ID 397: Automatic engine start/stop system failed!	2	ID 450: Automatic engine start/stop system disabled!

Condition	Shutdown, fault has occurred	Temporary shutdown without indication	Temporary shutdown with indication
	Check Control message: ID 397		Check Control message: ID 450
Fault in MSA cable	X		
Fault in zero gear sensor	X		
Fault 'zero gear position not yet learned'	X		
Fault in brake partial vacuum sensor	X		
Fault 'plausibility of zero gear sensor signal'	X		
Clutch switch signal not plausible	X		
CAN bus fault (relevant to MSA)			X
Radio remote control not within range or in the slot			X
Driver absent or engine bonnet open			X
Production mode active		X	
Transport mode active		X	
Workshop mode active		X	
MSA temporarily disabled via BMW diagnosis system		X	
Engine fault that is severe for MSA			X
Starting operation cancelled by CAS (protection of the starter motor)			X
Tow-starting detected		X	
MSA disabled via MSA button		X	
Engine not yet started after ignition ON		X	

A Check Control message appears if a system fault (with or without necessary component replacement) is active or the MSA is disabled.

Corresponding reading options are available through the service functions "system check MSA" as well as "read AV memory".

Other service functions serve as additional plausibility checks and checks of the function characteristics (exception: learn / write zero gear sensor).

## Power management

The battery status that is calculated in the Advanced Power Management (APM) is a major influencing factor on the MSA. The aim is to enable a reliable start of the combustion engine after a defined parking period from the perspective of the vehicle energy system.

The APM monitors the following data:

- Battery charge condition
- Battery temperature
- Voltage dip on engine start
- Power requirement of switched-on consumer units

The result of the calculation can be a shutdown inhibitor or a switch-on request of the MSA.

In the event of engine shutdown, excessive power consumption must be avoided. To ensure this, at terminal 15 On and engine OFF the APM disables all large consumer units or reduces their consumption. The displays remain active.

The following consumer units are affected:

- Rear-window defroster (demister)
- Mirror heating
- Seat heating
- Heater fan

**IMPORTANT:** Automatic starting is possible.

If the battery charge state drops after an MSA engine shutdown to below a certain limit, the MSA starts the engine even without any action on the part of the driver.

**Note for Service department:****General information**

The MSA only works when certain requirements are met (see Operating conditions). In the event of a customer complaint, these requirements must always be checked.

**Automatic shut-down at terminal 15 as of 03/2007 in vehicles with automatic engine start-stop function (MSA - optional extra 1CC).**

Opening or closing the driver's door (engine OFF) automatically switches off terminal 15 via the signal from the door contact.

By subsequently pressing the START-STOP button, terminal 15 can be switched on again permanently.

Run this operation before programming or diagnosing a vehicle.

**Replacement of the zero gear sensor**

Replacement of the zero gear sensor may only be carried out according to the instructions in the service function "learn/write zero gear sensor". Without correct installation of the sensor, the functionality is inactive or faulty.

**Be sure to comply with safety measures for work on vehicles with MSA.**

Always ensure that the MSA has been switched off in order to prevent an automatic engine start during work in the engine compartment.

**Faults for the MSA**

Stored faults for the MSA deactivate the automatic engine start-stop.

**MSA and power management**

The MSA is strongly networked with the power management. In the event of battery replacement, disconnection of the battery or after programming the engine management system, the reference data regarding the battery charge state and battery condition can be lost.

They are only available again after a closed-circuit current measurement of approx. 6 hours (e.g. closed-circuit current measurement overnight without connected charger) in which the vehicle may not be wakened. In this time, the MSA is inactive.

The customer must be notified of this when the vehicle is handed over. The MSA switches back automatically to active soon as the necessary routine have been completed successfully.

**Diagnosis instructions**

The following test modules exist to check the components:

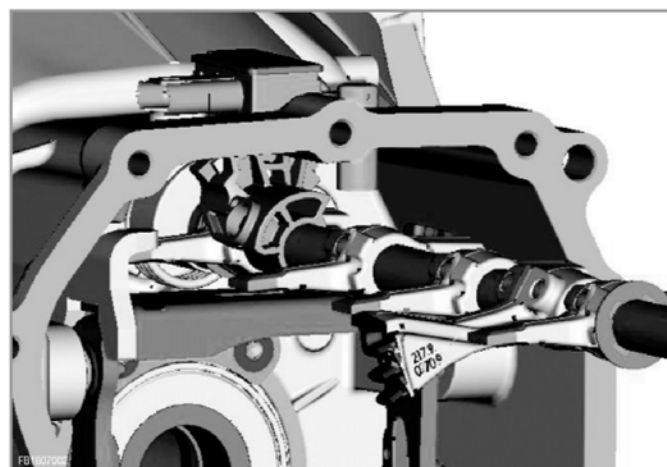
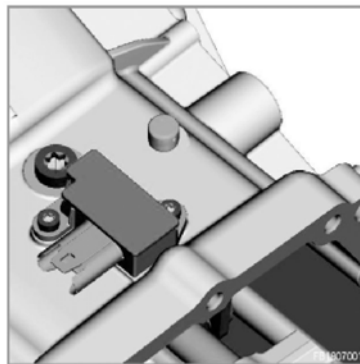
- Zero gear sensor
- brake partial vacuum sensor
- Clutch Switch
- MSA button (networked with centre console switch cluster)
- Door contact MSA (networked with FRM)
- DC/DC converter (networked with JBE)
- Power management MSA (information on the vehicle energy system and the last shutdown inhibitors or switch-on requesters from power management)

The service function `read AV memory` can be used to read out a history of the last stored shutdown inhibitors.

**Neutral Sensor****MSA Test Module 'zero Gear Sensor'****Automatic engine start-stop, zero gear sensor:**

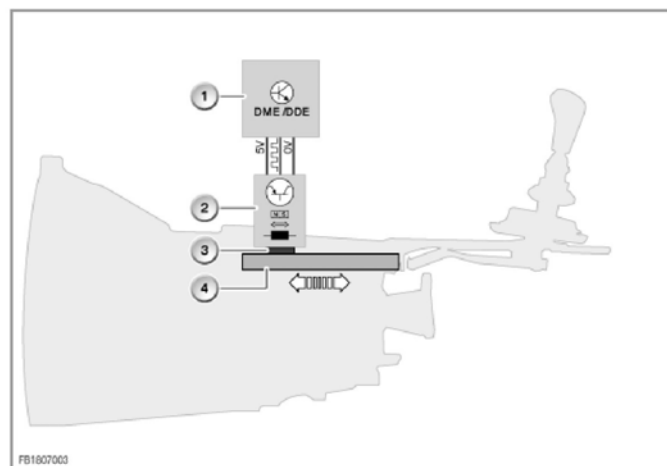
On vehicles with manual transmission, the zero gear sensor is fitted on the transmission case. The zero gear sensor is a PLCD sensor, which means the sensor detects a linear change in the location (excursion) without contact on the basis of position changes with regard to the magnetic state. The gearshift operation shifts the selector rod (4) and thus the magnet in the transmission. The PLCD sensor enables the engine management system to detect the position of the gearstick. The following illustrations show the schema of the assembly and sectional views of the sensor attached to the transmission:





The following part designations apply:

- 1: Motor control
- 2: PLCD sensor
- 3: Permanent magnet
- 4: Selector rod



From a practical point of view, the transmission zero gear sensor is divided into two components (2) and (3). The smaller component, the permanent magnet, is located inside the transmission.

So that the engine management system knows the "zero position" of the gear selector switch / gearstick, it is necessary to be able to learn this position in the vehicle. This learning routine takes place for the most part automatically in the plants and is possible using the DIS tester in cases of repair. To run this, run the service function <Learn / write zero gear sensor>.

The zero position of the gearstick is normally approx. 50 % (+/- tolerance).

When checking the correct function of the sensor within the framework of this test module, there is also a check of the tendency for the signal value to change on pushing the gearstick in the 'on' direction. Depending on the shift direction of the gearstick, the result is a rising or falling tendency of the returned position value.

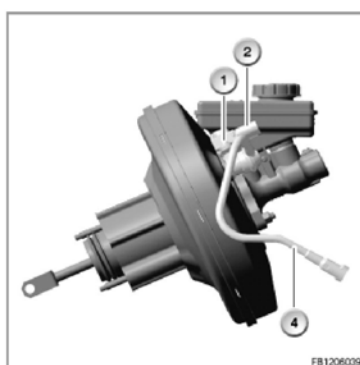
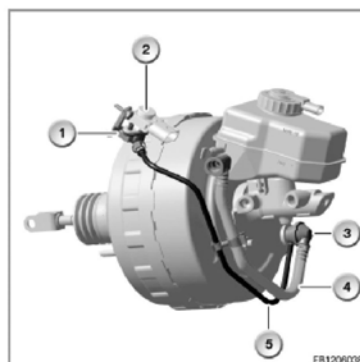
**NOTE:** Incorrectly learned values of the zero position lead to problems with regard to the availability of the automatic engine start-stop function and deficiencies with regard to reproducibility of the system characteristics of all MSA-specific parameters.

## Brake Vacuum Sensor

## MSA Test Module For Brake Partial Vacuum Sensor (BUS)

### Automatic engine start-stop, brake partial vacuum sensor:

In order to achieve adequate braking action at all times (also with the engine switched off), the partial vacuum in the brake system must be continuously monitored. This monitoring is ensured by the brake partial vacuum sensor that is always fitted in all MSA vehicles between the brake booster and non-return valve (the following graphic shows the complete brake booster. First graphic: brake booster in BMW 1 Series and 3 Series vehicles. Second graphic: brake booster in MINI vehicles).



The following part designations apply:

- 1: adapter / bracket
- 2: brake partial vacuum sensor
- 3: Non-return valve
- 4: vacuum line
- 5: bypass line

An alternative designation for the brake partial vacuum sensor is: "partial vacuum sensor, brake booster". In BMW 1 Series and 3 Series vehicles, this sensor is connected via a separate cable. In MINI vehicles, the sensor is located directly at the non-return valve. The brake partial vacuum sensor (BUS) works on the basis of piezo-electrical signals and thus returns voltage signals that are converted in the engine management system into the corresponding partial vacuum in accordance with the target value table below. The voltage range of the displayed voltage signals lies between 350 mV and 4650 mV.

Automatic switch-on of the engine (switch-on requester: EV) is initiated for safety reasons when the brake partial vacuum falls short of the threshold of 500 hPa (mbar). Switching off the engine is inhibited as of a threshold of 550 hPa.

### BUS characteristic curve:

Partial vacuum in hPa (mbar)	Output voltage signal in mV
+/- 0	681
+ 50	864
+ 100	1045
+ 150	1227
+ 200	1410
+ 250	1590
+ 300	1773
+ 350	1954
+ 400	2136
+ 450	2318
+ 500	2500
+ 550	2681
+ 600	2863

+ 650	3045
+ 700	3227
+ 750	3410
+ 800	3591
+ 850	3773
+ 900	3955
+ 950	4138
+ 1000	4318
+ 1050	4500
+ 1090	4650
+ 1100	4650
+ 1150	4650
+ 1200	4650

## Power Management MSA

### MSA and power management

The battery status that is calculated in the Advanced Power Management (APM) is a major influencing factor on the MSA. The APM monitors the following measured variables: battery charge state, battery temperature, voltage dip during engine start, power consumption of the switched-on consumer units.

In the event of engine shutdown, excessive power consumption must be avoided. To ensure this, at terminal 15 On and engine OFF the APM disables all large current consumer units or reduces their consumption. The displays remain active.

The following consumer units are affected:

- Rear-window defroster (demister)
- Mirror heating
- Seat heating
- Heater blower (the IHKA is responsible for adaptation of the heater blower).

### Shutdown inhibitors

The MSA function is only possible if certain requirements are met. An MSA stop is prevented if environmental influences or vehicle conditions require this.

The following shutdown inhibitors are possible from the perspective of the APM:

- Battery charge state is not plausible.  
This can have the following possible causes:
  - The intelligent battery sensor (IBS) has been disconnected from the power supply or negative battery terminal. The battery charge state cannot be determined.
  - The IBS has a malfunction (e.g. communication fault with DME/DDE).
  - There is a sustained closed-circuit current fault and it prevents an open-circuit voltage measurement to determine the battery charge state. Find the cause of the closed-circuit current fault.
  - The vehicle is continuously in operation and did not have an adequately long off-load phase for an open-circuit voltage measurement to determine the battery charge state.  
Let the vehicle go to sleep and leave it in the off-load state for at least 1 hour.
  - An additional current consumer is directly connected to the battery and leads to a fault in determining the battery charge state by the IBS.
- The battery charge state is too low.  
The battery charge state does not correspond to the minimum state of charge required for MSA. The battery must be charged and troubleshooting continues with the test module <Energy diagnosis>.
- Battery temperature too high.  
The battery temperature is too high to reliably determine the battery charge state.
- Excessive voltage dip during the previous MSA engine start.  
The APM continuously monitors the on-board supply voltage and especially during the engine start. The voltage fell short of a threshold value during the previous MSA engine start.  
The battery temperature is too low or the battery is possibly poorly charged: recharge the battery and continue troubleshooting with the test module <Energy diagnosis>.
- Power consumption of the switched-on consumer units is too high.  
The switched-on current consumers require too much current: MSA stops are not permitted so that the battery can be supported by the alternator.  
Switch off large current consumers (e.g. heated rear window, seat heating or heater blower) so that MSA stop are permitted once again.

The current and last four shutdown inhibitors that occurred are saved in the data of the power management. The power management also saves the last nine shutdown inhibitor types: if a shutdown inhibitor occurs a number of times in succession, it is only examined once.

### Switch-on requesters

The fully automatic switch-on of the engine by MSA can also occur when the driver performs no action at all. Some vehicle conditions (switch-on requesters) require an immediate MSA engine start without action on the part of the driver.

The following switch-on requesters are possible from the perspective of the APM:

- During the MSA stop, the battery charge state falls short of the state of charge required for the MSA function. The engine is switched on again automatically to improve the charge balance.

The current and last four switch-on requesters that occurred are saved in the data of the power management.

## Battery

For vehicles with automatic engine start-stop, an AGM battery must be fitted in all cases and it must be registered after battery replacement using the service function <Register battery replacement> so that the MSA function can work perfectly.

In the event of a battery replacement, disconnection of the battery or after programming the engine management system, the reference data for the battery charge state and battery condition can be lost.

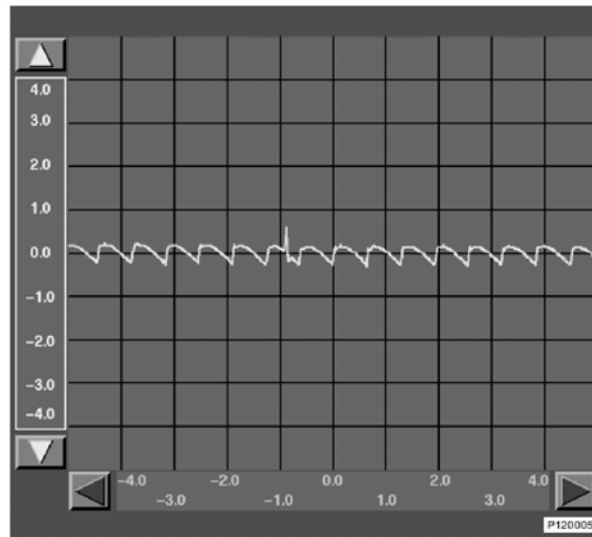
They are only available again after an open-circuit voltage measurement of approx. 6 hours (e.g. off-load phase overnight) in which the vehicle may not be wakened. In this training period, the MSA function is not active (shutdown inhibitor = battery charge state not plausible). The customer is to be notified of this when the vehicle is handed over. The MSA function switches back automatically to active as soon as the necessary routines have been completed successfully.

## Powertrain Management: Testing and Inspection

### Oscilloscope Target Image, Alternator

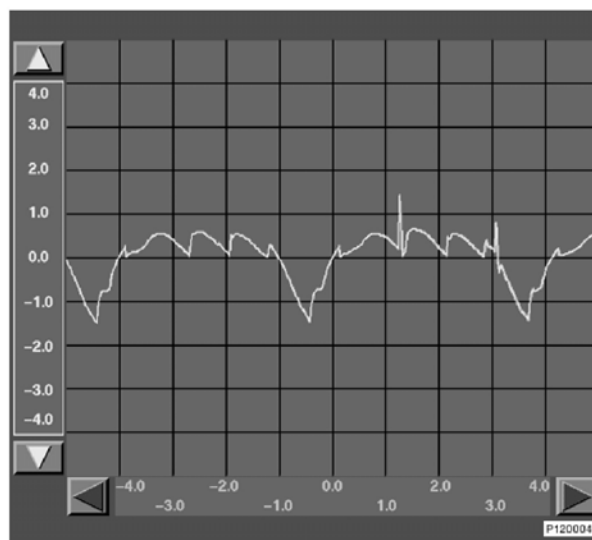
The following illustration represents the voltage progression of an intact generator. The level of the individual waves depends on the current load of the generator. The length of the waves depends on the engine speed. The higher the engine speed the shorter the waves.

At idle speed with consumer units switched on, an error-free generator should provide approximately this picture.

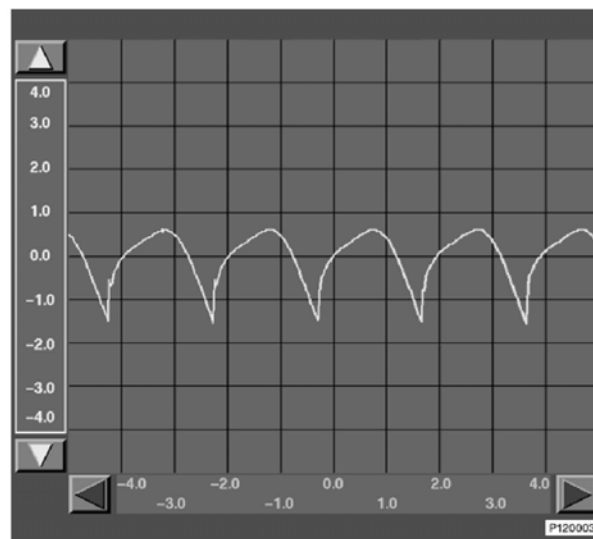


Examples of faulty generators are shown below.

The current as a function of engine speed also applies here.



Generator with defective diode



Generator with broken winding

## Accelerator Pedal: Service and Repair

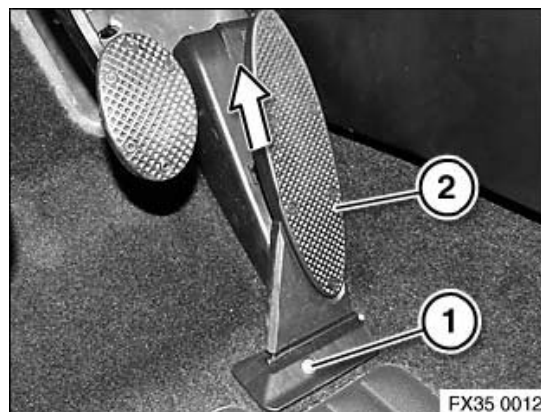
### 35 40 001 Removing And Installing/replacing Accelerator Pedal Module

When replacing control unit:

- Observe programming/coding.



Take off cover (1).



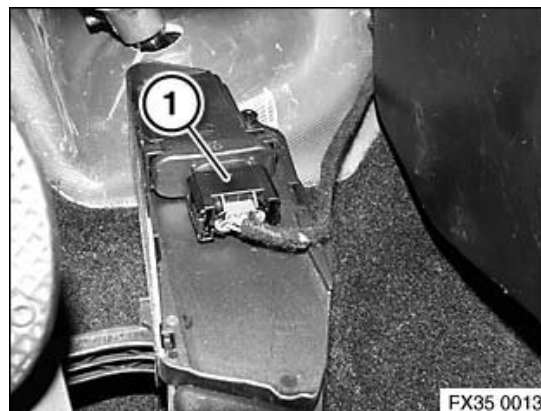
Release socket head cap screw (1).

#### Installation:

Tightening torque.

1AZ Accelerator pedal module to body..... 8 Nm  
Type: R55 / R56

Feed out accelerator pedal module (2) towards top.



Disconnect plug connection (1) and remove accelerator pedal module.

**Air Supply**

The 4-cylinder petrol engine is charged by an exhaust turbocharger. Here, the channels of 2 cylinders are each grouped separately in the exhaust manifold and in the exhaust turbocharger. This technology is referred to as "twin-scroll".

Increasing the gas dynamics in the exhaust manifold at low engine speeds means that the energy of the pulsing columns of air is better exploited. This sets the maximum torque even at 1600 rpm.

The effect is clearly noticeable. The 'turbo hole' that otherwise frequently occurs is almost completely avoided.

**Brief description of components**

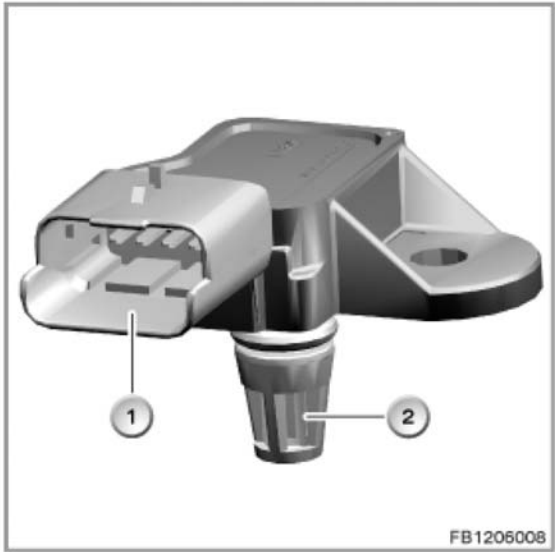
The following components are described for the air supply:

**Intake temperature and charge-air pressure sensor**

The combined sensor delivers the following information to the DME control module: temperature and pressure of the charge air before the throttle valve (absolute).

The intake temperature and charge-air pressure sensor are used for charge-air pressure control.

The DME control module also uses the signal of the intake-manifold pressure sensor to calibrate the position of the throttle valve.



Index	Explanation	Index	Explanation
1	4-pin plug-in connection	2	Intake temperature and charge-air pressure sensor

The intake temperature and charge-air pressure sensor is located in the air duct after the charge air cooler.

**Intake-manifold pressure sensor**

The intake-manifold pressure sensor measures the (absolute) pressure in the intake system. The DME uses the signal from the intake-manifold pressure sensor to calculate the air mass taken in. The pressure also serves as a substitute value for the load signal.





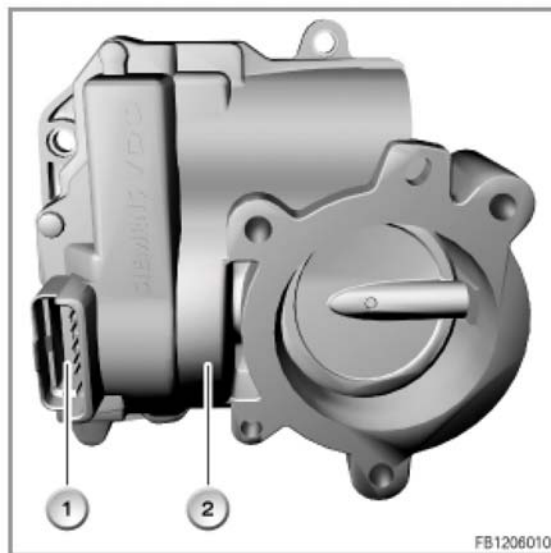
Index	Explanation	Index	Explanation
1	3-pin plug-in connection	2	Intake-manifold pressure sensor

The intake-manifold pressure sensor is located on the air collector for intake air.

### Throttle-valve actuator

The digital engine electronics control module calculates the position of the throttle valve: from the position of the accelerator pedal as well as the torque request from other control modules. The position of the throttle valve is monitored in the throttle-valve actuator without contact by 2 Hall sensors. The throttle-valve actuator is opened or closed electrically by the DME control module.

The position of the throttle valve is also influenced by the charge-air pressure.



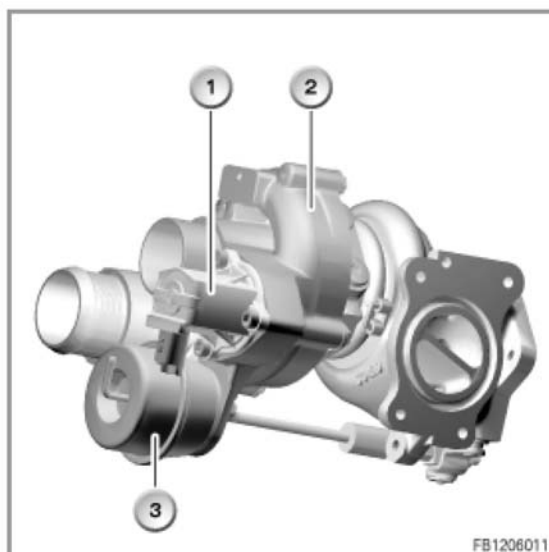
Index	Explanation	Index	Explanation
1	6-pin plug-in connection	2	Throttle-valve actuator

The throttle-valve actuator is secured to the air collector for intake air.

### Blow off valve

In order to avoid the occurrence of strong vibrations at the impeller in the case of suddenly closing of the throttle valve (e.g. during gearshift), the blow off valve opens. This creates a circuit around the compressor. The blow off valve prevents "pumping" against the closed throttle valve: improved engine acoustics.

Additional effect: the exhaust turbocharger reacts quickly when the throttle valve is opened again. Without the blow off valve, the exhaust turbocharger would work against the backpressure of the closed throttle valve and become slower. On opening the throttle valve, the exhaust



Index	Explanation	Index	Explanation
1	Blow off valve	2	Exhaust turbocharger
3	Wastegate valve (pneumatically activated)		

The blow off valve is attached with the wastegate valve to the exhaust turbocharger.

#### Exhaust turbocharger with wastegate valve

The engine is equipped with a so-called "twin scroll" exhaust turbocharger. Here, the channels of 2 cylinders are each grouped separately in the exhaust manifold and in the exhaust turbocharger: cylinders 1 and 4, cylinders 2 and 3. Increasing the gas dynamics in the exhaust manifold at low engine speeds means that the energy of the pulsing columns of air is better exploited. This sets the maximum torque even at 1600 rpm. The 'turbo hole' that otherwise frequently occurs is almost completely avoided.

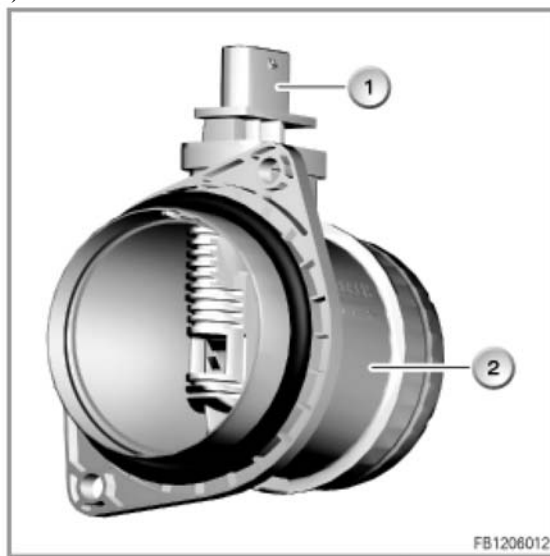
The charge-air pressure is regulated by the DME via a wastegate valve. The wastegate valve is adjusted pneumatically by a diaphragm can. An electropneumatic pressure converter applies a partial vacuum to the diaphragm can.

There are 2 connections each for cooling lubrication of the exhaust turbocharger. Two connections for the engine cooling circuit as well as 2 connections for the oil circuit. The exhaust turbocharger is cooled by a separate pump. The DME control module switches on the turbocharger coolant pump after stopping the engine.

#### Hot-film air-mass sensor, only US version

The hot-film air-mass sensor is used in the US version. This increases the accuracy of the load identification. The measure is necessary due to exhaust emissions legislation. The signal of the intake air temperature sensor in the HFM is not used.

The hot-film air-mass sensor is behind the intake muffler.



Index	Explanation	Index	Explanation
1	3-pin plug-in connection	2	Hot-film air mass meter

### System functions

The following system function is described for the air supply system:

#### Calculation of the air mass

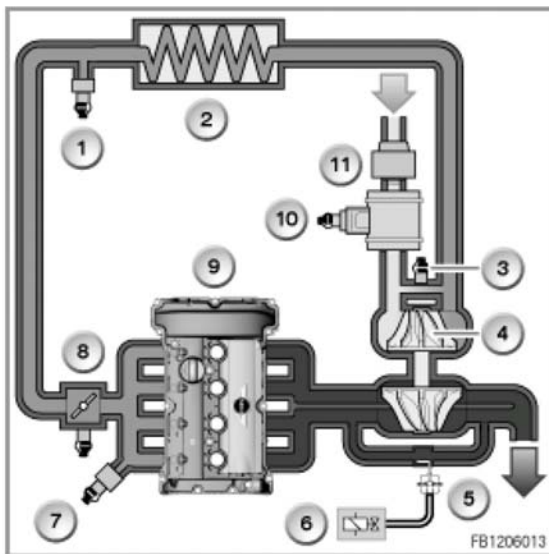
The air mass that is taken in is no longer measured directly with the mass air flow sensor, rather it is calculated by the DME. A filling calculation (filling model) has been programmed in the DME for this calculation. The following signals are included in this calculation:

- VANOS setting (load identification)
- Position of the throttle valve (choke action)
- Intake-air temperature (correction of air density)
- Engine speed (cylinder fill levels)
- Air intake pressure (correction for choke action)
- Ambient pressure (air density divided by altitude correction)

The air mass calculated in this way is synchronized with:

- Signal of the oxygen sensor (fuel-air ratio)
- Fuel injection period (volume of fuel)

If necessary, the calculated air mass is corrected. In the event of failure of the oxygen sensor, a fault is entered in the fault memory of the DME (plausibility check of the air mass). In this case, there is no calibration of the calculated air mass.

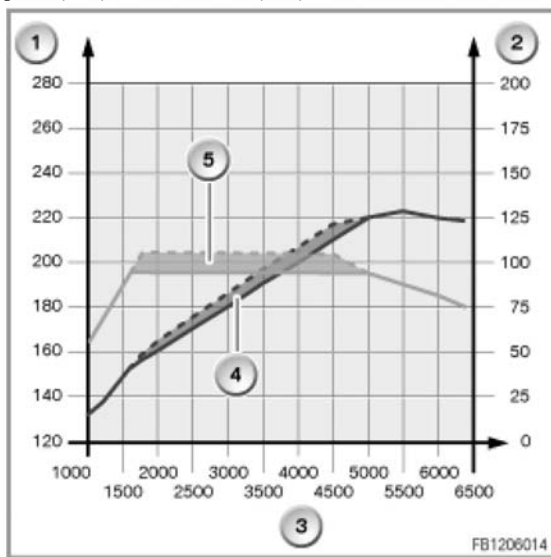


Index	Explanation	Index	Explanation
1	Intake temperature and charge-air pressure sensor	2	Charge air cooler
3	Blow off valve	4	Exhaust turbocharger (twin-scroll)
5	Wastegate	6	Electropneumatic pressure converter
7	Intake-manifold pressure sensor	8	Throttle-valve actuator
9	Engine	10	Hot-film air-mass sensor (only US)
11	Intake muffler		

### Charge-air-pressure control

The charge-air pressure is controlled by the DME by means of a wastegate valve to a maximum of 0.8 bar. A portion of the exhaust gases is fed via the wastegate valve to the turbine. The wastegate valve is adjusted pneumatically by a diaphragm can. The wastegate valve can be set variably. An electropneumatic pressure converter applies a partial vacuum to the diaphragm can. The DME controls the electropneumatic pressure transducer.

An additional function is available for charge-air pressure control. Here, the charge-air pressure is briefly increased by approx. 150 mbar (approx. 12 seconds). This increase in the charge-air pressure (overboost) is available between approx. 1600 rpm and approx. 5000 rpm. This enables a torque increase and power output increase with the engine speed remaining the same.



Index	Explanation	Index	Explanation
1	Torque	2	Power output
3	Engine speed	4	Output curve with increased charge-air pressure
5	Torque curve with increased charge-air pressure		

The increase in the charge-air pressure is activated by the DME when the accelerator pedal is pressed very quickly.

#### Idle air control

The DSC control module delivers the driving speed signal across the PT-CAN to the DME control module. The signal is required for a number of functions, e.g. for idle speed control. For idle speed control, the DME activates the throttle-valve actuator.

If the vehicle is not stationary, the idle speed is regulated to a fixed value (slightly above the engine speed when the vehicle is at a standstill). If the driving speed equals 0 km/h, the idle speed is regulated (depending on air-conditioning compressor ON, engaged drive position for automatic transmission, light ON).

No liability can be accepted for printing or other faults. Subject to changes of a technical nature

## Fuel Pump: Testing and Inspection

### Checking Fuel Feed Pressure

#### 13 31 028 Checking Fuel Feed Pressure

##### Special tools required:

- 13 5 270

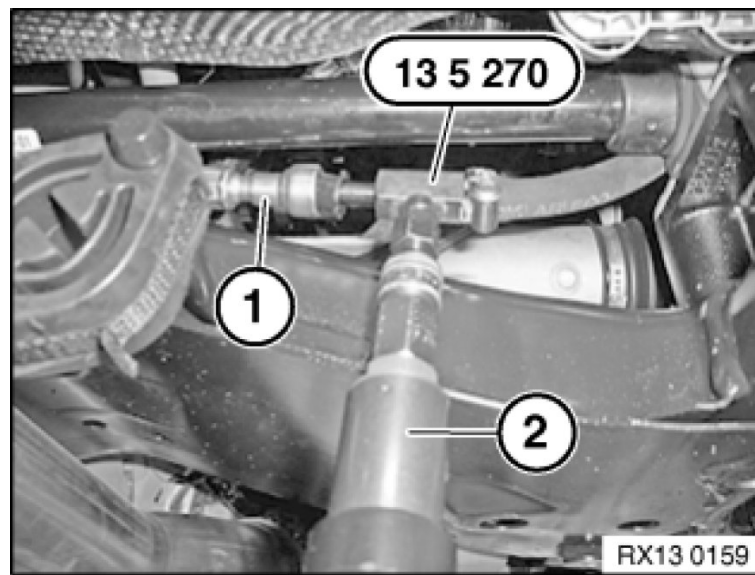
##### Necessary preliminary tasks:

- Connect DIS Tester.

##### Recycling:

Catch and dispose of escaping fuel in a suitable container.  
Observe country-specific waste-disposal regulations.

Installation location: Close to front axle stabilizer



Unlock quick-connect coupling from feed line (1) and disconnect.  
Install special tool 13 5 270.  
Connect pressure sensor (2) of DIS Tester.  
Turn on ignition or activate fuel pump by means of BMW diagnosis system.  
Read off fuel feed pressure.

## Turbocharger: Service and Repair

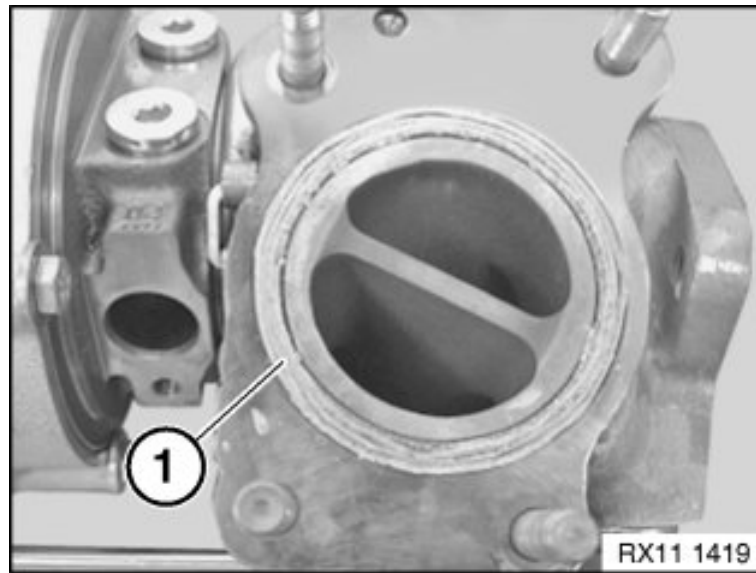
### 11 65 020 Removing and installing/replacing exhaust turbocharger (N14)

Necessary preliminary tasks:

^ Remove exhaust manifold. See: Engine, Cooling and Exhaust/Exhaust System/Exhaust Manifold/Service and Repair

Installation:

Replace seal.



Assemble engine.

# Intercooler: Service and Repair

## 17 51 000 Removing and installing/replacing intercooler (N14)

### Important:

**If the charge air hoses are not fitted without grease and dry, this will result in supercharger failure.**

Fit charge air hoses dry and without grease.

Necessary preliminary tasks:

Remove bumper trim

Unfasten clip.

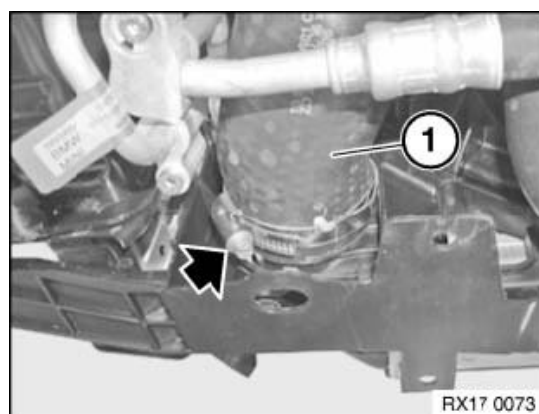
Detach left charge-air hose (1) from intercooler.

### Important:

**Fit charge air hoses dry and without grease.**

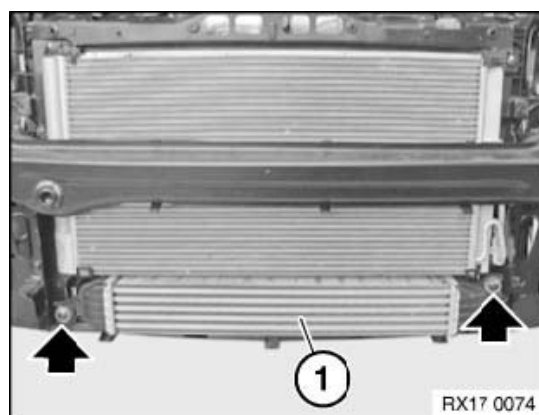
### Note:

Illustration shows and text refers to the left side. The procedure is identical for the right side.



Unfasten screws.

Remove intercooler (1).





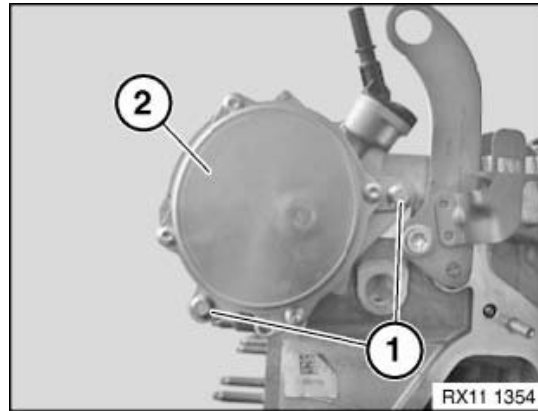
# Vacuum Pump: Service and Repair

## 11 66 000 Removing and installing/replacing vacuum pump (N14)

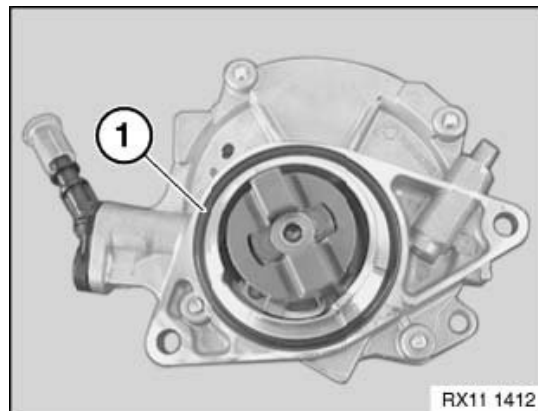
Release vacuum connection to brake booster.  
Release screws (1).

Tighten vacuum pump on cylinder head  
1AZ Vacuum pump on cylinder head

M6 ..... 10 Nm



Installation:  
Replace sealing ring (1).



Assemble engine.

# Computers and Control Systems: Initial Inspection and Diagnostic Overview

## Intake Air Temperature

### Intake air temperature sensor

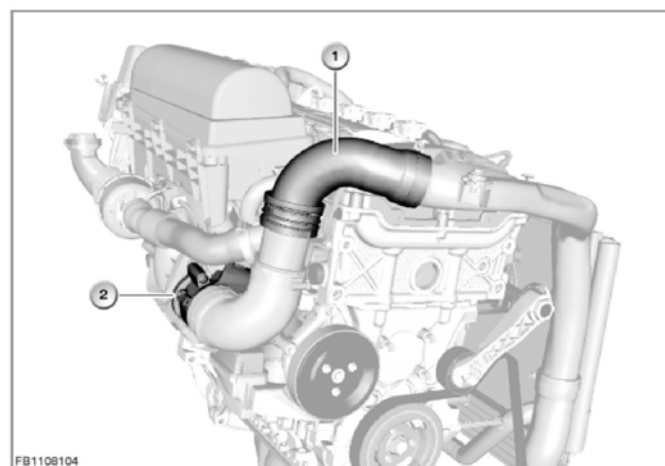
#### Target values for intake air temperature sensor

Intake air temperature [°C]	Resistance [ $\Omega$ ]
0	5000-6000
5	4000-5000
10	3500-4000
15	2600-3200
20	2300-2700
25	1800-2200
30	1600-1900
35	1400-1600
40	1100-1400
45	900-1100
50	700-900
55	600-800
60	500-700
70	400-500
80	300-400

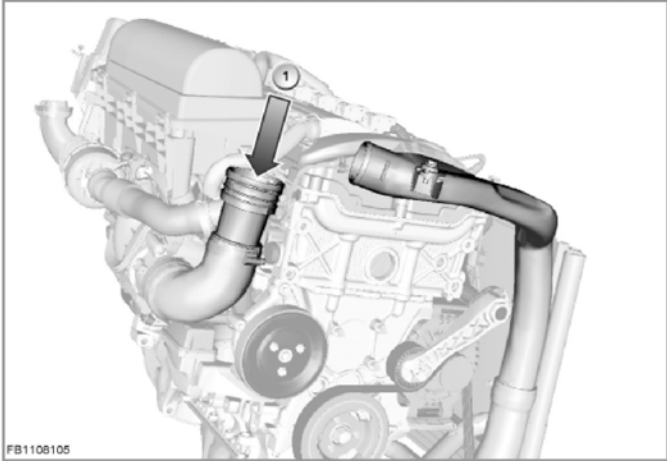
## Throttle Valve

### Throttle-valve icing

The following illustrations show the possible ice formation or water accumulation in the area of the throttle valve (good lighting is required).



Index	Explanation	Index	Explanation
1	Air intake hose	2	Throttle valve



Index	Explanation	Index	Explanation
1	Direction of vision towards the intake area (air intake hose removed)		



Index	Explanation	Index	Explanation
1	Ice formation (when melted, also water)		

System Check, Fuel Tank

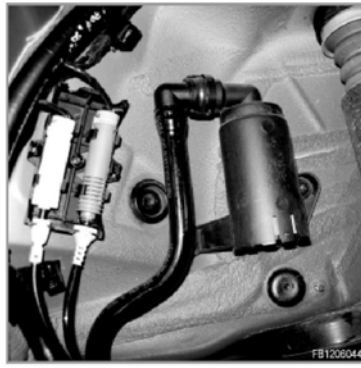
Mechanical System Testing Instructions For Tank-leak Diagnosis

These testing instructions describe all currently known fault locations where a leak can occur.

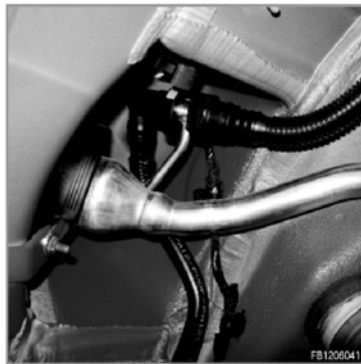
Checking the connections at the fuel tank and lever-type sensor for leaks.



Checking the connections at the activated carbon filter for leaks.



**Checking the connections at the filler pipe for leaks**



**Checking the connections for purge air at the tank-ventilation valve for leaks.**





Tank ventilation valve

Checking the corrugated tubing for leaks.



Checking the lines for leaks.



Checking the connector at the DMTL for leaks.



Connector

## Supply, DME Motor Electronics

Graphic: Black Smoke And/or Black Deposits On The End Pipe

Exhaust gas end pipe



## Generator

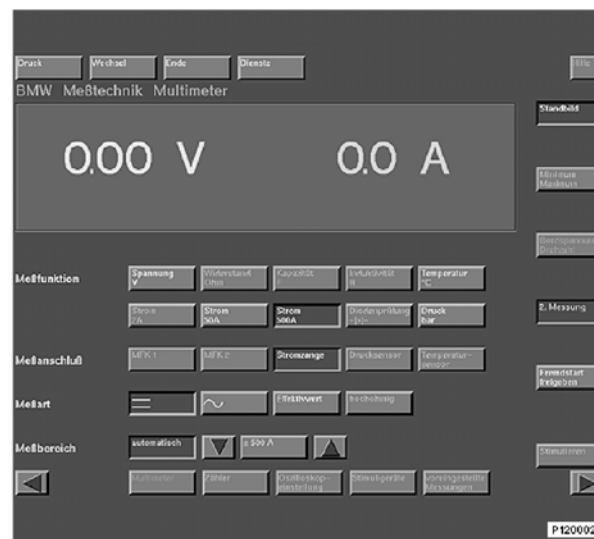
### Alternator Test

Proceed as described in the following to achieve the required setting in the metrology window:

- Change to measurement system
- Select 2. Measurement in the center right of the screen
- Select 1000 A current in the middle of the screen

After a short time the current value appears next to the voltage value.

The following display is set up:



# Computers and Control Systems: Component Tests and General Diagnostics

## LL Calibration (NG Engines)

In the various operating states, the engine management system specifies a certain idle speed (e.g. running at operating temperature). For some of these operating states, this service function can be used to set the idle speed.

### Preconditions

For the adjustment, the conditions specified in the test module must be met. Otherwise the engine management system could detect another operating state which, under certain circumstances, does not permit adjustment or sets another idle speed.

### Range of adjustment

The range of adjustment is limited and dependent on the engine model and software version of the engine management system.

The adjustment input must be rounded up or down to the nearest ten. Example: An adjustment of 755 rpm is not possible; instead, 750 or 760 rpm must be entered.

### Operating states for which an adjustment is possible

- without engine-speed increase (Block 1)
  - Base state State that is not influenced by additional loads or states such as running at operating temperature or fault entries.
  - Drive position on
- with engine-speed increase (Block 2)
  - Air-conditioning compressor on State in which the air-conditioning system is switched on and the air-conditioning compressor works
  - Air-conditioning compressor and drive position on
  - low battery voltage This operating condition is not always directly recognizable and can also occur with the correct on-board supply voltage and the engine running

### NOTE:

- Causes of problems with the adjustment can be operating states that are without easily recognizable, such as low battery voltage or fault detection
- If a uniform idle speed is desired, both blocks must be set the same.

# Body Control Module: Description and Operation

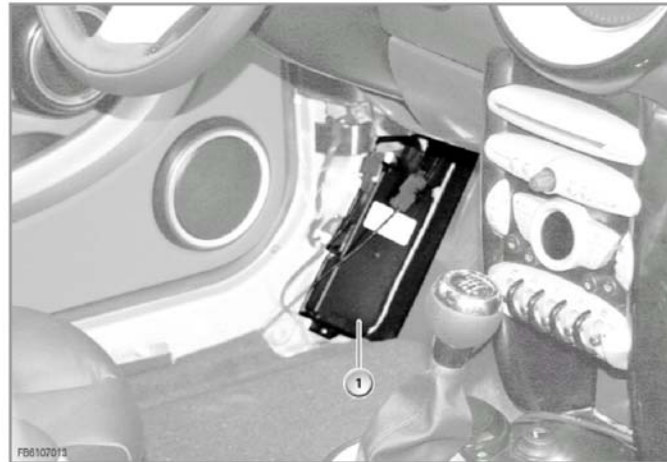
## Footwell Module

### Footwell Module

The footwell module in the R56 is an electrical intersection. The footwell module picks up the signals from the doors and controls the lighting. Moreover, the footwell module is also the interface to the instrument cluster.

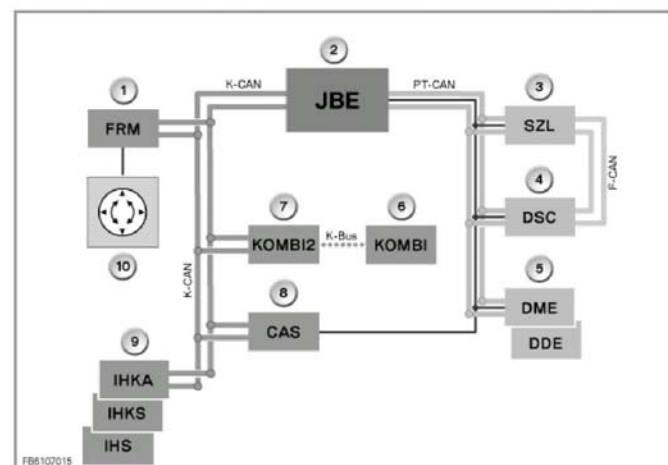
### Brief description of components

The footwell module is located in the footwell on the driver's side. The footwell module and the junction box electronics control the power window drives.



Graphic shows installation location in the R56

Index	Explanation
1	Footwell Module



Block diagram for R56

Index	Explanation	Index	Explanation
1	Footwell Module	2	Junction Box Electronics
3	Steering column switch center	4	Dynamic Stability Control
5	Engine control module	6	Instrument cluster
7	Additional instrument	8	Car Access System
9	Heater/air conditioning system	10	Mirror-calibration switch

### System functions

The footwell module processes the signals from the doors and controls the lighting. The footwell module is also the interface to the instrument cluster. Depending on the equipment version, the footwell module picks up the following signals:

- Height-level sensor
- Reversing light switch
- Brake light switch
- Hazard warning switch
- Light switch



- Switch block, driver's door
- Door contacts
- Driver's door lock

The following functions are controlled by the footwell module:

- Communication between the LIN bus and body CAN
- Storing vehicle order
- Exterior rearview mirror
- Exterior lights
- Interior lights
- Central locking
- Front power windows

## Communication

The footwell module enables communication to take place between the LIN bus and the body CAN.

## Storing vehicle order

The vehicle order is saved in the footwell module. The vehicle order enables the vehicle to be identified. Besides the type code number, the vehicle order contains all important equipment features on the vehicle.

## Exterior rearview mirror

There are two equipment variations of the switch block in the driver's door:

- Basic version of the driver's door switch block  
The switch block sends its signals directly to the footwell module.
- High version of the driver's door switch block  
This switch block is connected to the LIN bus. The requests to adjust the exterior mirrors are sent via the LIN bus.

## Exterior lights

The lighting functions are integrated into the footwell module. These lighting function are:

- Sidelights
- Low beam
- High beam
- Headlamp flasher
- Fog lamps
- Rear fog light
- Turn signals
- Hazard warning lights
- Brake light
- Reversing lights
- Parking light

Besides the lighting functions, other exterior lighting functions are also integrated in the footwell module:

- Light monitoring
- Headlight beam height control
- Emergency operating mode if the footwell module should fail
- Lamp replacement
- Home lighting
- Visual alarm after anti-theft alarm has been triggered
- Actuation of bi-xenon headlamps

All lighting functions except the additional brake light are activated with pulse-width modulated signals by the footwell module. These pulse-width modulated signals enable a uniform brightness of the exterior lighting.

## Interior lights

On vehicles without a roof control panel, the footwell module actuates the interior lighting in the roof area directly. All footwell module outputs for interior lighting are pulse-width modulated. With standard equipment, the interior lighting comprises the following components:

- Front interior light
- Luggage compartment lights
- Glove compartment lighting
- Footwell lighting

The following components can also be installed as optional extra for the interior lights:

- Rear interior light
- Courtesy lighting

**Central locking**

The footwell module evaluates the status of the Hall sensors in the door contacts. When the vehicle is locked or unlocked with the mechanical key element, the footwell module will recognize this request. The footwell module sends a message on the body CAN to the Comfort Access.

**Power windows**

The footwell module and the junction box electronics activate the power-window motors. The relays for the front power window motors are located in the footwell module.

**Notes for Service department**

The following information on the footwell module is available for service staff:

**Notes on encoding / programming**

Nearly all Car and Key Memory functions are programmed inside the vehicle itself.

No liability can be accepted for printing or other faults. Subject to changes of a technical nature.

# Body Control Module: Description and Operation

## Fault Profile 4: FRM Footwell Module

### Interior Lighting And Instrument Lighting

This functional description covers the interior lighting and instrument lighting.

#### Brief description of components

The interior lighting in the R56 is activated by the junction box electronics. The junction box supplies the interior lights with voltage.

#### System functions

The following system functions are described for the interior lighting:

- Interior lighting
- Colour selector switch
- Door entry lighting and make-up mirror lights

#### Interior lighting

The inside lights of the R56 includes the following lights:

- Glove compartment lighting
- Luggage compartment lights
- Interior lights at front and rear

The interior light is activated via the door contacts and can also be switched on using a button in the roof operating unit.

The following lights are also available as optional extras:

- footwell lamps, front
- Two map-reading lights in the front and rear headlining with an incidental light function

#### Colour selector switch

The colour selection button function is offered as an optional extra for the R56. This is ambient lighting that is activated by means of a button in the roof operating unit. This lighting variant enables stepless change over between the colors orange and blue. The colour selection button enables lighting in the inside of the vehicle according to individual design criteria.

The lights for the colour selection button are located in the following positions in the vehicle:

- Roof operating unit
- Inside door handles (front)
- B-pillars

The lights consist of pairs of LEDs and actuation electronics. The actuation electronics enable stepless change over between the colors.

#### Door entry lighting and make-up mirror lights

Two make-up mirror lights under the sun shades are offered as another optional extra for the R56. These lights enable optimal illumination of the facial area of the driver and front passenger when the sun shade is folded down. Door entry lighting in the front door trim panels is also available as an optional extra.

No liability can be accepted for printing or other faults. Subject to changes of a technical nature.

# Body Control Module: Description and Operation

## Fault Profile 1: FRM Footwell Module

### Power Windows

All power windows in the R56, R55 and R57 are operated from the bank of switches in the centre console. The Car Access System (CAS) assumes the central controlling function. The front power window drives are activated by the footwell module (FRM) and the rear power window drives (only Convertible) by the junction box electronics (JBE).

### Brief description of components

The following components are described for the power windows:

- Power window switch
- Integrated automatic heating and air conditioning system (IHKA)
- Power window motor
- Car Access System (CAS)
- Footwell module (FRM)
- Junction box electronics (JBE)

### Power window switch

The power window switches are located in the bank of switches on the centre console. On the Convertible, there is an additional power window switch for operation of all power windows (front and rear) in the bank of switches on the centre console.

The power window switches for the front power windows have two switch positions in both operating directions.

The signals of all power window switches are evaluated by the IHKA control module.

R57: The power window switch for actuating all power windows is pressed downwards and held. The rear windows are lowered simultaneously. If the power window switch is still pressed downwards after the rear windows have lowered, the front windows are lowered simultaneously.

### Integrated automatic heating and air conditioning system (IHKA)

The IHKA evaluates the button signals from the bank of switches. The IHKA sends a message via the K-CAN to the footwell module (FRM) and junction box electronics (JBE). The IHKA control module is connected across the K-CAN with the junction box electronics (JBE) and the Car Access System (CAS).

### Power window motor

There is a DC motor for the drive of the power windows in each of the two front doors and in both rear sides. There is a measuring resistor in the power-window motor. The power windows are designed as wire lifter drives. A measuring resistor measures the voltage drop and thus the current consumption. The footwell module (FRM) monitors motor operation of the front power window drives and the junction box electronics (JBE) monitors that of the rear windows (only Convertible). The window lifter motor runs at different speeds depending on the window position and operation.

### Car Access System (CAS)

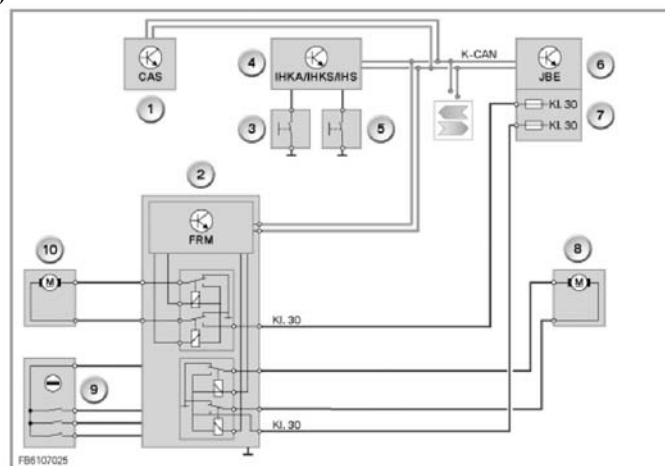
The CAS assumes the central controlling function. The CAS is connected across the K-CAN with the footwell module (FRM) and the junction box electronics (JBE). The CAS is responsible for the convenience functions of the power windows. All signals to control the power windows are sent by the CAS on the K-CAN.

### Footwell module (FRM)

The FRM processes the requests from the IHKA and CAS. The FRM electrically activates the front power windows. The FRM is connected to the JBE via the K-CAN.

### Junction box electronics (JBE)

The JBE receives all signals via K-CAN. The JBE provides the power supply for the power windows. On the Convertible, the JBE activates the rear power windows electrically.



Block diagram for R56

Index	Explanation	Index	Explanation
1	Car Access System (CAS)	2	Footwell module (FRM)
3	Power-window switches, driver's side	4	Integrated automatic heating and air conditioning system (IHKA)
5	Power-window switches, passenger's side	6	Junction box electronics (JBE)
7	Fuses in the junction box electronics (JBE)	8	Power window on passenger's side
9	Door lock on the driver's side	10	Power window, driver's door

## System functions

The following functions are described for the power windows:

- Opening / closing
- Convenience opening and/or convenience closing
- One-touch opening
- Anti-repeat circuit
- Anti-trapping protection
- Load cut-off
- Opening / closing on the Convertible

## Opening / closing

The power windows may be operated from terminal R ON. With terminal R Off, the power windows can still be operated for approx. 1 minute. If a door is opened, operation of the power windows is interrupted. To ensure that the side windows are securely closed, the power-window motors are briefly moved to the blocked position (mechanical final stop) end in the upper stop.

The side windows can be opened and closed using the following actuating buttons:

- Bank of switches in the centre console
- Remote control
- Door lock on the driver's side

## Convenience opening and/or convenience closing

This convenience function is controlled by the Car Access System (CAS). The CAS sends the signal for convenience opening or convenience closing on the K-CAN to the footwell module (FRM). This signal can be triggered using the remote control or the driver's door lock.

Convenience closing is activated when:

- the remote control button remains pressed and held after locking/securing,
- the mechanical key is kept in the "Lock" door lock position.

Convenience opening is activated using the same controls as convenience closing. Convenience opening is performed in the following order:

- both front power windows
- sliding/tilting sunroof after a time delay

If the activation is interrupted, the convenience function is halted.

R57: The convenience function is not available for the rear power windows.

## One-touch opening

### **Anti-repeat circuit**

A repeat lock is provided for each motor to prevent the power-window motors from overheating. The running time for the power-window motor is limited. The footwell module (FRM) monitors the power-window motors. The FRM can switch off each motor individually. The last possible movement is always a closing process.

### **Anti-trapping protection**

The anti-trap function is active during the entire window movement in the closing direction. The indirect anti-trap function does not in principle prevent trapping; instead, it limits the maximum permissible force applied to the trapped object. In the event of a blocking power-window motor, the current rises above a defined value. In response, the footwell module (FRM) stops activation of the power window. The mechanical forces for the closing procedure vary according to the ambient temperature and ageing. Consequently, the closing force is learnt each time the sunroof closes, so that the anti-trap function can adjust accordingly.

R57: The anti-trap function is not available for the rear power windows.

### **Load cut-off**

To protect the battery, the power windows will not operate while the engine is being started. Every ongoing function of the power windows is halted. If the battery voltage falls below 9 volts, the power-window motors are switched off.

No liability can be accepted for printing or other faults. Subject to changes of a technical nature.

### **Opening / closing on the Convertible**

The power window switch in the bank of switches on the centre console for actuating all power windows is pressed downwards and held. The rear windows are lowered simultaneously. If the power window switch is still pressed downwards after the rear windows have lowered, the front windows are lowered simultaneously.

No liability can be accepted for printing or other faults. Subject to changes of a technical nature.

## Information Bus: Description and Operation

### MOST Functions (Without RAD Radio)

## MOST Bus

### MOST bus

The MOST (Media Oriented Systems Transport) network uses a ring bus to enable data communication between the various control modules.

Data transmission is by means of fibre-optic cable.

Data transmission on the ring bus takes place in one direction only.

On the MOST ring, messages can only be transmitted provided the bus ring is complete and fully functional. If, for example, the power supply or the diode of a control module is defective, it is no longer possible to communicate with the control modules on the MOST bus. An exception is the gateway control module of the head unit (Rad2, CHAMP, M-ASK, CCC or following). The control module is connected both to the MOST data bus and the K-CAN.

### Head unit

The head unit is the interface between the data buses MOST and K-CAN. For the rest of troubleshooting (read fault memory, etc.), the associated control modules must be selected at the BMW diagnosis system. One of the following head units is fitted in the vehicle.

- Radio 2, (RAD2, RAD2 gateway)
- Central Head Unit and Multimedia Platform, (CHAMP-BO, CHAMP-GW)
- Multi Audio System controller, (M-ASK-BO, M-ASK-GW, M-ASK-NAV)
- Car Communication Computer, (CCC-ANT, CCC-ASK, CCC-A, CCC-BO, CCC-GW)

### Distinction between the head units

In comparison with the M-ASK and CHAMP, the CCC has two slots at the front. This external characteristic can be used to distinguish the CCC and M-ASK.

### Deactivation, excess temperature

If a control module becomes too hot, this control module switches off for up to 10 minutes. Furthermore, the entire MOST bus can switch off for 10 minutes. After the control module has cooled down, it is functional once again.

If the fault "Cutoff excess temperature" is stored in a MOST control module, the control module concerned and the head unit store the fault. This means there are two possibilities:

- Only the head unit has stored the fault: Then this control module has switched off due to excess temperature.
- The head unit and other MOST control modules have stored the fault: Then only the other MOST control modules have switched off due to excess temperature. In addition, the head unit can have switched itself off.

### Diagnosis

At the function selection (Body, Bus Functions, MOST functions), other test modules for analysis of the MOST control modules or MOST bus can be selected.

## Sequence Of Control Modules In MOST Ring

### MOST Bus: Control Module Sequence

Transmission direction and control module sequence in the MOST ring

The MOST (Media Oriented Systems Transport) network uses a ring bus for data communication between the various control modules.

Signal transmission is by means of fiber-optic cable.

Data transmission on the ring bus takes place in one direction only.

On the MOST ring, messages can only be transmitted provided the bus ring is complete and fully functional. The transfer of messages starts and ends at the head unit.

With the corresponding MOST equipment, the ring-shaped connection of the control modules is implemented using an optic-fibre cable connector. This optic-fibre cable connector is located in the luggage compartment on the left above the wheel. As the optic-fibre cable connector means that the control modules can be connected differently with one another on replacement and in the plant, there is no fixed control module sequence in the vehicle. The system circuit diagram thus only shows the maximum MOST equipment, not the right order of control modules. The order of control modules can, however, be determined automatically or manually.

## Automatic determination of the control module sequence

The test module "control module sequence" enables automatic determination of the control module sequence. This automatic determining only delivers the right results if the configuration of the MOST ring in the head unit is correctly stored.

If the automatic determination returns implausible results, there are two possibilities:

- Determine the control module sequence manually (see below).
- Store the configuration of the MOST ring once again.

To do so, change to the function selection on the diagnosis system. Then call up the test module at Service functions -> Body -> MOST ring - Store -> MOST ring configuration.

This procedure may only be run if the MOST ring is closed. For this reason, check the ring stability first when you call up the test module.

## Manual determination of the control module sequence

The order of the control modules in the MOST bus can be determined by a visual check in the vehicle.

- The head unit is connected on the CAN bus and MOST bus.
- For the order of the other MOST control modules, look at the labeling of the optical cables at the optic-fibre cable connector. The input cable of the optic-fibre cable connector is the cable labeled with "RAD2"/"MASK"/"CCC". Each input of the connector has a direct optical connection to the opposite output. This means that the order of the control modules can be determined by means of the following labeling:
  - CDC (= CD changer)
  - AMP (= Amplifier)
  - VM (= Video Module)
  - TEL (= Telephone)
  - TCU (= Telematic Control Unit)
  - ULF (= Universal Charging and Hands-Free Unit)
  - JNAV (= Navigation System Japan)
  - DAB (= digital tuner)
  - IBOC (= digital tuner (US))
  - KHI (= headphone interface)
  - HUD (= Head Up display)
  - MMC (= DVD changer)
  - SDARS (= Satellite Tuner (US))
- The output of the optic-fibre cable connector is labeled with "FLASH". This cable leads to the MOST direct access point and then to the head unit. This closes the ring.



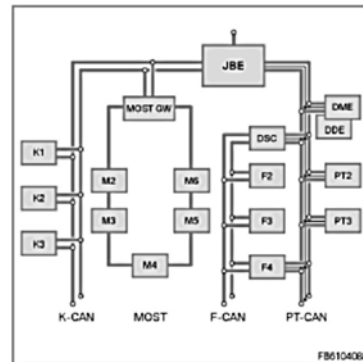
# Information Bus: Description and Operation

## Bus Functions

## Schematic Circuit Diagram, Bus Diagnosis

### Schematic Circuit Diagram, Bus Diagnosis

The following block diagram provides an overview of the control modules and bus systems deployed in the vehicle.



- JBE (Junction Box Electronics)
  - control module with connection to K-CAN, PT-CAN and diagnosis lead
- MOST GW is a placeholder for e.g. CCC (Car Communication Computer), M-ASK (Multi Audio System Controller), RAD (radio) or CHAMP (Central Head Unit and Multimedia Platform)
  - control module with connection to K-CAN and MOST
- DSC (Dynamic Stability Control)
  - control module with connection to F-CAN and PT-CAN
- K1 ... Kn: control modules on the K-CAN
- M1 ... Mn: control modules on the MOST
- F1 ... Fn: control modules on the F-CAN
- PT1 ... PTn: control modules on the PT-CAN

## Diagnosis on CAN-Bus

### Diagnosis On CAN-bus

The CAN (Controller Area Network) bus system is a linear bus system that is characterized by the following features:

- signals are broadcast in both directions
- a message is received by all bus nodes. Each node decides for itself whether to process the message or not.
- new nodes can be added by simple parallel connection
- the bus system forms a multi-master structure
- each node can be master or slave depending on whether it is connected as transmitter or receiver
- the transmission medium is a two-core lead; the cores are designated CAN Low and CAN High.
- Switching off defective control modules

In general, every node can communicate with all other nodes via the bus. An access mechanism controls data exchange on the bus. The main differences between the K-CAN (body CAN) bus and the PT-CAN (power train CAN) bus are detailed below:

- K-CAN: Data transfer rate around 100 kBits/s. Single-wire operation possible.
- PT-CAN: Data transfer rate around 500 kBits/s. No single-wire operation possible.

**Master:** the master is the active communicating node, i.e. the one that initiates communication. The master is in control of the bus and controls communication. It can send messages to the passive communicating nodes (slaves) on the bus network and on request receive messages from them.

**Slave:** the slave is the passive communicating node. It is instructed to receive and send data.

**Multimaster system:** a multimaster system is one in which all communication nodes can take on the role of master or slave at a particular time.

### Causes

The failure of communication on the CAN-bus may be caused by the following:

- Circuit breaks or short circuits on the CAN Low or CAN High communication leads
- Defective plug connections (contact damage, soiling, corrosion)
- Interference voltages in the vehicle electrical system (caused for instance by defective ignition coils or ground connections)
- Failure of the communication modules in the individual control modules
- Failure of the voltage supply of individual control modules (a battery voltage decreasing gradually when the battery is almost discharged can

also lead to fault code entries as not all control modules switch off simultaneously due to the voltages supply being too low).

### Inspection procedure for impedance measurement PT-CAN, F-CAN, Local- CAN

When measuring impedance, it is generally necessary to disconnect the circuit being tested from the power supply beforehand. The vehicle's battery should therefore be disconnected. Wait about three minutes to allow all capacitors in the system to discharge.

Inspection procedure for resistance test:

- the CAN bus must be disconnected from the power supply
- No other testing equipment must be in use (connected in parallel)
- The measurement is taken between the CAN Low and CAN High leads
- the measurements recorded may differ from the specified levels by a few Ohms

### Impedance measurement with matching resistor PT-CAN, F-CAN, Local- CAN

On the Tester, switch to Measurement system -> Multimeter

- Measurement function: Resistance
- Measuring range: automatic

In order to prevent signal reflection, a 120  $\Omega$  resistor is fitted to two CAN bus nodes (at the extremities of the PT-CAN network). The two terminal resistors are connected in parallel and form a shunt impedance of 60  $\Omega$ . When the power supply is switched off, that shunt impedance can be measured across the communication leads. In addition, the individual resistors can be tested independently of one another. (Tip for 60  $\Omega$  measurement: disconnect an easily accessible control module from the bus and then measure the impedance between the CAN Low and CAN High leads on the connector.)

### DC voltage measurement PT-CAN, F-CAN, Local-CAN

Precondition for the measurement: battery connected and ignition on.

On the Tester, switch to Measurement system -> Multimeter

- Measurement function: Voltage
- Measurement type: =
- Measuring range: automatic

In order to establish whether the CAN Low or CAN High lead is defective, you can measure the CAN Low (CAN High) voltage to ground.

CAN Low to ground: voltage approx. 2.4 V

CAN High to ground: voltage approx. 2.6 V

These values are approximate values and can vary by a few hundred mV depending on the bus load.

### Oscilloscope measurement PT-CAN, F-CAN, Local-CAN

Precondition for the measurement: battery connected and ignition on.

On the Tester, switch to Measurement system -> Oscilloscope setting

- Measurement type: =
- Measuring range: +/- 5 V
- Frequency range: 1 kHz

In order to obtain a clear idea of whether the CAN bus is functioning properly, it is very useful to be able to observe activity on the bus. What is important here is not to analyze the actual data being transmitted but simply to be able to see that the CAN bus is operating. The oscilloscope test can state that, "the CAN bus is probably operating without faults".

If the oscilloscope is used to measure the voltage differential between the CAN Low and CAN High ground leads, a square wave signal with the voltage limits  $U(\min) = 1.5 \text{ V}$  and  $U(\max) = 2.5 \text{ V}$  is obtained.

If the oscilloscope is used to measure the voltage differential between the CAN High and CAN Low ground leads, a square wave signal with the voltage limits  $U(\min) = 2.5 \text{ V}$  and  $U(\max) = 3.5 \text{ V}$  is obtained.

These values are approximate values and can vary by a few hundred mV depending on the bus load.

### Resistance test K-CAN

No defined resistance test can be carried out at the K-CAN data bus, as the resistance varies depending on the internal switching logic of the control modules.

### Measuring K-CAN DC Voltage

Precondition for the measurement: battery connected and ignition on.

On the Tester, switch to Measurement system -> Multimeter

- Measurement function: Voltage
- Measurement type: =
- Measuring range: +/- 10 V

In order to establish whether the CAN Low or CAN High lead is defective, you can measure the CAN Low (CAN High) voltage to ground.

CAN Low to ground: voltage approx. 4.8 V

CAN High to ground: voltage approx. 0.2 V

These values are approximate values and can vary by a few hundred mV depending on the bus load.

### Oscilloscope measurement K-CAN

Precondition for the measurement: battery connected and ignition on.

On the Tester, switch to Measurement system -> Oscilloscope setting

- Measurement type: =
- Measuring range: automatic
- Frequency range: 1 kHz

In order to obtain a clear idea of whether the CAN bus is functioning properly, it is very useful to be able to observe activity on the bus. What is important here is not to analyze the actual data being transmitted but simply to be able to see that the CAN bus is operating. The oscilloscope test can state that, "the CAN bus is probably operating without faults".

If the oscilloscope is used to measure the voltage differential between the CAN Low and CAN High ground leads, a square wave signal with the voltage limits  $U(\min) = 1 \text{ V}$  and  $U(\max) = 5 \text{ V}$  is obtained.

If the oscilloscope is used to measure the voltage differential between the CAN High and CAN Low ground leads, a square wave signal with the voltage limits  $U(\min) = 0 \text{ V}$  and  $U(\max) = 4 \text{ V}$  is obtained.

These values are approximate values and can vary by a few hundred mV depending on the bus load.

### CAN bus without function

If the K-CAN or PT-CAN data bus indicate no function, it is likely that a short circuit has occurred on the CAN Low and/or CAN High lead, or that a control module is defective. In order to localize the cause of the fault, it makes sense to use the following procedure:

- Disconnect one CAN-bus node after the other until the unit causing the fault (= control module x) is found
- Check the lines to control module x for short circuits
- If possible, check control module x

However, this procedure only leads to success if a tap line from a control module to the CAN bus has a short circuit. If a CAN bus lead itself has a short circuit, the wiring harness must be checked.

### Diagnosis

Two different bus faults can be entered in the CAN bus control modules:

- CAN communication fault
- CAN wire fault

The communication fault provides an overview of the control modules that have failed on the CAN bus, i.e. were no longer able to communicate. The CAN communication fault can only be read out if the fault is currently not present. If the fault is currently present, it is no longer possible to communicate with the control module. This means that the fault memory cannot be read, either. Physical wire fault can be detected by the use of fault-tolerant CAN transceivers. However, at the moment there are only fault-tolerant transceivers for the K-CAN data bus. This means that only control modules that are connected to the K-CAN data bus can have made the fault memory entry "CAN wire fault". The CAN transceiver is also unable to distinguish between the individual fault categories listed below. If the bus fault CAN wire fault is entered in a control module, this can mean:

- Break in wiring CAN High
- Break in wiring CAN Low
- Short circuit CAN High to ground or positive
- Short circuit CAN Low to ground or positive
- Short circuit CAN High to CAN Low

Break in wiring (single-wire operation): each control module contains a separate bus termination. This means that, even in the case of a break in wiring, the voltage level can be maintained across the entire K-CAN network. The consequence of this is that a transmitting control module does not detect this fault and continues to work in two-wire operation. However, if a control module transmits a message across the break, the receiving control module only detects activity on the undamaged bus line. The receiving control module thus detects single-wire operation and sets the fault

Short circuit: if there is a short circuit in the system, all K-CAN control modules must have entered the fault "CAN wire fault". In order to localize the short circuit, follow the procedure for "CAN bus without function".

## MOST Bus

### MOST Bus

The MOST (Media Oriented Systems Transport) network uses a ring bus to enable data communication between the various control modules. Data transmission is by means of fibre-optic cable. Data transmission on the ring bus takes place in one direction only. On the MOST ring, messages can only be transmitted provided the bus ring is complete and fully functional. If, for example, the power supply or the diode of a control module is defective, it is no longer possible to communicate with the control modules on the MOST bus. An exception is the gateway control module of the head unit (Rad2, CHAMP, M-ASK, CCC or following). The control module is connected both to the MOST data bus and the K-CAN.

### Head unit

The head unit is the interface between the data buses MOST and K-CAN. For the rest of troubleshooting (read fault memory, etc.), the associated control modules must be selected at the BMW diagnosis system. One of the following head units is fitted in the vehicle.

- Radio 2, (RAD2, RAD2 gateway)
- Central Head Unit and Multimedia Platform, (CHAMP-BO, CHAMP-GW)
- Multi Audio System controller, (M-ASK-BO, M-ASK-GW, M-ASK-NAV)
- Car Communication Computer, (CCC-ANT, CCC-ASK, CCC-A, CCC-BO, CCC-GW)

### Distinction between the head units

In comparison with the M-ASK and CHAMP, the CCC has two slots at the front. This external characteristic can be used to distinguish the CCC and M-ASK.

### Deactivation, excess temperature

If a control module becomes too hot, this control module switches off for up to 10 minutes. Furthermore, the entire MOST bus can switch off for 10 minutes. After the control module has cooled down, it is functional once again.

If the fault "Cutoff excess temperature" is stored in a MOST control module, the control module concerned and the head unit store the fault. This means there are two possibilities:

- Only the head unit has stored the fault: Then this control module has switched off due to excess temperature.
- The head unit and other MOST control modules have stored the fault: Then only the other MOST control modules have switched off due to excess temperature. In addition, the head unit can have switched itself off.

### Diagnosis

At the function selection (Body, Bus Functions, MOST functions), other test modules for analysis of the MOST control modules or MOST bus can be selected.

## Deactivation, Overtemperature

### Deactivation, Excess Temperature

If a control module becomes too hot, this control module switches off for up to 10 minutes to protect the individual components against damage.

Furthermore, the entire MOST bus can switch off for 10 minutes. After the control module has cooled down, it regains function.

If the fault "Cutoff excess temperature" is stored in a MOST control module, the control module concerned and the head unit store the fault. The fault memory entry from the head unit is evaluated in the test module.

The head unit is only displayed if it has switched itself off due to excess temperature.

### Top HiFi amplifier: Detection of excess temperature

The Top HiFi amplifier can only disable its own functions at high temperatures. If the customer currently listening to music, the following fault pattern results:

- Sound failure in the audio system.

The Top HiFi amplifier does not make a fault memory entry. The MOST framework remains functional. After the control module has cooled down, the Top HiFi amplifier regains function.

## Sequence of Control Modules In Most Ring

## **MOST Bus: Control Module Sequence**

### **Transmission direction and control module sequence in the MOST ring**

The MOST (Media Oriented Systems Transport) network uses a ring bus for data communication between the various control modules.

Signal transmission is by means of fiber-optic cable.

Data transmission on the ring bus takes place in one direction only.

On the MOST ring, messages can only be transmitted provided the bus ring is complete and fully functional. The transfer of messages starts and ends at the head unit.

With the corresponding MOST equipment, the ring-shaped connection of the control modules is implemented using an optic-fibre cable connector. This optic-fibre cable connector is located in the luggage compartment on the left above the wheel. As the optic-fibre cable connector means that the control modules can be connected differently with one another on replacement and in the plant, there is no fixed control module sequence in the vehicle. The system circuit diagram thus only shows the maximum MOST equipment, not the right order of control modules. The order of control modules can, however, be determined automatically or manually.

### **Automatic determination of the control module sequence**

The test module "control module sequence" enables automatic determination of the control module sequence. This automatic determining only delivers the right results if the configuration of the MOST ring in the head unit is correctly stored.

If the automatic determination returns implausible results, there are two possibilities:

- Determine the control module sequence manually (see below).
- Store the configuration of the MOST ring once again. To do so, change to the function selection on the diagnosis system. Then call up the test module at Service functions -> Body -> MOST ring - Store >MOST ring configuration. This procedure may only be run if the MOST ring is closed. For this reason, check the ring stability first when you call up the test module.

### **Manual determination of the control module sequence**

The order of the control modules in the MOST bus can be determined by a visual check in the vehicle.

- The head unit is connected on the CAN bus and MOST bus.
- For the order of the other MOST control modules, look at the labeling of the optical cables at the optic-fibre cable connector. The input cable of the optic-fibre cable connector is the cable labeled with "RAD2 / MASK / CCC". Each input of the connector has a direct optical connection to the opposite output. This means that the order of the control modules can be determined by means of the following labeling:
  - CDC (= CD changer)
  - AMP (= Amplifier)
  - VM (= Video Module)
  - TEL (= Telephone)
  - TCU (= Telematic Control Unit)
  - ULF (= Universal Charging and Hands-Free Unit)
  - JNAV (= Navigation System Japan)
  - DAB (= digital tuner)
  - IBOC (= digital tuner (US))
  - KHI (= headphone interface)
  - HUD (= Head Up display)
  - MMC (= DVD changer)
  - SDARS (= Satellite Tuner (US))
- The output of the optic-fibre cable connector is labeled with "FLASH". This cable leads to the MOST direct access point and then to the head unit. This closes the ring.

# Information Bus: Initial Inspection and Diagnostic Overview

## Description Of Bus Diagnosis

### Description Of Bus Diagnosis

#### Brief description:

The data exchange of the control modules is across various bus systems with different features. These bus systems are interconnected via so-called gateways. The task of these gateways is to interchange data between the connected bus systems. The bus structure is shown in the adjacent system circuit diagram.

The individual buses are to assigned to the following functional areas in the vehicle:

- - PT-CAN: control modules in the area of drive and chassis
- K-CAN: control modules in the area of body electronics (E65: K-CAN system and KCAN peripherals)
- F-CAN: control modules in the area of the chassis electronics (not E65)
- Local-CAN: peripheral control modules in the area of power train
- byte flight: airbag control modules (E65, E60)
- MOST: control modules in the area of audio and communication

If faults occur in this communication framework, fault memory entries are created in the control modules involved. Here, a distinction can normally be made between wire faults and logical faults such as missing messages. It should be borne in mind that a fault cause generally causes a number of fault memory entries in different control modules.

The following fault causes can lead to bus faults:

- Short circuit of a bus line
- Interruption of a bus line
- Fault in a gateway
- Fault in the transmitter or receiver of a control module

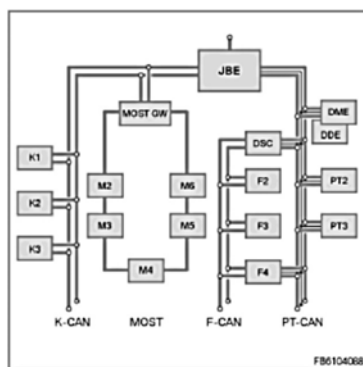
This test module evaluates the fault memory entries as a whole. The evaluation of the combination of existing fault memory entries provides the most probably fault cause. The analysis is currently restricted to the CAN and byte flight systems (E65, E60).

If there has been an undervoltage situation in the vehicle, bus faults can also (erroneously) be entered. For this reason, before evaluation of the bus faults, there is a check as to whether an undervoltage fault is stored in more than two control modules. If this is the case, there is no further evaluation of the bus faults; the fault cause can be found in the area of the power supply.

## Schematic Circuit Diagram, Bus Diagnosis

### Schematic Circuit Diagram, Bus Diagnosis

The following block diagram provides an overview of the control modules and bus systems deployed in the vehicle.



- JBE (Junction Box Electronics)
  - control module with connection to K-CAN, PT-CAN and diagnosis lead
- MOST GW is a placeholder for e.g. CCC (Car Communication Computer), M-ASK (Multi Audio System Controller), RAD (radio) or CHAMP (Central Head Unit and Multimedia Platform)
  - control module with connection to K-CAN and MOST
- DSC (Dynamic Stability Control)
  - control module with connection to F-CAN and PT-CAN
- K1 ... Kn: control modules on the K-CAN
- M1 ... Mn: control modules on the MOST
- F1 ... Fn: control modules on the F-CAN

## Check Stability of Most Ring

### MOST Bus: Checking Ring Stability

The test module enables a conclusion as to whether the MOST ring is closed or open. It can provide two results:

- The ring is closed at the moment of the check. In this case, the ring is functional (or sporadically interrupted).
- The ring is open at the moment of the check. In this case, the ring is permanently interrupted.

## Bus-System Analysis of MOST Ring

### MOST System Analysis

#### Brief description

The test program evaluates certain fault memories from all of the MOST control modules. If there are configuration problems, the target configuration is stored first.

The evaluation of the existing fault memory entries then provides the most probable fault cause. The results are a maximum of the two most likely fault causes, for example:

- (\* \* \* \*) DVDC DVD changer
- (\* \*) TEL telephone

Assessment of the result quality:

- (\* \* \* \* \*) -- > high quality
- (\*) -- > low quality

The number of asterisks varies between one and five.

## Luminous Power Reduction

### MOST Bus: Ring Fault Diagnosis

For the MOST bus, there are intersystem fault memory entries in the control modules. A feature of the system faults is that they can be entered in a control module although the control module is OK. With the information regarding system faults in all MOST control modules, conclusions can be drawn about the cause of the fault. The section below covers the system fault "Network wakeup unsuccessful". This fault can be entered in all MOST control modules.

#### Fault memory entry: Network wake-up unsuccessful

The fault "Network wake-up unsuccessful" indicates a problem with the optical transmission. Insufficient light or no light is coming through at one position in the ring. Causes may be:

- Control module without voltage
- Fiber-optic cable defective (e.g. kinked too strongly)
- Transmit diode or receiver diode in a control module defective
- Connector not correctly inserted

A distinction must be made as to whether the MOST ring is permanently or sporadically interrupted. To test, select and run the test module Check stability of the MOST ring. If the MOST ring is sporadically interrupted, run the test for light output reduction. If the MOST ring is permanently interrupted, run the ring fault diagnosis.

#### Test of light output reduction

In the test program, the light output is automatically lowered for one MOST control module after the other. if you want to run the test for light output reduction for a special control module manually, then:

1. Switch on loud music.
2. Change to "Control-module functions" of the special MOST control module (component activation: MOST bus light output reduction) and this control module reduce the light output (the light output is lowered for 5 seconds and then automatically reset by the control module to the normal value).
3. If the optical transmission from control module A to its successor (control module B) is OK, slight noise ("crackling") can occur when the light output (from control module A) is lowered and automatically raised.
4. If the optical transmission from control module A to control module B is not OK, the music goes off for a few seconds. This means that the defect lies between control module A, where the light output was reduced, and its successor (control module B) in the MOST ring.

Repeat operations 1 to 4 several times, as this method does not provide reliable identification, rather only an indication of a defect. Check the transmission path at which the music goes off for loose plug-in connections and kinks in the fibre-optic cable wiring harness. If the results of the visual inspection appear to be in order, the fault can only be accurately located (transmit diode control module A, receiver diode control module B, fiber-optic cable) using the optical test.

#### Ring fault diagnosis

## Node position "0"

If the power supply to the MOST control modules is switched off and then on again, this switches the MOST control modules to "ring fault mode": each MOST control module simultaneously sends a light signal to the next control module in the ring. In addition, each MOST control module checks whether it is receiving a light signal at its input. The control module that does not detect a light signal at its input stores the relative node position 0 in its fault memory. Thus the ring fault is between the control module that has stored the node position 0 and the node that precedes it in the MOST ring.

## Determining the control module with node position "0"

Thus, to locate a ring fault between two control modules, it is only necessary to identify the control module that has stored the node position 0. If there is a ring fault in the MOST ring, the system can only communicate with the head unit via diagnosis. This is possible because these three control modules are connected to the K-CAN bus. It is not possible to communicate with the other control modules because signals are only transmitted in one direction and there is a ring fault. That therefore means that it is not possible to establish which control module has stored the node position 0. A different mechanism has thus been implemented on the MOST control modules in order to be able to identify the two control modules between which there is a ring failure:

The control module located in the ring after the control module with node position 0 stores node position 1; the next control module in the ring stores 2 etc. This enables you to determine the position of the ring fault on the basis of the node position stored in the head unit. This number can namely be read from the CAN bus. Counting backwards starting from the head unit determines the control module with node position 0.

The ring fault diagnosis is run automatically in the test module. The node position stored in the head unit is specified in the test module. Further procedure if the position of the ring fault can not be determined automatically after determining the node position:

Procedure for locating the position of the ring fault using the node position:

1. Determine the order of the control modules in the ring. (To do so, select the menu item "Order of the control modules in the MOST ring" in the test module)
2. Starting from the head unit backwards (using the MOST ring connection scheme), count down to the node position. Always subtract one per control module. When node position 0 is reached, the ring fault then lies between the control module with node position 0 and the control module preceding it in the MOST ring.
3. Then check the power supply of the control module located before the control module with node position 0. If the power supply is OK, continue with the optical test on the MOST bus.
  - Test module for checking power supply: Change to the function selection on the diagnosis system. The test module for checking the power supply of the MOST control modules can be selected At Body, Bus Functions, MOST Functions and MOST control modules Power Supply.
  - Test module for optical test: Change to the function selection on the diagnosis system. The test module for the optical check of the MOST bus can be selected at Body, Bus Functions, MOST Functions and Optical Test.

## Ring-Break Diagnostic

### MOST Bus: Ring Fault Diagnosis

For the MOST bus, there are intersystem fault memory entries in the control modules. A feature of the system faults is that they can be entered in a control module although the control module is OK. With the information regarding system faults in all MOST control modules, conclusions can be drawn about the cause of the fault. The section below covers the system fault "Network wakeup unsuccessful". This fault can be entered in all MOST control modules.

### Fault memory entry: Network wake-up unsuccessful

The fault "Network wake-up unsuccessful" indicates a problem with the optical transmission. Insufficient light or no light is coming through at one position in the ring. Causes may be:

- Control module without voltage
- Fiber-optic cable defective (e.g. kinked too strongly)
- Transmit diode or receiver diode in a control module defective
- Connector not correctly inserted

A distinction must be made as to whether the MOST ring is permanently or sporadically interrupted. To test, select and run the test module Check stability of the MOST ring. If the MOST ring is sporadically interrupted, run the test for light output reduction. If the MOST ring is permanently interrupted, run the ring fault diagnosis.

### Test of light output reduction

In the test program, the light output is automatically lowered for one MOST control module after the other. if you want to run the test for light output reduction for a special control module manually, then:

1. Switch on loud music.
2. Change to "Control-module functions" of the special MOST control module (component activation: MOST bus light output reduction) and this control module reduce the light output (the light output is lowered for 5 seconds and then automatically reset by the control module to the normal value).



3. If the optical transmission from control module A to its successor (control module B) is OK, slight noise ("crackling") can occur when the light output (from control module A) is lowered and automatically raised.
4. If the optical transmission from control module A to control module B is not OK, the music goes off for a few seconds. This means that the defect lies between control module A, where the light output was reduced, and its successor (control module B) in the MOST ring.

Repeat operations 1 to 4 several times, as this method does not provide reliable identification, rather only an indication of a defect. Check the transmission path at which the music goes off for loose plug-in connections and kinks in the fibre-optic cable wiring harness. If the results of the visual inspection appear to be in order, the fault can only be accurately located (transmit diode control module A, receiver diode control module B, fiber-optic cable) using the optical test.

### Ring fault diagnosis

In the case of a ring fault (defect in the MOST ring), the two MOST control modules between which the defect in the ring can be found must be determined first. This is established using the ring fault diagnosis function.

### Node position "0"

If the power supply to the MOST control modules is switched off and then on again, this switches the MOST control modules to "ring fault mode": each MOST control module simultaneously sends a light signal to the next control module in the ring. In addition, each MOST control module checks whether it is receiving a light signal at its input. The control module that does not detect a light signal at its input stores the relative node position 0 in its fault memory. Thus the ring fault is between the control module that has stored the node position 0 and the node that precedes it in the MOST ring.

### Determining the control module with node position "0"

Thus, to locate a ring fault between two control modules, it is only necessary to identify the control module that has stored the node position 0. If there is a ring fault in the MOST ring, the system can only communicate with the head unit via diagnosis. This is possible because these three control modules are connected to the K-CAN bus. It is not possible to communicate with the other control modules because signals are only transmitted in one direction and there is a ring fault. That therefore means that it is not possible to establish which control module has stored the node position 0. A different mechanism has thus been implemented on the MOST control modules in order to be able to identify the two control modules between which there is a ring failure:

The control module located in the ring after the control module with node position 0 stores node position 1; the next control module in the ring stores 2 etc. This enables you to determine the position of the ring fault on the basis of the node position stored in the head unit. This number can namely be read from the CAN bus. Counting backwards starting from the head unit determines the control module with node position 0.

The ring fault diagnosis is run automatically in the test module. The node position stored in the head unit is specified in the test module. Further procedure if the position of the ring fault can not be determined automatically after determining the node position:

### Procedure for locating the position of the ring fault using the node position:

1. Determine the order of the control modules in the ring. (To do so, select the menu item "Order of the control modules in the MOST ring" in the test module)
2. Starting from the head unit backwards (using the MOST ring connection scheme), count down to the node position. Always subtract one per control module. When node position 0 is reached, the ring fault then lies between the control module with node position 0 and the control module preceding it in the MOST ring.
3. Then check the power supply of the control module located before the control module with node position 0. If the power supply is OK, continue with the optical test on the MOST bus.
  - Test module for checking power supply: Change to the function selection on the diagnosis system. The test module for checking the power supply of the MOST control modules can be selected At Body, Bus Functions, MOST Functions and MOST control modules Power Supply.
  - Test module for optical test: Change to the function selection on the diagnosis system. The test module for the optical check of the MOST bus can be selected At Body, Bus Functions, MOST Functions and Optical Test.

## Deactivation, Excess Temperature

### Deactivation, Excess Temperature

If a control module becomes too hot, this control module switches off for up to 10 minutes to protect the individual components against damage.

Furthermore, the entire MOST bus can switch off for 10 minutes. After the control module has cooled down, it regains function.

If the fault "Cutoff excess temperature" is stored in a MOST control module, the control module concerned and the head unit store the fault. The fault memory entry from the head unit is evaluated in the test module.

The head unit is only displayed if it has switched itself off due to excess temperature.

### Top HiFi amplifier: Detection of excess temperature

The Top HiFi amplifier can only disable its own functions at high temperatures. If the customer is currently listening to music, the following fault pattern results:

- Sound failure in the audio system.

The Top HiFi amplifier does not make a fault memory entry. The MOST framework remains functional. After the control module has cooled down, the Top HiFi amplifier regains function.

## Check Stability Of MOST Ring

### MOST Bus: Checking Ring Stability

The test module enables a conclusion as to whether the MOST ring is closed or open. It can provide two results:

- The ring is closed at the moment of the check. In this case, the ring is functional (or sporadically interrupted).
- The ring is open at the moment of the check. In this case, the ring is permanently interrupted.

## Bus-System Analysis Of MOST Ring

### MOST System Analysis

#### Brief description

The test program evaluates certain fault memories from all of the MOST control modules. If there are configuration problems, the target configuration is stored first.

The evaluation of the existing fault memory entries then provides the most probable fault cause.

The results are a maximum of the two most likely fault causes, for example:

- (\* \* \* \*) DVDC DVD changer
- (\* \*) TEL telephone

Assessment of the result quality:

- (\* \* \* 8 \*) -- > high quality
- (\*) -- > low quality

The number of asterisks varies between one and five.

## Ring-Break Diagnostic

### MOST Bus: Ring Fault Diagnosis

For the MOST bus, there are intersystem fault memory entries in the control modules. A feature of the system faults is that they can be entered in a control module although the control module is OK. With the information regarding system faults in all MOST control modules, conclusions can be drawn about the cause of the fault. The section below covers the system fault "Network wake-up unsuccessful". This fault can be entered in all MOST control modules.

#### Fault memory entry: Network wake-up unsuccessful

The fault "Network wake-up unsuccessful" indicates a problem with the optical transmission. Insufficient light or no light is coming through at one position in the ring. Causes may be:

- Control module without voltage
- Fiber-optic cable defective (e.g. kinked too strongly)
- Transmit diode or receiver diode in a control module defective
- Connector not correctly inserted

A distinction must be made as to whether the MOST ring is permanently or sporadically interrupted. To test, select and run the test module Check stability of the MOST ring.

If the MOST ring is sporadically interrupted, run the test for light output reduction.

If the MOST ring is permanently interrupted, run the ring fault diagnosis.

#### Test of light output reduction

In the test program, the light output is automatically lowered for one MOST control module after the other. if you want to run the test for light output reduction for a special control module manually, then:

1. Switch on loud music.
2. Change to "Control-module functions" of the special MOST control module (component activation: MOST bus light output reduction) and this control module reduce the light output (the light output is lowered for 5 seconds and then automatically reset by the control module to the normal value).
3. If the optical transmission from control module A to its successor (control module B) is OK, slight noise ("crackling") can occur when the light output (from control module A) is lowered and automatically raised.
4. If the optical transmission from control module A to control module B is not OK, the music goes off for a few seconds. This means that the defect lies between control module A, where the light output was reduced, and its successor (control module B) in the MOST ring.

Repeat operations 1 to 4 several times, as this method does not provide reliable identification, rather only an indication of a defect. Check the

### Ring fault diagnosis

In the case of a ring fault (defect in the MOST ring), the two MOST control modules between which the defect in the ring can be found must be determined first. This is established using the ring fault diagnosis function.

### Node position "0"

If the power supply to the MOST control modules is switched off and then on again, this switches the MOST control modules to "ring fault mode": each MOST control module simultaneously sends a light signal to the next control module in the ring. In addition, each MOST control module checks whether it is receiving a light signal at its input. The control module that does not detect a light signal at its input stores the relative node position 0 in its fault memory. Thus the ring fault is between the control module that has stored the node position 0 and the node that precedes it in the MOST ring.

### Determining the control module with node position "0"

Thus, to locate a ring fault between two control modules, it is only necessary to identify the control module that has stored the node position 0. If there is a ring fault in the MOST ring, the system can only communicate with the head unit via diagnosis. This is possible because these three control modules are connected to the K-CAN bus. It is not possible to communicate with the other control modules because signals are only transmitted in one direction and there is a ring fault. That therefore means that it is not possible to establish which control module has stored the node position 0. A different mechanism has thus been implemented on the MOST control modules in order to be able to identify the two control modules between which there is a ring failure:

The control module located in the ring after the control module with node position 0 stores node position 1; the next control module in the ring stores 2 etc. This enables you to determine the position of the ring fault on the basis of the node position stored in the head unit. This number can namely be read from the CAN bus. Counting backwards starting from the head unit determines the control module with node position 0.

The ring fault diagnosis is run automatically in the test module. The node position stored in the head unit is specified in the test module. Further procedure if the position of the ring fault can not be determined automatically after determining the node position:

### Procedure for locating the position of the ring fault using the node position:

1. Determine the order of the control modules in the ring. (To do so, select the menu item "Order of the control modules in the MOST ring" in the test module)
2. Starting from the head unit backwards (using the MOST ring connection scheme), count down to the node position. Always subtract one per control module. When node position 0 is reached, the ring fault then lies between the control module with node position 0 and the control module preceding it in the MOST ring.
3. Then check the power supply of the control module located before the control module with node position 0. If the power supply is OK, continue with the optical test on the MOST bus.
  - Test module for checking power supply: Change to the function selection on the diagnosis system. The test module for checking the power supply of the MOST control modules can be selected at Body, Bus Functions, MOST Functions and MOST control modules Power Supply.
  - Test module for optical test: Change to the function selection on the diagnosis system. The test module for the optical check of the MOST bus can be selected at Body, Bus Functions, MOST Functions and Optical Test.

## Information Bus: Symptom Related Diagnostic Procedures

### Fault Profiles For Bluetooth Link / Bluetooth Connection (ULF-SBX Interface Box)

#### Fault Profiles For Bluetooth Link / Bluetooth Connection (ULF\_SBX Interface Box)

The following fault profiles are covered in this test module:

##### Bluetooth link / Bluetooth connection

- The mobile phone cannot be connected to the vehicle.
- After a cancelled linking operation of a new mobile phone, the already linked mobile phone is no longer automatically connected.
- The last entry in the list of connected devices (vehicle display) cannot be deleted.
- As soon as a linked mobile phone is found, "No suitable telephone found" appears on the Control Display and the mobile phone is no longer connected via Bluetooth. After a short time, the mobile phone reconnects. These characteristics occur repeatedly.

### ULF-SBX-H Fault Profiles For Bluetooth Link/ Bluetooth Connection (ULF-SBX-H Interface Box High)

#### ULF-SBX-H Fault Profiles For Bluetooth Link / Bluetooth Connection (ULF-SBX-H Interface Box High)

The following fault profiles are covered in this test module:

##### Bluetooth link / Bluetooth connection

- The mobile phone cannot be connected to the vehicle.
- The last entry in the list of connected devices (vehicle display) cannot be deleted.
- As soon as a linked mobile phone is found, "No suitable telephone found" appears on the Control Display and the mobile phone is no longer connected via Bluetooth. After a short time, the mobile phone reconnects. These characteristics occur repeatedly.

### Fault Profiles For telephony (ULF-SBX Interface Box)

#### Fault Profiles For Telephony (ULF-SBX Interface Box)

The following fault profiles are covered in this test module:

##### Telephony

- If a call is accepted on the mobile phone, the CCC shows the name with 5 asterisks.
- After call acceptance, the display with the call time is displayed with a delay of up to 15 seconds.
- The telephone call is accepted on the mobile phone in the hands-free mode is switched on without the user requesting this.
- The telephone call is accepted via the Control Display (telephone hands-free mode). Transferring the call by means of the hands-free button to the mobile phone (Privacy mode) does not work.
- After call acceptance of a 2nd incoming call, the phone number and name are not shown in full or not shown correctly in the display.
- Telephone calls cannot be accepted or set up. The Bluetooth connection is lost during telephone calls via the hands-free unit. The display shows: no suitable telephone present.
- After calling a phone number that is engaged, no call can be placed for some time. Shortly thereafter, "terminated" appears on the Control Display.
- The user's own phone number is not transferred.
- When a call is being made, the phone number displayed on the Control Display is not the dialled number.

### ULF-SBX-H Fault Profiles For Telephony (ULF-SBX-H Interface Box High)

#### ULF-SBX-H Fault Profiles For Telephony (ULF-SBX-H Interface Box High)

The following fault profiles are covered in this test module:

##### Telephony

- If a call is accepted on the mobile phone, the CCC shows the name with 5 asterisks.
- After call acceptance, the display with the call time is displayed with a delay of up to 15 seconds.
- The telephone call is accepted on the mobile phone in the hands-free mode is switched on without the user requesting this.
- The telephone call is accepted via the Control Display (telephone hands-free mode). Transferring the call by means of the hands-free button to the mobile phone (Privacy mode) does not work.
- After call acceptance of a 2nd incoming call, the phone number and name are not shown in full or not shown correctly in the display.
- After calling a number that is engaged, no call can be placed for some time. Shortly thereafter, "terminated" appears on the Control Display.
- The user's own phone number is not transferred.

### Fault Profiles For voice Quality And Audio Output (ULF-SBX Interface Box)

#### Fault Profiles For Voice Quality And Audio Output (ULF-SBX Interface Box)

The following fault profiles are covered in this test module:

##### Voice quality / audio output

- Mini Cooper S (R56) L4-1.6L Turbo (N14)
- Poor voice quality (call via hands-free speaking system)
- When the vehicle is started during an active call, the call is lost for approx. 20 seconds.
- Poor voice quality (call via hands-free speaking system), echo

## **ULF-SBX-H Fault Profiles For Voice Quality / Audio Output (ULF-SBX-H Interface Box High)**

### **ULF-SBX-H Fault Profiles For Voice Quality / Audio Output (ULF-SBX-H Interface Box High)**

The following fault profiles are covered in this test module:

#### **Voice quality / audio output**

- Poor voice quality (call via hands-free speaking system)
- When the vehicle is started during an active call, the call is lost for approx. 20 seconds.
- Poor voice quality (call via hands-free speaking system), echo

## **Fault Profiles For Snap-In Adapter/ Eject Box (Base Plate) (ULF-SBX Interface Box)**

### **Fault Profiles For Snap-in Adapter / Eject Box (base Plate) (ULF-SBX Interface Box)**

The following fault patterns are covered in this test module:

#### **Snap-in adapter / eject box (base plate)**

1. The mobile phone engaged in the snap-in adapter is not charged or only partially charged.

## **Fault Profiles For Snap-In Adapter/ Eject Box (Base Plate) (ULF-SBX-H Interface Box High)**

### **Fault Profiles For Snap-in Adapter / Eject Box (base Plate) (ULF-SBX-H Interface Box High)**

The following fault patterns are covered in this test module:

#### **Snap-in adapter / eject box (base plate)**

1. The mobile phone engaged in the snap-in adapter is not charged or only partially charged.

## **Fault Profiles For telephone Book (ULF-SBX Interface Box)**

### **Fault Profiles For Telephone Book (ULF-SBX Interface Box)**

The following fault profiles are covered in this test module:

#### **Telephone book**

- Sony Ericsson T610, T630 or K750i: transfer of the phone book takes an unusually long time.
- Some telephone book entries are not displayed on the Control Display.
- After connection of the mobile phone to the vehicle, the telephone book (already stored in the control module) does not appear immediately. The telephone book only appears after a few minutes.
- If a telephone call is made shortly after reconnection of a Siemens mobile phone, not all phone book entries are displayed.

## **ULF-SBX-H Fault Profiles For Telephone Book (ULF-SBX-H Interface Box High)**

### **ULF-SBX-H Fault Profiles For Telephone Book (ULF-SBX-H Interface Box High)**

The following fault profiles are covered in this test module:

#### **Telephone book**

- Sony Ericsson T610, T630 or K750i: transfer of the phone book takes an unusually long time.
- Some telephone book entries are not displayed on the Control Display.
- After connection of the mobile phone to the vehicle, the telephone book (already stored in the control module) does not appear immediately. The telephone book only appears after a few minutes.
- If a telephone call is made shortly after reconnection of a Siemens mobile phone, not all phone book entries are displayed.

## **ULF-SBX-H Fault Profiles For USB Functions**

### **ULF-SBX-H Fault Profiles For USB Functions**

The following fault profiles are covered in this test module:

#### **USB functions**

- The Audio AUX-In / USB menu cannot be selected on the Control Display.
- The connected device is not recognized as a USB player.
- The track is selected and activated but is not played.
- The selection of tracks, music styles, artists as well as albums is not possible.
- Only system folders are displayed. Music styles, artist as well as albums are not displayed.
- Certain play lists are not played (concerns iPod). The following is displayed permanently on the Control Display: "Reading data".
- The following is displayed permanently on the Control Display: "Reading data". The selection of tracks, music styles, artists as well as

- Mini Cooper S (R56) L4-1.6L Turbo (N14)  
albums is not possible.
- In the AUX-In menu, the following message is displayed: "Device is not supported". Despite this, the USB device can be used in some cases.
  - Playback does not continue at the last selected track. The 1st track in the 1st directory with the lowest number of subfolders is always played.
  - The album is not found under the appropriate heading. Certain tracks are not assigned to the matching music styles.
  - USB devices that have already been used are suddenly no longer recognized.
  - Several times an hour, playback of MP3 files is interrupted and there is an automatic switch to the FM menu.
  - On devices connected at the AUX-IN port, there are clicking noises and distortion during playback.

## Compatibility Check For USB Devices

### Compatibility Check For USB Devices

Systems concerned: ULF-SBX-H for R56/ E65/ E60/ E87/ E90/ E70

The diagnosis of the ULF-SBX-H interface box High is only possible for systems approved by BMW. All the information on this topic can be found in the current USB product information valid for your country. More precise information on the storage location of the current USB product information that applies to you can be obtained from your subsidiary.

#### Procedure for compatibility check of the present USB device

1. Download the current version of the USB product information.
2. Compile USB device data:
  - Designation of USB device
  - If applicable, software version of the USB device
3. Compile control module data:
  - control module software version (BMW part number)

This control module software version is displayed at the start of the test module "Fault profiles USB device" as well as in the test module "Read USB device data".It can be also be read out at the DIS tester at control-module functions --> Identification.
4. Use the USB device data, control-unit data and the USB product information to determine whether the present USB device is approved by BMW for this vehicle.

**NOTE:** The diagnosis functions offered on the DIS tester apply to recommended USB devices. If the USB device is approved in the product information for restricted use only, the restrictions of the USB device have priority over the diagnosis instructions.

## ULF-SBX-H Fault Profiles For Voice Recognition System

### ULF-SBX-H Fault Profiles For Voice Recognition System

The following fault profiles are covered in this test module:

#### Air conditioning operation using voice recognition system

- The "centre air vent" function cannot be operated using the voice recognition system.

#### Communication via voice recognition system

- When a phone number is dialled, 5 asterisks are displayed instead of the phone number.
- No options are announced in the BMW Online menu.

#### Entertainment via voice recognition system

- The scanning of radio stations or tracks cannot be terminated using the voice recognition system.
- The voice output (e.g.: announcement of CD x, track Y) takes place with breaks.
- On selection of the Audio AUX menu via the voice recognition system, "Function currently unavailable" is displayed.

#### Navigation via voice recognition system

- Route guidance is not started on activation via the voice recognition system.
- With input of an address with house number via the voice recognition system, route guidance does not lead to the desired house number.

#### Operation of other functions via voice recognition system (SVS)

- After activation of the voice recognition system, the message "Voice input terminated" is displayed.
- The command "Vehicle and tyres" is not executed.
- No reaction to the command "Options".

## Voice Recognition System In The Interface Box High ULF-SBX-H

### Voice Recognition System In The Interface Box High ULF-SBX-H

The functional description describes the voice recognition system for the following vehicles:

- E81, E82, E87, E88, E90, E91, E92, E93 (BMW 1 Series, 3 Series)
- E60, E61, E63, E64 (BMW 5 Series, 6 Series)
- E70 (BMW X5)
- R55, R56 (MINI)

This functional description only applies to vehicles that are equipped with a voice recognition system (optional extra 620), but not with CCC

## Brief description of components

The voice recognition system is made available via the interface box High (ULF-SBX-H). Here, no additional hardware is installed in the vehicle. The voice recognition system is a software function implemented in the ULF-SBX-H.

## System functions

The ULF-SBX-H provides all the known functions of the voice recognition system. All known voice commands for the air conditioner, entertainment system, navigation system, telephony, etc. are implemented via the ULF-SBX-H.

## Notes for Service department

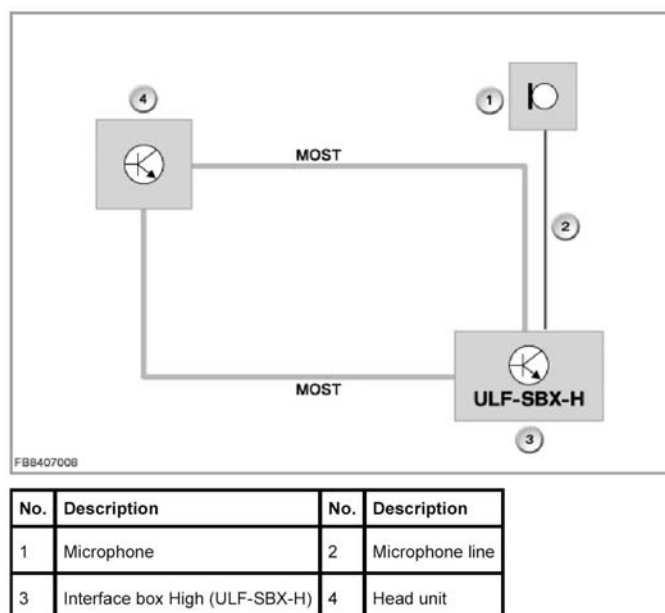
The following information is provided for servicing the ULF-SBX-H:

## General information

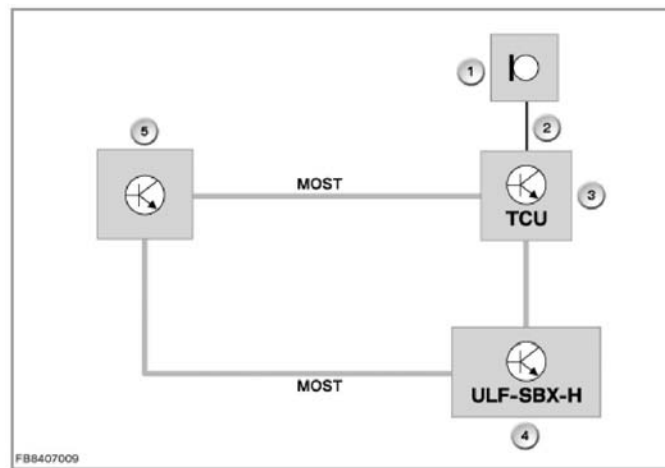
### Microphone and connection of the microphone

Depending on the vehicle equipment, the vehicle equipment is connected to different control modules. The microphone signals are then transferred across the MOST bus to the other control modules.

If only a ULF-SBX-H interface box High is installed, the vehicle microphone is connected to the ULF-SBX-H. The electrical power supply and diagnosis of the vehicle microphone are handled by the ULF-SBX-H.

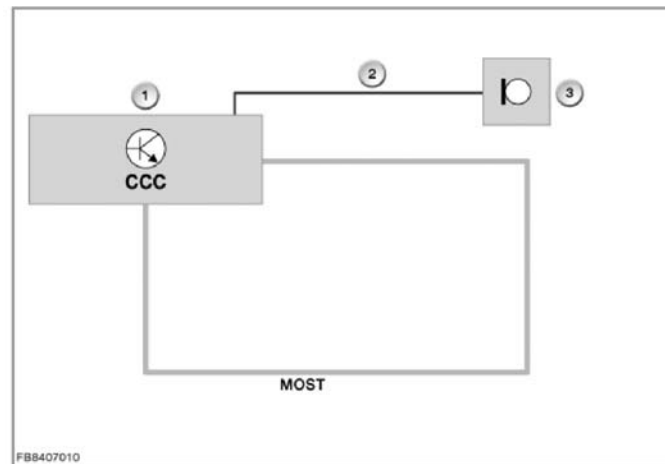


If there is a parallel installation of Telematic Control Unit (TCU) and ULF-SBX-H in the vehicle, the vehicle microphone is connected to the TCU. All telephone functions are implemented via the TCU. The ULF-SBX-H provides the voice recognition system as well as other functions (depending on vehicle equipment). Diagnosis of the vehicle microphone is implemented within the framework diagnosis of the TCU.



No.	Description	No.	Description
1	Microphone	2	Microphone line
3	Telematics control module (TCU)	4	Interface box High (ULF-SBX-H)
5	Head unit		

If a Car Communication Computer (CCC) is fitted in the vehicle, voice control is not provided by the ULF-SBX-H. In this case, use the diagnosis for the CCC in the event of problems with the voice recognition system. If fitted, the ULF-SBX-H only provides the functions for the audio player or telephony depending on the equipment version.



No.	Description	No.	Description
1	Head unit (CCC)	2	Microphone line
3	Microphone		

### Diagnosis instructions

Within the framework of the diagnosis of the voice recognition system, a fault profile catalogue is made available. This fault profile catalogue is structured in the same way as the familiar fault profile catalogues of the telephone systems. In this test module, currently known fault profiles can be selected and run.

No liability can be accepted for printing or other faults. Subject to changes of a technical nature.



# Information Bus: Component Tests and General Diagnostics

## Manual Ring Fault Diagnosis

### Ring fault diagnosis

In the case of a ring fault (defect in the MOST ring), the two MOST control modules between which the defect in the ring can be found must be determined first. This is established using the ring fault diagnosis function. However, in the case of some software versions for the CCC, this is not possible for technical reasons (information in the test module 'Ring fault diagnosis'). In this case, the only possibility is to determine the position of the ring fault manually.

### Determining the position of the ring fault manually

"Terminal R" must be switched on for the manual ring fault diagnosis.

To determine the position of the ring fault manually, the MOST connectors must be removed from the individual control modules in succession. If red light can be seen in the connector, the MOST connection, starting from Radio2 (or Multi Audio System controller, Car Communication Computer) is OK up to this position.

Search for the ring fault between the first control module where no light can be seen and the control module preceding this in the ring.

# Information Bus: Programming and Relearning

## Procedure: Reprogramming MOST Control Modules

### Procedure: Reprogramming MOST Control Modules

- Step 1: print out the results of the MOST bus system analysis.
- Step 2: read out the vehicle data with Program, determine the measures plan and work through it.
- Step 3: All suspicious control modules must be reprogrammed.
  - Case 1: All suspicious control modules have been programmed within the framework of the Program measures plan. Continue with step 4.
  - Case 2: One of the two suspicious control modules was not programmed within the framework of the CIP measures plan. Reprogram this control module in the control module selection with "Update software".
  - Case 3: No suspicious control modules has been programmed within the framework of the CIP measures plan. Reprogram the suspicious control module in the control module selection with "Update software".
- Step 4: Enter the code specified by the diagnosis for vehicle programming in the comment field of the warranty-goodwill application.

## Store MOST Ring Configuration

### Store Most Ring Configuration

This service function determines the current configuration of the MOST ring, compares it with the vehicle order, and then stores it in the head unit.

#### CAUTION:

- **This function may only be run if the ring is closed. This is why the stability of the ring is tested at the start of the test module.**
- **To store the MOST configuration correctly, the OPPS/OPS must not be connected to the MOST direct access point. If this is the case, remove the OPPS/OPS from the MOST ring and close the MOST ring with the original MOST direct access point in the vehicle.**

## Oxygen Sensor: Service and Repair

### 11 78 510 Removing and Installing/Replacing Control Sensor

#### 11 78 510 Removing and installing/replacing control sensor (N14)

Special tools required:

^ 11 7 020

#### Warning:

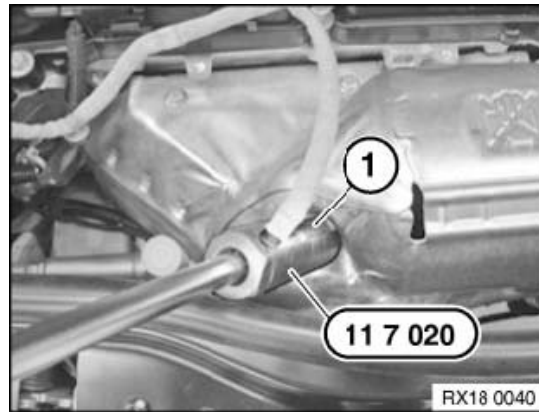
**Scalding hazard!**

**Only perform these tasks after the exhaust system has cooled down.**

#### Installation:

If an oxygen sensor is to be reused, only apply a thin and uniform coat of Never Seez Compound (refer to BMW Parts Service) to thread.

The part of the oxygen control sensor which projects into the exhaust system branch (sensor ceramic) must not be cleaned or come into contact with lubricant.



Disconnect plug connection for control sensor.

Release oxygen sensor (1) with special tool 11 7 020.

Tightening torque 11 78 1AZ.

Assemble engine.

Check function of DME.

## Oxygen Sensor: Service and Repair

### 11 78 545 Removing and Installing/Replacing Monitor Sensor

#### 11 78 545 Removing and installing/replacing monitor sensor(N14)

Special tools required:

^ 11 7 020

#### Warning:

**Scalding hazard!**

**Only perform these tasks after the exhaust system has cooled down.**

#### Installation:

If an oxygen sensor is to be reused, only apply a thin and uniform coat of Never Seez Compound (refer to BMW Parts Service) to thread.

The part of the oxygen monitor sensor which projects into the exhaust system branch (sensor ceramic) must not be cleaned or come into contact with lubricant.

Disconnect plug connection for monitor sensor.

Release monitor sensor (1) with special tool 11 7 020.

Tightening torque 11 78 1AZ.



Assemble engine.

Check function of DME.

# Vehicle: Specifications

## Excerpt from Company Standard BMW GS 90003-2

00 00 Excerpt from company standard BMW GS 90003-2

	Type	Thread	Tightening specification	Measure
If there are no cross-references to tightening torques in the repair instructions, the excerpts from the company standard BMW GS 90003-2 must be observed.				
There are different screws / nuts with surface color / (surface coating) - yellow (ZN) and silver (ZNS) The maximum tightening torques are: Surface color yellow (ZN): Applicable only to shank screws with metric coarse- and fine-pitch threads according to DIN 13-28 and nuts with nut height 0.8 x d according to DIN 934 and exclusively for a m tot = 0.125 (screws phosphatized, nuts without subsequent treatment or galvanized. Lubrication condition: unlubricated and also oiled).				
Surface color silver (ZNS): Applicable only to shank screws with metric coarse- and fine-pitch threads according to DIN 13-28 and nuts with nut height 0.8 x d according to DIN 934 and exclusively for a spread of m = 0.09 to 0.15 (screws cadmium-plated, nuts without subsequent treatment or galvanized. Lubrication condition: unlubricated and also oiled). The values specified in this table apply to all screw connections conforming to the aforementioned conditions. Not applicable when using a different surface or lubricant condition on the thread, or if the height of the nut differs.				
Not applicable to necked-down bolts, self-tapping screw connections or to connections between parts made of different materials. Attention! To be able to carry out competent repairs, it is essential to comply with the specified tightening torques. This presupposes that the required torque wrenches are subjected to regular testing. Permitted tolerance of torque wrenches ± 2 % of scale value. Approved torque wrenches and torque testers are contained in the catalogue Workshop Equipment Planning documentation.				

See: Mechanical Specifications/M4 and M5 - Maximum Tightening Torques Acc. to BMW GS 90003-2

See: Mechanical Specifications/M6 and M7 - Maximum Tightening Torques Acc. to BMW GS 90003-2

See: Mechanical Specifications/M8 and M8 x 1 - Maximum Tightening Torques Acc. to BMW GS 90003-2

See: Mechanical Specifications/M10 and M10 x 1 - Maximum Tightening Torques Acc. to BMW GS 90003-2

See: Mechanical Specifications/M12 and M12x1.5 - Maximum Tightening Torques Acc. to BMW GS 90003-2

See: Mechanical Specifications/M14 and M14x1.5 - Maximum Tightening Torques Acc. to BMW GS 90003-2

See: Mechanical Specifications/M16 and M16x1.5 - Maximum Tightening Torques Acc. to BMW GS 90003-2

See: Mechanical Specifications/M18 and M18x1.5 - Maximum Tightening Torques Acc. to BMW GS 90003-2

## M4 and M5 - Maximum Tightening Torques Acc. to BMW GS 90003-2

00 00 M4 and M5 - maximum tightening torques acc. to BMW GS 90003-2

	Type	Thread	Tightening specification	Measure
Scope of applicability of tightening torques, refer to excerpt from company standard BMW GS 90003-2	Surface colour / (surface coating)			
M4 thread	yellow (ZN)	M4 8.8		3 Nm
	silver (ZNS)	M4 8.8		2 Nm
	yellow (ZN)	M4 10.9		4 Nm
	silver (ZNS)	M4 10.9		3 Nm
	yellow (ZN)	M4 12.9		5 Nm
M5 thread	yellow (ZN)	M5 8.8		6 Nm
	silver (ZNS)	M5 8.8		5 Nm
	yellow (ZN)	M5 10.9		8 Nm
	silver (ZNS)	M5 10.9		7 Nm
	yellow (ZN)	M5 12.9		10 Nm
	silver (ZNS)	M5 12.9		8 Nm

## M6 and M7 - Maximum Tightening Torques Acc. to BMW GS 90003-2

00 00 M6 and M7 - maximum tightening torques acc. to BMW GS 90003-2

	Type	Thread	Tightening specification	Measure
Scope of applicability of tightening torques, refer to excerpt from company standard BMW GS 90003-2	Surface colour / (surface coating)			
M6 thread	yellow (ZN)	M6 8.8		10 Nm
	silver (ZNS)	M6 8.8		8 Nm
	yellow (ZN)	M6 10.9		14 Nm
	silver (ZNS)	M6 10.9		12 Nm
	yellow (ZN)	M6 12.9		17 Nm
	silver (ZNS)	M6 12.9		13 Nm
M7 thread	yellow (ZN)	M7 8.8		15 Nm
	silver (ZNS)	M7 8.8		13 Nm
	yellow (ZN)	M7 10.9		21 Nm
	silver (ZNS)	M7 10.9		19 Nm
	yellow (ZN)	M7 12.9		26 Nm
	silver (ZNS)	M7 12.9		21 Nm

## M8 and M8 x 1 - Maximum Tightening Torques Acc. to BMW GS 90003-2

00 00 M8 and M8 x 1 - maximum tightening torques acc. to BMW GS 90003-2

	Type	Thread	Tightening specification	Measure
Scope of applicability of tightening torques, refer to excerpt from company standard BMW GS 90003-2	Surface colour / (surface coating)			
M8 thread	yellow (ZN)	M8 8.8		24 Nm
	silver (ZNS)	M8 8.8		19 Nm
	yellow (ZN)	M8 10.9		34 Nm
	silver (ZNS)	M8 10.9		28 Nm
	yellow (ZN)	M8 12.9		40 Nm
	silver (ZNS)	M8 12.9		32 Nm
M8x1 thread	yellow (ZN)	M8 x 1 8.8		26 Nm
	silver (ZNS)	M8 x 1 8.8		21 Nm
	yellow (ZN)	M8 x 1 10.9		36 Nm
	silver (ZNS)	M8 x 1 10.9		30 Nm
	yellow (ZN)	M8 x 1 12.9		44 Nm
	silver (ZNS)	M8 x 1 12.9		33 Nm

## M10 and M10 x 1 - Maximum Tightening Torques Acc. to BMW GS 90003-2

00 00 M10 and M10 x 1 - maximum tightening torques acc. to BMW GS 90003-2

	Type	Thread	Tightening specification	Measure
Scope of applicability of tightening torques, refer to excerpt from company standard BMW GS 90003-2	Surface colour / (surface coating)			
M10 thread	yellow (ZN)	M10 8.8		47 Nm
	silver (ZNS)	M10 8.8		38 Nm
	yellow (ZN)	M10 10.9		66 Nm
	silver (ZNS)	M10 10.9		56 Nm
	yellow (ZN)	M10 12.9		79 Nm
	silver (ZNS)	M10 12.9		62 Nm
M10x1 thread	yellow (ZN)	M10 x 1 8.8		54 Nm
	silver (ZNS)	M10 x 1 8.8		41 Nm
	yellow (ZN)	M10 x 1 10.9		75 Nm
	silver (ZNS)	M10 x 1 10.9		60 Nm
	yellow (ZN)	M10 x 1 12.9		91 Nm
	silver (ZNS)	M10 x 1 12.9		67 Nm

## M12 and M12x1.5 - Maximum Tightening Torques Acc. to BMW GS 90003-2

00 00 M12 and M12x1.5 - maximum tightening torques acc. to BMW GS 90003-2

	Type	Thread	Tightening specification	Measure
Scope of applicability of tightening torques, refer to excerpt from company standard BMW GS 90003-2	Surface colour / (surface coating)			
M12 thread	yellow (ZN)	M12 8.8		82 Nm
	silver (ZNS)	M12 8.8		66 Nm
	yellow (ZN)	M12 10.9		115 Nm
	silver (ZNS)	M12 10.9		98 Nm
	yellow (ZN)	M12 12.9		140 Nm
	silver (ZNS)	M12 12.9		108 Nm
M12x1.5 thread	yellow (ZN)	M12 x 1.5 8.8		87 Nm
	silver (ZNS)	M12 x 1.5 8.8		68 Nm
	yellow (ZN)	M12 x 1.5 10.9		123 Nm
	silver (ZNS)	M12 x 1.5 10.9		100 Nm
	yellow (ZN)	M12 x 1.5 12.9		147 Nm
	silver (ZNS)	M12 x 1.5 12.9		110 Nm

## M14 and M14x1.5 - Maximum Tightening Torques Acc. to BMW GS 90003-2

00 00 M14 and M14x1.5 - maximum tightening torques acc. to BMW GS 90003-2

	Type	Thread	Tightening specification	Measure
Scope of applicability of tightening torques, refer to excerpt from company standard BMW GS 90003-2	Surface colour / (surface coating)			
M14 thread	yellow (ZN)	M14 8.8		130 Nm
	silver (ZNS)	M14 8.8		104 Nm
	yellow (ZN)	M14 10.9		180 Nm
	silver (ZNS)	M14 10.9		155 Nm
	yellow (ZN)	M14 12.9		220 Nm
	silver (ZNS)	M14 12.9		170 Nm
M14x1.5 thread	yellow (ZN)	M14 x 1.5 8.8		143 Nm
	silver (ZNS)	M14 x 1.5 8.8		110 Nm
	yellow (ZN)	M14 x 1.5 10.9		200 Nm
	silver (ZNS)	M14 x 1.5 10.9		165 Nm
	yellow (ZN)	M14 x 1.5 12.9		240 Nm
	silver (ZNS)	M14 x 1.5 12.9		180 Nm

## M16 and M16x1.5 - Maximum Tightening Torques Acc. to BMW GS 90003-2

00 00 M16 and M16x1.5 - maximum tightening torques acc. to BMW GS 90003-2



	Type	Thread	Tightening specification	Measure
Scope of applicability of tightening torques, refer to excerpt from company standard BMW GS 90003-2	Surface colour / (surface coating)			
M16 thread	yellow (ZN)	M16 8.8		200 Nm
	silver (ZNS)	M16 8.8		160 Nm
	yellow (ZN)	M16 10.9		280 Nm
	silver (ZNS)	M16 10.9		235 Nm
	yellow (ZN)	M16 12.9		340 Nm
	silver (ZNS)	M16 12.9		260 Nm
M16x1.5 thread	yellow (ZN)	M16 x 1.5 8.8		216 Nm
	silver (ZNS)	M16 x 1.5 8.8		170 Nm
	yellow (ZN)	M16 x 1.5 10.9		303 Nm
	silver (ZNS)	M16 x 1.5 10.9		250 Nm
	yellow (ZN)	M16 x 1.5 12.9		364 Nm
	silver (ZNS)	M16 x 1.5 12.9		275 Nm

## M18 and M18x1.5 - Maximum Tightening Torques Acc. to BMW GS 90003-2

00 00 M18 and M18x1.5 - maximum tightening torques acc. to BMW GS 90003-2

	Type	Thread	Tightening specification	Measure
Scope of applicability of tightening torques, refer to excerpt from company standard BMW GS 90003-2	Surface colour / (surface coating)			
M18 thread	yellow (ZN)	M18 8.8		280 Nm
	silver (ZNS)	M18 8.8		225 Nm
	yellow (ZN)	M18 10.9		390 Nm
	silver (ZNS)	M18 10.9		330 Nm
	yellow (ZN)	M18 12.9		470 Nm
	silver (ZNS)	M18 12.9		365 Nm
M18x1.5 thread	yellow (ZN)	M18 x 1.5 8.8		313 Nm
	silver (ZNS)	M18 x 1.5 8.8		245 Nm
	yellow (ZN)	M18 x 1.5 10.9		440 Nm
	silver (ZNS)	M18 x 1.5 10.9		360 Nm
	yellow (ZN)	M18 x 1.5 12.9		527 Nm
	silver (ZNS)	M18 x 1.5 12.9		400 Nm

## Accelerator Pedal

### 35 40 Accelerator Pedal Actuation

1AZ Accelerator pedal module to body..... 8 Nm  
Type: R55 / R56

**32 00 Wheel Alignment - Normal Position / Inspection Conditions R52**

Vehicle loaded in normal position		Vehicle with complete equipment for normal operation with:
		2 x 68 kg on front seats (seats in central position), 1 x 14 kg in luggage compartment (center) and full fuel tank.
Test conditions for wheel alignment:		
		1. Specified rims and tires with even tire profile (see Wheels/Tires)
		3. Specified wheel-bearing play (see Front/Rear Axle)
		4. Ride level monitoring in normal position (see above); ride level measurement, refer to Repair Instructions/Manual 31 33 095 Important! If there is any deviation from nominal value, repair vehicle (refer to troubleshooting/repair instructions)
		5. Adjust regulation ride level for measurement = specified value $\pm$ 2 mm by loading/unloading vehicle.

**Standard Suspension****32 00 Wheel Alignment R56 Series**

Observe test conditions		
Front axle:		
Total toe		0° 12' $\pm$ 10'
Camber		- 30' $\pm$ 25'
Camber (difference between left/right max. 30')		
Toe angle difference		(difference between left/right max. 30')
- with 20° lock on inside wheel		-1° 49' $\pm$ 30'
Caster		(difference between left/right max. 30')
- with $\pm$ 10° wheel lock		- -
- with $\pm$ 20° wheel lock		- -
Front wheel displacement		0° 15'
Maximum wheel lock		
- Inside wheel	approx. °	36° 23'
- Outside wheel	approx. °	30° 32'
Rear axle:		
Total toe		0° 24' $\pm$ 08'
Camber:		- 1° 45' $\pm$ 20'
Camber (difference between left/right max. 30')		
Geometrical axis deviation		0° $\pm$ 10'

Observe the following test conditions prior to the chassis/wheel alignment check:

1. Correct and identical rim and tyre sizes
2. Correct tread depth .the tread for each axle may differ from left to right by **max.3-4 mm.**
3. Correct Tyre Inflation Pressure (see instruction plate on car)

- Mini Cooper S (R56) L4-1.6L Turbo (N14)
4. Wheel bearing clearance OK
  5. Steering backlash Ok
  6. Condition of suspension and shock absorbers OK

## Sports Suspension

### 32 00 Wheel Alignment R56 Sports suspension, not low-slung

Observe test conditions		
Front axle:		
Total toe		0° 12' ± 10'
Camber		- 30' ±25'
Camber (difference between left/right max. 30')		
Toe angle difference		(difference between left/right max. 30')
- with 20° lock on inside wheel		-1° 49' ± 30'
Caster		(difference between left/right max. 30')
- with ± 10° wheel lock		- -
- with ± 20° wheel lock		- -
Front wheel displacement		0° 15'
Maximum wheel lock		
- Inside wheel	approx. °	36° 23'
- Outside wheel	approx. °	30° 32'
Rear axle:		
Total toe		0° 24' ± 08'
Camber:		- 1° 45' ±20'
Camber (difference between left/right max. 30')		
Geometrical axis deviation		0° ± 10'

Observe the following test conditions prior to the chassis/wheel alignment check:

1. Correct and identical rim and tyre sizes
2. Correct tread depth .the tread for each axle may differ from left to right by **max.3-4 mm.**
3. Correct Tyre Inflation Pressure (see instruction plate on car)
4. Wheel bearing clearance OK
5. Steering backlash Ok
6. Condition of suspension and shock absorbers OK

## Ride Height

### General Ride Level Height

Ride level in normal position (attach tape measure to rim flange at bottom middle and measure to lower edge of wheel arch)

Tolerance ride height in:

Normal position ..... max ±10 mm  
 Design position ..... max ±2 mm

Difference ride height between left / right in:

Normal position ..... 10 mm  
 Design position ..... 2 mm

### Standard suspension

#### Front

15" rim ..... 560 mm  
 16" rim ..... 573 mm  
 17" rim ..... 588 mm

#### Rear

15" rim ..... 542 mm  
 16" rim ..... 554 mm  
 17" rim ..... 570 mm

**Sport suspension (not low slung)****Front**

15" rim .....	560 mm
16" rim .....	573 mm
17" rim .....	588 mm

**Rear**

15" rim .....	542 mm
16" rim .....	554 mm
17" rim .....	570 mm

**Modular Front End (MFE)****41 33 Modular front end (MFE)**

	Type	Thread	Tightening specifications	Measure
1AZ Horn to MFE	R50/R53			8 Nm
2AZ Fog lamp to MFE	R50/R53			1.5 Nm
3AZ Bumper adjustment apparatus to MFE	R50/R53			6 Nm
4AZ Lock bridge to front panel	R56 / R55 / R57			8 Nm

**Seals and Loose Body Parts****51 71 Seals and Loose Body Parts**

7AZ Rear spoiler to rear lid.....	4 Nm
Type: R56	
8AZ Connection carrier to body.....	19.5 Nm
Type: R55, R56	
9AZ Lashing eye to body.....	6 Nm
Type: R55, R56	

**Side Panels****41 35 Side Panels**

	Type	Thread	Tightening specification	Measure
1AZ Front side panel to body	R56 / R55 / R57	M6		13 Nm

**Exterior Moulding / Trim****51 13 Trim Parts, Covers, Handle Trim**

1AZ Roof trim strip to roof.....	1.5 Nm
Type: R50 / R53 / R55 / R56	
4AZ Outer C-pillar trim to body	
M6 x 13.....	4.0 Nm
Type: R55	

**Front Bumper**

**51 11 Front Bumper**

	Type	Thread	Tightening specifications	Dimension
1AZ Spoiler, bumper, lower, to front panel	R50, R52, R53	M6		6 Nm
2AZ Bumper to front panel	R50, R52, R53	M6		6 Nm
3AZ Support to body	R50, R52, R53, R55, R56	M8	Nut	22 Nm
	R60	M10	Nut	45 Nm
4AZ Support to holder, bumper, front	R52 / R53 / R50 / R60	M8 x 20	Screw	22 Nm
	R55, R56	M8		18.5 Nm
5AZ Adjusting fixture to front panel	R50, R52, R53	M6 x 20		6 Nm
6AZ Adjusting device to bumper	R50, R52, R53	M6 x 20		6 Nm
7AZ Lock bridge to body	R55 / R56 / R60			22 Nm
8AZ Support to front panel	R60			4 Nm
9AZ Strut to front panel	R60	M6		8 Nm

**Tightening Torques****Front Door Locks****51 21 Front Door Locks**

1AZ Outside handle to front door.....	4 Nm
Type: R50 / R52 / R53 / R55 / R56	
2AZ Door lock pin to body.....	19 Nm
Type: R55 / R56	
3AZ Door lock cylinder to front door.....	9 Nm
Type: R55 / R56	
4AZ Door lock to front door.....	6 Nm
Type: R50 / R52 / R53 / R55 / R56	
5AZ Door locking lever to door lock.....	3 Nm
Type: R50 / R52 / R53 / R55 / R56	
6AZ Door retainer to A-pillar.....	23 Nm
Type: R50 / R52 / R53 / R55 / R56	
7AZ Door retainer to door.....	10 Nm
Type: R50 / R52 / R53 / R55 / R56	

**Front Doors****41 51 Front doors**

	Type	Thread	Tightening specification	Measure
1AZ Hinge	R50 / R52 / R53 / R55 / R56 / R57	M6		10 Nm
2AZ Door to door hinge	R50 / R52 / R53	M8 nut		20 Nm
	R55 / R56 / R57	M8 nut		18.5 Nm
3AZ Door plug connection to body	R55 / R56 / R57	M5 x 16		3 Nm

**Window System, Front****51 32 Window System, Front**

1AZ Shim, door window, power window lugs.....	10 Nm
Type: R50, R52, R53, R56	
<b>NOTE:</b> The specified tightening torques only apply when the special tool is used.	
.....	5 Nm

Mini Cooper S (R56) L4-1.6L Turbo (N14)		279
Type: R55, R56		
<b>Front Door Panel</b>		
<b>51 41 Front Door Trim Panel With Armrests</b>		
2AZ Carrier, door trim panel, to door		8 Nm
NOTE: Screw		
Type: R55, R56		10 Nm
NOTE: Nut		

Engine Bonnet/Hood

41 61 Engine bonnet/hood

	Type	Thread	Tightening specification	Measure
1AZ Engine bonnet/hood to bonnet/hood hinge	R50 / R52 / R53	M8 8.8		18.5 Nm
	R56 / R55 / R57	M8 10.9		22 Nm
2AZ Bonnet/hood hinge to body	R50 / R52 / R53	M8 8.8		18.5 Nm
	R56 / R55 / R57	M8 10.9		22 Nm

Hood/Bonnet Locks

51 23 Hood/Bonnet Locks

2AZ Retaining hook to hood/bonnet	8 Nm
Type: R55 / R56	
3AZ Locks to front panel	10 Nm
Type: R55 / R56	

System Specifications

51 16 Mirrors, Finishers, Ashtrays, Consoles

3AZ Mirror to front door	
M6 x 65	8 Nm
Type: R50 / R52 / R53 / R55 / R56	

Dashboard / Instrument Panel

51 45 Trim, Instrument Panel

3AZ Instrument panel carrier to bulkhead, screws	
M10	34 Nm
Type: R55, R56	
4AZ Bracket, carrier to bulkhead, screw	22 Nm
Type: R55, R56	

Trim Panel

51 43 Side Trim Panel With Armrests

1AZ Trim, front roof pillar (A-pillar) on body	2 Nm
Type: R55, R56	
2AZ Trim panel, door pillar, top B Pillar), to body	2 Nm
Type: R55, R56	
3AZ Trim, rear roof pillar (C-pillar) on body	2 Nm
Type: R55, R56	
4AZ Side trim panel to body	2.5 Nm

Mini Cooper S (R56) L4-1.6L Turbo (N14)					280
Type: R56					
Type: R55					1.8 Nm
5AZ Upper Clubdoor door pillar panel to body					2 Nm
Type: R55					
<b>Mirrors</b>					
<b>51 16 Mirrors, Finishers, Ashtrays, Consoles</b>					
3AZ Mirror to front door					
M6 x 65					8 Nm
Type: R50 / R52 / R53 / R55 / R56					
<b>Radiator Support</b>					
<b>41 33 Modular front end (MFE)</b>					
	Type	Thread	Tightening specifications	Measure	
1AZ Horn to MFE	R50/R53			8 Nm	
2AZ Fog lamp to MFE	R50/R53			1.5 Nm	
3AZ Bumper adjustment apparatus to MFE	R50/R53			6 Nm	
4AZ Lock bridge to front panel	R56 / R55 / R57			8 Nm	
<b>Rear Bumper</b>					
<b>51 12 Rear Bumper</b>					
1AZ Carrier to body					21 Nm
Type: R55 / R56					
<b>Front Seats</b>					
<b>52 13 Front Seats</b>					
1AZ Seat to floor plate					
M8 x 40					35 Nm
Type: R50 / R52 / R53 / R55 / R56					
<b>NOTE:</b> Apply Loctite 270					
3AZ Backrest frame to seat mechanism					38 ± 4 Nm
Type: R55 / R56					
<b>NOTE:</b> Apply Loctite 270					
4AZ Bearing for lumbar handwheel					1.5 Nm
Type: R50 / R52 / R53 / R55 / R56					
5AZ Release handle for backrest release					1.5 Nm
Type: R55 / R56					
6AZ Nut for torsion spring					
M10					31 ± 4 Nm
Type: R55 / R56					
<b>NOTE:</b> Self-locking					
7AZ Actuating unit for backrest release					
M5 x 12					3.6 ± 0.5 Nm
Type: R55 / R56					
8AZ Seat height adjustment					
M5 x 12					5.5 ± 0.5 Nm
Type: R55 / R56					
<b>Rear Seats (Through-Loading System)</b>					
<b>52 24 Rear Seats (Through-Loading System)</b>					
1AZ Lock to backrest					
M8 x 34					19 Nm
Type: R56					
2AZ Central hinge to body					29 Nm

Mini Cooper S (R56) L4-1.6L Turbo (N14)	281
Type: R56	
3AZ Cover, central hinge, to backrest	
M4.....	2 Nm
Type: R56	
4AZ Closing bar.....	19 Nm
Type: R56	

## Sunroof / Moonroof

### 54 12 Components Of Slide/tilt Sunroof Mechanism

4AZ Glass panel to mechanism.....	4 Nm
Type: R50 / R53 / R56	
NOTE: Replace screws	
5AZ Slide/tilt sunroof frame to body.....	5 Nm
Type: R56	
NOTE: Replace screws	

## Rear Lid Locks

### 51 24 Rear Lid Locks

1AZ Lock to body.....	9 Nm
Type: R50 / R53 / R56	
2AZ Lock pin to rear lid.....	9 Nm
Type: R50 / R53 / R56	
7AZ Lock to splitdoor	
M6.....	9 Nm
Type: R55	
8AZ Striker to splitdoor	
M6.....	19 Nm
Type: R55	
9AZ Outside door handle to splitdoor	
M6.....	5 Nm
Type: R55	
10AZ Holder for trim to splitdoor	
M6.....	9 Nm
Type: R55	

## Tailgate

### 41 62 Tailgate

	Type	Thread	Tightening specifications	Dimension
1AZ Tailgate to tailgate hinge	R50 / R53	M6x22		10 Nm
	R52	M8x15		18.5 Nm
	R56	M8 nut		18.5 Nm
	R57	M8x30		19 Nm
	R60	M8x22		19 Nm
2AZ Tailgate hinge to body	R50 / R53	M8x20 10.9		20 Nm
	R52	M8x17		18.5 Nm
	R56	M8 nut		22 Nm
	R57	M8x12		20 Nm
	R60	M10 nut		30 Nm
3AZ Tailgate hinge to body	R57	M8 nut		19 Nm

## Weatherstrip



**51 71 Seals and Loose Body Parts**

7AZ Rear spoiler to rear lid.....	4 Nm
Type: R56	
8AZ Connection carrier to body.....	19.5 Nm
Type: R55, R56	
9AZ Lashing eye to body.....	6 Nm
Type: R55, R56	

**Technical Data****34 11 Front Brake R56****Attention!**

New brake pads may only be installed if the brake disc thickness is greater than or equal to the minimum brake disc thickness (MIN TH).

In the case of perforated brake discs new brake pads may only be installed if the brake disc thickness is greater than the minimum brake disc thickness (MIN TH).

Minimum brake disc thickness during general inspection:

Nominal size thickness minus 2.4 mm

(Not applicable to perforated brake discs)

Perforated brake discs:

Nominal size thickness minus 1.6 mm

Depending on:

-Engine type

-Transmission version

-Equipment specification (e.g. maximum load increase, chassis official-use, brake system national version, etc.)

different brake discs can be fitted

The brake discs must always be assigned by way of the relevant vehicle identification number and the Electronic Parts Catalogue (ETK)!

Different thicknesses on brake linings Max. ....	0.01 mm
Surface roughness of braking surfaces (precision-turned) .....	0.5... 3.5 Ra
Max. machining limit per friction ring side (perforated brake discs must not be machined). ....	0.8 mm
Nominal size (diameter x thickness) .....	316x22 mm
Nominal size (diameter x thickness) .....	294x22 mm
Nominal size (diameter x thickness) .....	280x22 mm
Brake disc minimum thickness (MIN TH) stamped on brake disc body .....	20.4 mm
Wear warning from residual lining thickness .....	3.0 mm

**34 21 Rear Brake Discs R56****Attention!**

New brake pads may only be installed if the brake disc thickness is greater than or equal to the minimum brake disc thickness (MIN TH).

In the case of perforated brake discs new brake pads may only be installed if the brake disc thickness is greater than the minimum brake disc thickness (MIN TH).

Minimum brake disc thickness during general inspection:

Nominal size thickness minus 2.4 mm

(Not applicable to perforated brake discs)

Perforated brake discs:

Nominal size thickness minus 1.6 mm

Depending on:

-Engine type

-Transmission version

-Equipment specification (e.g. maximum load increase, chassis official-use, brake system national version, etc.) different brake discs can be fitted

The brake discs must always be assigned by way of the relevant vehicle identification number and the Electronic Parts Catalogue (ETK)!

Different thicknesses on brake linings Max. ....	0.01 mm
Surface roughness of braking surfaces (precision-turned) .....	0.5... 3.5 Ra
Max. machining limit per friction ring side .....	0.8 mm
Nominal size (diameter x thickness) .....	280x10 mm
Nominal size (diameter x thickness) .....	259x10 mm
Brake disc minimum thickness (MIN TH) stamped on brake disc body .....	8.4 mm
Wear warning from residual lining thickness .....	3.0 mm

**Tightening Torque****34 00 Testing and bleeding brakes**

1AZ Vent valve .....	9-11 Nm
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**34 11 Front Brake**

1AZ Brake disc to wheel hub (contact faces between brake disc and wheel hub clean and grease-free)	
M10 x 13 Torx screw .....	27 Nm
2AZ Brake caliper to steering knuckle	

Mini Cooper S (R56) L4-1.6L Turbo (N14)	283
M12 .....	110 Nm
3AZ Guide screws (hexagon screw)	
Wrench size 13 mm .....	35 ± 3 Nm
<b>Note:</b> Replace screws	
4AZ Protective plate to steering knuckle	
M6 x 10 .....	8 Nm

### 34 21 Rear Brake

1AZ Brake disc to wheel hub (contact faces between brake disc and wheel hub clean - and grease-free)	
M10 x 13 Torx screw .....	27 Nm
2AZ Brake caliper to wheel carrier	
M10 .....	65 Nm
3AZ Guide screws (hexagon screw)	
Wrench size 13 mm .....	35 ± 3 Nm

### 34 31 Brake Master Cylinder

1AZ Brake master cylinder to brake booster .....	23 ± 3Nm
<b>Note:</b> Replace self-locking nuts	
2AZ Expansion tank to brake master cylinder .....	8 ± 2 Nm

### 34 32 Brake Lines

1AZ Brake line screw connections	
M10x1 .....	14 Nm
M12x1 .....	14 Nm
2AZ Brake hose to brake caliper, front	
M10 .....	24 ± 2 Nm
3AZ Brake hose to brake caliper, rear	
M10 .....	24 ± 2 Nm

### 34 33 Brake Booster

1AZ Bearing pedestal to brake assembly and body .....	21 Nm
<b>Note:</b> Replace self-locking nuts	

### 34 41 Parking Brake

1AZ Handbrake lever to body	
M8 .....	22 ± 3 Nm
2AZ Bracket, parking brake Bowden cable, to rear axle carrier .....	9 ± 1 Nm

### 34 51 Slip Control System (ABS, ASC+T, DSC)

1AZ Control unit on hydraulic unit .....	5 Nm
2AZ Hydraulic unit to bracket .....	8 Nm
3AZ Bracket to body .....	19 Nm
4AZ Pulse generator, front and rear, to steering knuckle / frame side member .....	8 Nm
5AZ DSC sensor to holder	
M6 .....	5 Nm
6AZ Bracket, DSC sensor, to body	
M6 .....	5 Nm
7AZ ASC/DSC control unit to hydraulic control unit	
M4	
Size 1 .....	1 Nm
Size 2 .....	3 Nm
<b>Note:</b> Replace screws Tighten in crosswise sequence	

## Brake Pad

### Brake Pad

Nominal size thickness minus 2.4 mm  
 (Not applicable to perforated brake discs)  
 Perforated brake discs:  
 Nominal size thickness minus 1.6 mm

## Brake Pedal Assy

### 35 11 Pedal Assembly Console

1AZ Console to body

M8 ..... 21 Nm

Type: R55 / R56

**NOTE:** Replace self-locking nuts.

## Brake Rotor/Disc

### Front Brake Disc

Max. machining limit per friction ring side (perforated brake discs must not be machined). ..... 0.8 mm

Nominal size (diameter x thickness) ..... 316x22 mm

Nominal size (diameter x thickness) ..... 294x22 mm

Nominal size (diameter x thickness) ..... 280x22 mm

Brake disc minimum thickness (MIN TH) stamped on brake disc body ..... 20.4 mm

### Rear Brake Disc

Max. machining limit per friction ring side ..... 0.8 mm

Nominal size (diameter x thickness) ..... 280x10 mm

Nominal size (diameter x thickness) ..... 259x10 mm

Brake disc minimum thickness (MIN TH) stamped on brake disc body ..... 8.4 mm

## System Specifications

### 17 11 Radiator and Mounting Parts R56 / R55 / N12 / N14 / W16

Cap for cooling system

Pressure relief valve opens at overpressure to ambient pressure ..... 1.4+0.1 -0.1 bar

Vacuum valve must open at latest at partial vacuum to ambient pressure ..... 0.1 bar

Test pressure for cooling system (gauge pressure) ..... 2.0 bar

### 17 11 Radiator and Mounting Parts R56 / R55 / N12 / N14 / W16

Cap for cooling system

Pressure relief valve opens at overpressure to ambient pressure ..... 1.4+0.1 -0.1 bar

Vacuum valve must open at latest at partial vacuum to ambient pressure ..... 0.1 bar

Test pressure for cooling system (gauge pressure) ..... 2.0 bar

### 17 00 Coolant

1AZ Bleed screw to thermostat housing R56 ..... 2 ± 0.5 Nm

### 17 00 Coolant, Cooling System Test R55 / R56 / N12

Coolant volume (incl. heater) MT liters

Coolant volume (incl. heater) AT liters

with integrated air conditioner MT ..... 5.2 litres

with integrated air conditioner AT ..... 5.2 litres

Test pressure for cooling system (gauge pressure) ..... 1.5 bar

## Coolant

### 17 00 Coolant, Cooling System Test R55 / R56 / N14

Coolant volume (incl. heater) MT liters

Coolant volume (incl. heater) AT liters

with integrated air conditioner MT ..... 5.2 litres

with integrated air conditioner AT ..... 5.2 litres

Test pressure for cooling system (gauge pressure) ..... 1.5 bar

## Water Pump

### Water Pump

Water pump to crankcase ..... 9 Nm

**11 24 Connecting Rods and Bearings N14**

Conrod bushing: Inside diameter	mm	20.007 ... 20.020
Running clearance between small-end bushing and piston pin	mm	0.014 ... 0.025
Wear limit	mm	0.05

**Technical Data****Crankshaft and Bearings****Crankshaft and Bearings****11 21 Crankshaft and Bearings N14**

Diameters of main journals	mm	44.981 ... 45.000
Radial play of main bearings	mm	0.013 ... 0.023
Radial play of main bearings (wear limit)	mm	0.070
Axial play of crankshaft	mm	0.015 ... 0.050
Axial play of crankshaft (wear limit)	mm	0.30

**11 21 Crankshaft and Bearings N14**

Diameters of conrod bearing journals	mm	44.975 ... 44.991
Radial play of conrod bearings	mm	0.021 ... 0.063
Radial play of conrod bearings (wear limit)	mm	0.080

**11 00 Engine in general N14**

Cylinder		4
Bore	mm	73.0
Stroke	mm	85.8
Effective displacement	cm <sup>3</sup>	1598
Compression ratio	:1	10.5
Idle speed	rpm	720 ... 820
Rated speed	rpm	4000
Max. permissible engine speed	rpm	6500

**Technical Data****11 11 Engine Block, Cylinder Crankcase N14**

Bore dia. a)	mm	77.000 ... 77.014
Permitted out-of-round of cylinder bore a)	mm	0.005
Permitted conicity of cylinder bore a)	mm	0.01
Permissible total wear tolerance between piston and cylinder (engine operated)	mm	0.10

a) new condition

**Technical Data****11 41 Oil Pump with Strainer and Drive N14**

Oil pressure at idle (engine at normal operating temperature)	min bar	0.7
Control pressure at 3000 rpm (engine at normal operating temperature)	bar	1.7...3.0

**Technical Data****11 40 Oil Supply N14**

Oil grades and consumption: refer to <u>BMW Service Operating Fluids</u>		
Oil change volume with oil filter	ltr.	4.2

**Technical Data**

**11 25 Pistons with Rings and Pins N14**

Piston and pin are paired to each other - replace together only.		
Measuring point "A" (position)	mm	10
Piston diameter at measuring point "A"		
Original (new dimension)	mm	76.941 ... 76.959
Piston running clearance	mm	0.041 ... 0.064
Permissible total wear tolerance between piston and cylinder (engine operated)	mm	0.10

**Technical Data****11 31 Camshaft**

	Thread	Tightening specification	Measure
1AZ Guide rail, crankcase	M8 x 1.25	Replace sealing ring	24 Nm
2AZ Guide rail to cylinder head	M8	Replace sealing ring	20 Nm
3AZ Line to cylinder head	M6 x 20		8 Nm
4AZ Chain tensioner to cylinder head	M22 x 1.5	Replace sealing ring	65 Nm

**Tightening Torques****11 24 Connecting Rods and Bearings**

	Type	Thread	Tightening specification	Measure
1AZ Connecting rod bolts	N14	M7x37	Replace, wash and oil screws	
			1. Jointing torque	5 Nm
			2. Jointing torque	15 Nm
			3. Angle of rotation	130 °

**Tightening Torques****Crankshaft and Bearings**

This article has been updated by Technical Service Bulletin (TSB) M 11 02 10 dated April 2010.

The final torque angle (11 21 1AZ) has changed from 100 degrees to 180 degrees.

**11 21 1AZ Torsion damper (hub) to crankshaft (central bolt) (N14)**

M14 x 1.5 x 74

Replace screws. Lightly oil screws and threads.

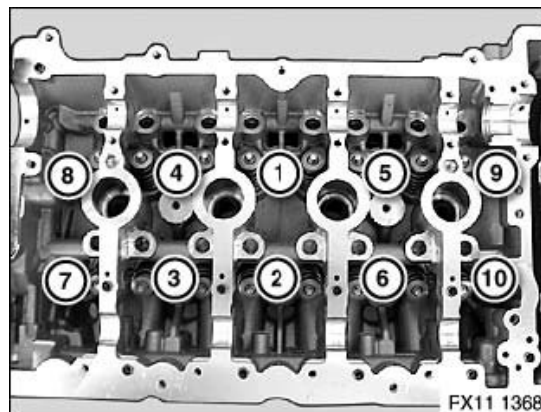
Jointing torque ..... 50 Nm

Torque angle ..... 180°

**11 23 1AZ Torsion damper to crankshaft hub (N14)**

M8 x 16 ..... 28 Nm

**Cylinder Head With Cover****Cylinder Head with Cover**



Secure cylinder head bolts from inside outwards (1 to 10)

**11 12 Cylinder Head with Cover**

	Type	Thread	Tightening specification	Measure
1AZ Cylinder head bolts	N14	M8x95	Replace screws	
			Jointing torque	15 Nm
			1st angle of rotation	90 °
			2. Angle of rotation	90 °
2AZ Cylinder head bolts	N14	M10x145	Replace screws	
			Jointing torque	30 Nm
			1st angle of rotation	90 °
			2. Angle of rotation	90 °
3AZ Cylinder head bolts	N14	M8x35	Replace screws	30 Nm
4AZ Cylinder head cover to cylinder head	N14	M6x30		10 Nm
5AZ Ground cable to cylinder head cover	N14	M5		10 Nm
6AZ Inlet camshaft bearing cap to cylinder head	N14	M6		10 Nm
7AZ Exhaust camshaft bearing cap to cylinder head	N14	M6		10 Nm
8AZ Lifting lug to cylinder head	N14	M8x20 M8x25		20 Nm
9AZ Acoustic cover to cylinder head cover	N14	M6x40		8.5 Nm

**Tightening Torques**

**11 78 Emissions control, control sensor / monitor sensor**

	Thread	Measure
1AZ Control sensor LSU 4.9 / monitor sensor LSF 4.2 / NRS FLO	M18	50 Nm
2AZ Bracket, oxygen sensors, and control sensor bracket	M6x12	8 Nm

**Tightening Torques**

**11 11 Engine block**

	Type	Thread	Tightening specification	Measure
1AZ Main bearing screws, observe tightening specification.	N14	M9x115	Replace screws	
			Jointing torque	30 Nm
			Torque angle	150 °
2AZ Bedplate, observe tightening specification.	N14	M6	Replace screws	
			Jointing torque	9 Nm
3AZ Screw plug, timing case upper section	N14	M22x1.5		35 Nm
4AZ Screw plug, timing case lower section	N14	M16x1.5	Replace seal	30 Nm
5AZ Oil baffle to crankcase lower section	N14	M6x100		10 Nm
6AZ Screw plug, timing case lower section	N14	M16x1.5	Replace seal	30 Nm
7AZ Screw plug, timing case lower section	N14	M16x1.5	Replace seal	30 Nm
8AZ Oil spray nozzle to crankcase upper section	N14	M10		20 Nm

**Tightening Torques****Exhaust Manifold****11 65 Turbocharger and control**

1AZ Turbocharger to exhaust manifold

M8 10.9 ..... 20 Nm

2AZ Stud to turbocharger

M8 x 125 ..... 15 Nm

3AZ Bracket to turbocharger

M8 ..... 25 ± 6 Nm

4AZ Oil feed to turbocharger

Banjo bolt M12 x 1.5 ..... 30 Nm

5AZ Oil return to turbocharger

M14 M6 x 100 ..... 8 Nm

6AZ Bracket to crankcase

N14 M8 x 125 ..... 19 Nm

7AZ Front heat shield to rear heat shield

M6 x 100 ..... 4 Nm

8AZ Coolant inlet and outlet lines to turbocharger

M14 x 1.5 banjo bolt ..... 35 Nm

**11 22 Flywheel**

	Type	Thread	Tightening specification	Measure
1AZ Flywheel to crankshaft (automatic transmission)	N14	M12x1.5	Replace screws	

**11 61 Intake manifold**

	Type	Thread	Tightening specification	Measure
1AZ Intake manifold to cylinder head	N14	M8x125		15 Nm
	N14	AM7	Hexagon nut	20 Nm
2AZ Bracket to crankcase	N14	M8		20 Nm
3AZ Bracket to crankcase	N14	M8x125		20 Nm

**Tightening Torques****11 43 Oil dipstick**

	Type	Thread	Tightening specification	Measure
1AZ Oil dipstick to cylinder head	N14			9 Nm

**Tightening Torques**

**11 42 Oil Filter and Pipes**

	Type	Thread	Tightening specification	Measure
1AZ Oil filter cap to oil filter housing	N14	S90x4	Replace sealing ring	25 Nm
2AZ Oil filter housing to cylinder head	N14	M6x100	Replace seal	10 Nm
3AZ Oil cooler to oil filter housing	N14	M6x16 8.8	Replace seal	10 Nm

**Tightening Torques****11 13 Oil Pan**

	Type	Thread	Tightening specification	Measure
1AZ Oil drain plug	N14	M18 x 1.5	Replace seal	30 Nm
2AZ Oil sump to crankcase	N14	M6x16		12 Nm

**Tightening Torques****11 41 Oil Pump with Strainer and Drive**

	Thread	Tightening specification	Measure
1AZ Oil pump to bedplate	M8x28		25 Nm
2AZ Sprocket to oil pump	M8x35	Replace screw	
		Jointing torque	5 Nm
		Torque angle	90 °

**Tightening Torques****11 53 Thermostat and Connections**

	Type	Thread	Tightening specification	Measure
1AZ Thermostat housing to cylinder head	N14	M6		8 Nm
2AZ Vapour separator to crankcase	N14	M6x100		8 Nm
3AZ Auxiliary water pump to crankcase	N14	M6x100		8 Nm
4AZ Banjo bolt for supply and return to turbocharger	N14	M14x1.5	Replace sealing ring	35 Nm

**Tightening Torques****22 32 Transmission mounts**

	Type	Thread	Tightening specification	Measure
1AZ Transmission mount to transmission	R50 / R52 / R55 / R56	M10 8.8		38 Nm
	R53	M12x45 - 8.8		66 Nm
2AZ Transmission support bracket to body	R50 / R52 / R53	M12		68 Nm
	R55 / R56	M10	Jointing torque	25 Nm
			Replace screws	
			Torque angle	90 °
3AZ Transmission support bracket to transmission mount	R50 / R52 / R53,	M12x1.5x125 - 8.8		68 Nm
	R55/R56	M12x1.5-10.9 nut		100 Nm

**Tightening Torques****Turbocharger and Control****11 65 Turbocharger and control**

1AZ Turbocharger to exhaust manifold

M8 10.9 ..... 20 Nm



**Mini Cooper S (R56) L4-1.6L Turbo (N14)****2AZ Stud to turbocharger**

M8 x 125 ..... 15 Nm

**3AZ Bracket to turbocharger**

M8 ..... 25 ± 6 Nm

**4AZ Oil feed to turbocharger**

Banjo bolt M12 x 1.5 ..... 30 Nm

**5AZ Oil return to turbocharger**

M14 M6 x 100 ..... 8 Nm

**6AZ Bracket to crankcase**

N14 M8 x 125 ..... 19 Nm

**7AZ Front heat shield to rear heat shield**

M6 x 100 ..... 4 Nm

**8AZ Coolant inlet and outlet lines to turbocharger**

M14 x 1.5 banjo bolt ..... 35 Nm

**11 28 V-ribbed belt with Tension and Deflection Element**

	Type	Thread	Tightening specification	Measure
1AZ Belt tensioner to alternator	N14	M10x52	Replace screw	20 Nm
2AZ Friction gear to crankcase	N14	M6x20		8

**11 66 Vacuum pump**

	Type	Thread	Tightening specification	Measure
1AZ Vacuum pump on cylinder head	N14	M6		10 Nm

**Tightening Torques****11 36 Variable Camshaft Control**

	Type	Thread	Tightening specification	Measure
1AZ VANOS to inlet camshafts	N14	M10x52	Replace screw	
			Jointing torque	20 Nm
			Torque angle	180 °
2AZ Sprocket wheel to exhaust camshafts	N14	M10x30	Replace screw	
			Jointing torque	20 Nm
			Torque angle	90 °
3AZ Non-return valve VANOS to cylinder head	N14	M14 x 1.5	Replace sealing ring	13 Nm
4AZ Solenoid valve holder to crankcase	N14	M6x16		9 Nm

**Tightening Torques****11 23 Vibration Damper**

	Type	Thread	Tightening specification	Measure
1AZ Torsion damper to crankshaft hub	N14	M8x16		28 Nm

**Tightening Torques****11 51 Water Pump and Drive**

	Type	Thread	Tightening specification	Measure
1AZ Water pump to crankcase	N14	M6x30	Replace seal	9 Nm
2AZ Water pump gear to water pump	N14	M6x12		8 Nm

**Tightening Torques****Camshaft Bearing**

Release all screws on bearing caps (1).

Tighten Inlet camshaft bearing cap to cylinder head

6AZ Inlet Camshaft bearing cap to cylinder head

M6 ..... 10 Nm

**11 31 Camshaft**

	Thread	Tightening specification	Measure
1AZ Guide rail, crankcase	M8 x 1.25	Replace sealing ring	24 Nm
2AZ Guide rail to cylinder head	M8	Replace sealing ring	20 Nm
3AZ Line to cylinder head	M6 x 20		8 Nm
4AZ Chain tensioner to cylinder head	M22 x 1.5	Replace sealing ring	65 Nm

**Tightening Torques****Connecting Rods and Bearings****11 24 Connecting Rods and Bearings N14**

Conrod bushing: Inside diameter ..... 20.007 20.020 mm  
 Running clearance between small-end bushing and piston pin ..... 0.014... 0.025 mm  
 Wear limit ..... 0.05 mm

**11 25 Pistons with Rings and Pins N14**

Piston and pin are paired to each other - replace together only.		
Measuring point "A" (position)	mm	10
Piston diameter at measuring point "A"		
Original (new dimension)	mm	76.941 ... 76.959
Piston running clearance	mm	0.041 ... 0.064
Permissible total wear tolerance between piston and cylinder (engine operated)	mm	0.10

**Technical Data****11 24 Connecting Rods and Bearings**

	Type	Thread	Tightening specification	Measure
1AZ Connecting rod bolts	N14	M7x37	Replace, wash and oil screws	
			1. Jointing torque	5 Nm
			2. Jointing torque	15 Nm
			3. Angle of rotation	130 °

**Tightening Torques****Crankshaft and Bearings**

This article has been updated by Technical Service Bulletin (TSB) M 11 02 10 dated April 2010.

The final torque angle (11 21 1AZ) has changed from 100 degrees to 180 degrees.

**11 21 1AZ Torsion damper (hub) to crankshaft (central bolt) (N14)**

M14 x 1.5 x 74

Replace screws. Lightly oil screws and threads.

Jointing torque ..... 50 Nm

Torque angle ..... 180°

**11 23 1AZ Torsion damper to crankshaft hub (N14)**

M8 x 16 ..... 28 Nm

**11 11 Engine block**

	Type	Thread	Tightening specification	Measure
1AZ Main bearing screws, observe tightening specification.	N14	M12x1.5	Replace screws	

**11 23 Vibration Damper**

	Type	Thread	Tightening specification	Measure
1AZ Torsion damper to crankshaft hub	N14	M8x16		28 Nm

	Tightening Torques			
			Jointing torque	9 Nm

3AZ Screw plug, timing case upper section	N14	M22x1.5		35 Nm
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4AZ Screw plug, timing case lower section	N14	M16x1.5	Replace seal	30 Nm
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5AZ Oil baffle to crankcase lower section	N14	M6x100		10 Nm
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6AZ Screw plug, timing case lower section	N14	M16x1.5	Replace seal	30 Nm
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7AZ Screw plug, timing case lower section	N14	M16x1.5	Replace seal	30 Nm
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**11 24 Connecting Rods and Bearings N14**

Conrod bushing: Inside diameter	mm	20.007 ... 20.020
Running clearance between small-end bushing and piston pin	mm	0.014 ... 0.025
Wear limit	mm	0.05

**Connecting Rod Bearing****11 24 Connecting Rods and Bearings N14**

Conrod bushing: Inside diameter

Running clearance between small-end bushing and piston pin

Wear limit

20.007 20.020 mm

0.014... 0.025 mm

0.05 mm

**Technical Data****11 24 Connecting Rods and Bearings**

	Type	Thread	Tightening specification	Measure
1AZ Connecting rod bolts	N14	M7x37	Replace, wash and oil screws	
			1. Jointing torque	5 Nm
			2. Jointing torque	15 Nm
			3. Angle of rotation	130 °

**Tightening Torques****11 23 Vibration Damper**

	Type	Thread	Tightening specification	Measure
1AZ Torsion damper to crankshaft hub	N14	M8x16		28 Nm

**Tightening Torques****Crankshaft Main Bearing**

1AZ Main bearing screws, observe tightening specification.

M9x115

Jointing torque ..... 30 Nm

Torque angle ..... 150°

**Note:** Replace screws**Crankshaft, Engine****Crankshaft and Bearings****11 21 Crankshaft and Bearings N14**

Diameters of main journals	mm	44.981 ... 45.000
Radial play of main bearings	mm	0.013 ... 0.023
Radial play of main bearings (wear limit)	mm	0.070
Axial play of crankshaft	mm	0.015 ... 0.050
Axial play of crankshaft (wear limit)	mm	0.30

**11 21 Crankshaft and Bearings N14**

Diameters of conrod bearing journals	mm	44.975 ... 44.991
Radial play of conrod bearings	mm	0.021 ... 0.063
Radial play of conrod bearings (wear limit)	mm	0.080

**Harmonic Balancer - Crankshaft Pulley**

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The final torque angle (11 21 1AZ) has changed from 100 degrees to 180 degrees.

11 21 1AZ Torsion damper (hub) to crankshaft (central bolt) (N14)

M14 x 1.5 x 74

Replace screws. Lightly oil screws and threads.

Jointing torque ..... 50 Nm

Torque angle ..... 180°

11 23 1AZ Torsion damper to crankshaft hub (N14)

M8 x 16 ..... 28 Nm

**Piston Ring, Engine****11 25 Pistons with Rings and Pins N14**

1st groove		
End clearance	mm	0.25 ... 0.35
Contact clearance (wear limit)	mm	0.91
Axial play	mm	0.030 ... 0.070
2nd groove		
End clearance	mm	0.35 ... 0.50
Contact clearance (wear limit)	mm	1.06
Axial play	mm	0.030 ... 0.070
3rd groove		
End clearance	mm	0.10 ... 0.35
Contact clearance (wear limit)	mm	0.82
Axial play	mm	0.030 ... 0.070

**Piston, Engine****Piston**

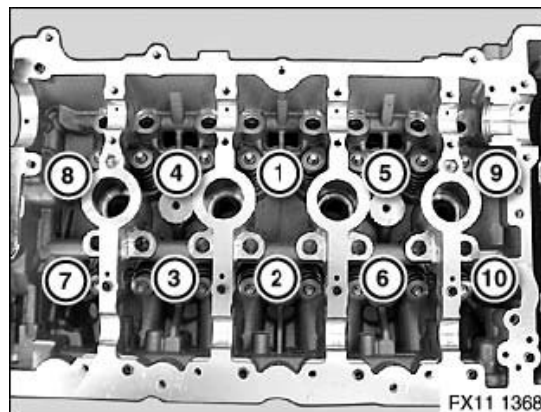
Permissible total wear tolerance between piston and cylinder (engine operated) ..... 0.10 mm

Running clearance between small-end bushing and piston pin ..... 0.014... 0.025 mm

Wear limit ..... 0.05 mm

Piston running clearance ..... 0.041... 0.064 mm

**Cylinder Head Assembly****Cylinder Head with Cover**



Secure cylinder head bolts from inside outwards (1 to 10)

**11 12 Cylinder Head with Cover**

	Type	Thread	Tightening specification	Measure
1AZ Cylinder head bolts	N14	M8x95	Replace screws	
			Jointing torque	15 Nm
			1st angle of rotation	90 °
			2. Angle of rotation	90 °
2AZ Cylinder head bolts	N14	M10x145	Replace screws	
			Jointing torque	30 Nm
			1st angle of rotation	90 °
			2. Angle of rotation	90 °
3AZ Cylinder head bolts	N14	M8x35	Replace screws	30 Nm
4AZ Cylinder head cover to cylinder head	N14	M6x30		10 Nm
5AZ Ground cable to cylinder head cover	N14	M5		10 Nm
6AZ Inlet camshaft bearing cap to cylinder head	N14	M6		10 Nm
7AZ Exhaust camshaft bearing cap to cylinder head	N14	M6		10 Nm
8AZ Lifting lug to cylinder head	N14	M8x20 M8x25		20 Nm
9AZ Acoustic cover to cylinder head cover	N14	M6x40		8.5 Nm

### Tightening Torques

## Intake Manifold

Tighten intake manifold to cylinder head

1AZ Intake manifold to cylinder head

M8x125 ..... 15 Nm

AM7 ..... 20 Nm

**Note:** Hexagon nut

## Oil Pan, Engine

### Oil Sump

Tighten oil sump to crankcase

2AZ Oil sump to crankcase

M6x16 ..... 12 Nm

## Oil Pump, Engine

11 41 Oil Pump (N14)

1AZ Oil pump to bedplate M8 x 28 ..... 25 Nm

2AZ Sprocket to oil pump M8 x 35

Replace screw

Jointing torque ..... 5 Nm

Torque angle ..... 90°

## System Specifications

This article has been updated by Technical Service Bulletin (TSB) M 11 02 10 dated April 2010.

The final torque angle (11 21 1AZ) has changed from 100 degrees to 180 degrees.

Tighten torsion damper (hub) to crankshaft (central bolt)

11 21 1AZ Torsion damper (hub) to crankshaft (central bolt)

M14 x1.5 x74

Jointing torque ..... 50 Nm

Torque angle ..... 180 °

**Note:** Replace screws, Lightly oil screws and threads

## Vibration Dampener

Tighten torsion damper to crankshaft hub.

11 23 1AZ Torsion damper to crankshaft hub

M8x16 ..... 28 N

## Timing Chain Tensioner

11 31 4AZ Chain tensioner to cylinder head (N14)

Replace sealing ring

M22 x 1.5 ..... 65 Nm

### 18 10 Exhaust system, exhaust pipe screen

	Type	Thread	Tightening specification	Measure
1AZ Exhaust pipe screen to rear muffler	N12, N14	M6		5 Nm

## Turbocharger and Control

11 65 Turbocharger and control

1AZ Turbocharger to exhaust manifold

### 18 3 Exhaust system, complete

	Type	Thread	Tightening specification	Measure
1AZ Catalytic exhaust-gas converter to turbocharger	N14	M8	Initial tightening	7 Nm
2AZ Stud to turbocharger				
3AZ Bracket to turbocharger			Final tightening	40 ± 6 Nm
4AZ Oil feed to turbocharger	N14	M8		10 Nm
5AZ Catalytic converter to bracket	N14	M8	Replace nuts	20 ± 5 Nm
6AZ Bracket, catalytic converter, to crankcase	N14	M8		20 ± 5 Nm
7AZ V-band clamp, exhaust system, to catalytic converter	N12, N14			25 ± 3 Nm
8AZ Clamp	N12, N14			45 Nm

## Exhaust Manifold

11 65 Turbocharger and control

	Type	Thread	Tightening specification	Measure
1AZ Exhaust manifold to cylinder head	N12, N14	M8	Replace nuts, coat threads with copper paste	25 Nm
2AZ Stud to cylinder head	N12, N14	M8 x 46		15 Nm
3AZ Bracket to turbocharger		10.9		25 ± 6 Nm

4AZ Oil feed to turbocharger

Banjo bolt M12 x 1.5 ..... 30 Nm

5AZ Oil return to turbocharger

M14 M6 x 100 ..... 8 Nm

6AZ Bracket to crankcase

N14 M8 x 125 ..... 19 Nm

7AZ Front heat shield to rear heat shield

M6 x 100 ..... 4 Nm

8AZ Coolant inlet and outlet lines to turbocharger

M14 x 1.5 banjo bolt ..... 35 Nm

**18 10 Exhaust system, exhaust pipe screen**

	Type	Thread	Tightening specification	Measure
1AZ Exhaust pipe screen to rear muffler	N12, N14	M6		5 Nm

**Flywheel**

Tighten DM flywheel to crankshaft (manual transmission)

2AZ DM flywheel to crankshaft (manual transmission)

M9x1.25

**18 31 Exhaust system, complete**

1. Joining torque

2. Joining torque

3. Final tightening

Note: Replace converter to turbocharger

	Type	Thread	Tightening specification	Measure
1AZ Catalytic exhaust-gas	N14	M8	Initial tightening	7 Nm
2AZ Stud to turbocharger			Final tightening	40 ± 6 Nm
2AZ Stud to turbocharger	N14	M8		10 Nm
3AZ Catalytic converter to bracket	N14	M8	Replace nuts	20 ± 5 Nm
4AZ Bracket, catalytic converter, to crankcase	N14	M8		20 ± 5 Nm
5AZ V-band clamp, exhaust system, to catalytic converter	N12, N14			25 ± 3 Nm
6AZ Clamp	N12, N14			45 Nm

**Idle Speed**

Idle Speed

**Spark Plug Gap**

The spark plug gap is non-adjustable

**Torque Specifications**

12 12 Spark plugs

2AZ Spark plugs (unlubricated)

M12 x 1.25

**18 40 Exhaust system, complete****Turbocharger**

11 65 Turbocharger and control

1AZ Exhaust manifold to cylinder head

1AZ Turbocharger to exhaust manifold

M8 10

2AZ Stud to cylinder head

2AZ Stud to turbocharger

M8 x 1.25

3AZ Bracket to turbocharger

M8

4AZ Oil feed to turbocharger

Banjo bolt M12 x 1.5

5AZ Oil return to turbocharger

M14 M6 x 100

6AZ Bracket to crankcase

N14 M8 x 125

7AZ Front heat shield to rear heat shield

M6 x 100

8AZ Coolant inlet and outlet lines to turbocharger

M14 x 1.5 banjo bolt

**Engine Oil Pressure**

Engine Oil Pressure (N14)

Engine at normal operating temperature

At idle

Control pressure at 3000 rpm

**Fuel Pressure****13 31 Fuel Pump With Drive And Pipe**

With ignition "ON" and fuel pump running

**Fuel Pump****13 31 Fuel Pump With Drive And Pipe**

With ignition "ON" and fuel pump running

**Thermostat, Engine Cooling**

Thermostat Opening Temp. and Radiator Cap Max. Pressure, Cooper and Cooper S

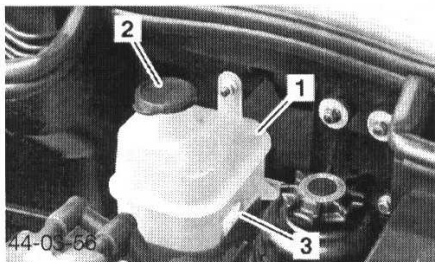
## Thermostat

The thermostat is located in the cylinder head and is retained by a plastic housing (aluminum on COOPER S).

The thermostat begins to open at 89-92°C and is fully open at 103°C.

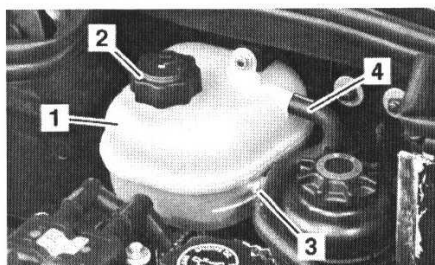
The MINI COOPER thermostat housing also incorporates the cooling system pressure cap (MINI COOPER S system pressure cap is installed on the expansion tank).

## Radiator Cap Max. Pressure



Expansion Tank MINI COOPER

- 1. Expansion Tank
- 2. Cap
- 3. Maximum Coolant Level



Expansion Tank MINI COOPER S 44-03-57

- 1. Expansion Tank
- 2. Pressure Cap
- 3. Maximum Coolant Level
- 4. Inlet Pipe to Expansion Tank

Both models use a pressure cap to pressurize the cooling system to 1.1 bar (16 psi) at which point the cap valve will lift to relieve pressure.

## System Specifications

6-Speed Automatic Transmission GA6F21WA

Capacity ..... 4.5 liters

## Fluid - A/T

6-Speed Automatic Transmission GA6F21WA

Capacity ..... 4.5 liters

## Coolant

Cooling system capacity

Cooper / Clubman / Cooper S / Clubman S ..... 5.2 liters

## Engine Oil

Engine oil capacity with filter change

Engine Oil Capacity ..... 4.2 liters (4.4 qts)

## System Specifications

### From 9/2006 Production

Fluid Type ..... **MTF LT-4 Lifetime Fluid**  
 Part No. .... **83 22 0 421 095**

R55 / R56 Cooper Getrag GS6-55BG (G522)

Fill Quantity:..... **1.7L**



Mini Cooper S (R56) L4-1.6L Turbo (N14)	298
R55 / R56 Cooper S Getrag GS6-53BG (G253)	
Fill Quantity:.....	1.9L

## Fluid - M/T

R55 / R56 Cooper Getrag GS6-55BG (G522)	
Fill Quantity:.....	1.7L
R55 / R56 Cooper S Getrag GS6-53BG (G253)	
Fill Quantity:.....	1.9L

## System Specifications

ECVT Transmission Fluid: .....	Esso EZL 799
6-Speed automatic transmission .....	Mini ATF JWS 3309
GA6F21WA Cooper S only	

The 6-speed automatic transmission has a life-time oil filling. No changing of the fluid is required

## Fluid - A/T

ECVT Transmission Fluid: .....	Esso EZL 799
6-Speed automatic transmission .....	Mini ATF JWS 3309
GA6F21WA Cooper S only	

The 6-speed automatic transmission has a life-time oil filling. No changing of the fluid is required

## Brake Fluid

Brake Fluid	
BMW Approved Fluid	
Type .....	DOT 4 ESL
BMW Part No. ....	81 22 0 142 156

## Clutch Fluid

All models SMG Hydraulic unit .....	Pentosin CHF 11S fluid
ALL OTHERS: .....	DOT 4 Brake Fluid

## Coolant

Type .....	MINI Long-Term Antifreeze/coolant
Part number .....	82 14 0 031 133

MODEL	
R56 (Cooper/Cooper S Hardtop/JCW), 2007 MY and newer, since start of production	
R55 (Cooper/Cooper S Clubman/JCW), 2008 MY and newer, since start of production	
R57 (Cooper/Cooper S Convertible/JCW), 2009 MY, since start of production	

The color of MINI Long-Term Antifreeze/Coolant is blue; however, the colors of other locally available long and short-term coolants vary. These colors include green, orange, pink, red or yellow. Mixing MINI Long-Term Antifreeze/Coolant with these different color and types of antifreeze/coolants can result in a discolored solution in the cooling system.

MINI Long-Term Antifreeze/coolant (82 14 0 031 133) is a Hybrid OAT (HOAT) solution, since it also has added silicates to provide quick-acting protection for aluminum surfaces.

MINI Long-Term Antifreeze/Coolant can be used for all model years; however, its use does not eliminate or supercede a stated change interval. Always maintain the antifreeze/coolant in accordance with the cooling system maintenance requirements outlined in the corresponding vehicle's Service and Warranty Information Booklet.

## Engine Oil

Engine Oil type	
Mini Synthetic Oil SAE .....	5w-30

## System Specifications

**From 9/2006 Production**

Fluid Type ..... **MTF LT-4 Lifetime Fluid**  
 Part No. .... **83 22 0 421 095**

R55 / R56 Cooper Getrag GS6-55BG (G522)

Fill Quantity:..... **1.7L**

R55 / R56 Cooper S Getrag GS6-53BG (G253)

Fill Quantity:..... **1.9L**

**Fluid - M/T**

From 9/2006 Production

Fluid Type ..... **MTF LT-4 Lifetime Fluid**  
 Part No. .... **83 22 0 421 095**

**Refrigerant**

Refrigerant Type ..... **R134a**

**Refrigerant Oil**

Refrigerant oil type ..... **Polyalkylene Glycol (PAG)**

**NOTE:**

Oil Used in R-134a-Charged Systems

A synthetic oil is used, which is totally different than the mineral based oils used in Freon-R12 Systems.

R-134a Systems require Polyalkylene Glycol lubricants, often referred to as "PAG" oil. Use of R-12 compressor oil in R134a Systems will cause the compressor to seize and fail. The R-12 mineral oil does not stay in solution in R-134a. In addition, R-134a compressor should not be used in an R-12 System. Long term damage and corrosion will result.

The GREEN R-134a system labels, usually located near the top side of the fan shroud in the engine compartment, will display the refrigerant requirement for R-134a Systems.

R-12 Systems will have a BLACK label in a similar location.

**Wheel Bearing****Wheel Bearings**

Bearing unit is lubricated for its service life, cannot be disassembled and does not require subsequent lubrication.

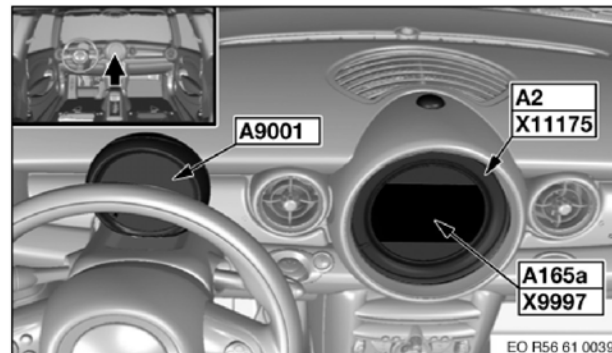
## Vehicle: Locations

### A2a Instrument Cluster Control Module

#### A2a Instrument Cluster Control Module

A9001, S18a, X516, A2, X11175, A165a, X9997

A9001, S18a, X516, A2, X11175, A165a, X9997

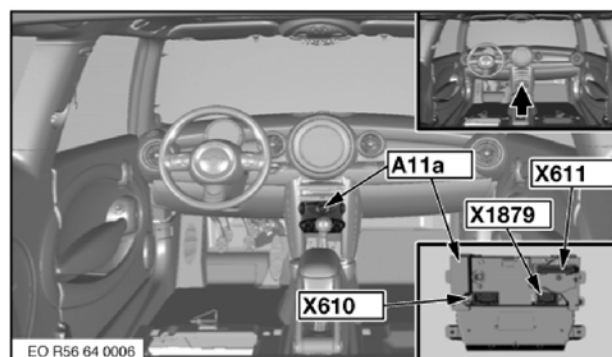


### A11a Heating/Air Conditioning System

#### A11a Heating/Air Conditioning System

A11a, X611, X1879, X610

A11a, X611, X1879, X610

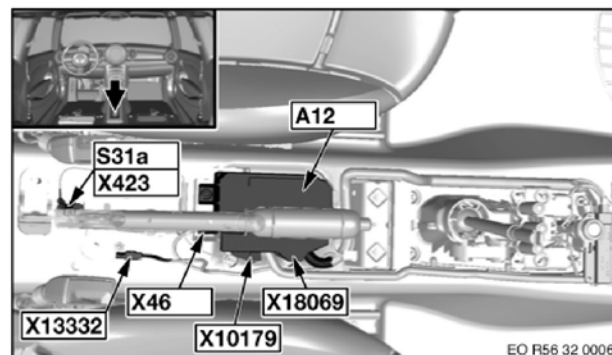


### A12 Multiple Restraint System Control Unit

#### A12 Multiple Restraint System Control Module

A12, S31a, X423, X13322, X46, X10179, X18069

A12, S31a, X423, X13322, X46, X10179, X18069

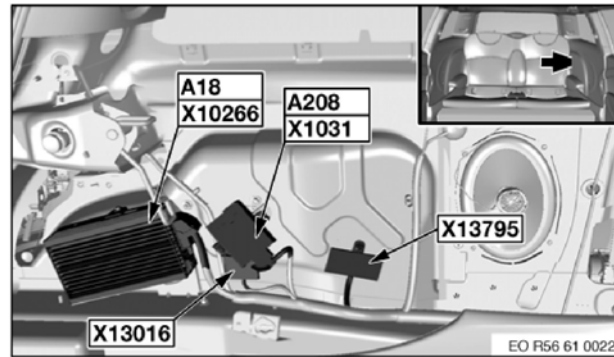


### A18 Amplifier (AMP Hi-Fi Amplifier)

#### A18 Amplifier (AMP Hi-Fi Amplifier)

A208, X10313, X13795, X13016, A18, X10266

A208, X10313, X13795, X13016, A18, X10266

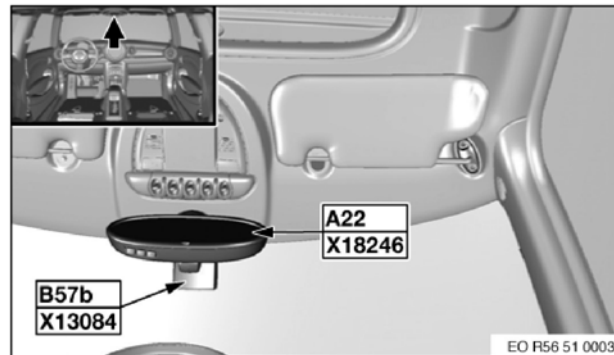


## A22 Electrochromic Interior Rear-View Mirror

A22 Electrochromic Interior Rear-View Mirror

A22, X18246, B57B, X13084, X382

A22, X18246, B57b, X13084, X382

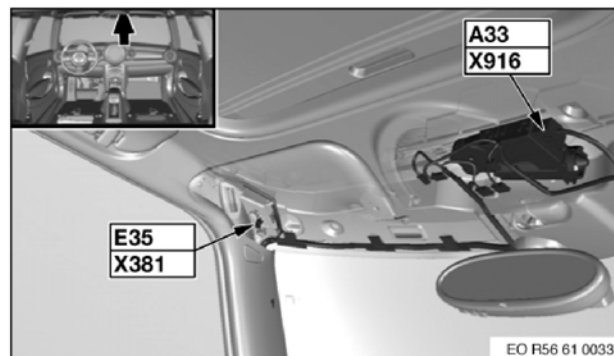


## A33 Sunroof (SHD Sliding/Tilting Sunroof)

A33 Sunroof (SHD Sliding/Tilting Sunroof)

A33, X916, E35, X381

A33, X916, E35, X381

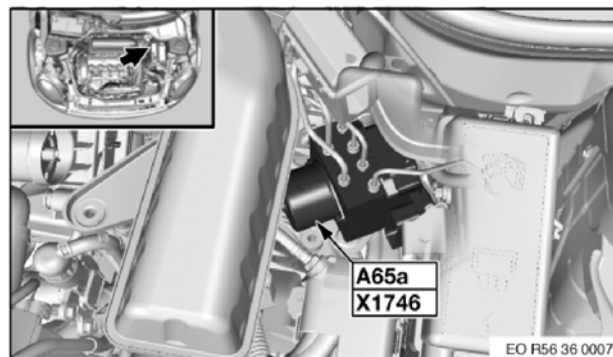


## A65a Dynamic Stability Control (DSC)

A65a Dynamic Stability Control (DSC)

A65a, X1746

A65a, X1746

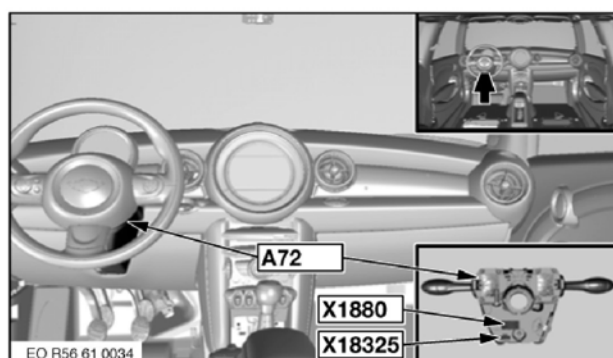


## A72 Steering Column Switch Center

A72 Steering Column Switch Center

A72, X1880, X18325

A72, X1880, X18325

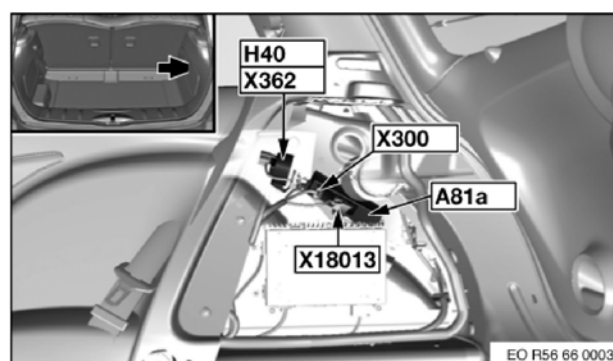


## A81a Park Distance Control (PDC) (PDC Park Distance Control)

A81a Park Distance Control (PDC) (PDC Park Distance Control)

H40, X362, X300, A81a, X18013 (MINI\_MINI-R55/R56/R57)

H40, X362, X300, A81a, X18013

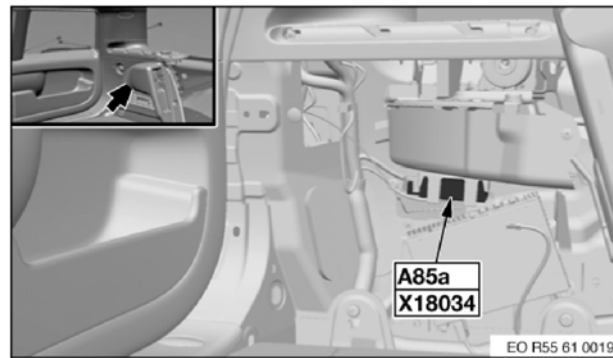


## A85a Tire Pressure Control (RDC)

A85a Tire Pressure Control(RDC)

A85a, X18034(Coupe or Clubman)

A85a, X18034

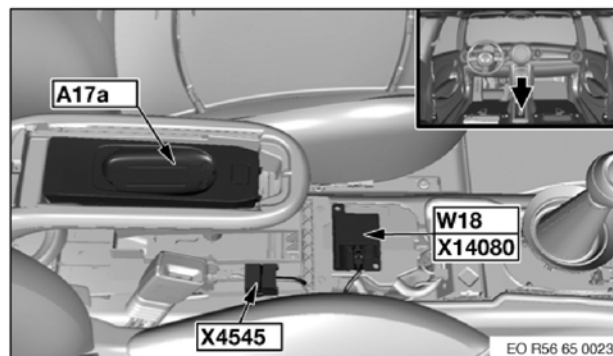


## A117a Eject Box (ULF-SBX Interface Box)

A117a Eject Box (ULF-SBX Interface Box)

A117a, X4545, W18, X14080

A117a, X4545, W18, X14080



## A121b Interior Movement Detector

A121b Interior Movement Detector

A121a, X1582

A121a, X1582

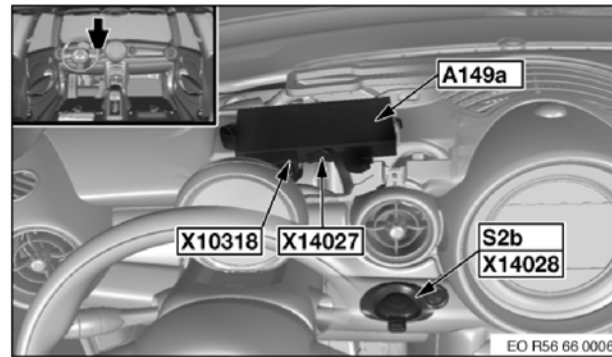


## A149a Car Access System

A149a Car Access System

X14027, A149A, X10318, S2B, X14028

X14027, A149a, X10318, S2B, X14028

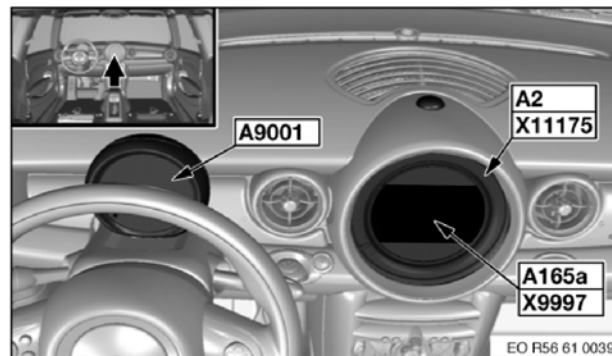


## A165a Central Information Display

### A165a Central Information Display

A9001, S18a, X516, A2, X11175, A165a, X9997

A9001, S18a, X516, A2, X11175, A165a, X9997

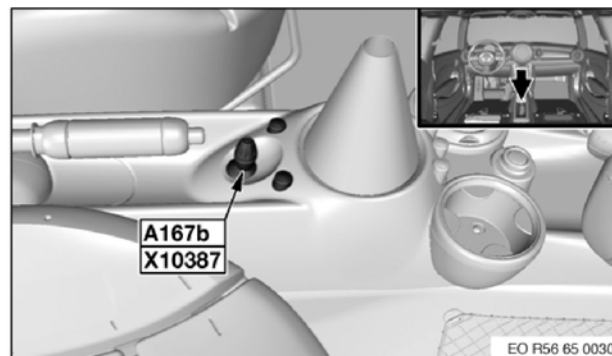


## A167b MINI Joystick

### A167b MINI Joystick

A167b, X10387

A167b, X10387

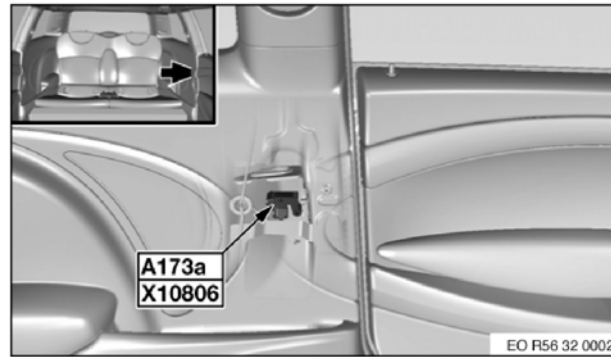


## A173a Airbag Sensor, B-Pillar, Drive's Side

### A173a Airbag Sensor, B-Pillar, Drive's Side

A173a, X10806 (Left-hand drive)

A173a, X10806

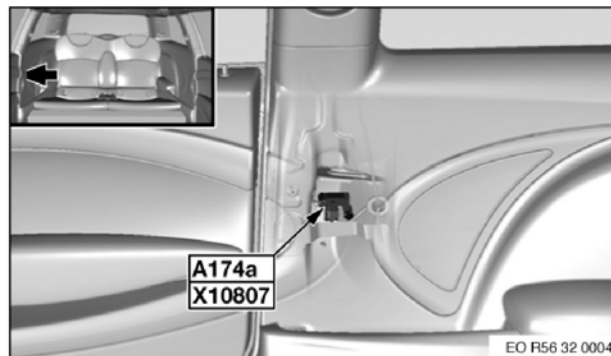


## A174a Airbag Sensor, B-Pillar, Passenger's Side

A174a Airbag Sensor, B-Pillar, Passenger's Side

A174a, X10807 (Left-Hand Drive)

A174a, X10807

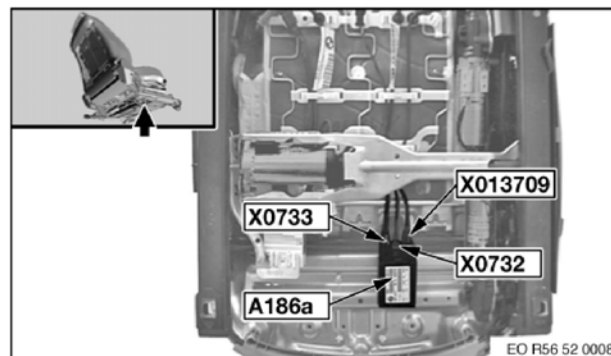


## A186a Passenger's Seat Heating Module

A186a Passenger's Seat Heating Module

A186a, X0733, X0732, X013709

A186a, X0733, X0732, X013709



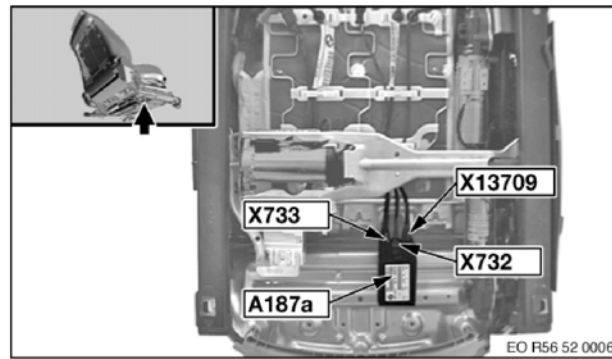
## A187a Driver's Seat Heating Module

A187a Driver's Seat Heating Module

A187a, X733, X13709, X732



A187a, X733, X13709, X732

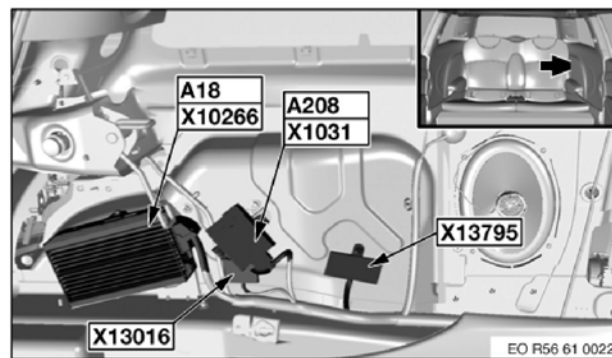


## A208 Outside Mirror Fold-In

### A208 Outside Mirror Fold-In

A208, X10313, X13795, X13016, A18, X10266

A208, X10313, X13795, X13016, A18, X10266

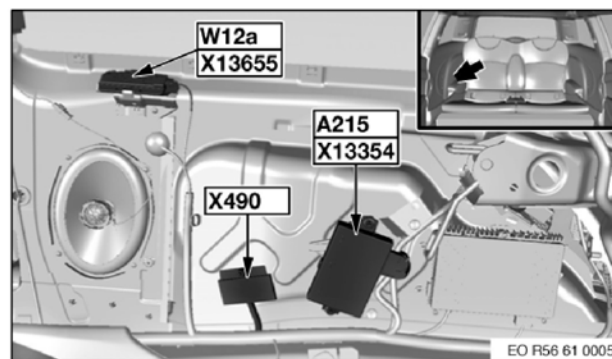


## A215 Comfort Access Control Module (CA Comfort Access)

### A215 Comfort Access Control Module (CA Comfort Access)

W12a, X13655, X490, A215, X13354 (MINI\_MINI-R55/R56/R57)

W12a, X13655, X490, A215, X13354

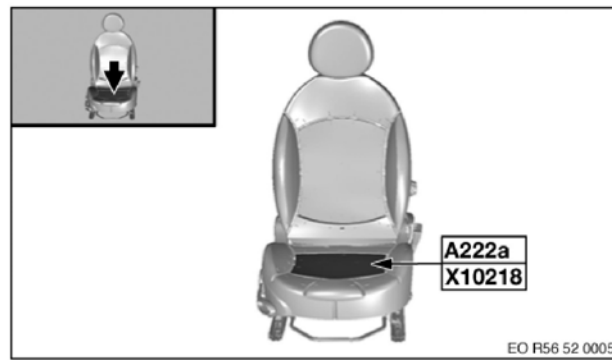


## A222a Passenger's Seat Occupancy Detection

### A222a Passenger's Seat Occupancy Detection

A222a, X10218

A222a, X10218

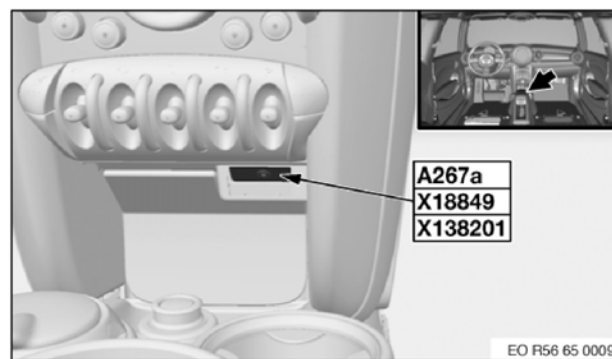


## A267a AUX-In Connection

### A267a AUX-In Connection

A267a, X18849, X138201

A267a, X18849, X138201

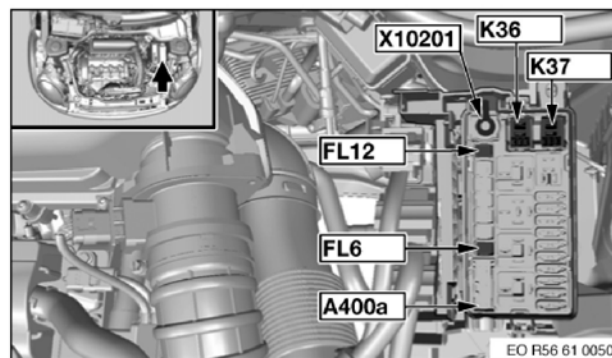


## A400a Front Power Distribution Box

### A400a Front Power Distribution Box

X10201, K36, K37, FL12, FL6, A400A (MINI\_MINI-R55/R56/R57)

X10201, K36, K37, FL12, FL6, A400a

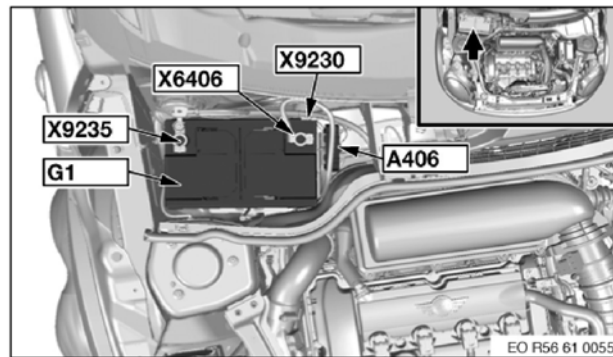


## A406 Fuse Box

### A406 Fuse Box

X9230, X6406, A406, X9235, G1

X9230, X6406, A406, X9235, G1

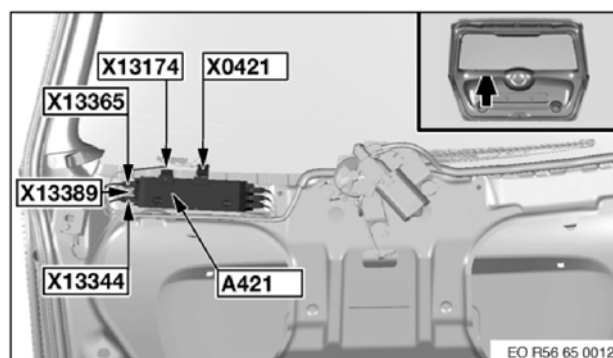


## A421 Antenna Diversity

### A421 Antenna Diversity

X13174, X13365, X13389, X13344, X0421, A421(MINI\_MINI-R55/R56/R57)

X13174, X13365, X13389, X13344, X0421, A421

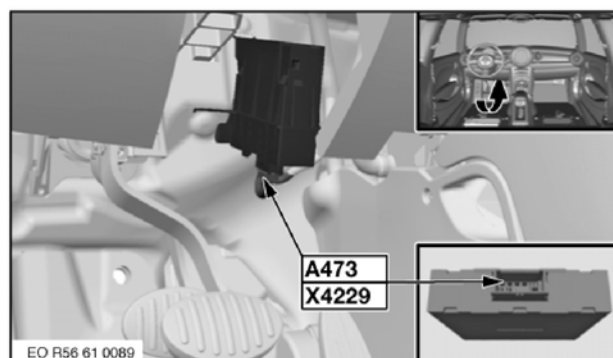


## A473 DC/DC Converter

### A473 DC/DC Converter

A473, X4229

A473, X4229

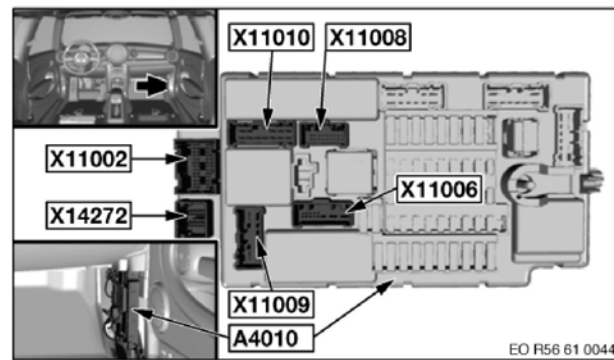


## A4010 Junction Box

### A4010 Junction Box

A4010, X11010, X11008, X11002, X14272, X11009, X11006

A4010, X11010, X11008, X11002, X14272, X11009, X11006

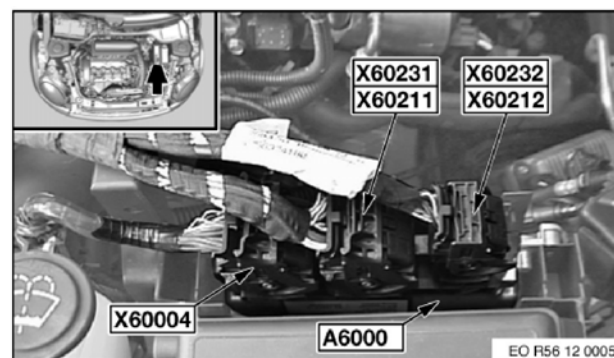


## A6000 Engine Control Module (DME) (N12 Engine or N14 Engine)

A6000 Engine Control Module (DEM) (N12 Engine or N14 Engine)

X60231, X60211, X60232, X60212, X60004, A6000

X60231, X60211, X60232, X60212, X60004, A6000

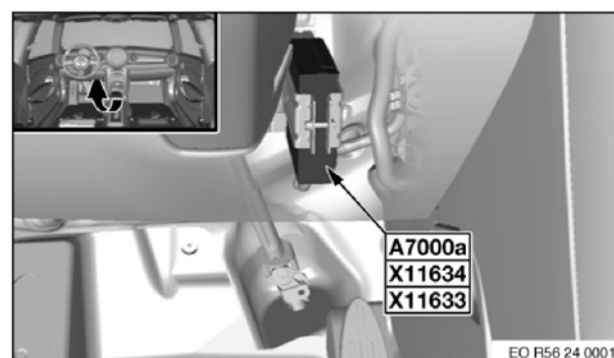


## A7000a Transmission Control (EGS Electronic Transmission Control)

A7000a Transmission Control (EGS Electronic Transmission Control)

A7000a, X11634, X11633

A7000a, X11634, X11633

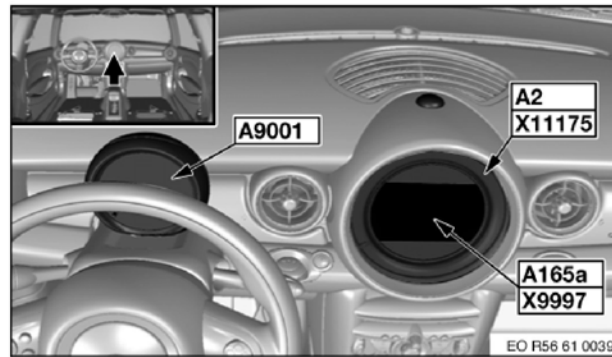


## A9001 Additional Instrument

A9001 Additional Instrument

A9001, S18a, X516, A2, X11175, A165a, X9997

A9001, S18a, X516, A2, X11175, A165a, X9997

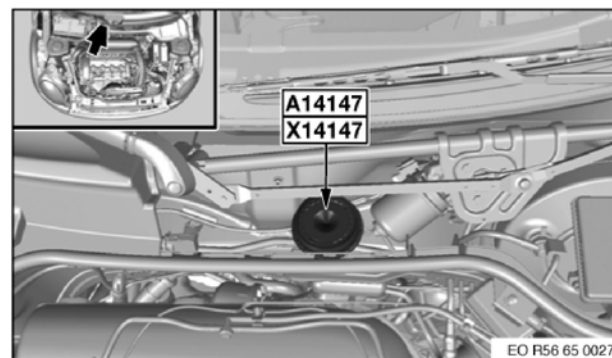


## A14147a Siren With Tilt Alarm Sensor

A14147a Siren With Tilt Alarm Sensor

A14147, X14147

A14147, X14147

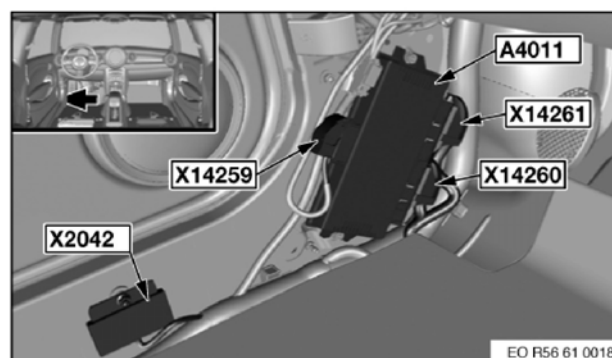


## A4011 Footwell Module

A4011 Footwell Module

X14259, X2042, A4011, X14260, X14261

X14259, X2042, A4011, X14260, X14261

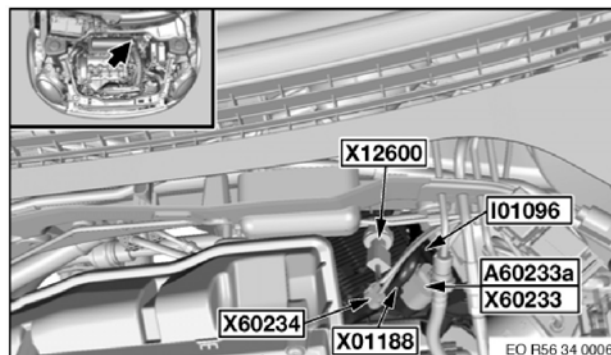


## A60233a Electromechanical Power Steering

A60233a Electromechanical Power Steering

X12600, I01096, A60233a, X60233, X01188, X60234

X12600, I01096, A60233a, X60233, X01188, X60234

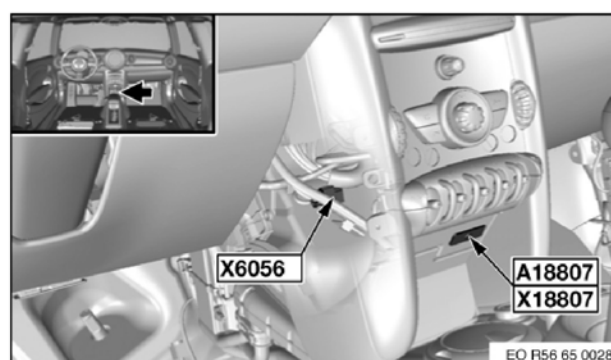


## A18807 AV Socket

A18807 AV Socket

X6056, A18807, X18807

X6056, A18807, X18807

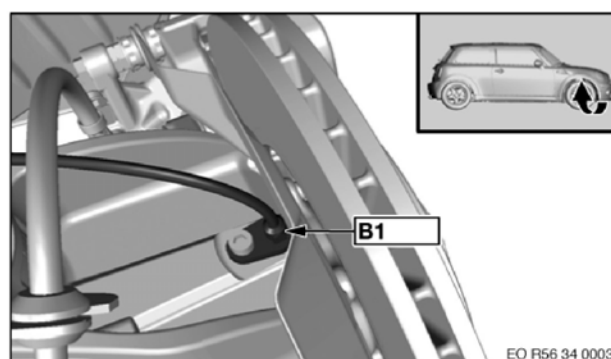


## B1 Front Right Wheel Speed Sensor

B1 Front Right Wheel Speed Sensor

B1

B1

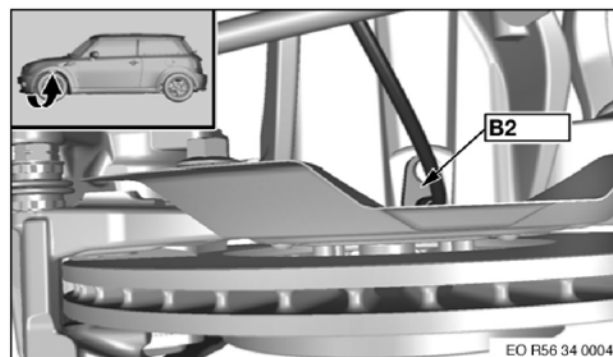


## B2 Front Left Wheel Speed Sensor

B2 Front Left Wheel Speed Sensor

B2

B2

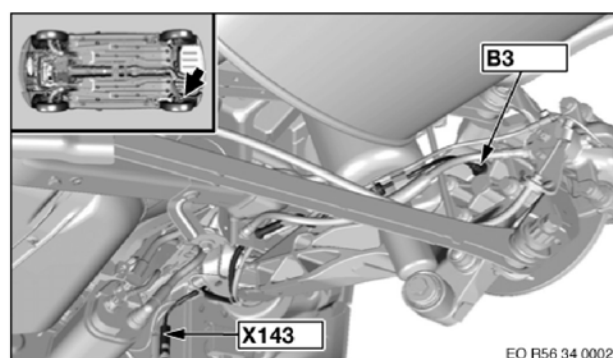


## B3 Rear Right Wheel Speed Sensor

B3 Rear Right Wheel Speed Sensor

X143, B3

X143, B3

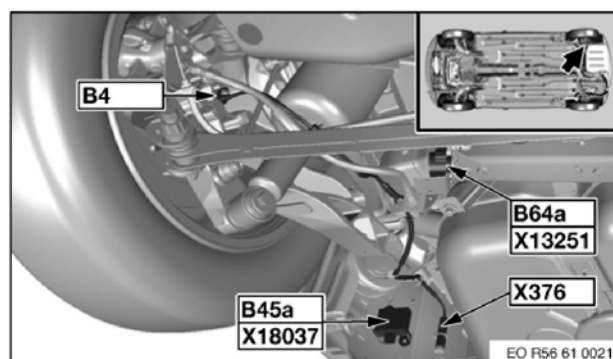


## B4 Rear Left Wheel Speed Sensor

B4 Rear Left Wheel Speed Sensor

B4, B45a, X18037, X376, B64a, X13251

B4, B45a, X18037, X376, B64a, X13251

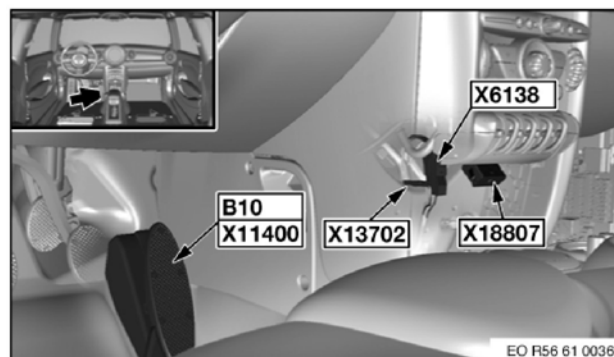


## B10 Accelerator Pedal Module

B10 Accelerator Pedal Module

B10, X11400, X6138, X18807, X13702

B10, X11400, X6138, X18807, X13702

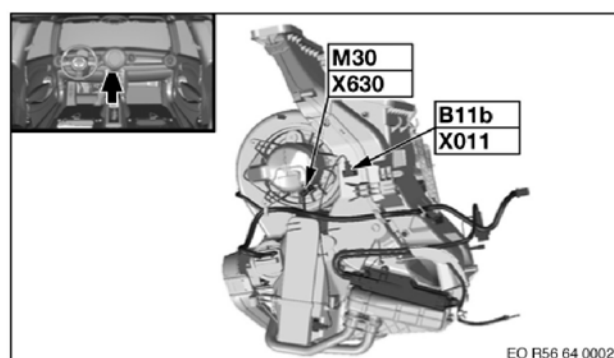


## B11b Heating Heat Exchanger Temperature Sensor

B11b Heating Heat Exchanger Temperature Sensor

B11a, X011, M30, X630

B11a, X011, M30, X630

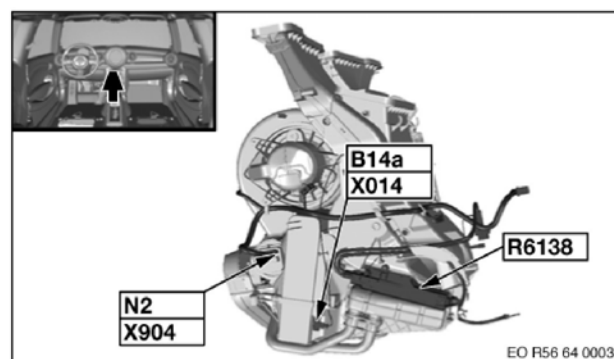


## B14a Evaporator Temperature Sensor

B14a Evaporator Temperature Sensor

N2, B14a, X014, R6138

N2, B14a, X014, R6138



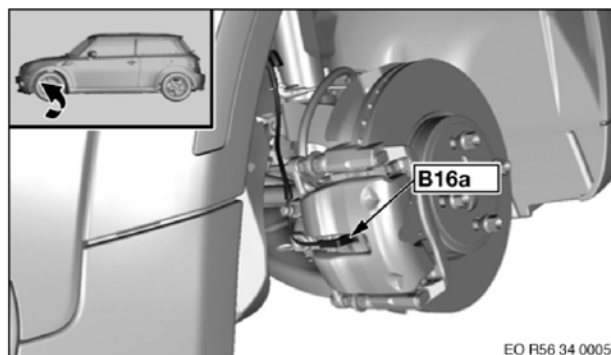
## B16a Brake Pad Wear Sensor, Front Left

B16a Brake Pad Wear Sensor, Front Left

B16a



B16a

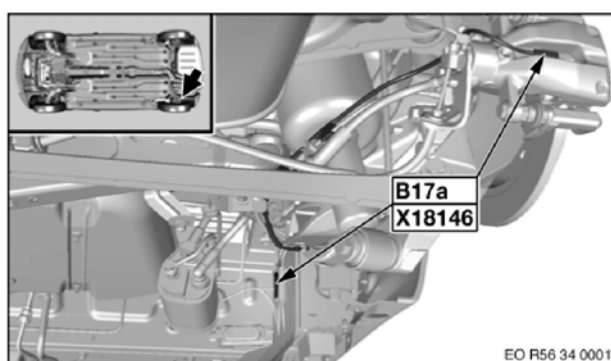


## B17a Brake Pad Wear Sensor, Rear Right

B17a Brake Pad Wear Sensor, Rear Right

B17a, X18146

B17a, X18146

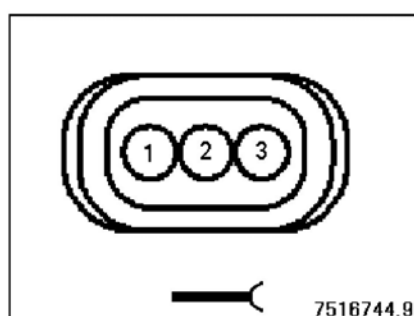


## B18a Brake Fluid Level Switch

B18a Brake Fluid Level Switch

B18a, X111, B414, X3211, M3a, X333

X10713

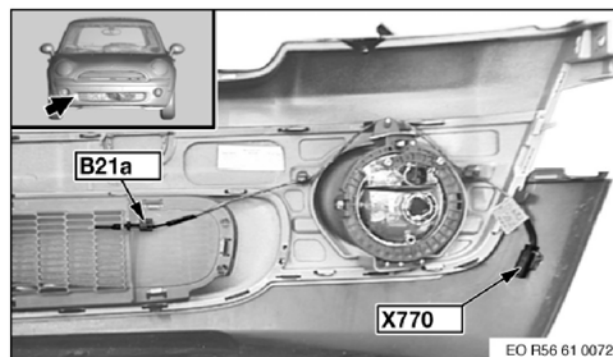


## B21a Outside Temperature Sensor

B21a Outside Temperature Sensor

B21a, X770

B21a, X770

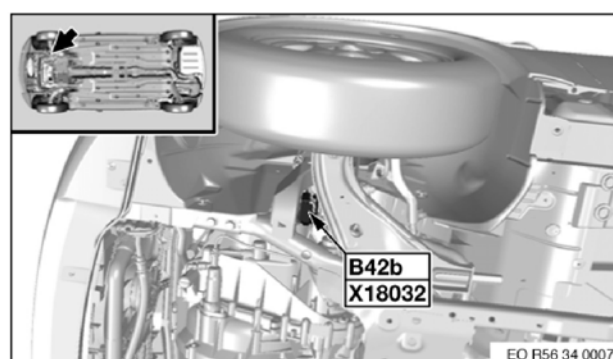


## B42b Ride Height Sensor, Front

B42b Ride Height Sensor, Front

B42b, X18032

B42b, X18032

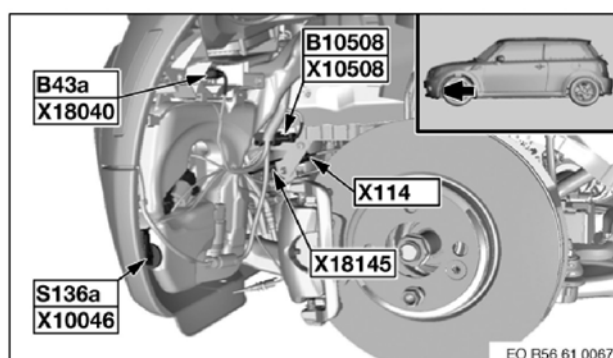


## B43a RDS Transmitter, Front Left

B43a RDS Transmitter, Front Left

B43a, X18040, S136a, X10046, X18145, X114, B10508, X10508

B43a, X18040, S136a, X10046, X18145, X114, B10508, X10508

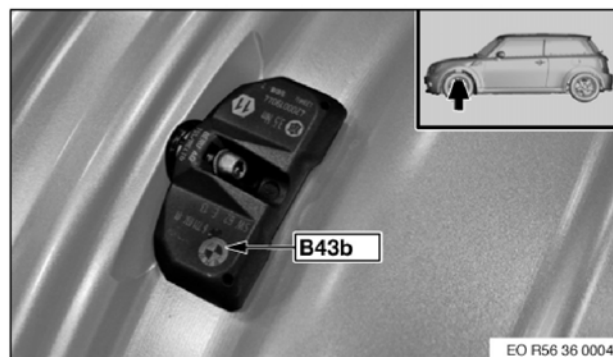


## B43b Electronic Wheel Module, Front Left

B43b Electronic Wheel Module, Front Left

B43b

B43b

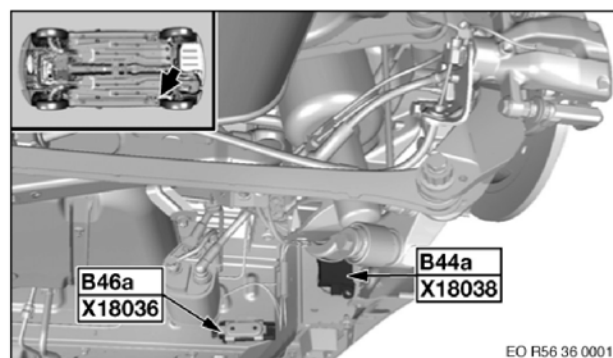


## B44a RDC Transmitter, Rear Right

B44a RDC Transmitter, Rear Right

B44a, X18038, B46a, X18036

B44a, X18038, B46a, X18036

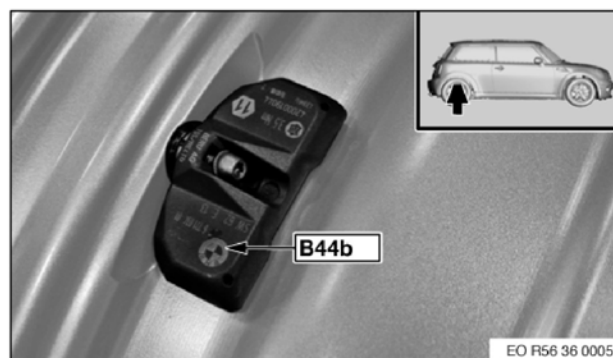


## B44b Electronic Wheel Module, Rear Right

B44b Electronic Wheel Module, Rear Right

B44b

B44b

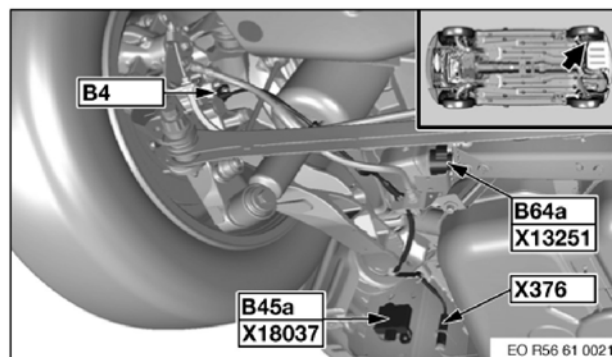


## B45a RDC Transmitter, Rear Left

B45a RDC Transmitter, Rear Left

B4, B45a, X18037, X376, B64a, X13251

B4, B45a, X18037, X376, B64a, X13251

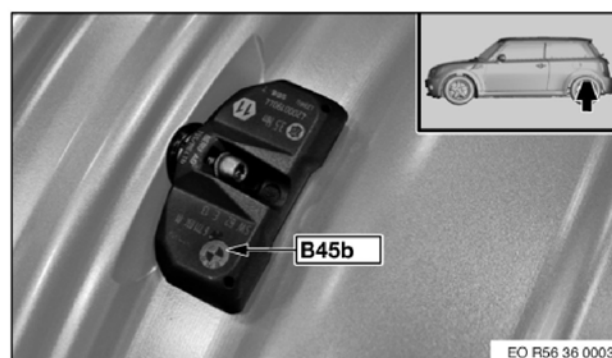


## B45b Electronic Wheel Module, Rear Left

B45b Electronic Wheel Module, Rear Left

B45b

B45b

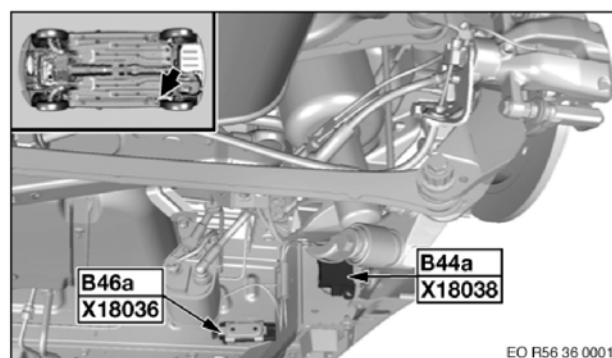


## B46a RDC Antenna

B46a RDC Antenna

B44a, X18038, B46a, X18036

B44a, X18038, B46a, X18036

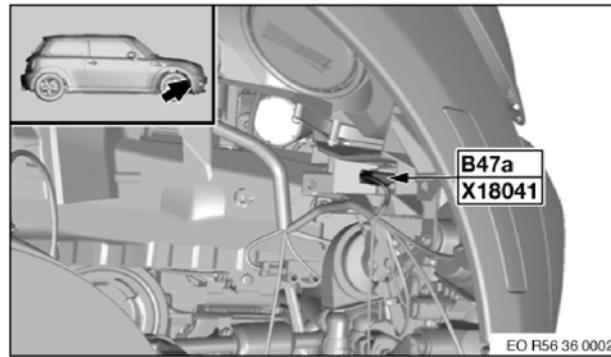


## B47a RDC Transmitter, Front Right

B47a RDC Transmitter, Front Right

B47a, X18041

B47a, X18041

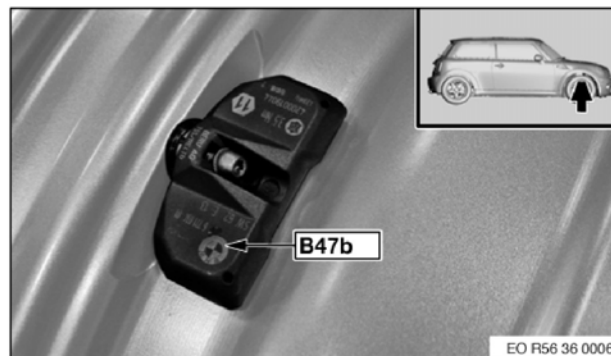


## B47b Electronic Wheel Module, Front Right

B47b Electronic Wheel Module, Front Right

B47b

B47b

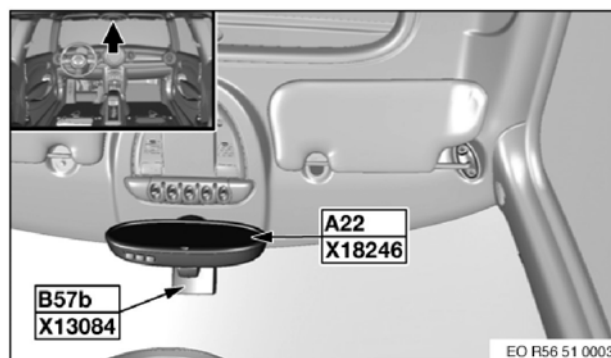


## B57b Rain/Headlight Sensor

B57b Rain/Headlight Sensor

A22, X18246, B57b, X13084, X382

A22, X18246, B57b, X13084, X382

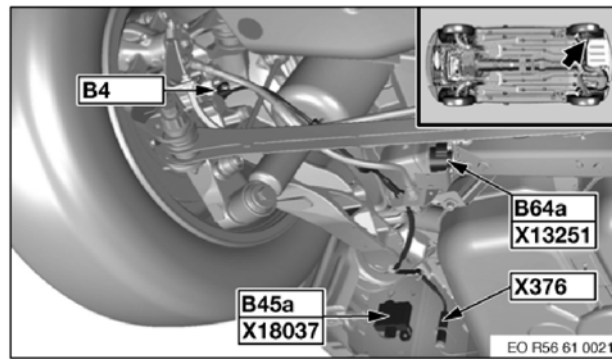


## B64a Ride Height Sensor, Rear

B64a Ride Height Sensor, Rear

B4, B45a, X18037, X376, B64a, X13251

B4, B45a, X18037, X376, B64a, X13251

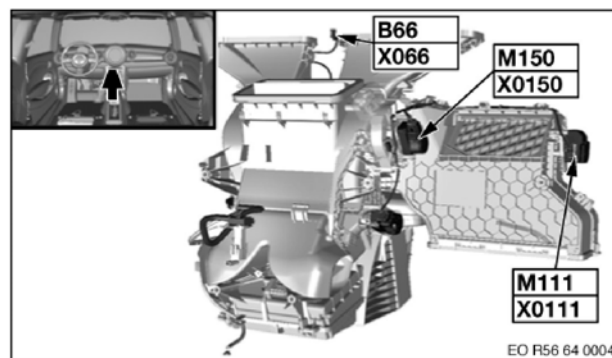


## B66 Solar Sensor (IHKA integrated Automatic Heating/Air Conditioning)

B66 Solar Sensor (IHKA integrated Automatic Heating/Air Conditioning)

B66, X066, M150, X0150, M111, X0111

B66, X066, M150, X0150, M111, X0111

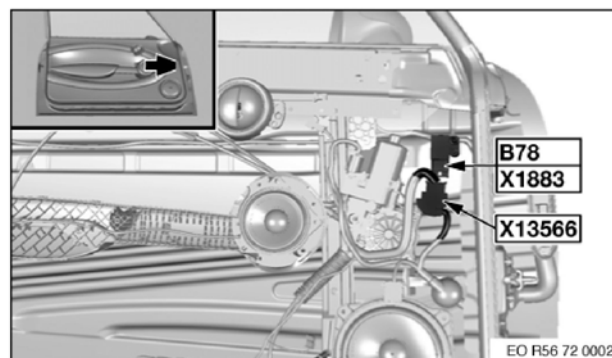


## B78a Airbag Sensor, Front Driver's Side Door

B78a Airbag Sensor, Front Driver's Side Door

B78, X1883, X13566

B78, X1883, X13566

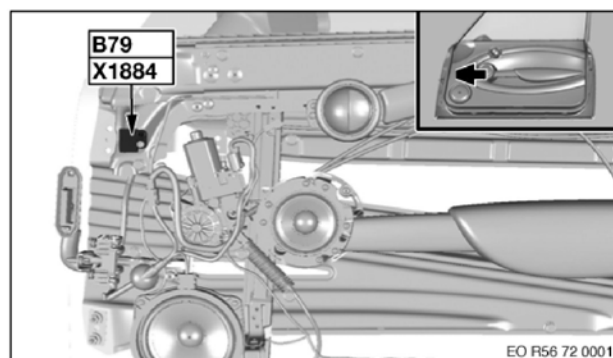


## B79a Airbag Sensor, Front Passenger's Side Door

B79a Airbag Sensor, Front Passenger's Side Door

B79, X1884

B79, X1884



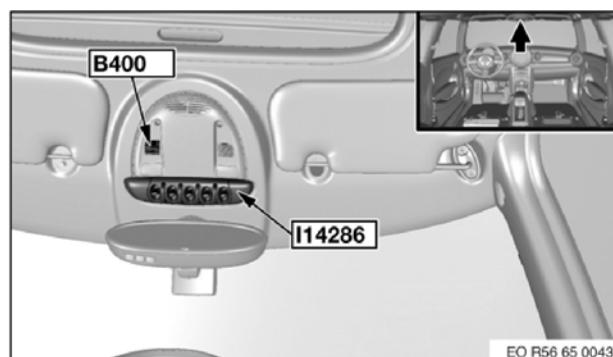
## B400 Microphone

B400 Microphone

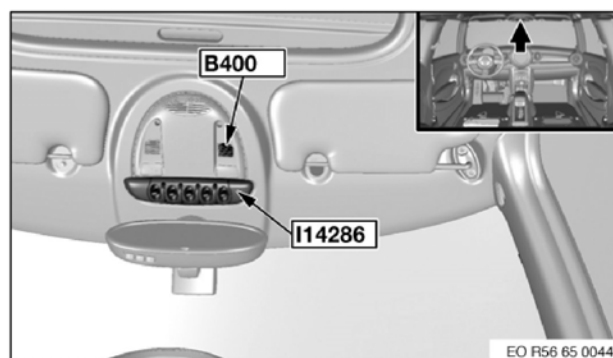
EO\_R56\_65\_0043 (MINI\_MINI-R55/R56/R57 Without Convertible With Left-hand Drive)

B400, I14286

B400, I14286



B400, I14286

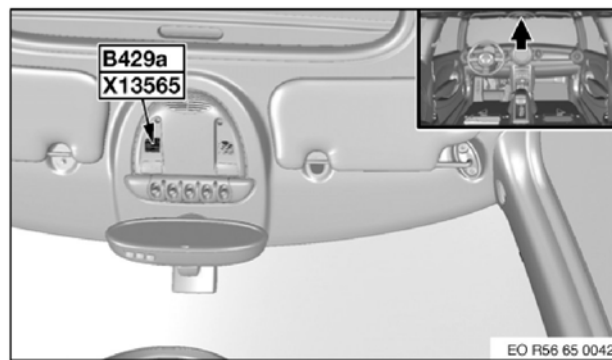


## B429a Voice Control Microphone

B429a Voice Control Microphone

B429a; X13565

B429a; X13565

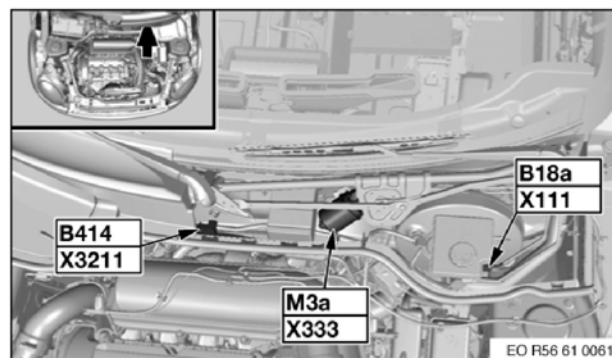


## B414 Automatic Air Recirculation Sensor (IHKA Integrated Automatic Heating/Air Conditioning)

B414 Automatic Air Recirculation Sensor (IHKA Integrated Automatic Heating/Air Conditioning)

B18a, X111, B414, X3211, M3a, X333

B18a, X111, B414, X3211, M3a, X333

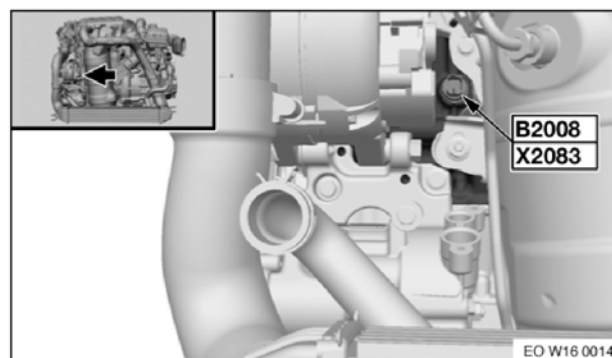


## B2008 Oil Pressure Switch

B2008 Oil Pressure Switch

B2008, X2083 (Engine)

B2008, X2083



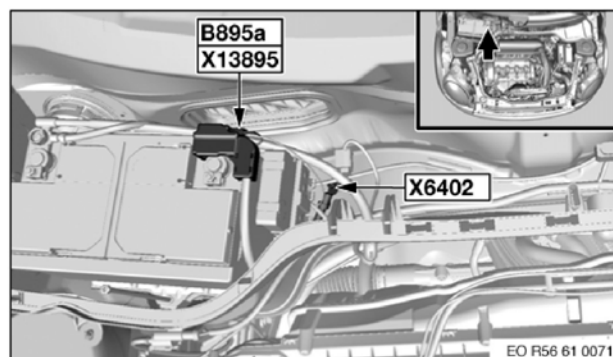
## B895a Intelligent Battery Sensor

B895a Intelligent Battery Sensor

B895a, X13895, X6402



B895a, X13895, X6402

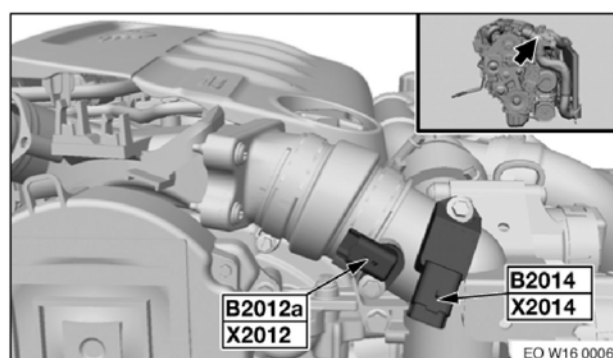


## B2012a Charge Air Temperature Sensor

B2012a Charge Air Temperature Sensor

B2012a, X2012, B2014, X2014 (Engine)

B2012a, X2012, B2014, X2014

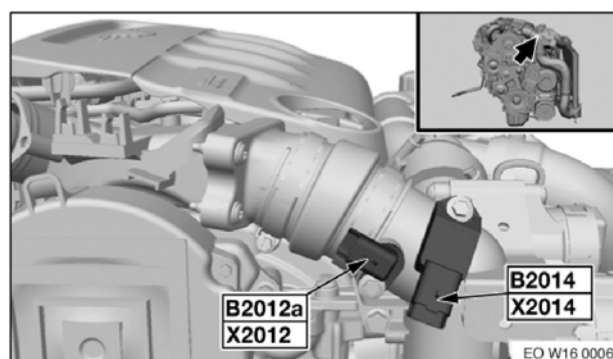


## B2014 Boost Pressure Sensor

B2014 Boost Pressure Sensor

B2012a, X2012, B2014, X2014 (Engine)

B2012a, X2012, B2014, X2014

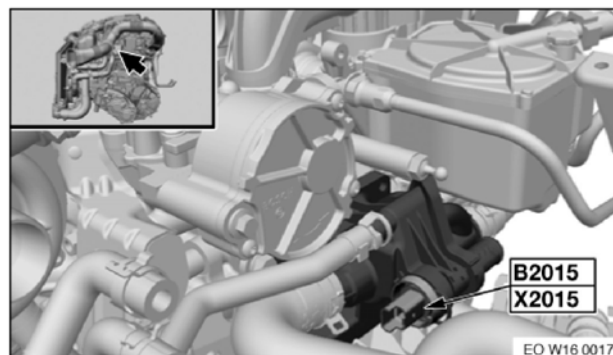


## B2015a Coolant Temperature Sensor

B2015a Coolant Temperature Sensor

B2015, X2015 (Engine)

B2015, X2015

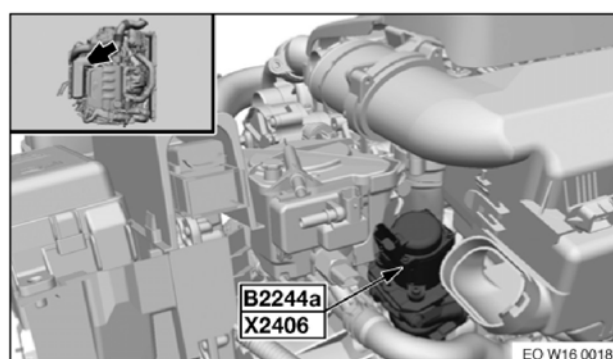


## B2244a Exhaust Gas Recirculation Actuator 1

B2244a Exhaust Gas Recirculation Actuator 1

B2244a, X2406 (Engine)

B2244a, X2406

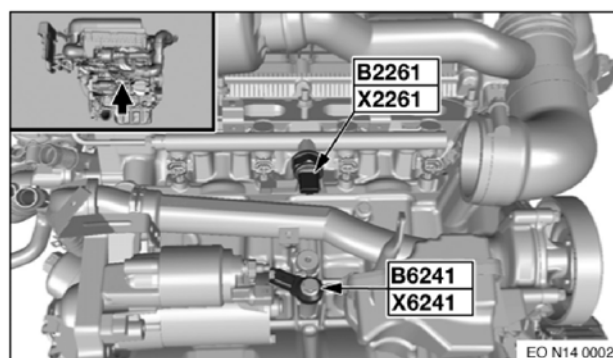


## B2261, X2261, B6241, X6241 (N14 Engine)

B2261 Rail Pressure Sensor

B2261, X2261, B6241, X6241 (N14 Engine)

B2261, X2261, B6241, X6241

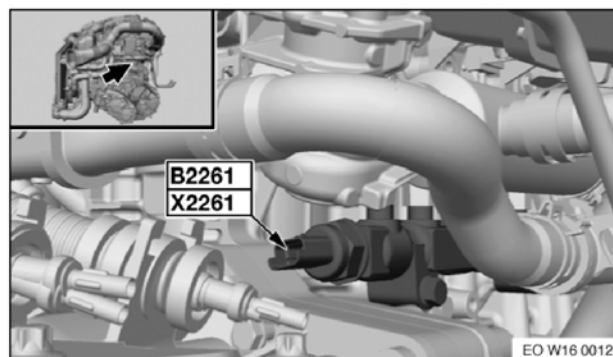


## B2261, X2261 (Engine)

B2261 Rail Pressure Sensor

B2261, X2261 (Engine)

B2261, X2261

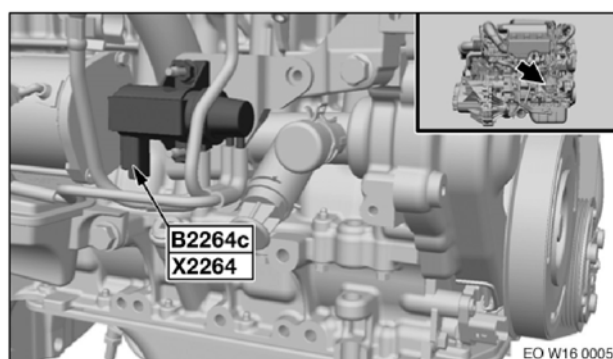


## B2264c Charge-Air Pressure Controller (Pressure Converter)

B2264c Charge-Air Pressure Controller (Pressure Converter)

B2264c, X2264 (Engine)

B2264c, X2264

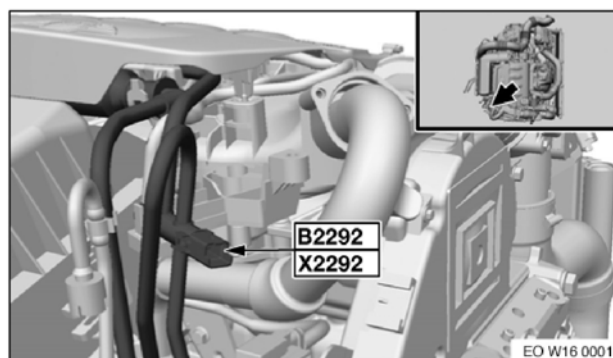


## B2292 Fuel Temperature Sensor

B2292 Fuel Temperature Sensor

B2292, X2292 (Engine)

B2292, X2292

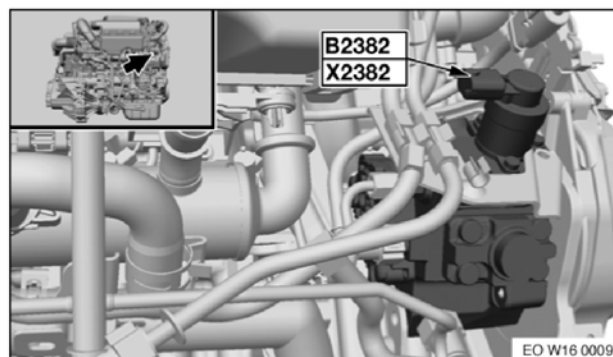


## B2382 Volume Control Valve

B2382 Volume Control Valve

B2382, X2382 (Engine)

B2382, X2382

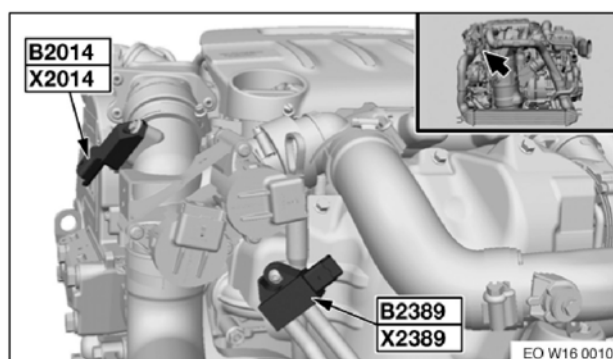


## B2389 Exhaust Backpressure Sensor

B2389 Exhaust Backpressure Sensor

B2014, X2014, B2389, X2389 (Engine)

B2014, X2014, B2389, X2389

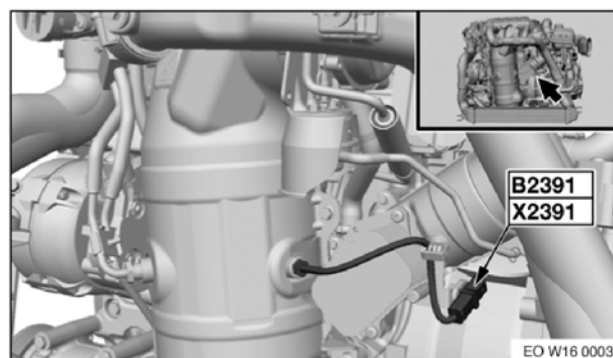


## B2391 Exhaust Temperature Sensor Before Particle Filter

B2391 Exhaust Temperature Sensor Before Particle Filter

B2391, X2391(Engine)

B2391, X2391

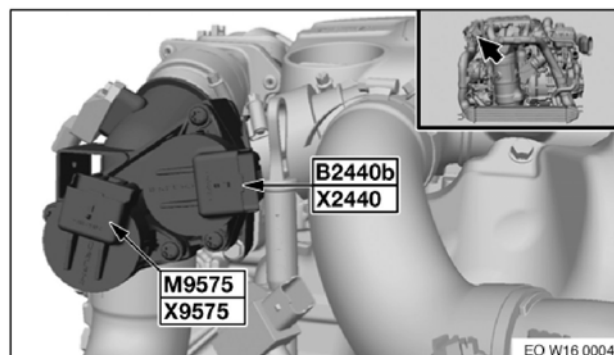


## B2440b Bypass Actuator, Intercooler

B2440b Bypass Actuator, Intercooler

B2440b, X2440, M9575, X9575 (Engine)

B2440b, X2440, M9575, X9575

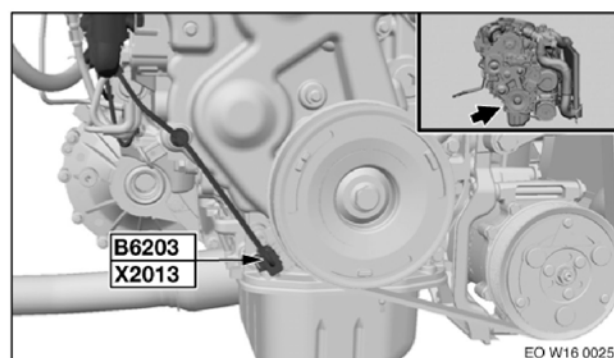


## B6203 Crankshaft Position/RPM Sensor

B6203 Crankshaft Position/RPM Sensor

B6203, X2013 (Engine)

B6203, X2013

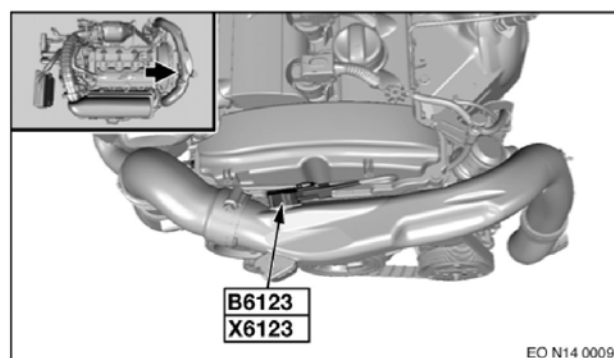


## B6123 Intake Temperature - Boost Pressure Sensor

B6123 Intake Temperature - Boost Pressure Sensor

B6123, X6123

B6123, X6123

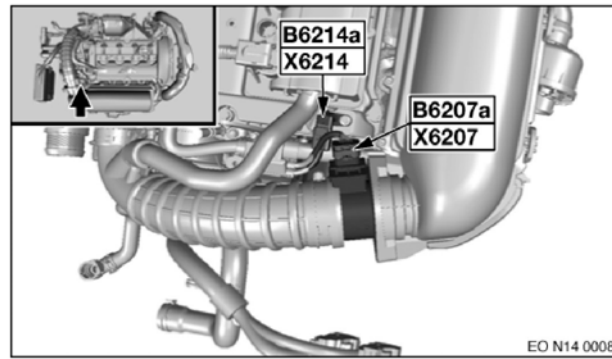


## B6207a Hot-Film Air Mass Meter

B6207a Hot-Film Air Mass Meter

B6214a, X6214, B6207a, X6207

B6214a, X6214, B6207a, X6207

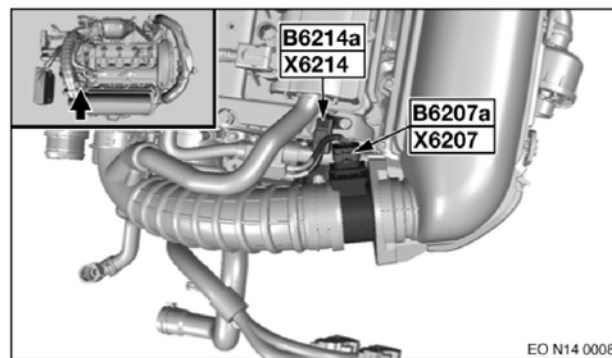


## B6214a Intake Camshaft Sensor

B6214a Intake Camshaft Sensor

B6214a, X6214, B6207a, X6207

B6214a, X6214, B6207a, X6207

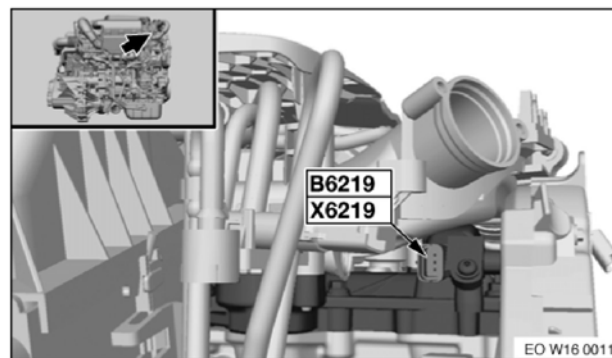


## B6219 Hall-Effect Sensor, Camshaft 1

B6219 Hall-Effect Sensor, Camshaft 1

B6219, X6219 (Engine)

B6219, X6219

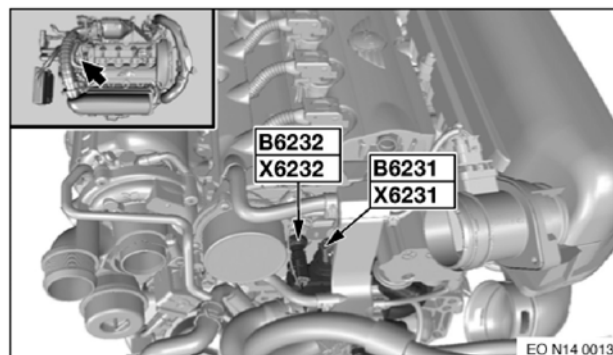


## B6231 Oil Pressure Switch

B6231 Oil Pressure Switch

B6232, X6232, B6231, X6231

B6232, X6232, B6231, X6231

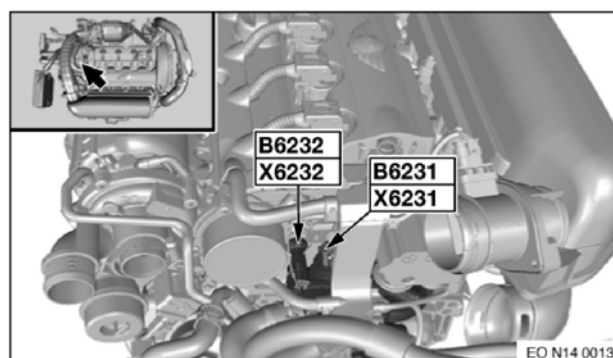


## B6232 Engine Temperature Sensor

B6232 Engine Temperature Sensor

B6232, X6232, B6231, X6231

B6232, X6232, B6231, X6231

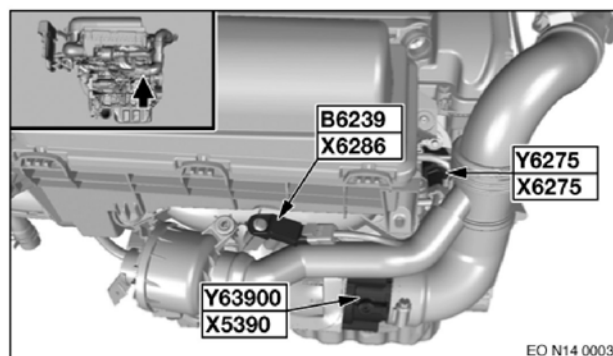


## B6239 Intake Pipe Pressure Sensor

B6239 Intake Pipe Pressure Sensor

B6239, X6286, Y6275, X6275, Y63900, X5390

B6239, X6286, Y6275, X6275, Y63900, X5390

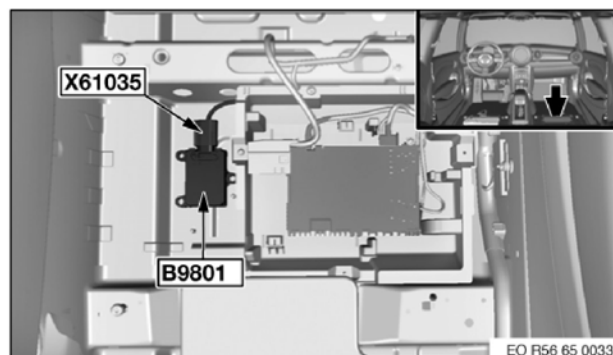


## B9801 DSC Sensor

B9801 DSC Sensor

X61035, B9801

X61035, B9801

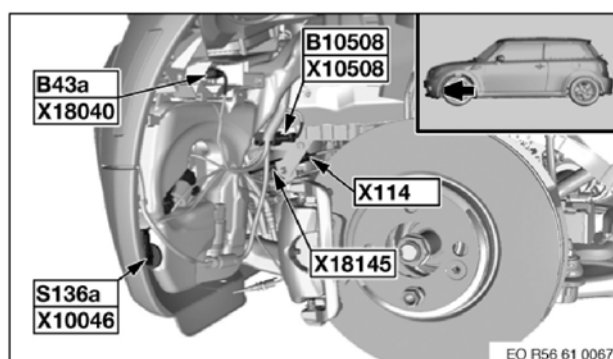


## B10508a Front Airbag Sensor, Drive's Side

B10508a Front Airbag Sensor, Drive's Side

B43a, X18040, S136a, X10046, X18145, X114, B10508, X10508

B43a, X18040, S136a, X10046, X18145, X114, B10508, X10508

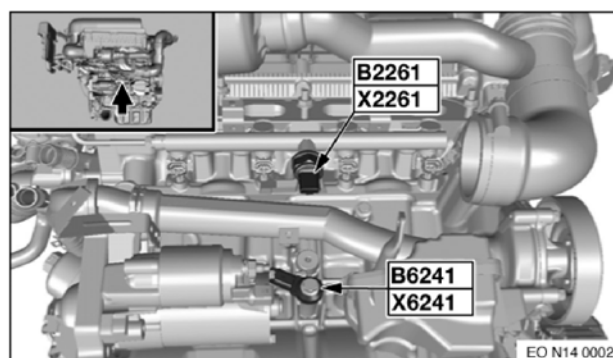


## B6241 Knock Sensor

B2261, X2261, B6241, X6241

B6241 Knock Sensor

B2261, X2261, B6241, X6241



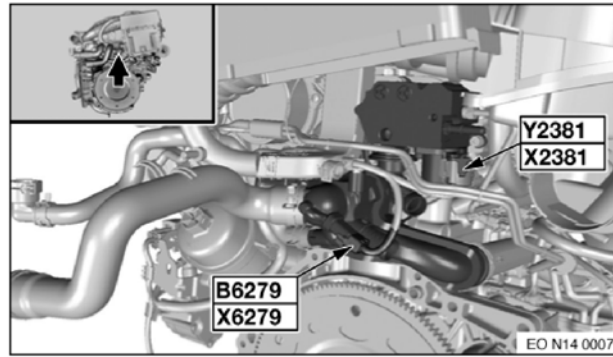
## B6279a Characteristic MAP Thermostat

B6279a Characteristic MAP Thermostat

Y2381, X2381, B6279, X6279



Y2381, X2381, B6279, X6279

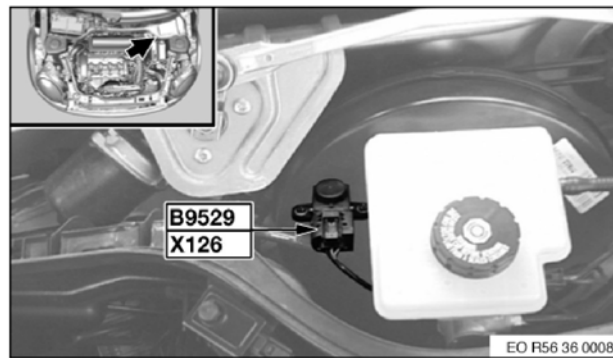


## B9529 Brake Vacuum Sensor

B9529 Brake Vacuum Sensor

B9529, X126

B9529, X126

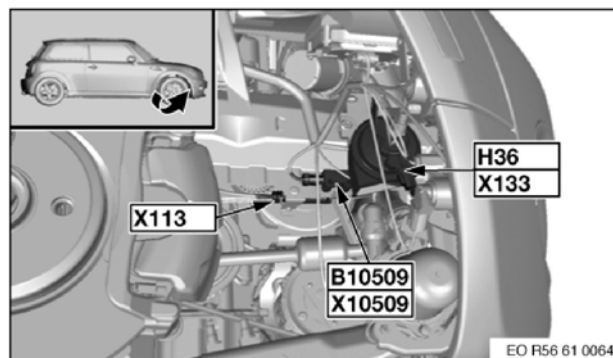


## B10509a Front Airbag Sensor, Passenger's Side

B10509a Front Airbag Sensor, Passenger's Side

H3b, X133, B10509, X10509, X113

H3b, X133, B10509, X10509, X113

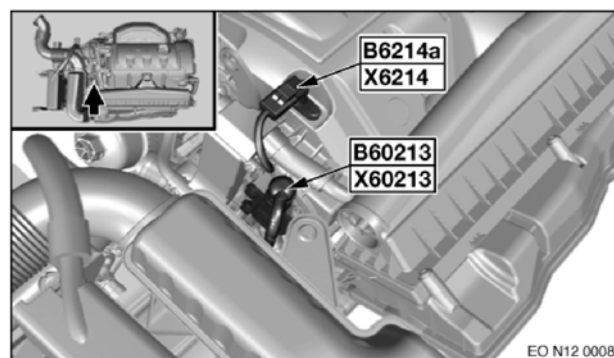


## B60213 Eccentric Shaft Sensor

B60213 Eccentric Shaft Sensor

B60213, X60253, B6214a, X6214

B60213, X60253, B6214a, X6214

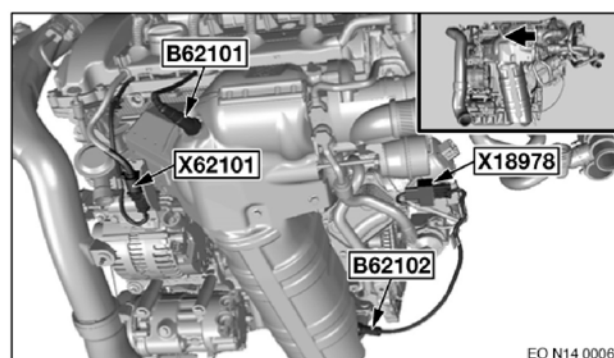


## B62101 Oxygen Sensor Before Catalytic Converter

B62101 Oxygen Sensor Before Catalytic Converter

X18978, B62102, X62101, B62101

X18978, B62102, X62101, B62101

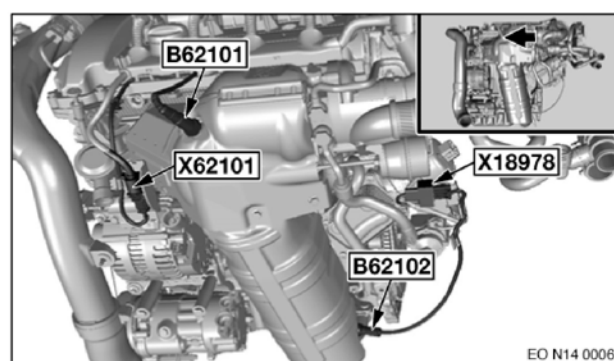


## B62102 Oxygen Sensor Behind Catalytic Converter

B62102 Oxygen Sensor Behind Catalytic Converter

X18978, B62102, X62101, B62101

X18978, B62102, X62101, B62101

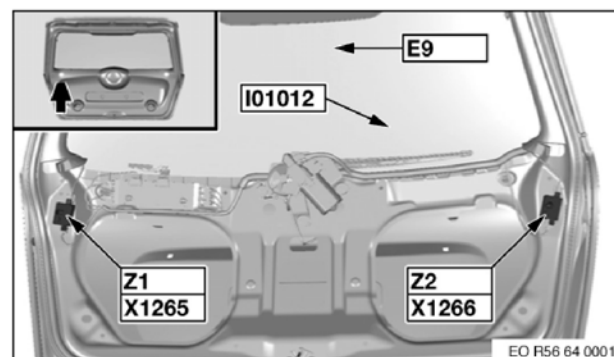


## E9 Rear Window Defroster

E9 Rear Window Defroster

E9, I01012, Z1, X1265, Z2, X1266

E9, I01012, Z1, X1265, Z2, X1266

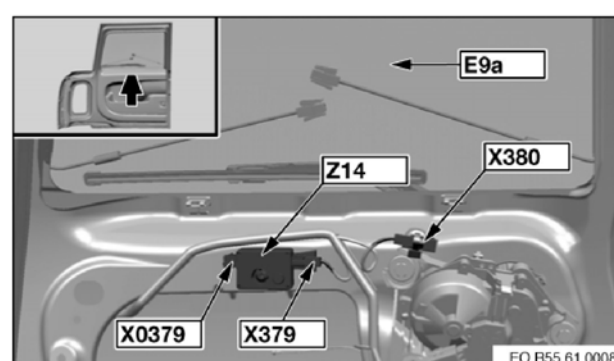


## E9b Rear Window Defogger, Split Door, Left

E9b Rear Window Defogger, Split Door, Left

E9a, Z14, X0379, X379, X380

E9a, Z14, X0379, X379, X380

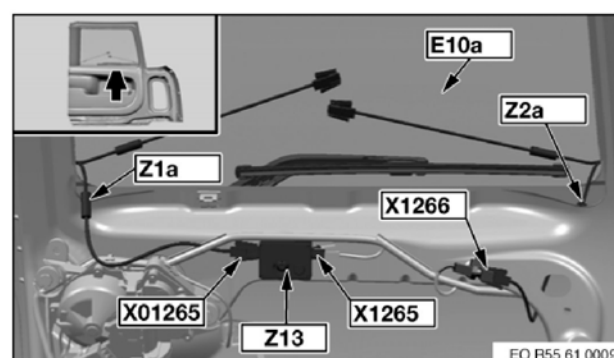


## E10a Rear Window Defogger, Split Door, Right

E10a Rear Window Defogger, Split Door, Right

E10a, Z1a, X01256, Z2a, X1266, X1265, Z13

E10a, Z1a, X01256, Z2a, X1266, X1265, Z13

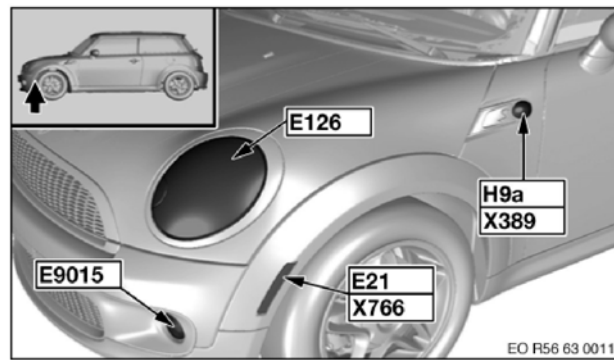


## E21 Side Market Light, Front Left (USA\_LHD)

E21 Side Market Light, Front Left (USA\_LHD)

E126, H9a, X389, E21, X766, E9015

E126, H9a, X389, E21, X766, E9015

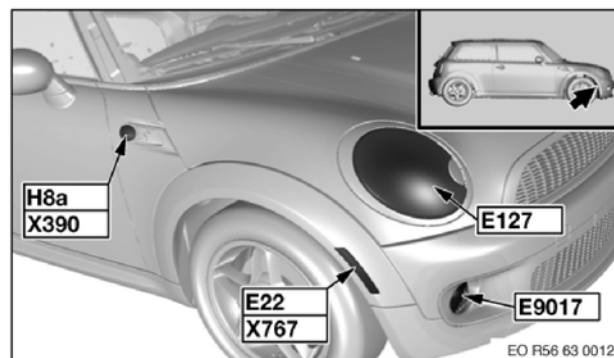


## E22 Side Market Light, Front Right (USA\_LHD)

E22 Side Market Light, Front Right (USA\_LHD)

E127, H8a, X390, E22, X767, E9017

E127, H8a, X390, E22, X767, E9017

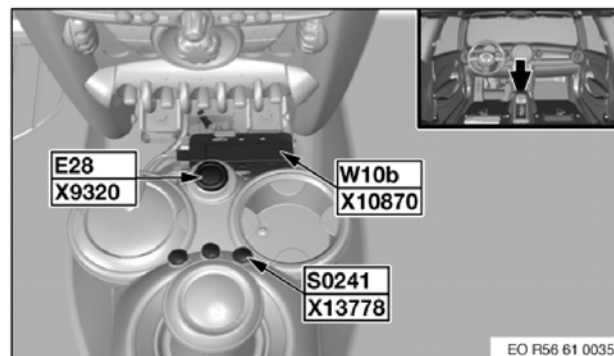


## E28 Front Cigar Lighter

E28 Front Cigar Lighter

E28, X9320, W10B, X10870, S0241, X13778

E28, X9320, W10b, X10870, S0241, X13778

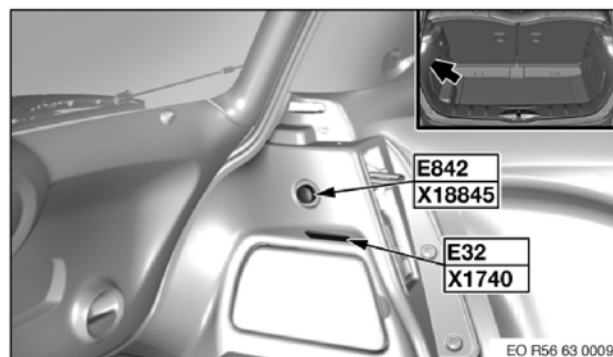


## E32 Trunk Compartment Light

E32 Trunk Compartment Light

E842, X18845, E32, X1740

E842, X18845, E32, X1740

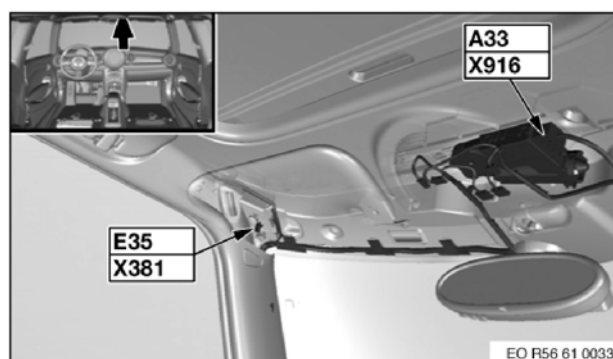


## E35 Make-Up Mirror Light, Front Left

E35 Make-Up Mirror Light, Front Left

A33, X916, E35, X381

A33, X916, E35, X381

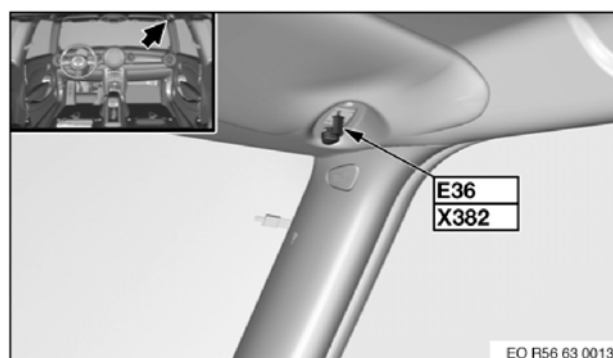


## E36 Make-Up Mirror Light, Front Right

E36 Make-Up Mirror Light, Front Right

E36, X382

E36, X382

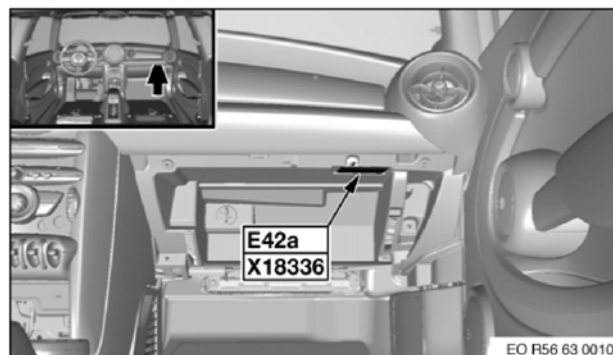


## E42a Glove Compartment Light

E42a Glove Compartment Light

E42a, X18336

E42a, X18336

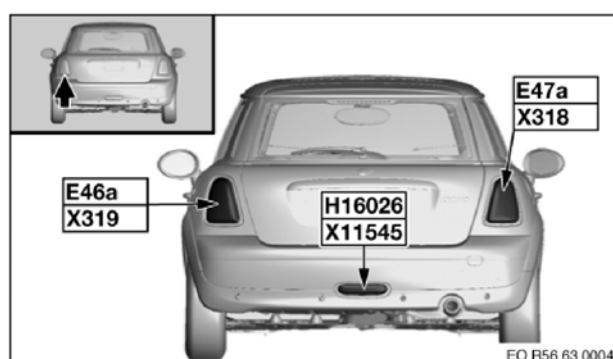


## E46a Taillight, Left

E46a Taillight, Left

E46a, X319, E47a, X318, H16026, X11545

E46a, X319, E47a, X318, H16026, X11545

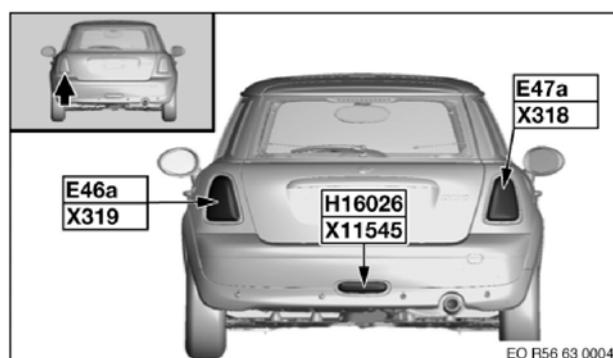


## E47a Taillight, Right

E47a Taillight, Right

E46a, X319, E47a, X318, H16026, X11545

E46a, X319, E47a, X318, H16026, X11545

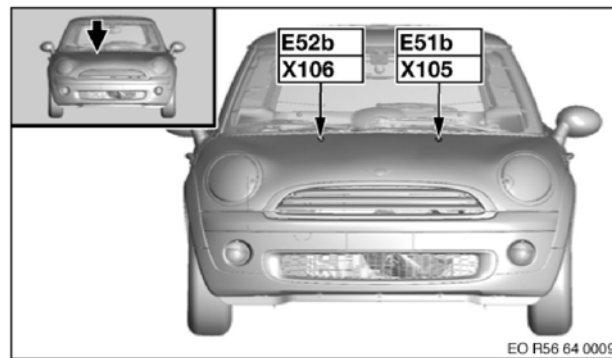


## E51b Heated Washer Nozzle, Driver's Side

E51b Heated Washer Nozzle, Driver's Side

E52b, X106, E51b, X105

E52b, X106, E51b, X105

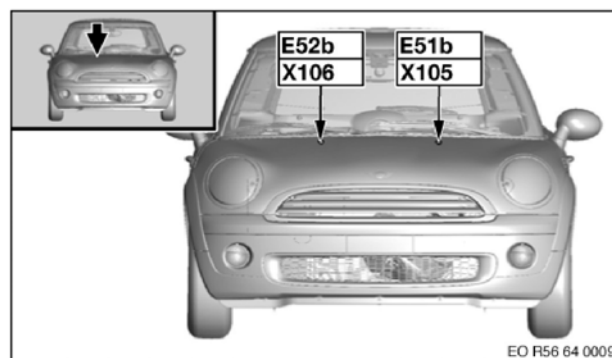


## E52b Heated Washer Nozzle, Passenger's Side

E52b Heated Washer Nozzle, Passenger's Side

E52b, X106, E51b, X105

E52b, X106, E51b, X105

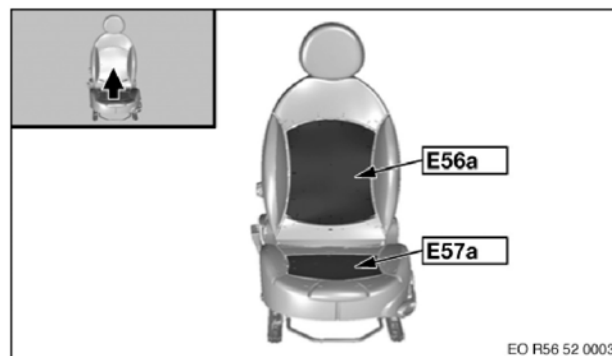


## E56a Driver's Seat Backrest Heating

E56a Driver's Seat Backrest Heating

E56a, E57a

E56a, E57a



## E57a Driver's Seat Cushion Heating

E57a Driver's Seat Cushion Heating

E56a, E57a

E56a, E57a

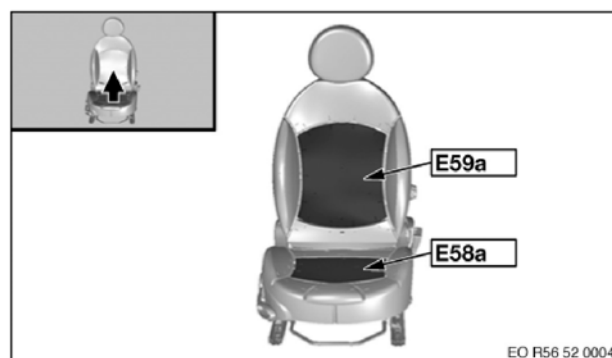


## E58a Passenger's Seat Cushion Heating

E58a Passenger's Seat Cushion Heating

E59a, E58a

E59a, E58a

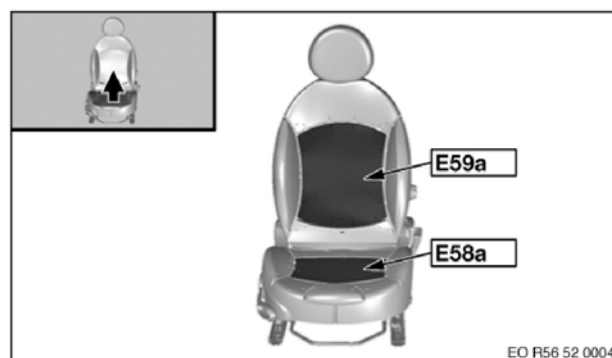


## E59a Passenger's Seat Backrest Heating

E59a Passenger's Seat Backrest Heating

E59a, E58a

E59a, E58a



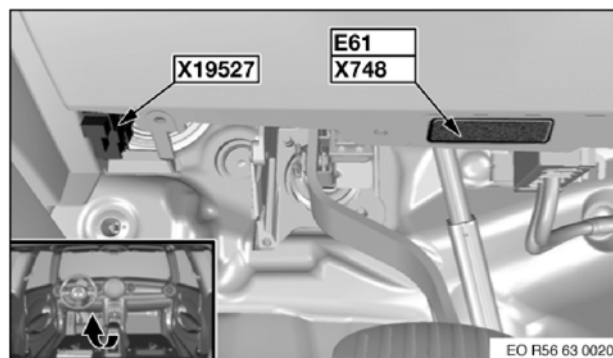
## E61 Footwell Light, Front Left

E61 Footwell Light, Front Left

X19527, E61, X748



X19527, E61, X748

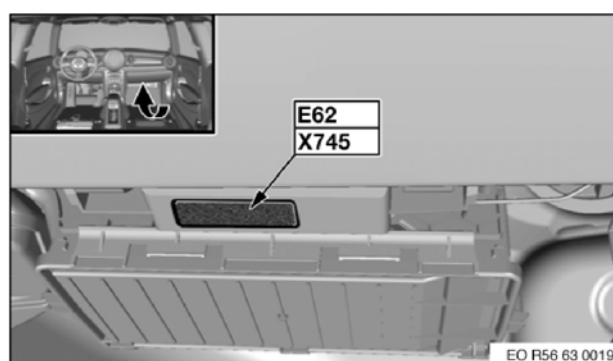


## E62 Footwell Light, Front Right

E62 Footwell Light, Front Right

E62, X745

E62, X745

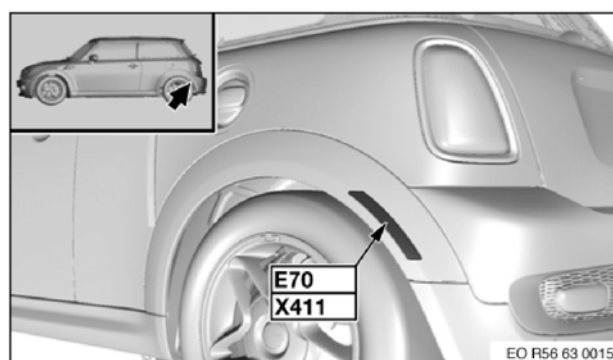


## E70 Side Market Light, Rear Left (USA\_LHD)

E70 Side Market Light, Rear Left (USA\_LHD)

E70, X411

E70, X411

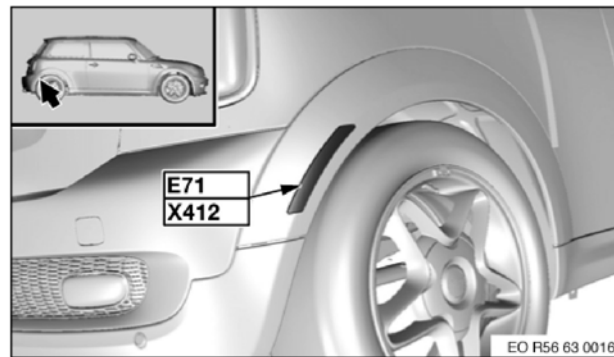


## E71 Side Market Light, Rear Right (USA\_LHD)

E71 Side Market Light, Rear Right (USA\_LHD)

E71, X412

E71, X412

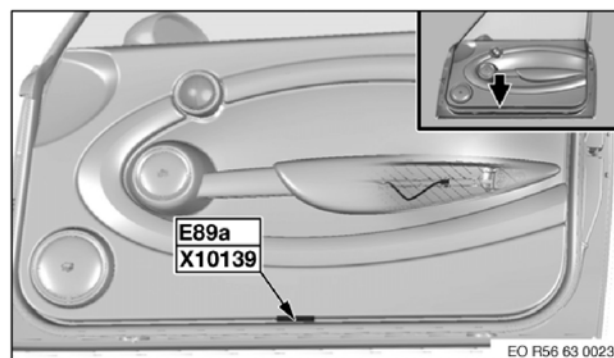


## E89a Passenger's Door Entrance Light

E89a Passenger's Door Entrance Light

E89a, X10139

E89a, X10139

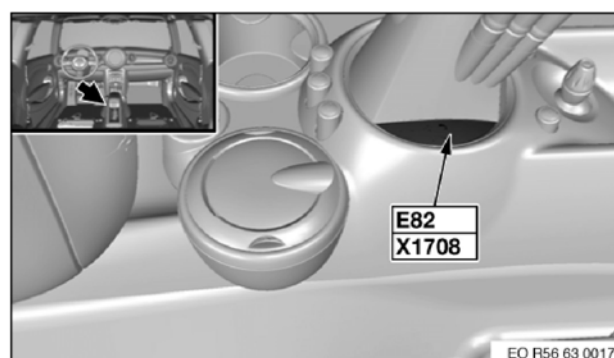


## E82 Gear Indicator Lighting (EGS Electronic Transmission Control)

E82 Gear Indicator Lighting (EGS Electronic Transmission Control)

E82, X1708

E82, X1708

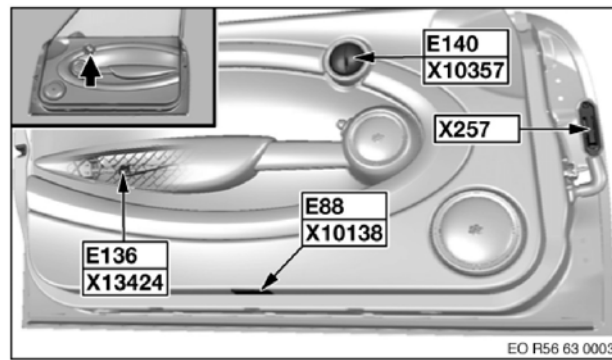


## E88a Driver's Door Entrance Light

E88a Driver's Door Entrance Light

E140, X10357, E88, X10138, E136, X13424

E140, X10357, E88, X10138, E136, X13424

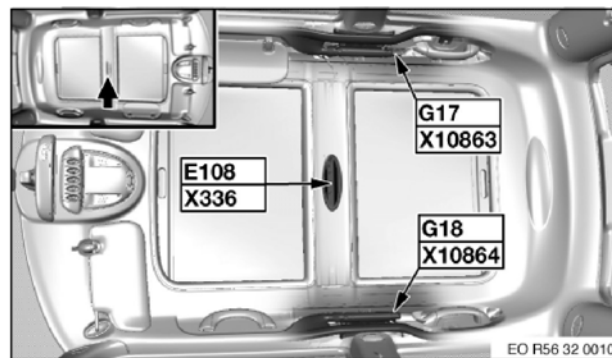


## E108 Interior Light, Rear

E108 Interior Light, Rear

E108, X336, G17, X10863, G18, X10864

E108, X336, G17, X10863, G18, X10864

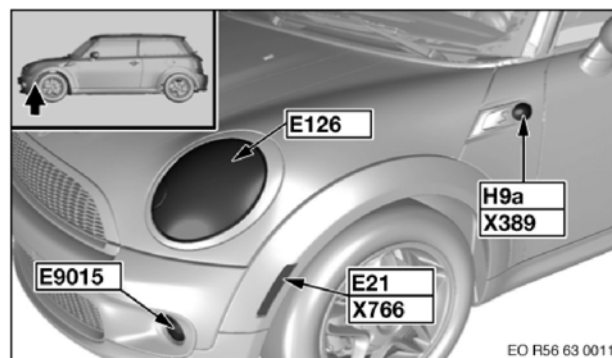


## E126 Left Headlight

E126 Left Headlight

E126, H9a, X389, E21, X766, E9015

E126, H9a, X389, E21, X766, E9015

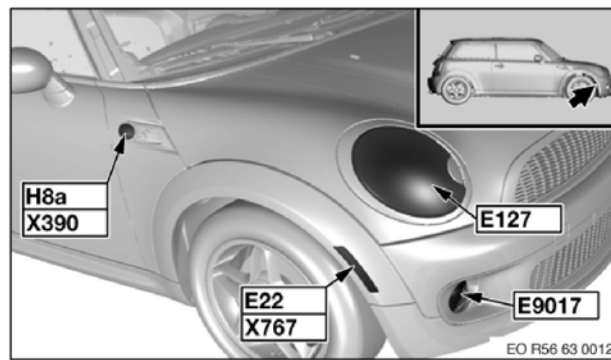


## E127 Right Headlight

E127 Right Headlight

E127, H8a, X390, E22, X767, E9017

E127, H8a, X390, E22, X767, E9017

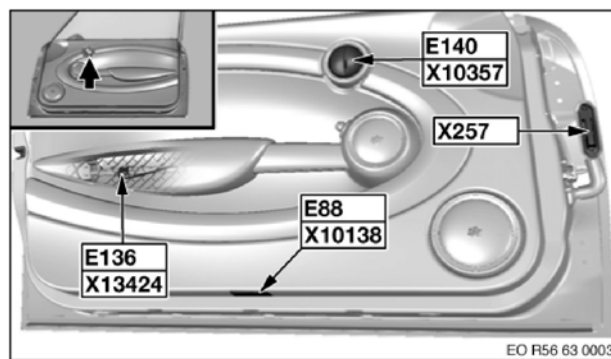


## E136 Oddments Compartment Lighting, Driver's Door

E136 Oddments Compartment Lighting, Driver's Door

E140, X10357, E88, X10138, E136, X13424

E140, X10357, E88, X10138, E136, X13424

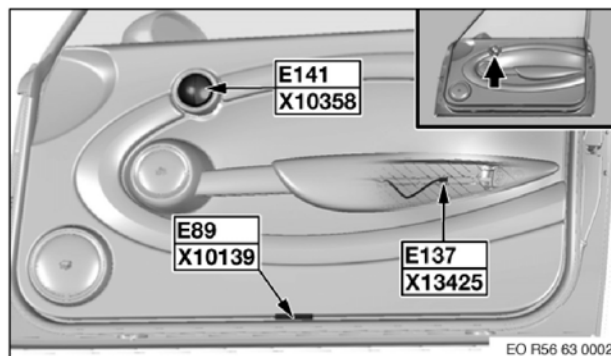


## E137 Oddments Compartment Lighting, Passenger's Door

E137 Oddments Compartment Lighting, Passenger's Door

E141, X10358, E89, X10139, E137, X13425

E141, X10358, E89, X10139, E137, X13425

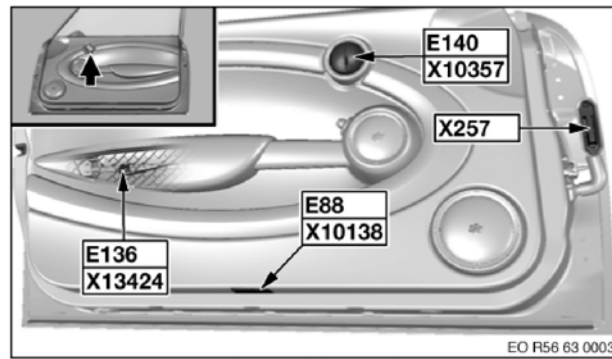


## E140 Door Handle Plate Lighting, Driver's Door

E140 Door Handle Plate Lighting, Driver's Door

E140, X10357, E88, X10138, E136, X13424

E140, X10357, E88, X10138, E136, X13424

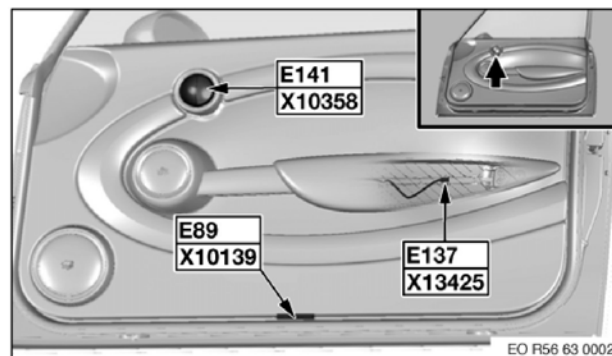


## E141 Door Handle Plate Lighting, Passenger's Door

E141 Door Handle Plate Lighting, Passenger's Door

E141, X10358, E89, X10139, E137, X13425

E141, X10358, E89, X10139, E137, X13425

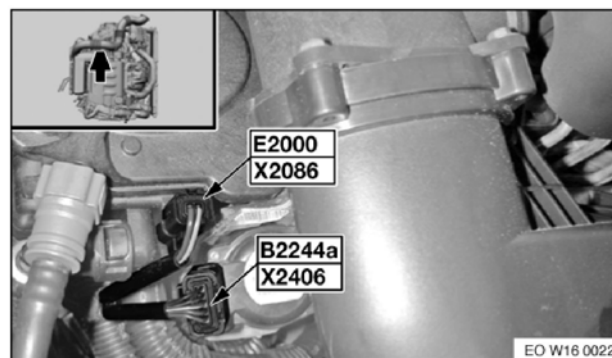


## E2000 Fuel Heater (Engine)

E2000 Fuel Heater

E2000, X2086, B2244a, X2406 (Engine)

E2000, X2086, B2244a, X2406

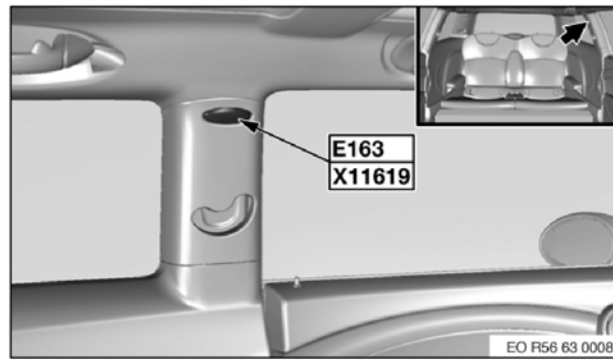


## E163 Ambient Light, B-Pillar, Left

E163 Ambient Light, B-Pillar, Left

E163, X11619

E163, X11619

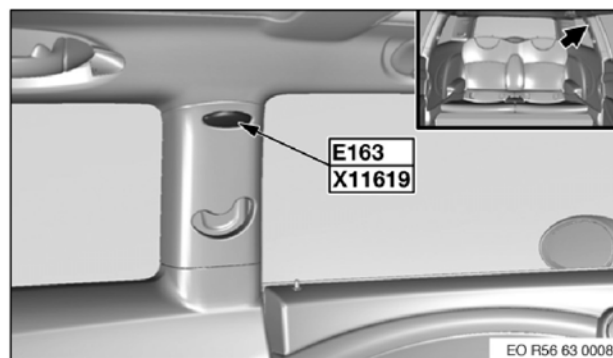


## E164 Ambient Light, B-Pillar, Right

E164 Ambient Light, B-Pillar, Right

E163, X11619

E163, X11619

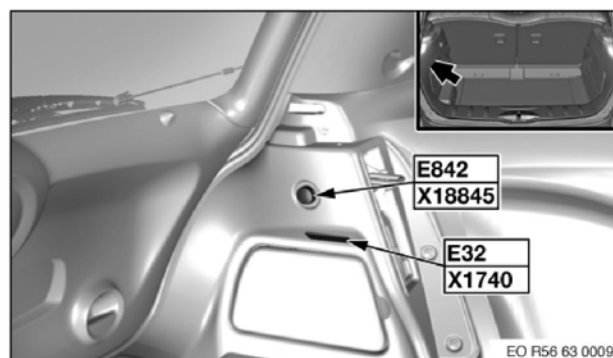


## E842 Power Socket, Luggage Compartment

E842 Power Socket, Luggage Compartment

E842, X18845, E32, X1740

E842, X18845, E32, X1740

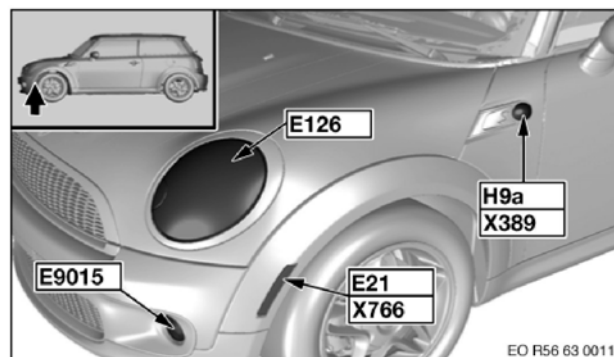


## E9015 Side Marker/Fog Light, Left

E9015 Side Marker/Fog Light, Left

E126, H9a, X389, E21, X766, E9015

E126, H9a, X389, E21, X766, E9015



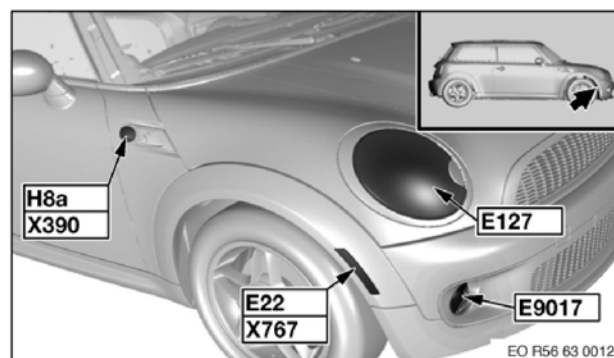
EO R56 63 0011

## E9017 Side Marker/Fog Light, Right

E9017 Side Marker/Fog Light, Right

E127, H8a, X390, E22, X767, E9017

E127, H8a, X390, E22, X767, E9017



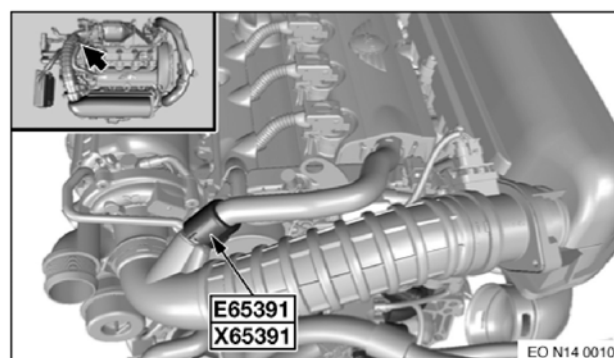
EO R56 63 0012

## E65391 Engine Breather Heater 1

E65391 Engine Breather Heater 1

E65391, X65391

E65391, X65391



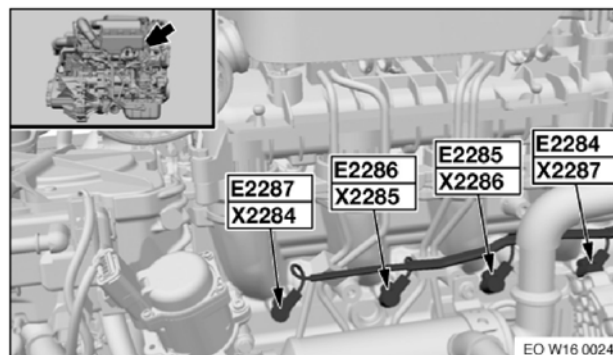
EO N14 0010

## E2284 Heater Plug, Cylinder 1

E2284 Heater Plug, Cylinder 1

E2287, E2286, E2285, E2284, X2287, X2286, X2285, X2284

E2287, E2286, E2285, E2284, X2287, X2286, X2285, X2284

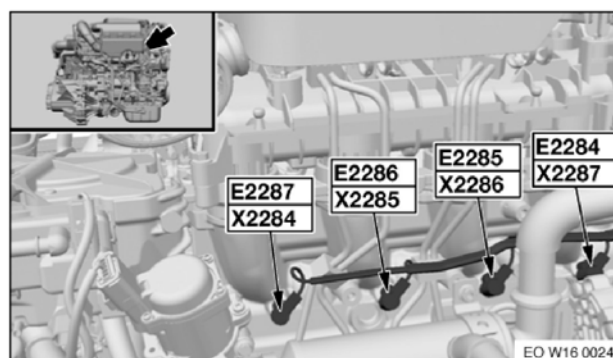


## E2285 Heater Plug, Cylinder 2

E2285 Heater Plug, Cylinder 2

E2287, E2286, E2285, E2284, X2287, X2286, X2285, X2284

E2287, E2286, E2285, E2284, X2287, X2286, X2285, X2284

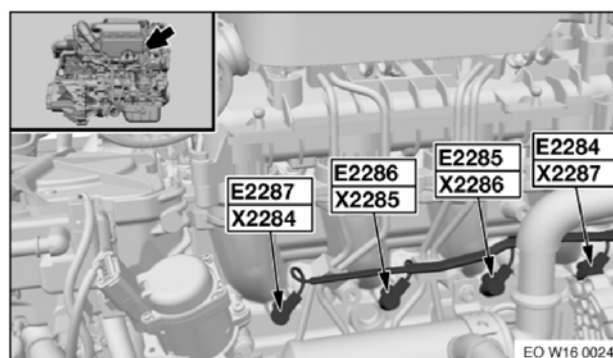


## E2286 Heater Plug, Cylinder 3

E2286 Heater Plug, Cylinder 3

E2287, E2286, E2285, E2284, X2287, X2286, X2285, X2284

E2287, E2286, E2285, E2284, X2287, X2286, X2285, X2284



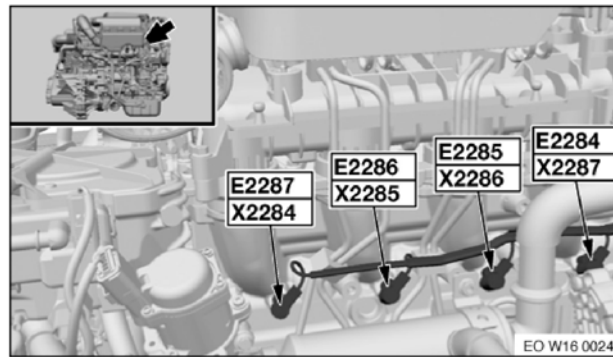
## E2287 Heater Plug, Cylinder 4

E2287 Heater Plug, Cylinder 4

E2287, E2286, E2285, E2284, X2287, X2286, X2285, X2284 (Engine)



E2287, E2286, E2285, E2284, X2287, X2286, X2285, X2284



## F\_Fuses

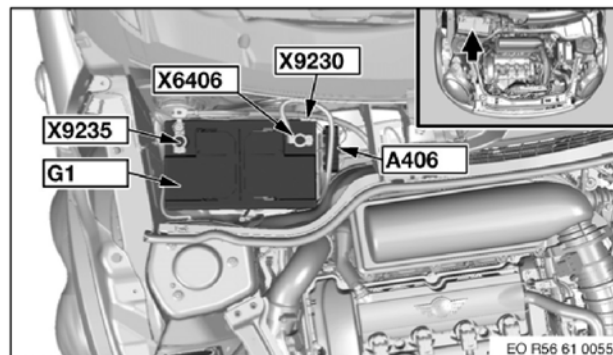
For information regarding locations for Fuses and Fusible Links, please refer to the vehicle level fuse and fusible links locations. See: Fuse and Fusible Link Locations

## G1 Battery

### G1 Battery

X9230, X6406, A406, X9235, G1

X9230, X6406, A406, X9235, G1



## G5 Inflator Assemblies, Driver's Airbag

### G5 Inflator Assemblies, Driver's Airbag

G5, X01071, X01072

G5, X01071, X01072

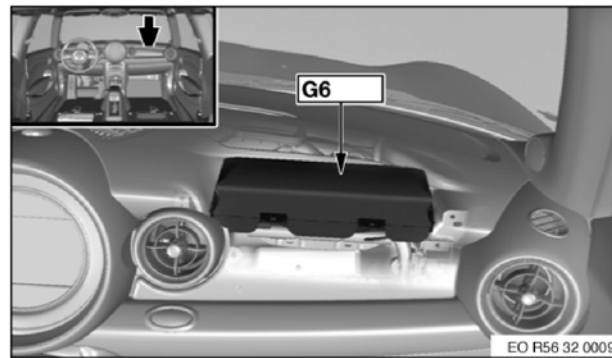


## G6 Inflator Assemblies, Passenger's Airbag

### G6 Inflator Assemblies, Passenger's Airbag

G6

G6

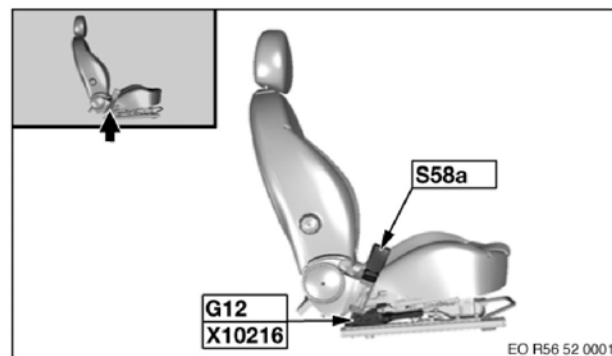


## G12 Generator, Driver's Seat Belt Tensioner

G12 Generator, Driver's Seat Belt Tensioner

S58a, G12, X10216

S58a, G12, X10216

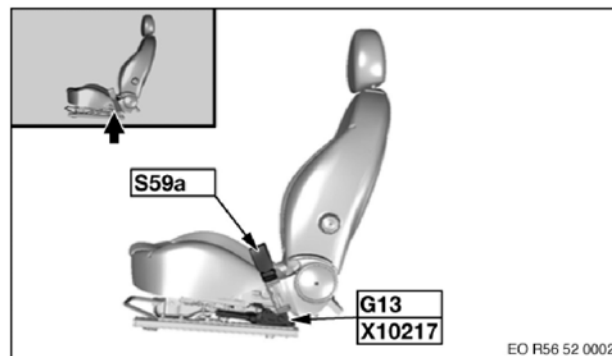


## G13 Generator, Passenger's Seat Belt Tensioner

G13 Generator, Passenger's Seat Belt Tensioner

S59a, G13, X10217

S59a, G13, X10217

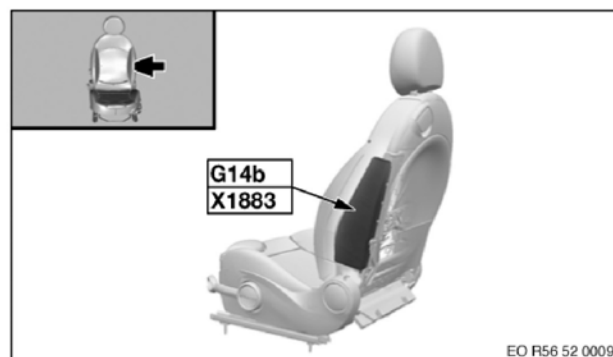


## G14b Side Airbag Inflator Assembly, Driver

G14b Side Airbag Inflator Assembly, Driver

G14b, X1883

G14b, X1883

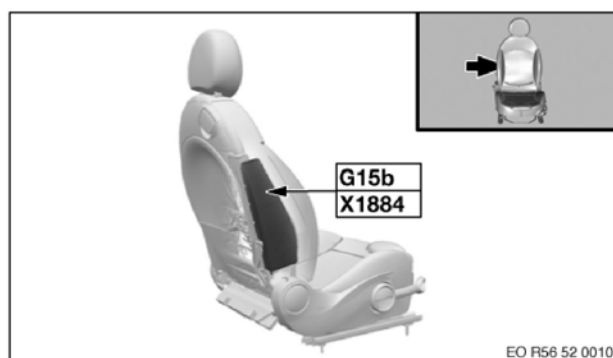


## G15b Side Airbag Inflator Assembly, Passenger

G15b Side Airbag Inflator Assembly, Passenger

G15b, X1884

G15b, X1884

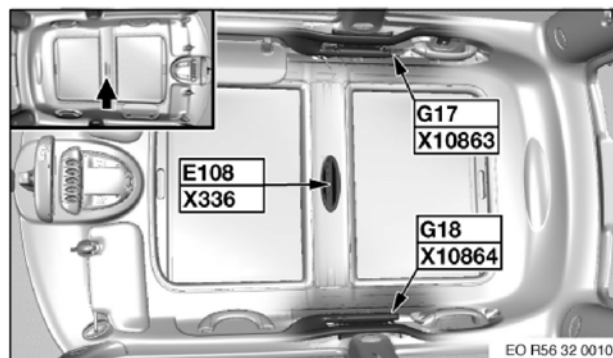


## G17a Inflator Assembly, Driver's Side Head Airbag

G17a Inflator Assembly, Driver's Side Head Airbag

E108, X336, G17, X10863, G18, X10864

E108, X336, G17, X10863, G18, X10864

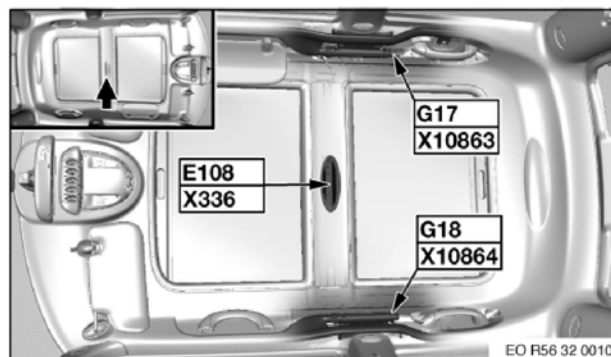


## G18a Inflator Assembly, Passenger's Side Head Airbag

G18a Inflator Assembly, Passenger's Side Head Airbag

E108, X336, G17, X10863, G18, X10864

E108, X336, G17, X10863, G18, X10864

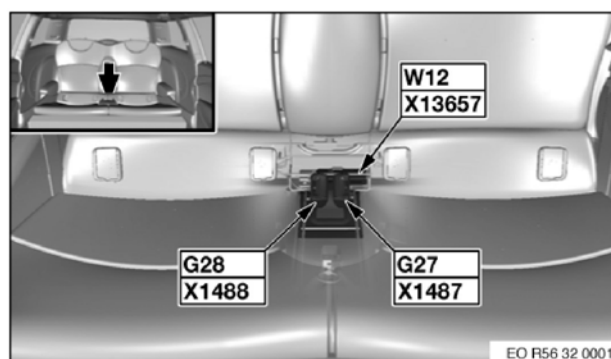


## G27 Seat Belt Tensioner, Rear left

G27 Seat Belt Tensioner, Rear left

W12, X13657, G27, X1487, G28, X1488

W12, X13657, G27, X1487, G28, X1488

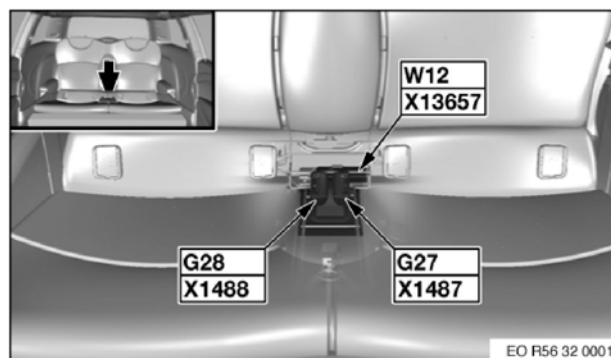


## G28 Seat Belt Tensioner, Rear Right

G28 Seat Belt Tensioner, Rear Right

W12, X13657, G27, X1487, G28, X1488

W12, X13657, G27, X1487, G28, X1488

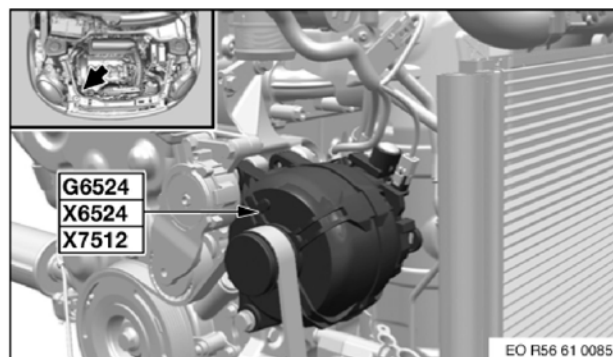


## G6524 Generator

G6524 Generator

G6524, X6524, X7512

G6524, X6524, X7512

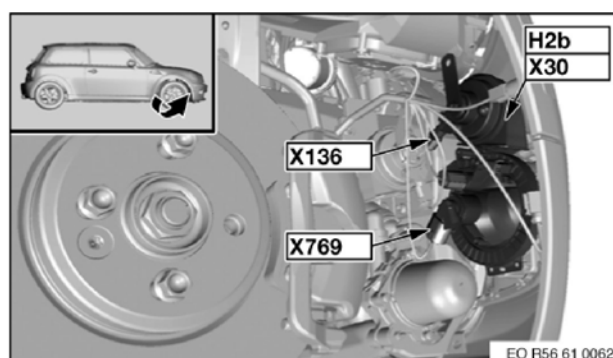


## H2b Horn

H2b Horn

H2b, X30, X136, X769

H2b, X30, X136, X769

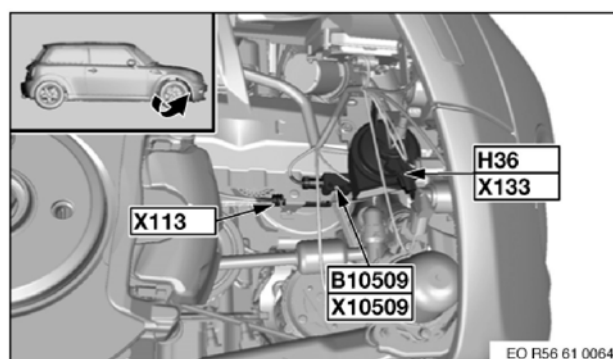


## H3b Horn 2

H3b Horn 2

H3b, X133, B10509, X10509, X113

H3b, X133, B10509, X10509, X113

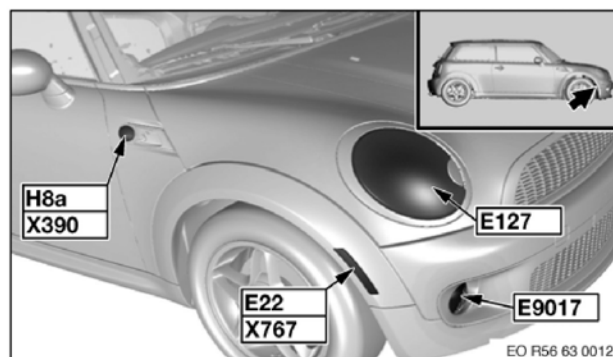


## H8a Auxiliary Direction Indicator, Front Right

H8a Auxiliary Direction Indicator, Front Right

E127, H8a, X390, E22, X767, E9017

E127, H8a, X390, E22, X767, E9017

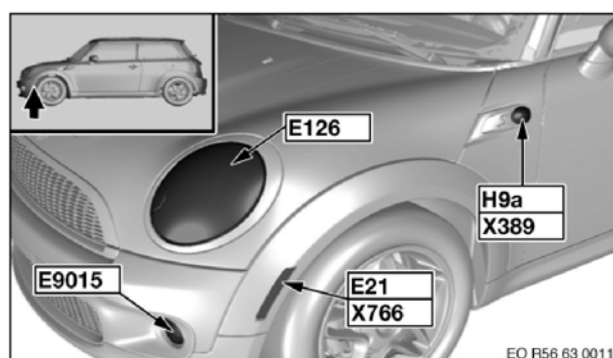


## H9a Direction Indicator Light Repeater, Front Left

H9a Direction Indicator Light Repeater, Front Left

E126, H9a, X389, E21, X766, E9015

E126, H9a, X389, E21, X766, E9015

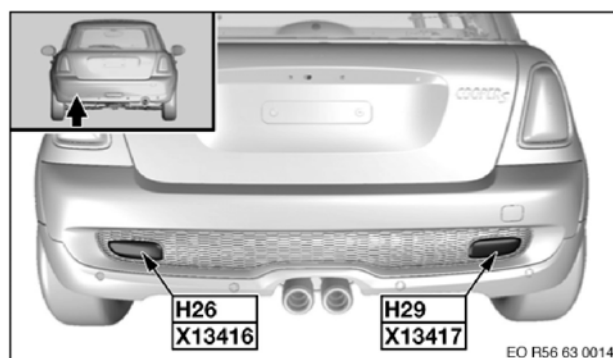


## H26 Rear Fog Light, Left (N14 Engine)

H26 Rear Fog Light, Left (N14 Engine)

H26, X13416, H29, X13417

H26, X13416, H29, X13417

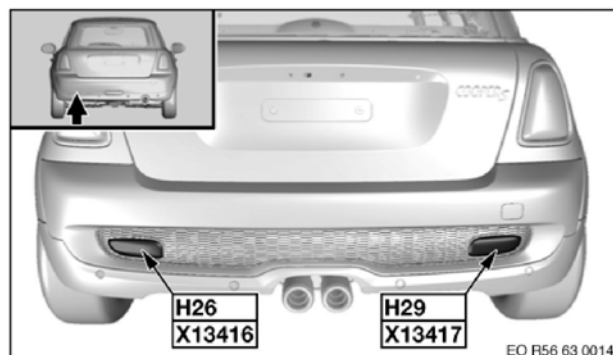


## H29 Rear Fog Light, Right (N14 Engine)

H29 Rear Fog Light, Right (N14 Engine)

H26, X13416, H29, X13417

H26, X13416, H29, X13417

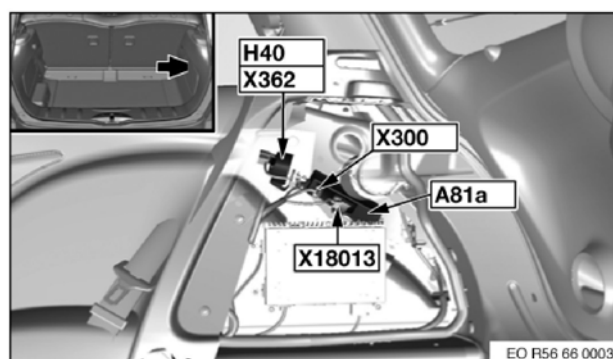


## H40 Park Distance Control Loudspeaker

H40 Park Distance Control Loudspeaker

H40, X362, X300, A81a, X18013

H40, X362, X300, A81a, X18013

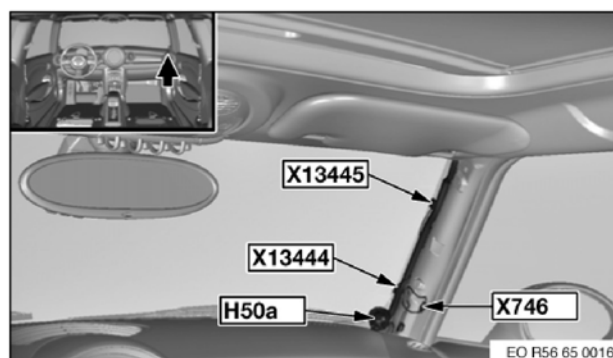


## H50a Tweeter, Front Right

H50a Tweeter, Front Right

X13445, X13446, H50a, X746

X13445, X13446, H50a, X746

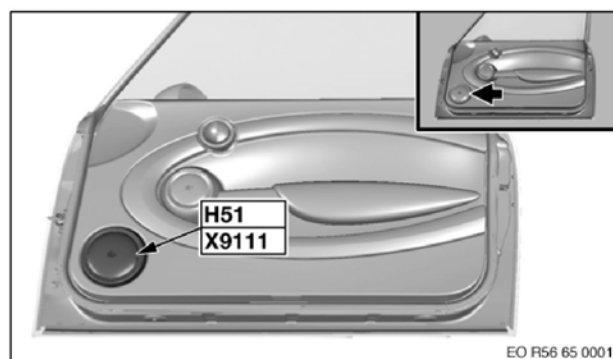


## H51, X9111 (Without AMP Hi-Fi Amplifier)

H51 Woofer, Front Right

H51, X9111 (Without AMP Hi-Fi Amplifier)

H51, X9111

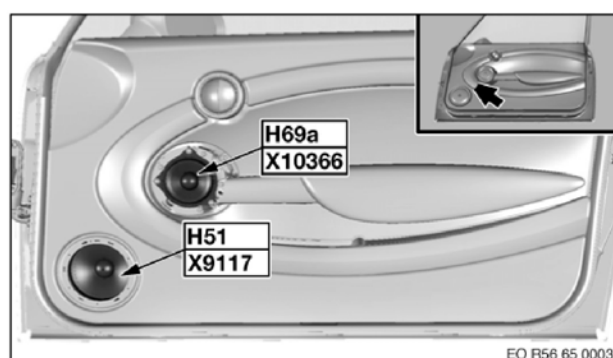


## H69a, X10366, H51, X9117 (AMP Hi-Fi Amplifier)

H51 Woofer, Front Right

H69a, X10366, H51, X9117 (AMP Hi-Fi Amplifier)

H69a, X10366, H51, X9117

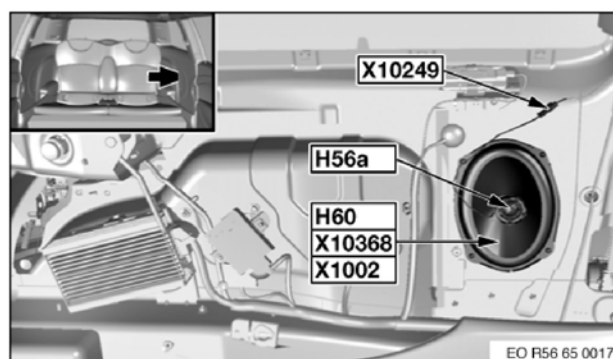


## H56a Tweeter, Rear Left

H56a Tweeter, Rear Left

H56a, X10249, H60, X10368, X1002

H56a, X10249, H60, X10368, X1002



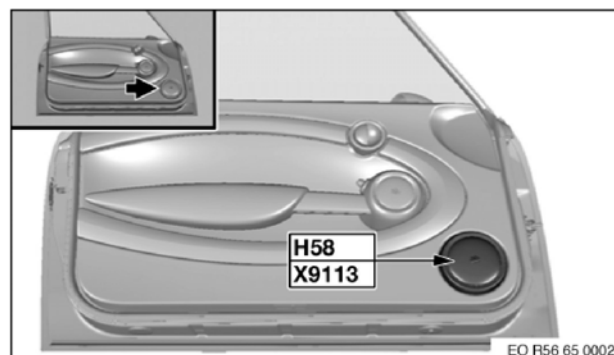
## H58, X9113 (Without AMP Hi-Fi Amplifier)

H58 Woofer, Front Left

H58, X9113 (Without AMP Hi-Fi Amplifier)



H58, X9113

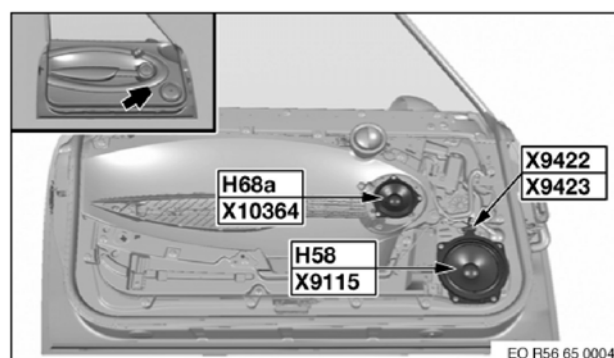


## H68a, X10364, X9422, X9423, H58, X9115 (AMP Hi-Fi Amplifier)

H58 Woofer, Front Left

H68a, X10364, X9422, X9423, H58, X9115 (AMP Hi-Fi Amplifier)

H68a, X10364, X9422, X9423, H58, X9115

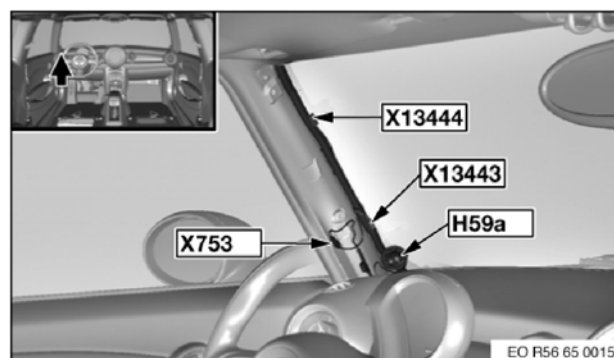


## H59a Tweeter, Front Left

H59a Tweeter, Front Left

X13444, X753, X13443, H59a

X13444, X753, X13443, H59a

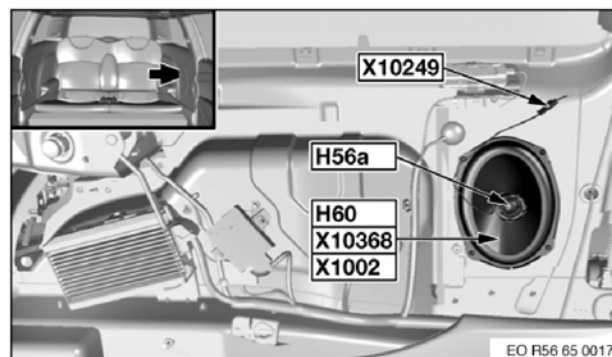


## H60 Woofer, Rear Left

H60 Woofer, Rear Left

H56a, X10249, H60, X10368, X1002

H56a, X10249, H60, X10368, X1002

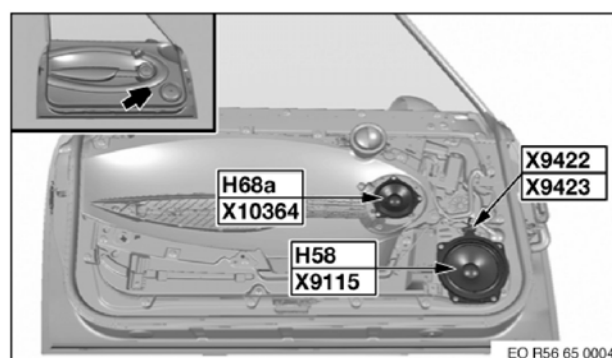


## H68a Mid-Range Speaker, Front left

H68a Mid-Range Speaker, Front left

H68a, X10364, X9422, X9423, H58, X9115

H68a, X10364, X9422, X9423, H58, X9115

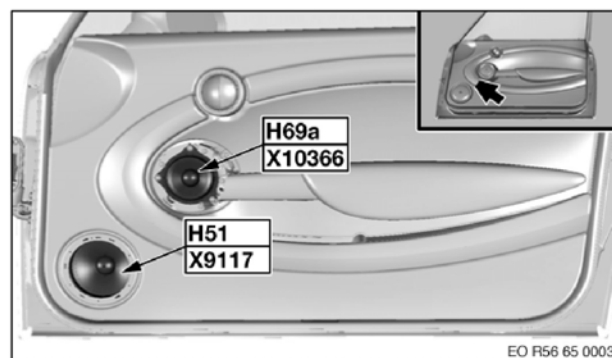


## H69a Mid-Range Speaker, Front Right

H69a Mid-Range Speaker, Front Right

H69a, X10366, H51, X9117

H69a, X10366, H51, X9117

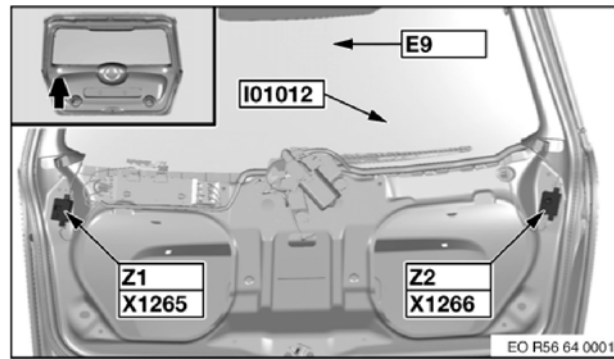


## I01012 Rear Window Aerial

I01012 Rear Window Aerial

E9, I01012, Z1, X1265, Z2, X1266

E9, I01012, Z1, X1265, Z2, X1266

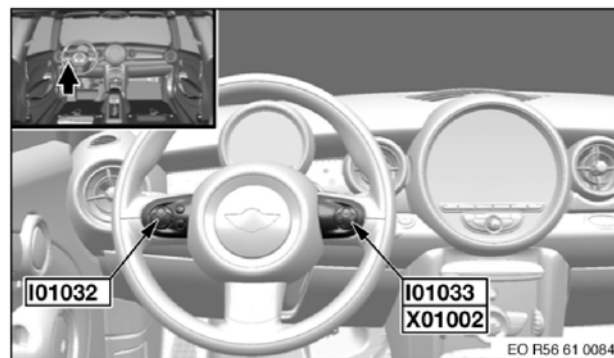


## I01032 Switch Block Multifunction Steering Wheel, Left

I01032 Switch Block Multifunction Steering Wheel, Left

I01032, I01033, X01002 (MINI\_MINI-R55/R56/R57)

I01032, I01033, X01002

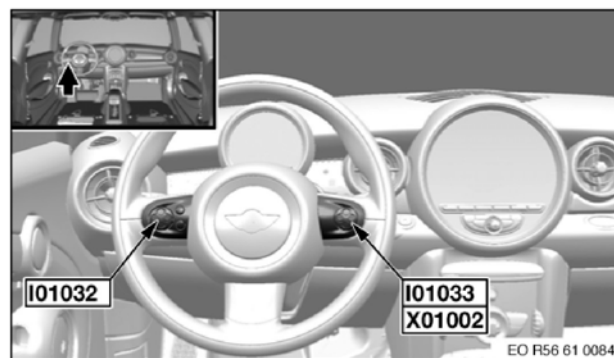


## I01033 Switch Block Multifunction Steering Wheel, Right

I01033 Switch Block Multifunction Steering Wheel, Right

I01032, I01033, X01002 (MINI\_MINI-R55/R56/R57)

I01032, I01033, X01002

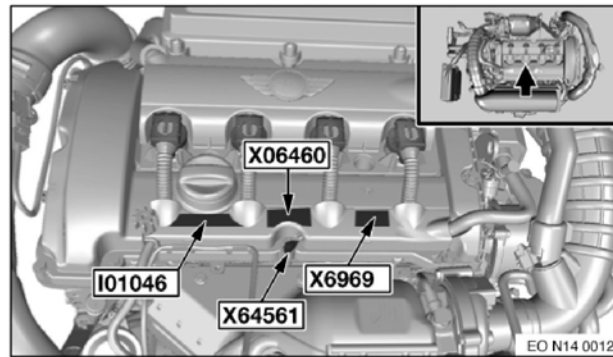


## I01046 Interference Suppression Capacitor For Ignition Coils

I01046 Interference Suppression Capacitor For Ignition Coils

X06460, I01046, X64561, X6969

X06460, I01046, X64561, X6969

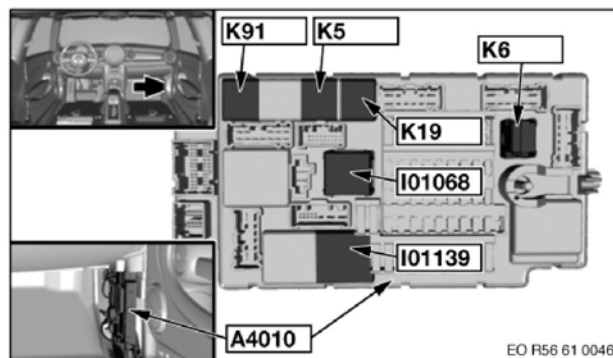


## I01068 Relay, Terminal 30G

I01068 Relay, Terminal 30G

A4010, K91, K5, K19, K6, I01068, I01139

A4010, K91, K5, K19, K6, I01068, I01139

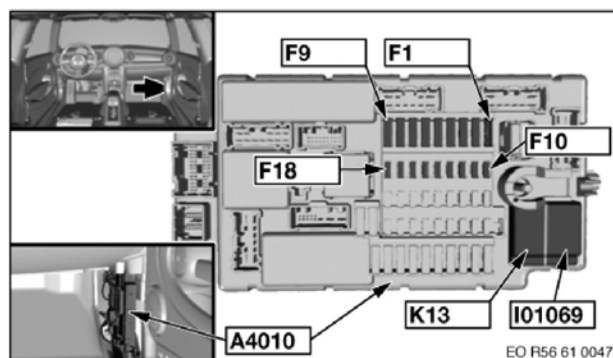


## I01069 Relay, Terminal 15

I01069 Relay, Terminal 15

A4010, F1, F9, F10, F18, K13, I01069

A4010, F1, F9, F10, F18, K13, I01069

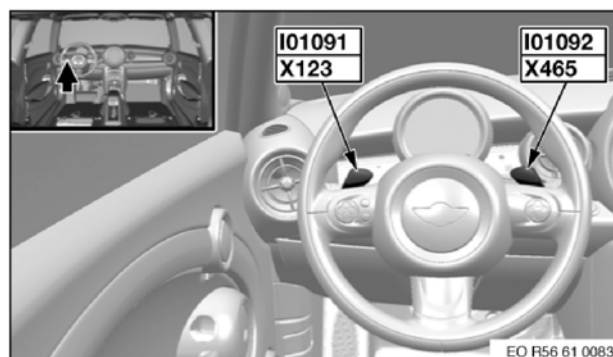


## I01091 Rocker Switch, Left

I01091 Rocker Switch, Left

I01091, X123, I01092, X465 (MINI\_MINI-R55/R56/R57)

I01091, X123, I01092, X465

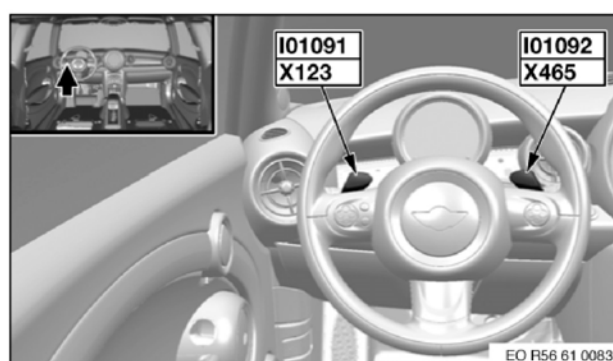


## I01092 Rocker Switch, Right

I01092 Rocker Switch, Right

I01091, X123, I01092, X465

I01091, X123, I01092, X465

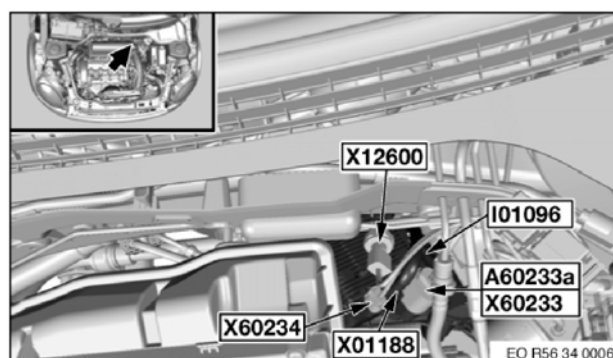


## I01096 Steering Torque Sensor

I01096 Steering Torque Sensor

X12600, I01096, A60233a, X60233, X01188, X60234

X12600, I01096, A60233a, X60233, X01188, X60234

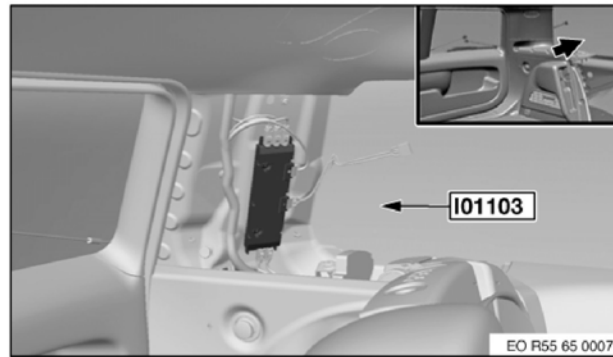


## I01103 TV Antenna, Rear Left Side Window

I01103 TV Antenna, Rear Left Side Window

I01103

I01103

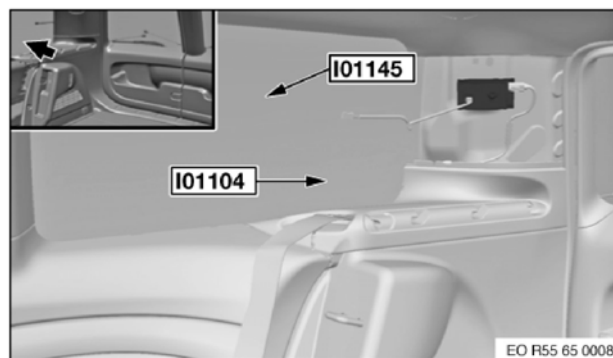


## I01104 TV Antenna, Rear Right Side Window

I01104 TV Antenna, Rear Right Side Window

I01145, I01104

I01145, I01104

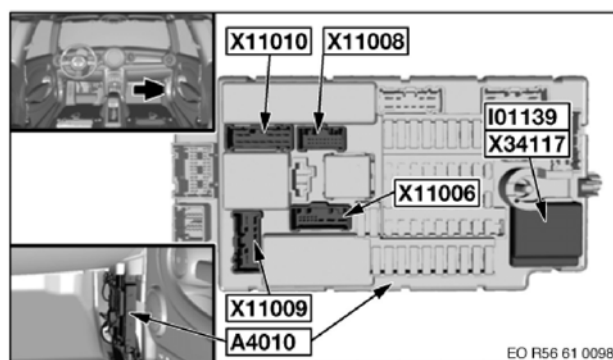


## I01139 Bi-Stable Relay (Variant-Dependent)

I01139 Bi-Stable Relay (Variant-Dependent)

I01139; X34117; A4010; X11009; X11008; X11010

I01139; X34117; A4010; X11009; X11008; X11010

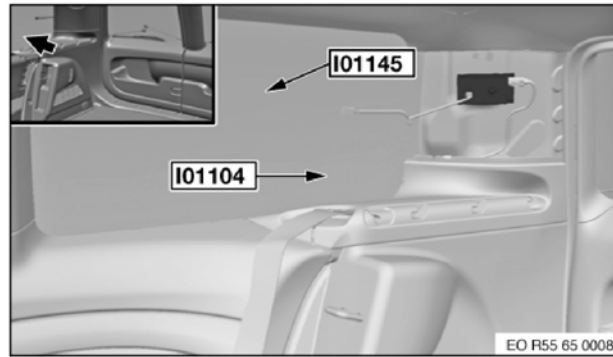


## I01145 Antenna, Left Side Window

I01145 Antenna, Left Side Window

I01145, I01104

I01145, I01104

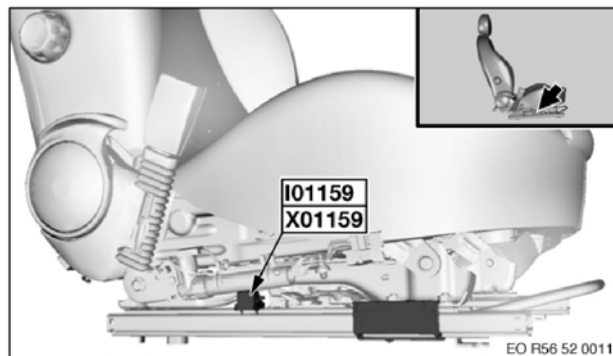


## I01159 Seat Position Sensor, Driver

I01159 Seat Position Sensor, Driver

I01159; X01159

I01159; X01159

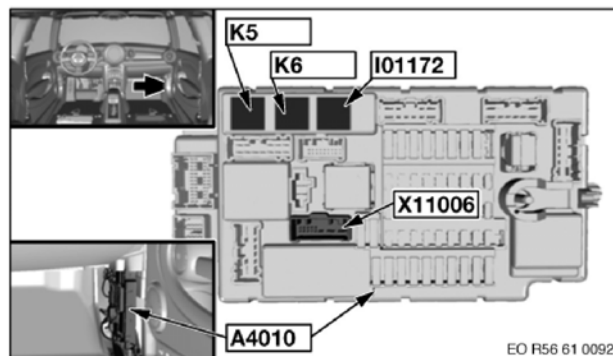


## I01172 Washer Pump Relay, Rear

I01172 Washer Pump Relay, Rear

K5, K6, I01172, A4010, X11006

K5, K6, I01172, A4010, X11006



## I01217 Terminating Resistor D-CAN

I01217 Terminating Resistor D-CAN

X19527; I01217; X8670; X8671

X19527; I01217; X8670; X8671

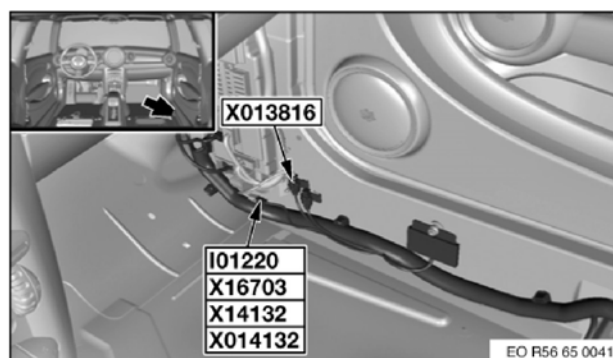


## I01220 RTTI Splitter

I01220 RTTI Splitter

I01220; X16703; X14132; X014132

I01220; X16703; X14132; X014132

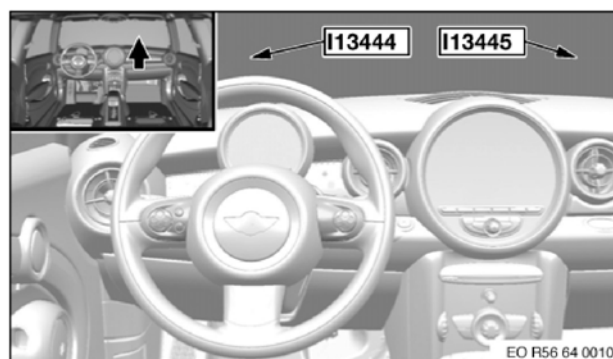


## I13444 Heated Windscreen , Left

I13444 Heated Windscreen , Left

I13444, I13445

I13444, I13445



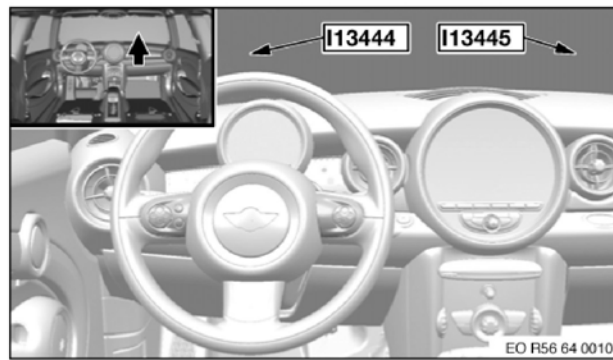
## I13445 Heated Windscreen , Right

I13445 Heated Windscreen , Right

I13444, I13445



I13444, I13445

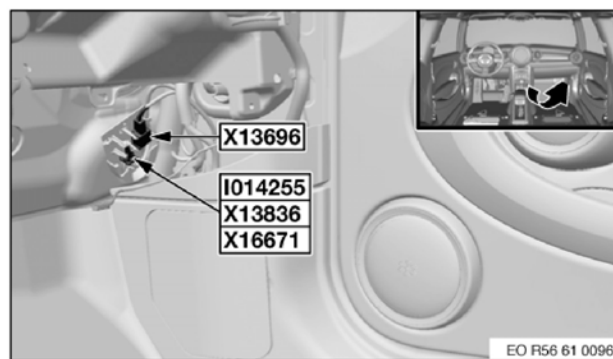


## I14255 MOST-Bus Connector

I14255 MOST-Bus Connector

X13696; I014255; X13836; X16671

X13696; I014255; X13836; X16671



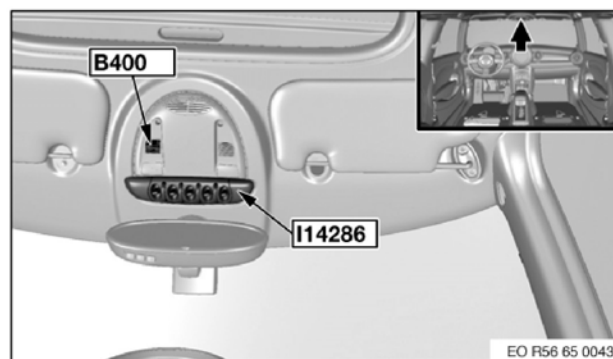
## I14286 Roof Operating Unit

I14286 Roof Operating Unit

EO\_R56\_65\_0043 (MINI\_MINI-R55/R56/R57 without Convertible)

B400, I14286

B400, I14286

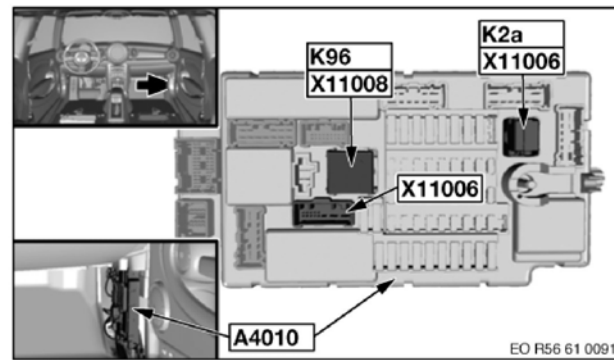


## K2a Horn Relay

K2a Horn Relay

K96, K2a, X11006, X11008, A4010

K96, K2a, X11006, X11008, A4010

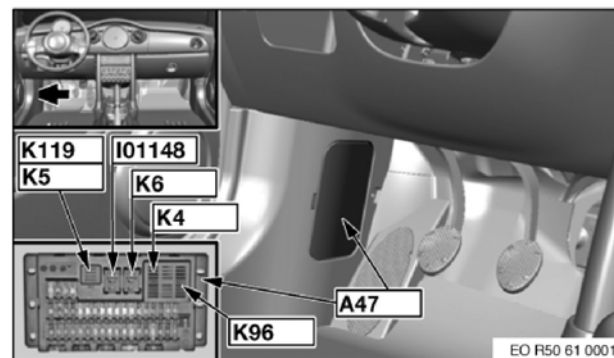


## K4 Heater Blower Relay

### K4 Heater Blower Relay

K119, K5, I01148, K6, K4, A47, K96

K119, K5, I01148, K6, K4, A47, K96

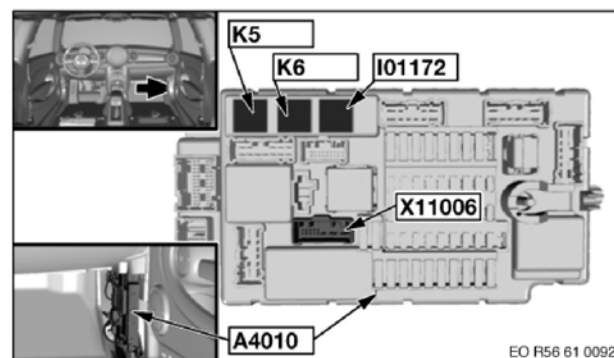


## K5 Washer Pump Relay, Front

### K5 Washer Pump Relay, Front

K5, K6, I01172, A4010, X11006

K5, K6, I01172, A4010, X11006

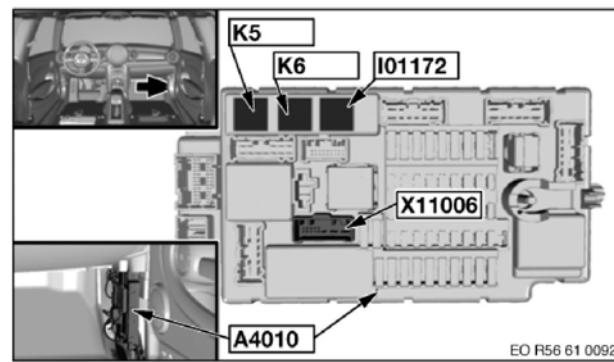


## K6 Relay, Headlight Washer

### K6 Relay, Headlight Washer

K5, K6, I01172, A4010, X11006

K5, K6, I01172, A4010, X11006

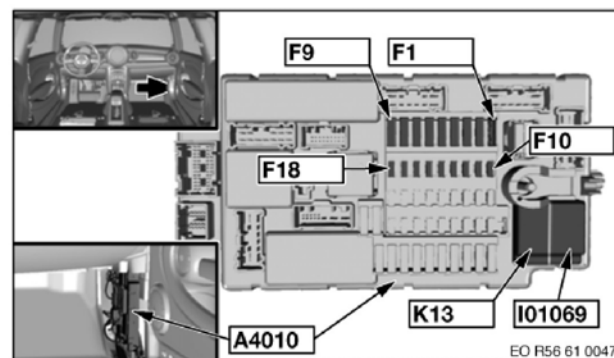


## K13 Rear Window Defroster Relay

K13 Rear Window Defroster Relay

A4010, F1, F9, F10, F18, K13, I01069

A4010, F1, F9, F10, F18, K13, I01069

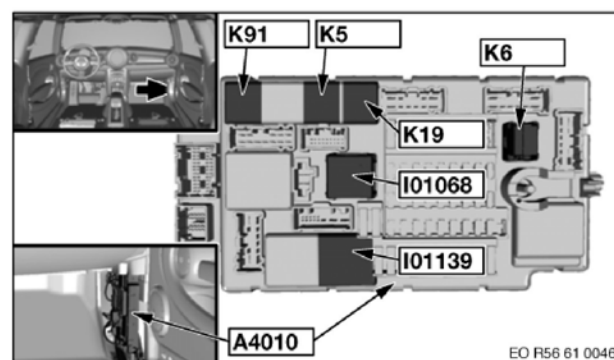


## K19 Relay A/C Compressor

K19 Relay A/C Compressor

A4010, K91, K5, K19, K6, I01068, I01139

A4010, K91, K5, K19, K6, I01068, I01139

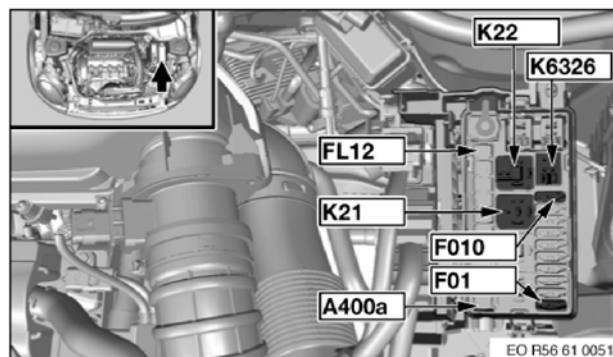


## K21 Electric Fan Relay

K21 Electric Fan Relay

K22, K6326, A400a, F010, K21, F01

K22, K6326, A400a, F010, K21, F01

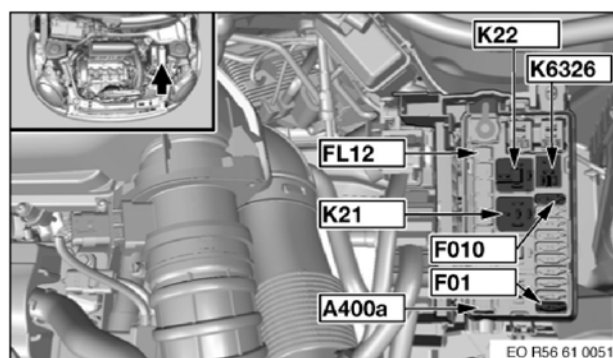


## K22 Electric Fan Relay 2

K22 Electric Fan Relay 2

K22, K6326, A400a, F010, K21, F01

K22, K6326, A400a, F010, K21, F01

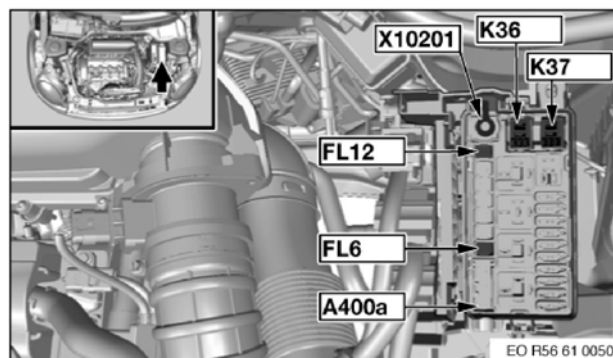


## K36 Wiper Relay 1

K36 Wiper Relay 1

X10201, K36, K37, FL12, FL6, A400a

X10201, K36, K37, FL12, FL6, A400a

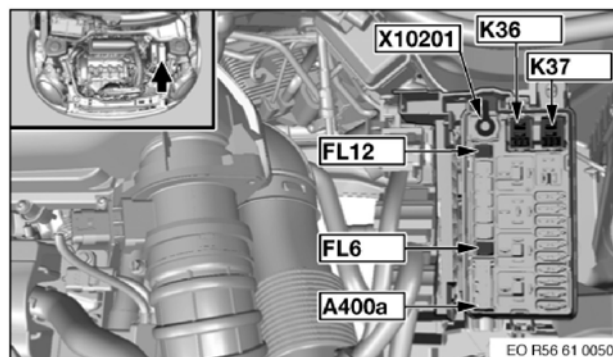


## K37 Wiper Relay 2

K37 Wiper Relay 2

X10201, K36, K37, FL12, FL6, A400a

X10201, K36, K37, FL12, FL6, A400a

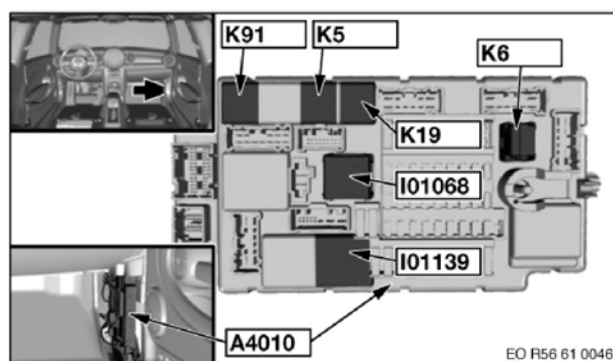


## K91 Rear Wiper Relay

### K91 Rear Wiper Relay

A4010, K91, K5, K19, K6, I01068, I01139

A4010, K91, K5, K19, K6, I01068, I01139

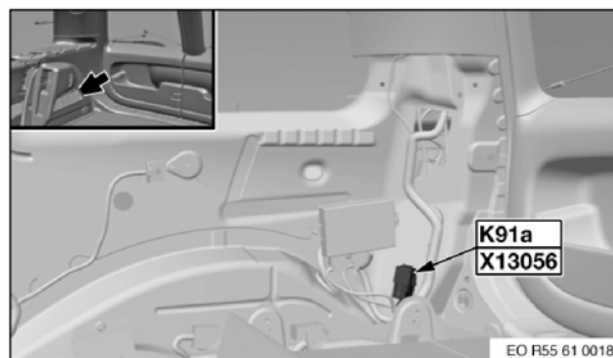


## K91a Relay 2 For Rear Window Wiper

### K91a Relay 2 For Rear Window Wiper

K91a, X13056

K91a, X13056

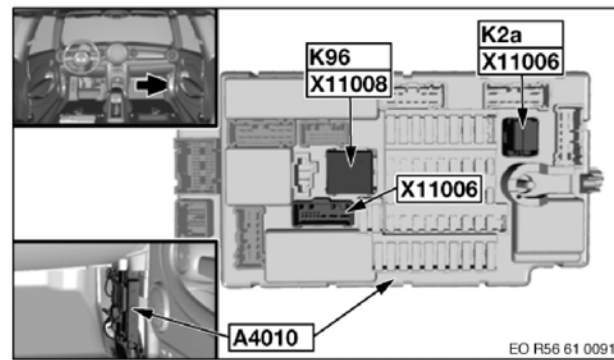


## K96 Fuel Pump Relay

### K96 Fuel Pump Relay

K96, K2a, X11006, X11008, A4010

K96, K2a, X11006, X11008, A4010

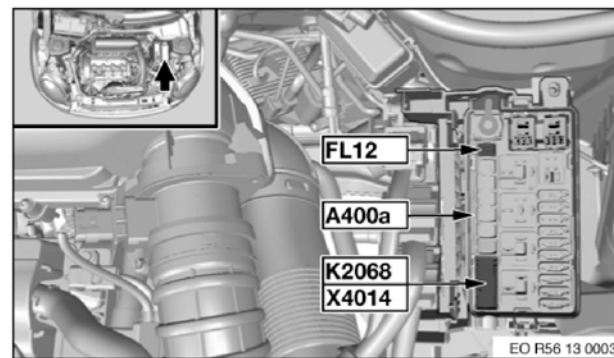


## K2068 Relay, Fuel Pump

K2068 Relay, Fuel Pump

A400a; K2068; X4014 (Petrol Engine)

A400a; K2068; X4014

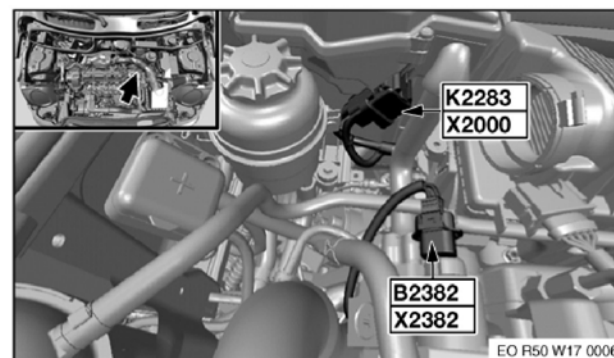


## K2283 Preheater Relay

K2283 Preheater Relay

K2283, X2000, B2382, X2382

K2283, X2000, B2382, X2382

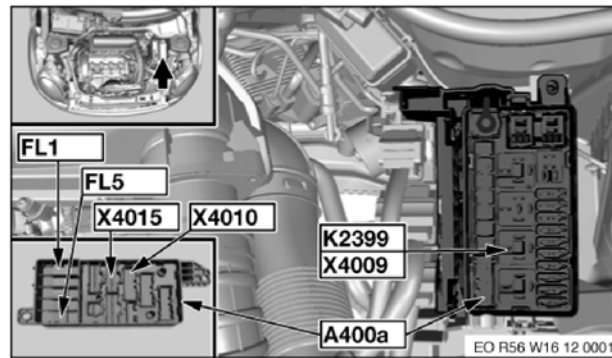


## K2399 Relay, Additive Pump

K2399 Relay, Additive Pump

FL1, FL5, X4015, X4010, A400a, K2399, X4009(MINI\_MINI-R55/R56/R57)

FL1, FL5, X4015, X4010, A400a, K2399, X4009

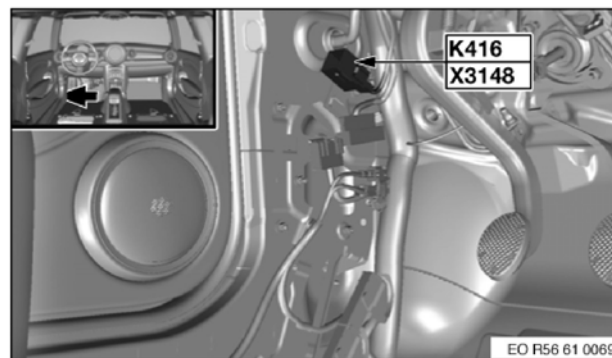


## K416 Windscreen Heater Relay

K416 Windscreen Heater Relay

K416, X3148

K416, X3148

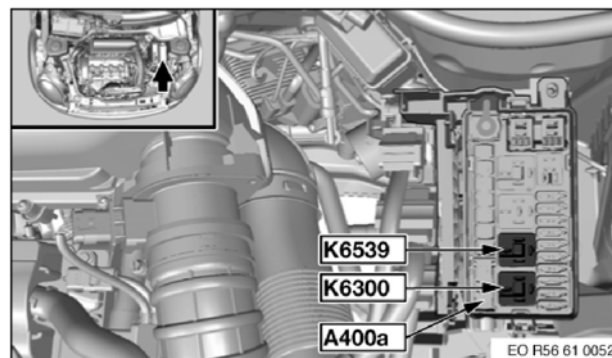


## K6300 DME Relay

K6300 DME Relay

K6539, K6300, A400a

K6539, K6300, A400a

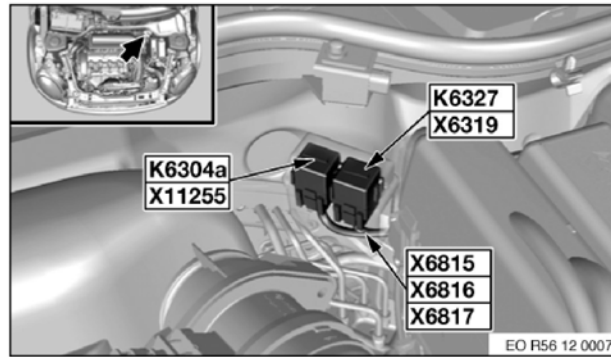


## K6327 Relay, Fuel Injector (N14 Engine)

K6327 Relay, Fuel Injector (N14 Engine)

K6327, X6319, K6304a, X11255

K6327, X6319, K6304a, X11255

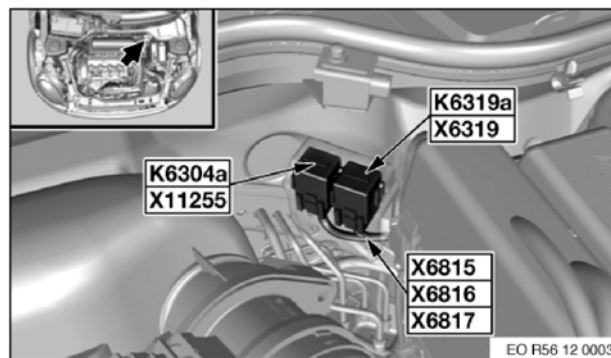


## K6304a Secondary Air Pump Relay

### K6304a Secondary Air Pump Relay

K6304a, X11255, X6815, X6816, X6817, K6319a, X6319

K6304a, X11255, X6815, X6816, X6817, K6319a, X6319

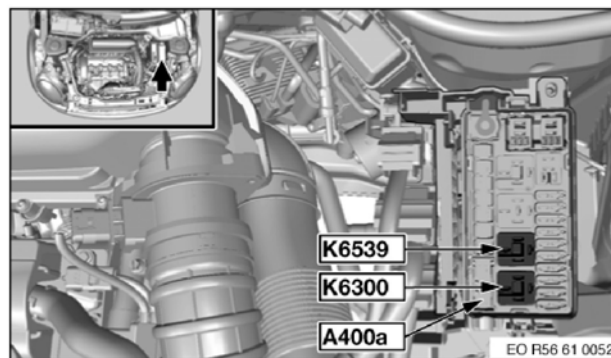


## K6539 Engine Breather Heating Relay

### K6539 Engine Breather Heating Relay

K6539, K6300, A400a

K6539, K6300, A400a



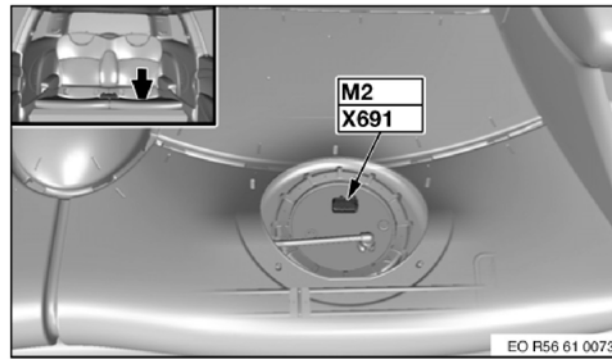
## M2 Electric Fuel Pump

### M2 Electric Fuel Pump

M2, X691



M2, X691

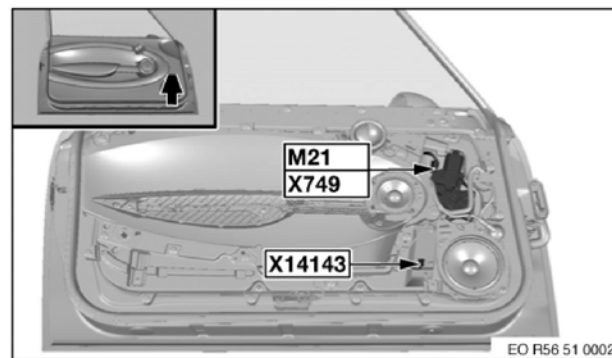


## M21 Driver's Window Motor

M21 Driver's Window Motor

M21, X749, X14143

M21, X749, X14143

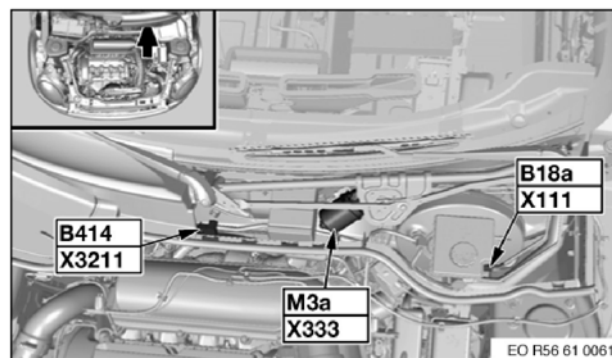


## M3 Wiper Module

M3 Wiper Module

B18a, X111, B414, X3211, M3a, X333

B18a, X111, B414, X3211, M3a, X333

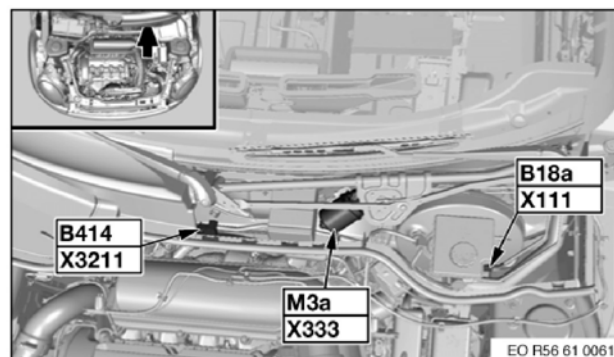


## M3a Wiper Motor

M3a Wiper Motor

B18a, X111, B414, X3211, M3a, X333

B18a, X111, B414, X3211, M3a, X333

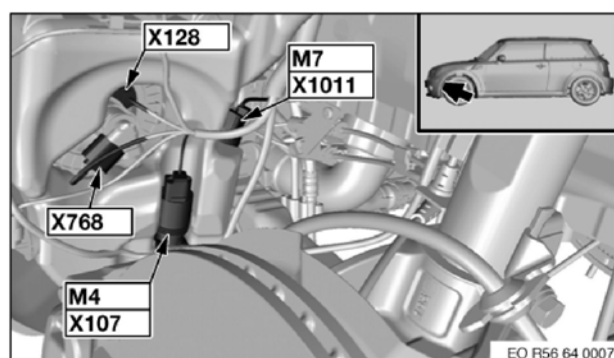


## M4 Windshield Washer Pump

### M4 Windshield Washer Pump

X128, M7, X1011, M4, X107, X768

X128, M7, X1011, M4, X107, X768

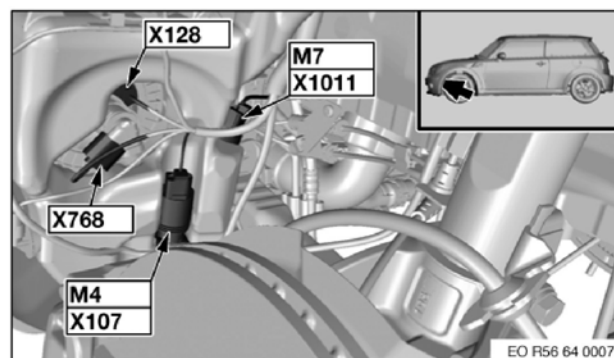


## M7 Headlight Washer Pump

### M7 Headlight Washer Pump

X128, M7, X1011, M4, X107, X768

X128, M7, X1011, M4, X107, X768

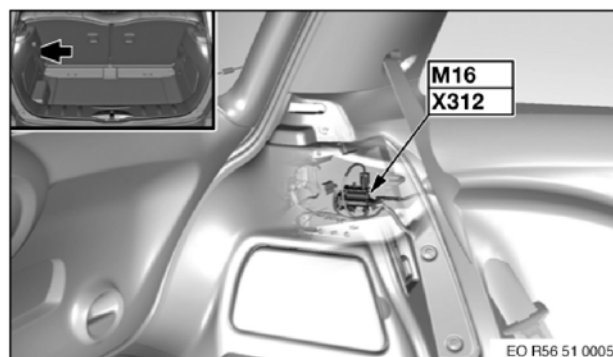


## M16 Central Locking Drive, Fuel Filler Flap

### M16 Central Locking Drive, Fuel Filler Flap

M16, X312

M16, X312

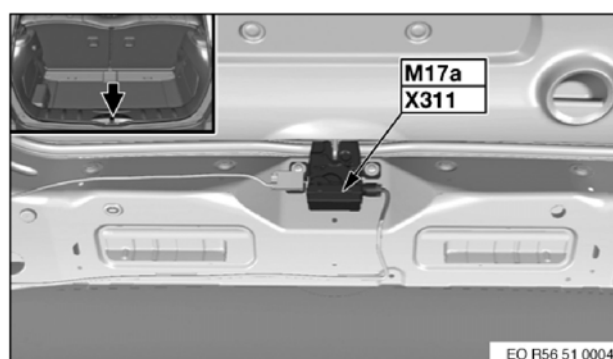


## M17a Central Locking Drive, Trunk Lid

M17a Central Locking Drive, Trunk Lid

M17a, X311

M17a, X311

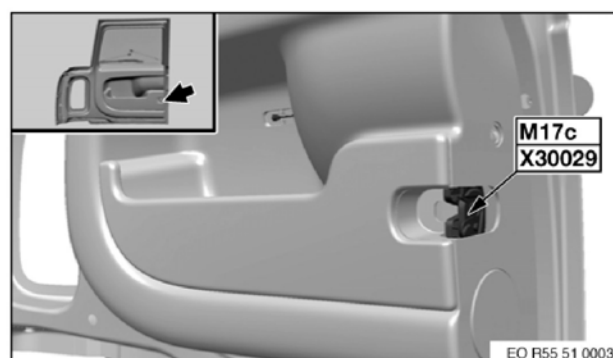


## M17c Central Locking Drive Unit, Split Door, Right

M17c Central Locking Drive Unit, Split Door, Right

M17c, X30029

M17c, X30029

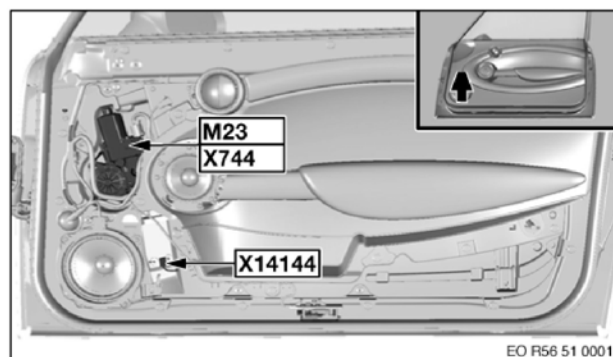


## M23 Passenger's Window Motor

M23 Passenger's Window Motor

M23, X744, X14144

M23, X744, X14144

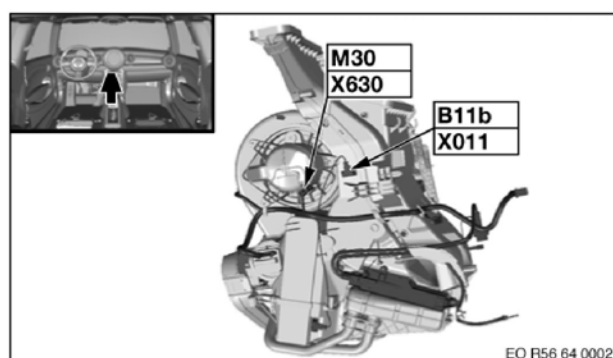


## M30 Blower Motor

M30 Blower Motor

B11a, X011, M30, X630

B11a, X011, M30, X630

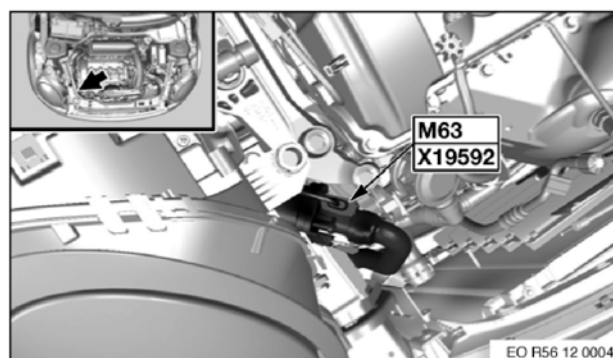


## M63 Secondary Air Injection Pump

M63 Secondary Air Injection Pump

M63, X19592

M63, X19592

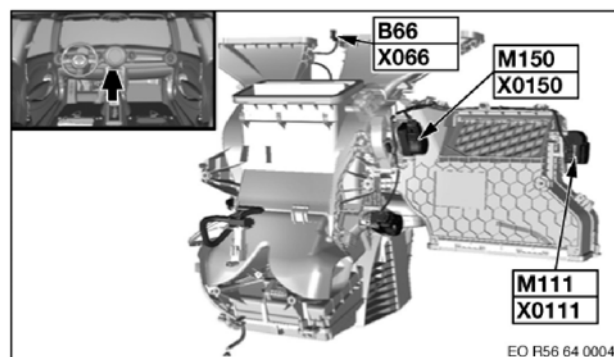


## M111 Fresh Air/Recirculating Air Flap Motor

M111 Fresh Air/Recirculating Air Flap Motor

B66, X066, M150, X0150, M111, X0111

B66, X066, M150, X0150, M111, X0111

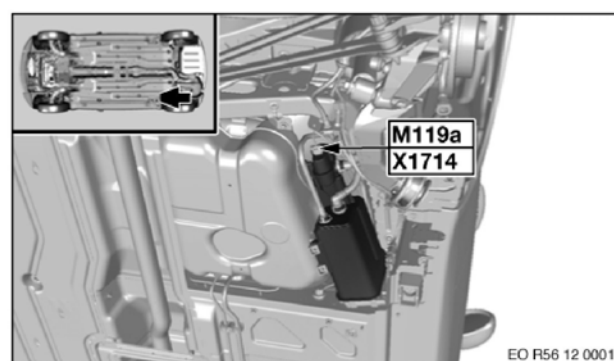


## M119a Diagnostic Module For Fuel Tank Leakage

M119a Diagnostic Module For Fuel Tank Leakage

M119a, X1714

M119a, X1714

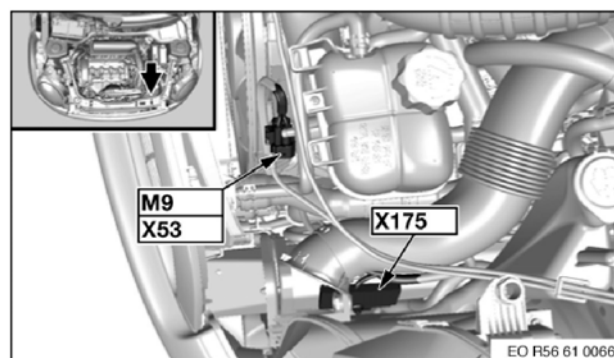


## M135 Electric Fan

M135 Electric Fan

M9, X53, X175

M9, X53, X175

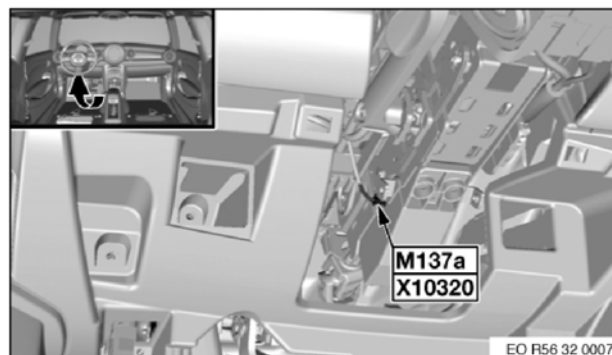


## M137a Electric Steering Lock

M137a Electric Steering Lock

M137a, X10320

M137a, X10320

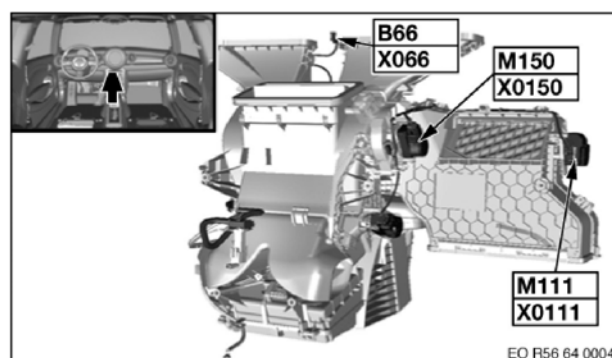


## M150 Air Distribution Flap Motor

### M150 Air Distribution Flap Motor

B66, X066, M150, X0150, M111, X0111

B66, X066, M150, X0150, M111, X0111

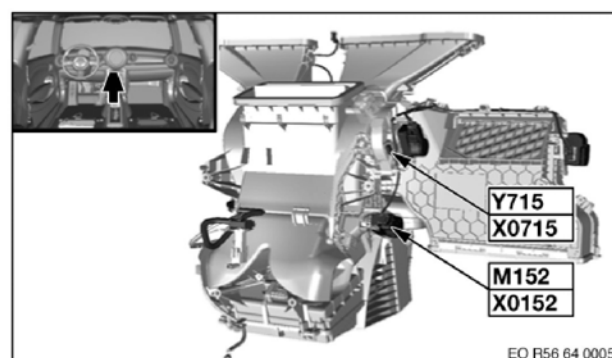


## M152 Mixer Flap Motor

### M152 Mixer Flap Motor

Y715, X0715, M152, X0152

Y715, X0715, M152, X0152

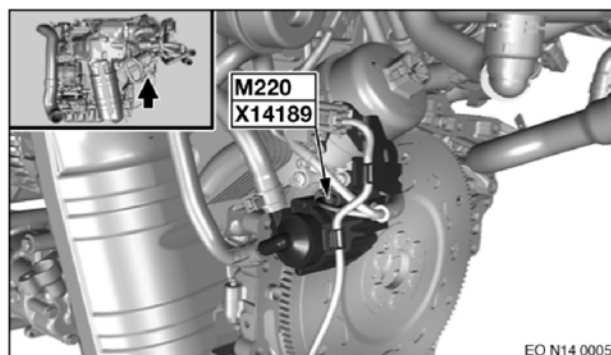


## M220 Turbocharger Coolant Pump (N14 Engine)

### M220 Turbocharger Coolant Pump (N14 Engine)

M220, X14189

M220, X14189

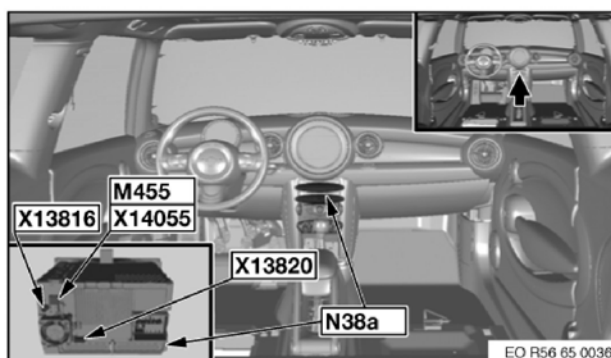


## M455 Fan M-ASK/CCC

M455 Fan M-ASK/CCC

X13816, M455, X14055, X13820, N38a

X13816, M455, X14055, X13820, N38a

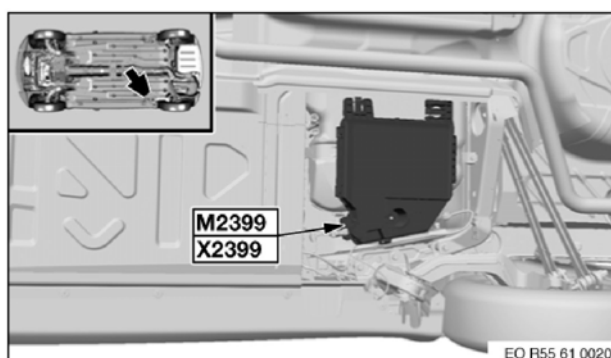


## M2399 Additive Pump

M2399 Additive Pump

M2399, X2399

M2399, X2399

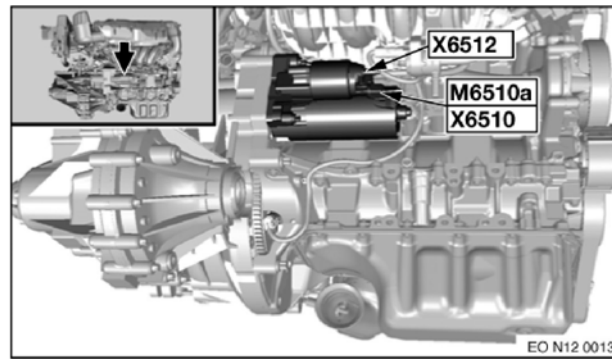


## M6510a Starter

M6510a Starter

M6510a, X6510, X6512

M6510a, X6510, X6512

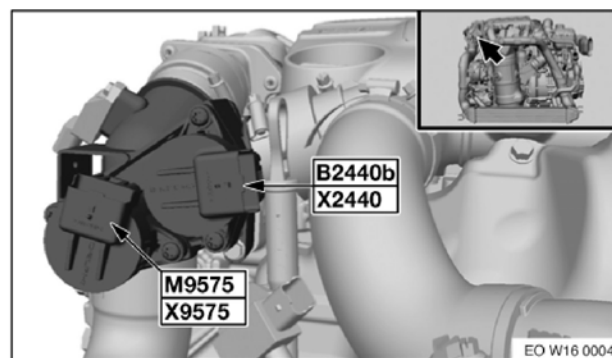


## M9575 Throttle Valve

### M9575 Throttle Valve

B2440b, X2440, M9575, X9575 (engine)

B2440b, X2440, M9575, X9575

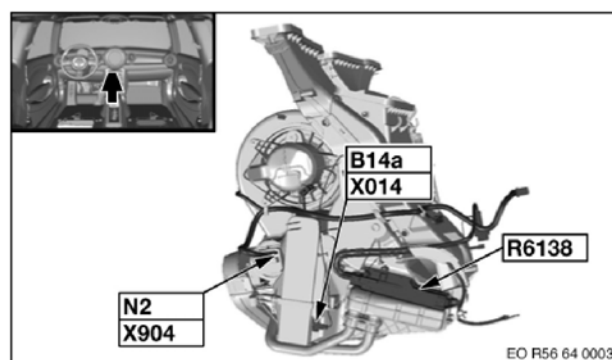


## N2 Blower Output Stage (IHKA Integrated Automatic Heating/Air Conditioning)

N2 Blower Output Stage (IHKA Integrated Automatic Heating/Air Condition)

N2, B14a, X014, R6138

N2, B14a, X014, R6138



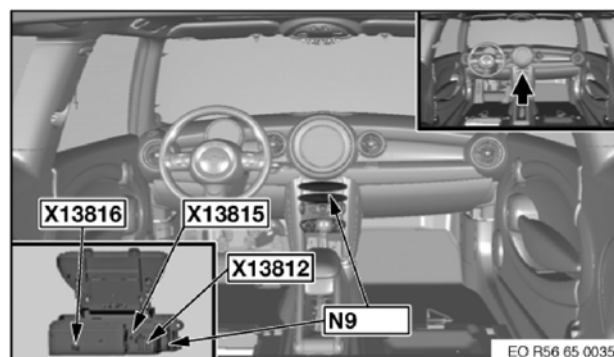
## N9 Radio (RAD Radio)

N9 Radio (RAD Radio)

X13816, X13815, X13812, N9 (RAD radio)



X13816, X13815, X13812, N9

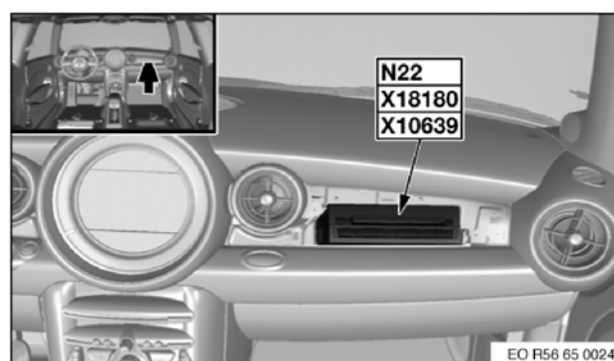


## N22 CD Changer

N22 CD Changer

N22, X18180, X10639

N22, X18180, X10639

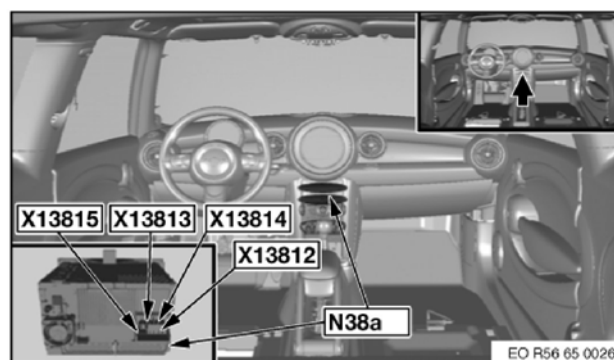


## X13815, X13813, X13814, X13812, N38a (RAD2-BO user interface)

N38a CCC/M-ASK (RAD2-BO User Interface or CCC-BO User Interface)

X13815, X13813, X13814, X13812, N38a (RAD2-BO user interface)

X13815, X13813, X13814, X13812, N38a

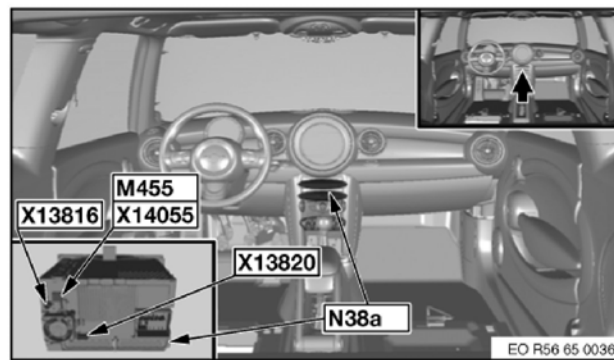


## X13816, M455, X14055, X13820, N38a (RAD2-BO user interface)

N38a CCC/M-ASK (RAD2-BO User Interface or CCC-BO User Interface)

X13816, M455, X14055, X13820, N38a(RAD2-BO user interface)

X13816, M455, X14055, X13820, N38a

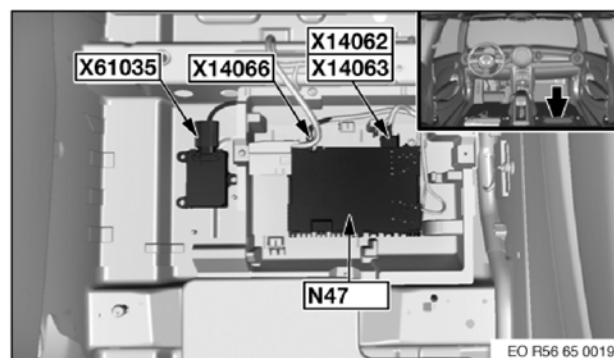


## N47 Satellite Receiver (USA\_LHD)

N47 Satellite Receiver(USA\_LHD)

X14062, X14063, X14066, X61035, N47

X14062, X14063, X14066, X61035, N47

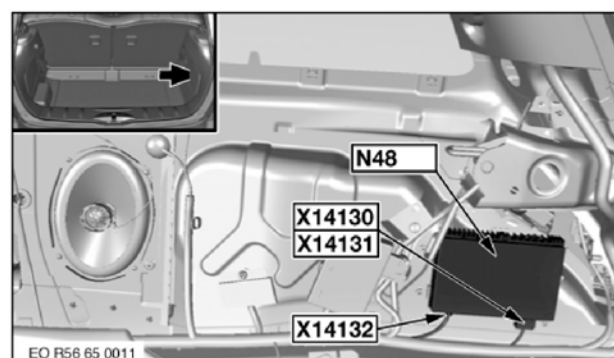


## N48 Digital Tuner US (USA\_LHD)

N48 Digital Tuner Us (USA\_LHD)

N48, X14132, X14130, X14131

N48, X14132, X14130, X14131

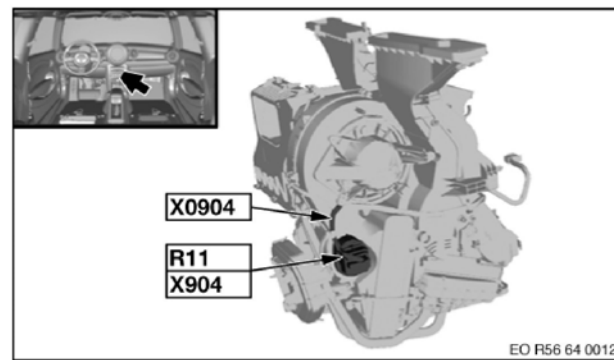


## R11 Blower Resistors (Without IHKA Integrated Automatic Heating/Air Conditioning)

R11 Blower Resistors (Without IHKA Integrated Automatic Heating/Air Conditioning)

R11; X904; X0904 (Without IHKA Integrated Automatic Heating/Air Conditioning)

R11; X904; X0904

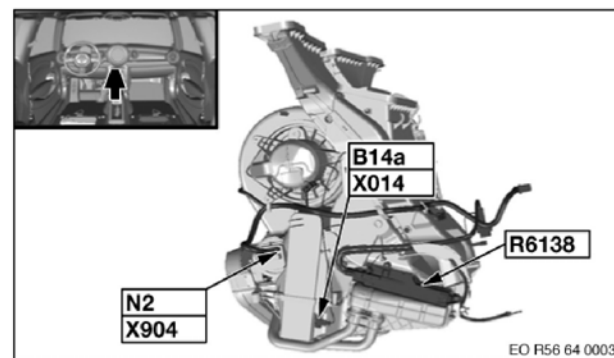


## R6138 Electric Auxiliary Heater (Engine)

R6138 Electric Auxiliary Heater (Engine)

N2, B14a, X014, R6138

N2, B14a, X014, R6138

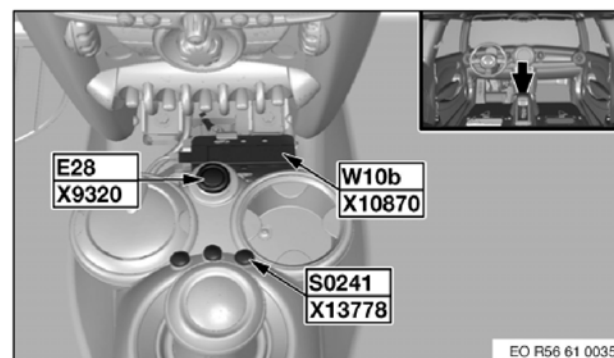


## S0241 Center Console Switch Cluster

S0241 Center Console Switch Cluster

E28, X9320, W10b, X10870, S0241, X13778

E28, X9320, W10b, X10870, S0241, X13778

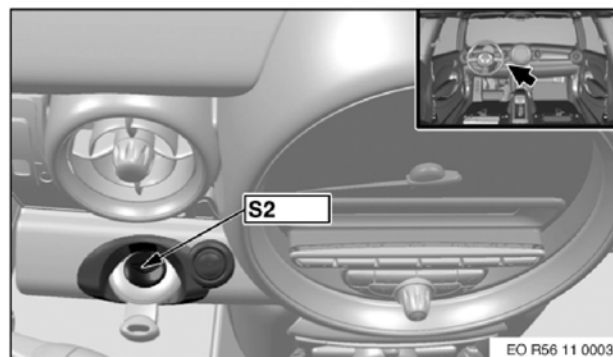


## S2 Ignition Switch

S2 Ignition Switch

S2

S2

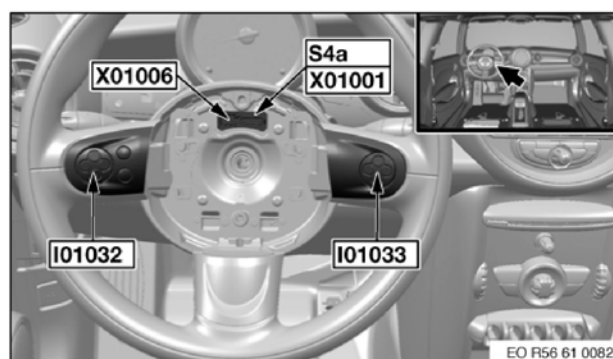


## S4 Horn Switch

S4 Horn Switch

S4a, X01006, X01001, I01032, I01033

S4a, X01006, X01001, I01032, I01033

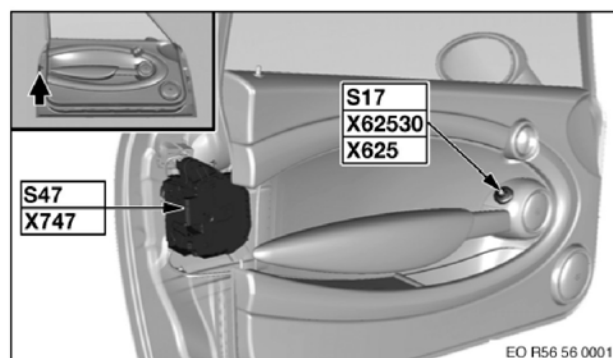


## S17 Mirror Adjustment Switch

S17 Mirror Adjustment Switch

S17, X62530, X625, S47, X747

S17, X62530, X625, S47, X747

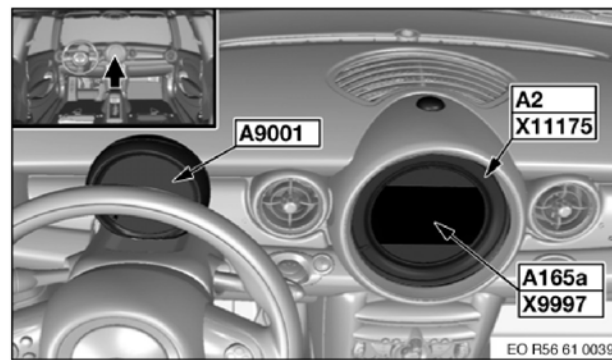


## S18 Hazard Switch

S18 Hazard Switch

A9001, S18a, X516, A2, X11175, A165a, X9997

A9001, S18a, X516, A2, X11175, A165a, X9997

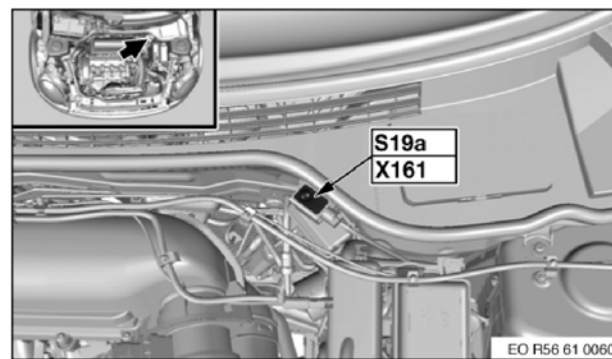


## S19 Hood Contact Switch

S19 Hood Contact Switch

S19a, X161

S19a, X161

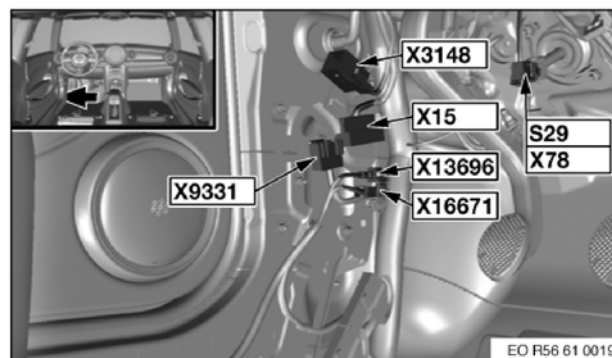


## S29 Brake Light Switch

S29 Brake Light Switch

X3148, X9331, X16671, X13696, X15, S29, X78

X3148, X9331, X16671, X13696, X15, S29, X78

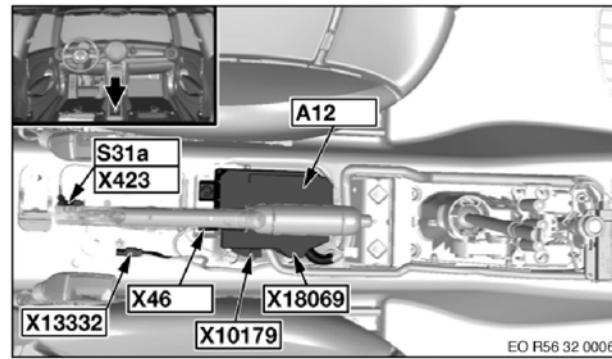


## S31a Parking Brake Warning Switch

S31a Parking Brake Warning Switch

A12, S31a, X423, X13322, X46, X10179, X18069

A12, S31a, X423, X13322, X46, X10179, X18069

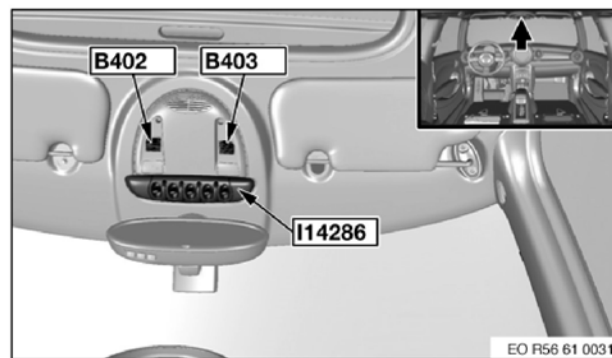


## S38a Slide/Tilt Sunroof Switch

S38a Slide/Tilt Sunroof Switch

B402, B403, I14286

B402, B403, I14286

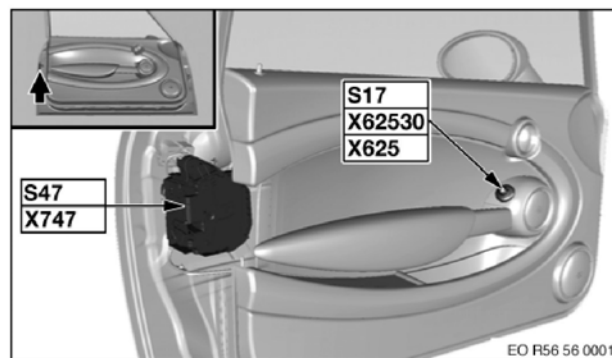


## S47 System Lock, Diver's Door

S47 System Lock, Diver's Door

S17, X62530, X625, S47, X747

S17, X62530, X625, S47, X747

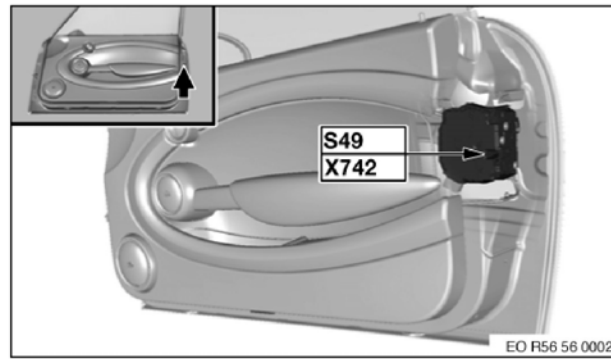


## S49 System Lock, Passenger's Door

S49 System Lock, Passenger's Door

S49, X742

S49, X742

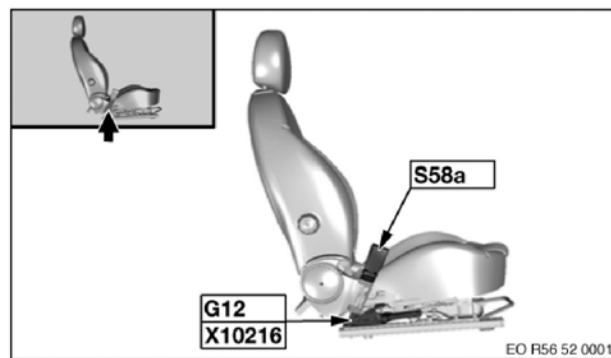


## S58a Driver's Seat Belt Buckle Contact

S58a Driver's Seat Belt Buckle Contact

S58a, G12, X10216

S58a, G12, X10216

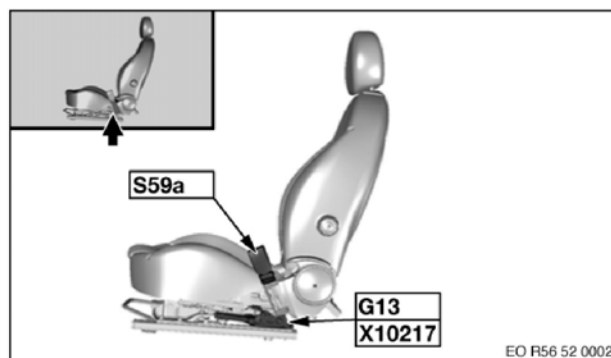


## S59a Passenger's Seat Belt Buckle Contact

S59a Passenger's Seat Belt Buckle Contact

S59a, G13, X10217

S59a, G13, X10217

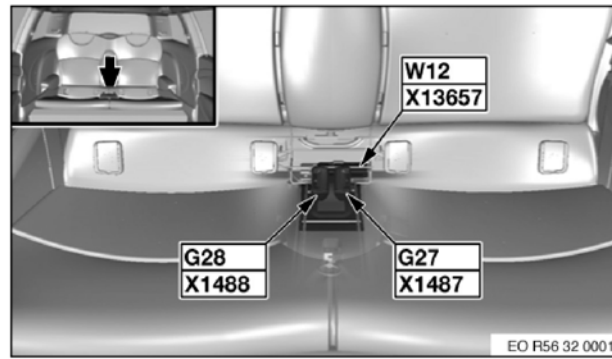


## S107 Seat Belt Buckle Contact, Rear Driver's Side

S107 Seat Belt Buckle Contact, Rear Driver's Side

W12, X13657, G27, X1487, G28, X1488 (Left-Hand Drive)

W12, X13657, G27, X1487, G28, X1488

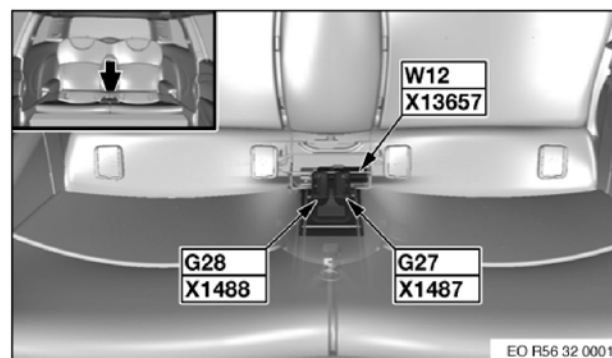


## S108 Seat Belt Buckle Contact, Rear Passenger's Side

S108 Seat Belt Buckle Contact, Rear Passenger's Side

W12, X13657, G27, X1487, G28, X1488(Left-Hand Drive)

W12, X13657, G27, X1487, G28, X1488

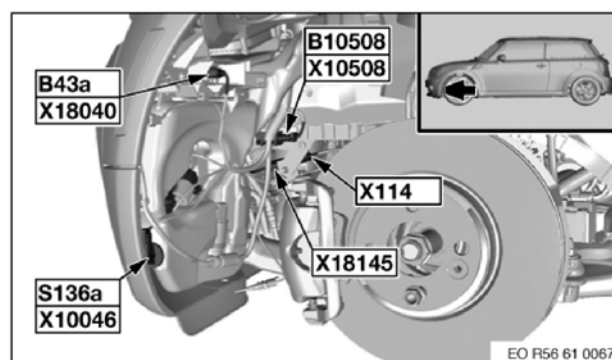


## S136a Washer Fluid Level Switch

S136a Washer Fluid Level Switch

B43a, X18040, S136a, X10046, X18145, X114, B10508, X10508

B43a, X18040, S136a, X10046, X18145, X114, B10508, X10508



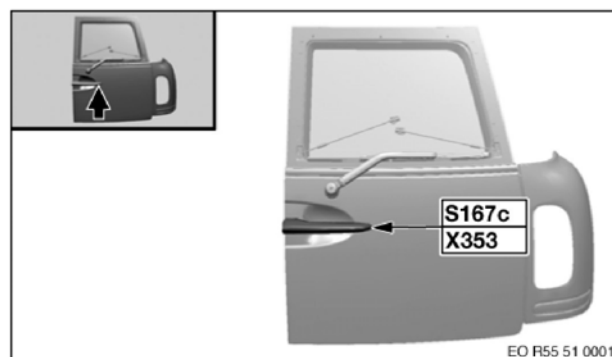
## S167c Split Door Button, Right

S167c Split Door Button, Right

S167c, X353



S167c, X353

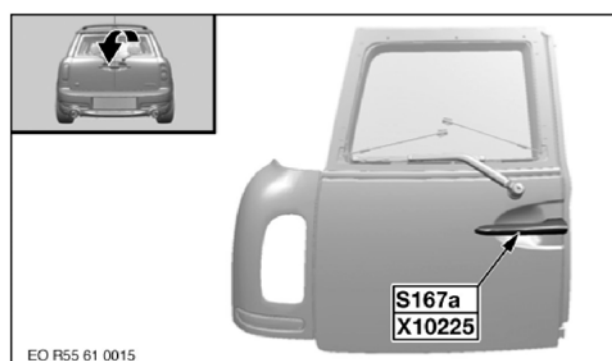


## S167d Split Door Button, Left

S167d Split Door Button, Left

S167a, X10225

S167a, X10225

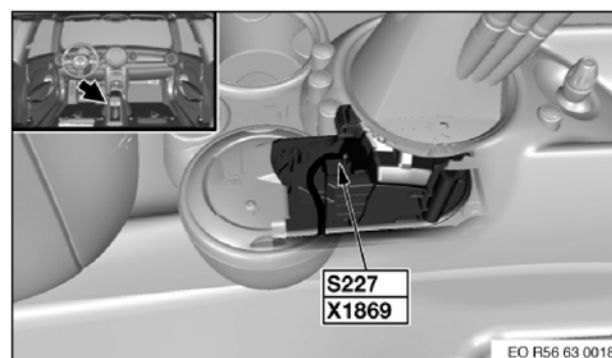


## S227 Selector Lever Position Switch (EGS Electronic Transmission Control)

S227 Selector Lever Position Switch(EGS Electronic Transmission Control)

S227, X1869

S227, X1869

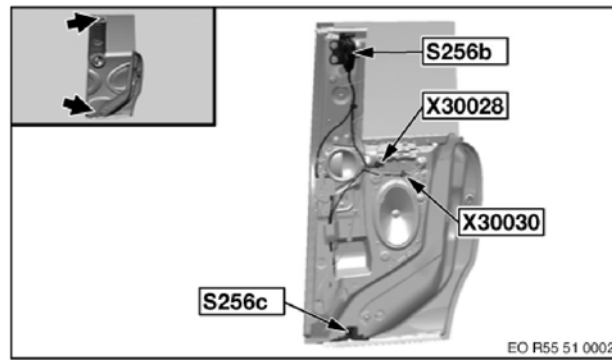


## S239b Clubdoor\_V Lock, Top

S239b Clubdoor\_V Lock, Top

S256b, X30028, X30030, S256c

S256b, X30028, X30030, S256c

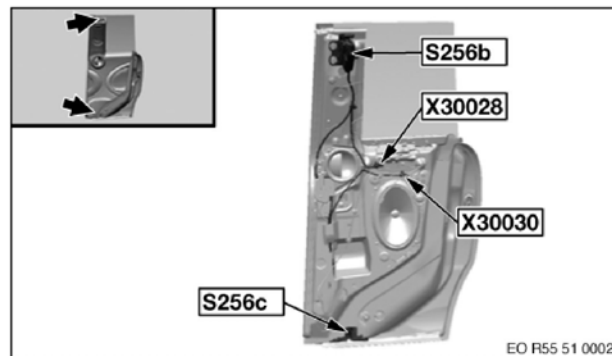


## S239c Clubdoor\_V Lock, Button

S239c Clubdoor\_V Lock, Button

S256b, X30028, X30030, S256c

S256b, X30028, X30030, S256c

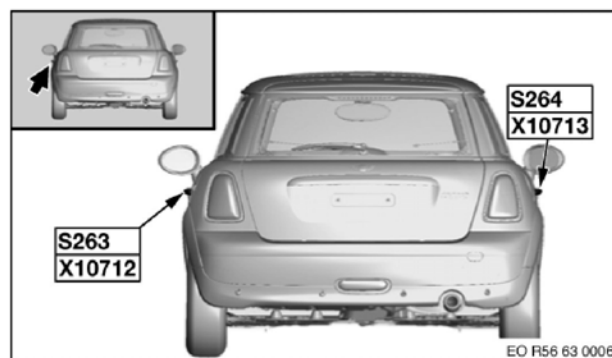


## S263a Button, Outside Door Handle, Diver's Side (CA Comfort Access)

S263a Button, Outside Door Handle, Diver's Side (CA Comfort Access)

S263, X10712, S264, X10713

S263, X10712, S264, X10713

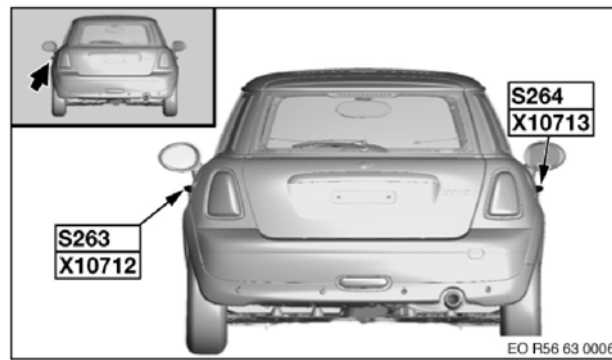


## S264a Outer Door Handle Button, Passenger's Side (CA Comfort Access)

S264a Outer Door Handle Button, Passenger's Side (CA Comfort Access)

S263, X10712, S264, X10713

S263, X10712, S264, X10713



## S559 Switch, Passenger Airbag Deactivation

S559 Switch, Passenger Airbag Deactivation

S559, X19565, X18198, X256

S559, X19565, X18198, X256

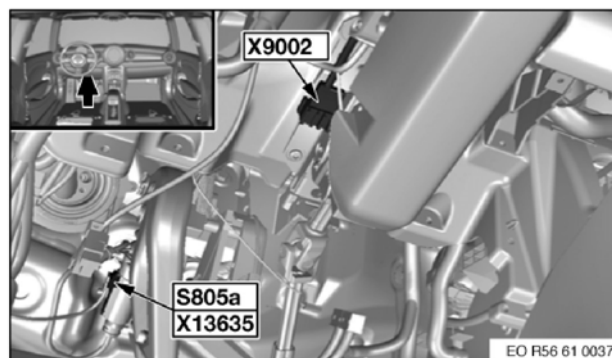


## S805b Clutch Module

S805b Clutch Module

X9002, S805a, X13635

X9002, S805a, X13635

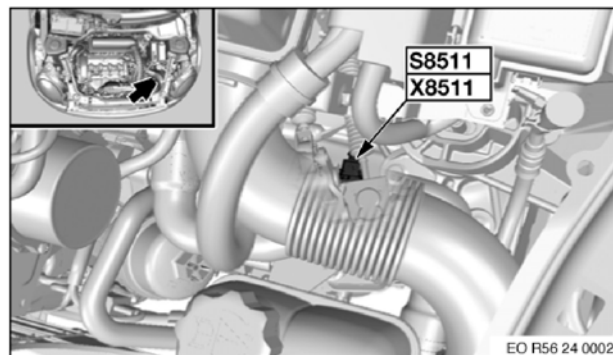


## S8511 Back-Up Light Switch

S8511 Back-Up Light Switch

S8511, X8511

S8511, X8511

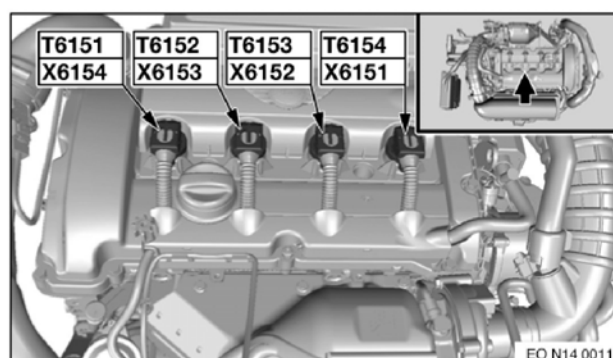


## T6151 Ignition Coil, Cylinder 1

T6151 Ignition Coil, Cylinder 1

T6151, X6151, T6152, X6152, T6153, X6153, T6154, X6154

T6151, X6151, T6152, X6152, T6153, X6153, T6154, X6154

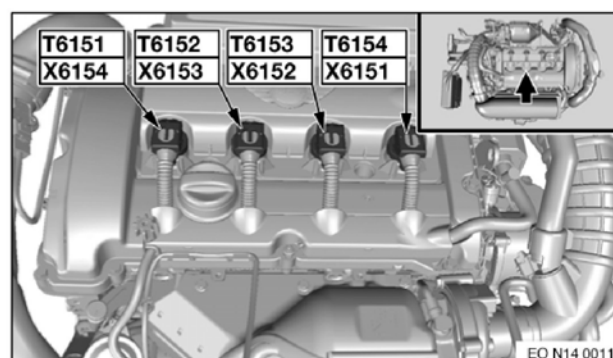


## T6152 Ignition Coil, Cylinder 2

T6152 Ignition Coil, Cylinder 2

T6151, X6151, T6152, X6152, T6153, X6153, T6154, X6154

T6151, X6151, T6152, X6152, T6153, X6153, T6154, X6154

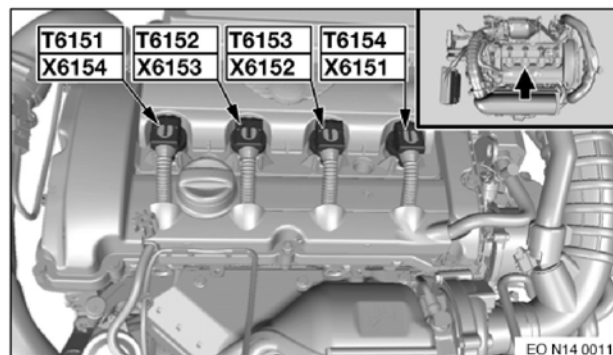


## T6153 Ignition Coil, Cylinder 3

T6153 Ignition Coil, Cylinder 3

T6151, X6151, T6152, X6152, T6153, X6153, T6154, X6154

T6151, X6151, T6152, X6152, T6153, X6153, T6154, X6154

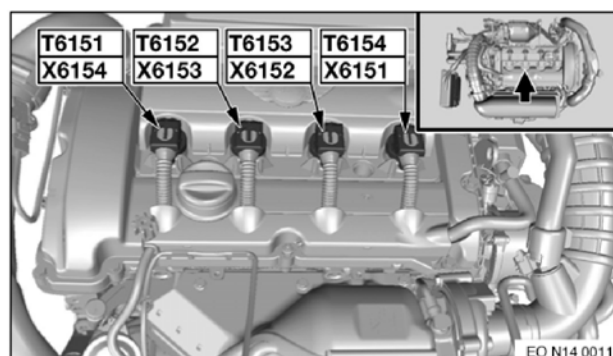


## T6154 Ignition Coil, Cylinder 4

T6154 Ignition Coil, Cylinder 4

T6151, X6151, T6152, X6152, T6153, X6153, T6154, X6154

T6151, X6151, T6152, X6152, T6153, X6153, T6154, X6154

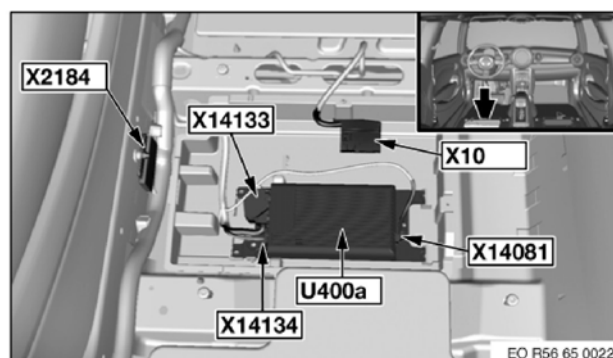


## U400a Telephone Transceiver

U400a Telephone Transceiver

X14133, U400a, X2184, X14134, X14081

X14133, U400a, X2184, X14134, X14081

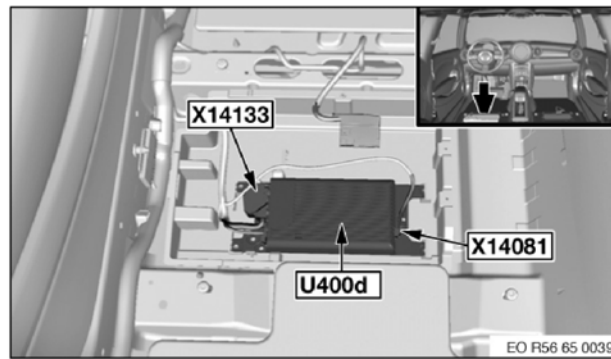


## U400d ULF-SBX

U400d ULF-SBX

U400d, X14133, X14081 (ULF-SBX Interface Box)

U400d, X14133, X14081

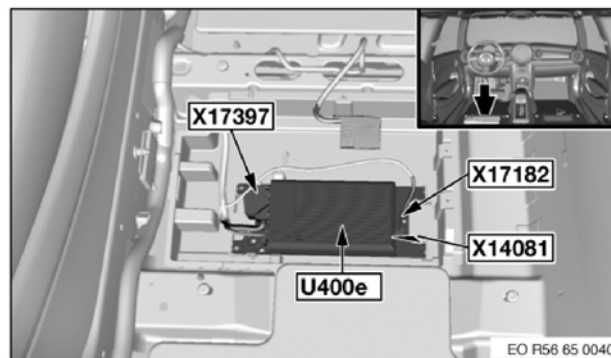


## U400e ULF-SBX-H

U400e ULF-SBX-H

U400e, X17182, X17397, X14081

U400e, X17182, X17397, X14081

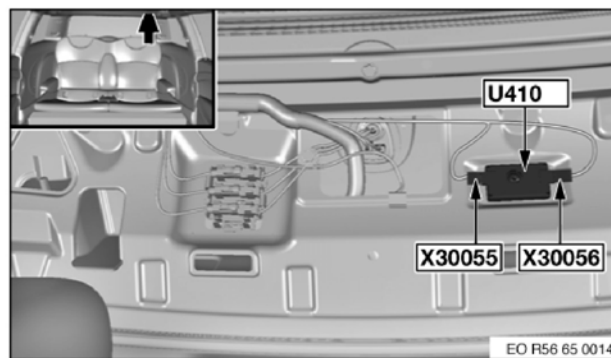


## U410 AF Interface Suppressor Filter

U410 AF Interface Suppressor Filter

U410, X30055, X30056

U410, X30055, X30056

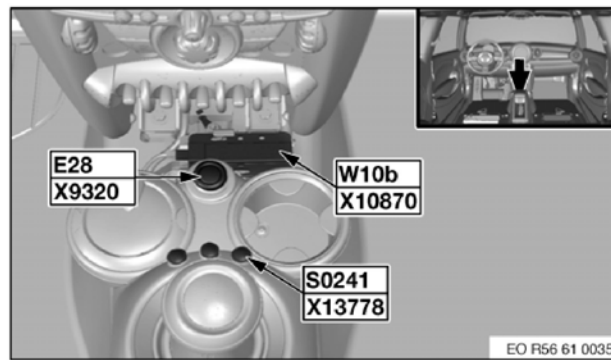


## W10b Interior Antenna, Centre Console, Front (CA Comfort Access)

W10b Interior Antenna, Centre Console, Front (CA Comfort Access)

E28, X9320, W10b, X10870, S0241, X13778

E28, X9320, W10b, X10870, S0241, X13778

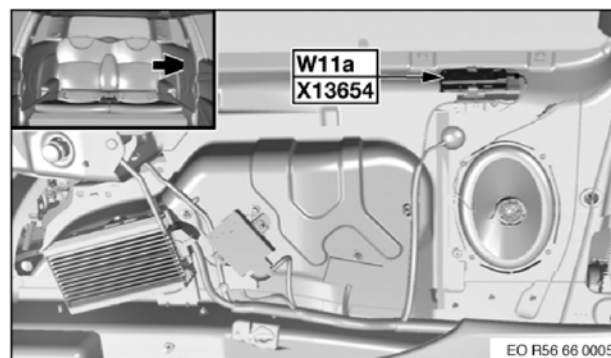


## W11a Interior Antenna, Side Section, Left (CA Comfort Access)

W11a Interior Antenna, Side Section, Left (CA Comfort Access)

W11a, X13654 (Left-Hand Drive)

W11a, X13654

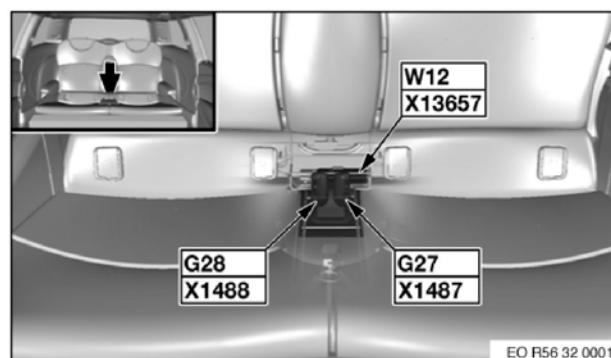


## W12 Interior Antenna, Rear (CA Comfort Access)

W12 Interior Antenna, Rear (CA Comfort Access)

W12, X13657, G27, X1487, G28, X1488

W12, X13657, G27, X1487, G28, X1488

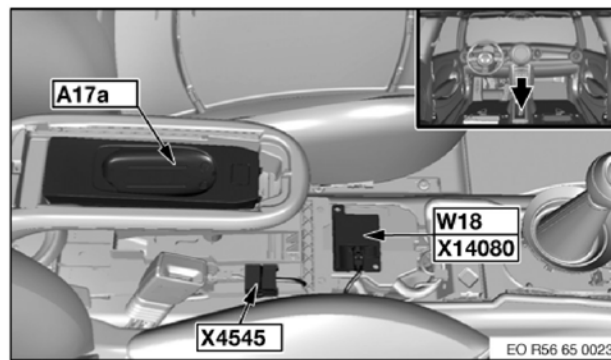


## W18 Bluetooth Antenna

W18 Bluetooth Antenna

A117a, X4545, W18, X14080

A117a, X4545, W18, X14080



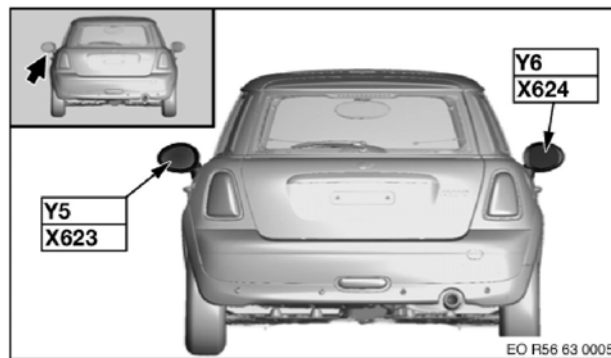
## X\_Connectors, Terminals

For information regarding locations for Connectors, please refer to the vehicle level connector locations. See: Connector Locations

## Y6, X624, Y5, X623

Y6, X624, Y5, X623

Y6, X624, Y5, X623

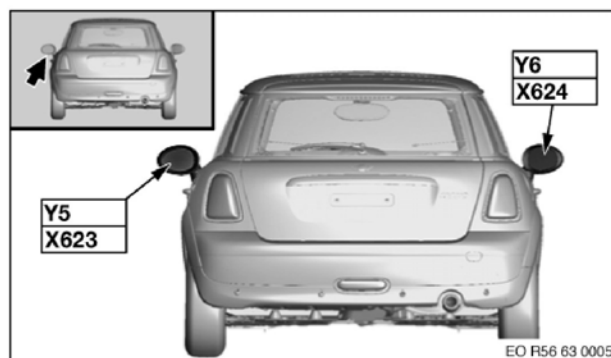


## Y6 Passenger's Side Mirror

Y6 Passenger's Side Mirror

Y6, X624, Y5, X623

Y6, X624, Y5, X623



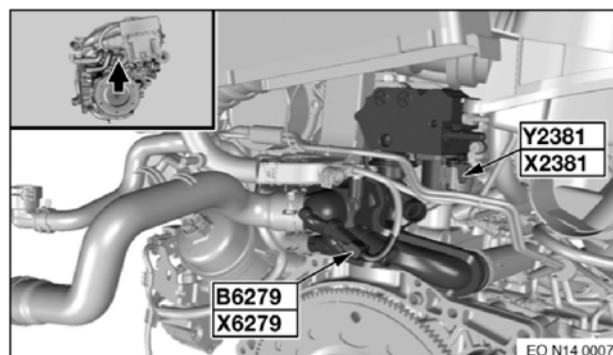
## Y2381 Volume Control Valve (N14 Engine)

Y2381 Volume Control Valve (N14 Engine)

Y2381, X2381, B6279, X6279



Y2381, X2381, B6279, X6279

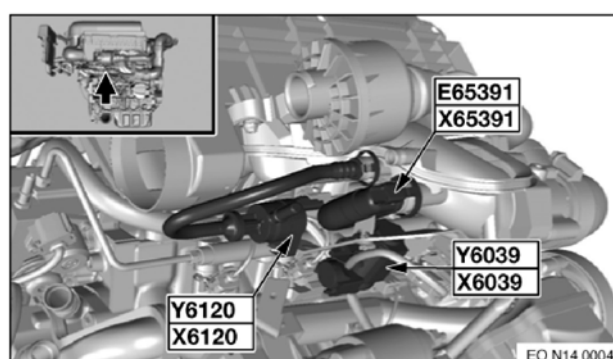


## Y6039 Wastegate Valve (N14 Engine)

Y6039 Wastegate Valve (N14 Engine)

E65391, X65391, Y6039, X6039, Y6120, X6120

E65391, X65391, Y6039, X6039, Y6120, X6120

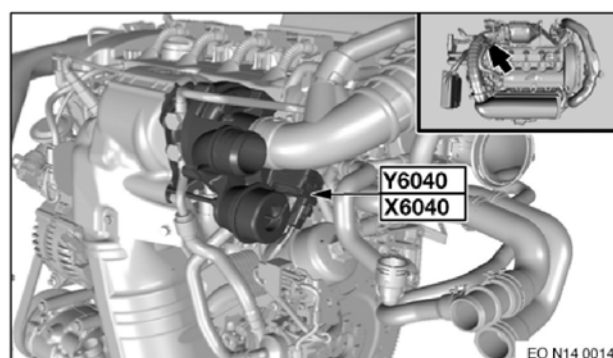


## Y6040 Thrust Air Control Valve (N14 Engine)

Y6040 Thrust Air Control Valve (N14 Engine)

Y6040, X6040

Y6040, X6040

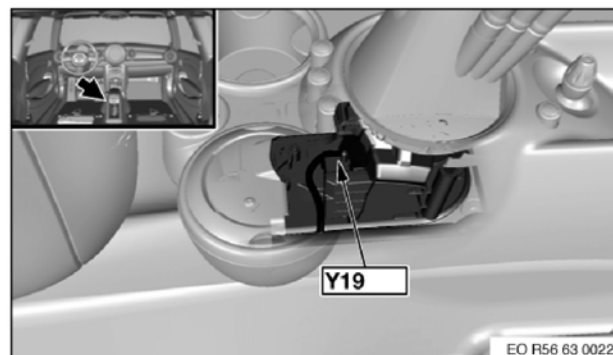


## Y19 Park/Neutral Position Switch

Y19 Park/Neutral Position Switch

Y19

Y19

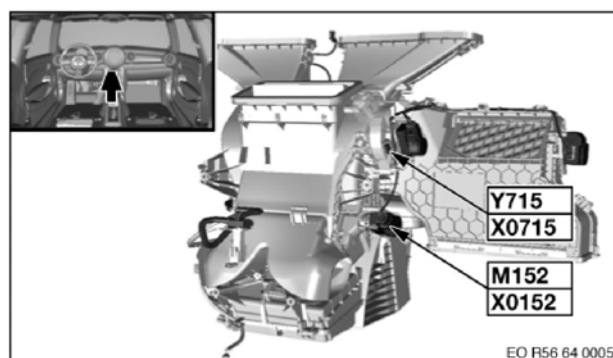


## Y715 Microswitch, Air Distribution

Y715 Microswitch, Air Distribution

Y715, X0715, M152, X0152

Y715, X0715, M152, X0152

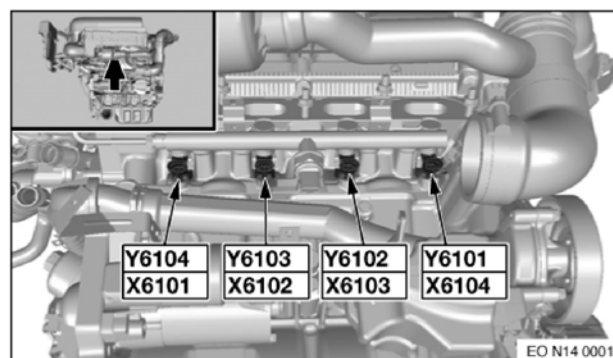


## Y6101 Fuel Injector, Cylinder 1

Y6101 Fuel Injector Cylinder 1

Y6101, X6101, Y6102, X6102, Y6103, X6103, Y6104, X6104

Y6101, X6101, Y6102, X6102, Y6103, X6103, Y6104, X6104

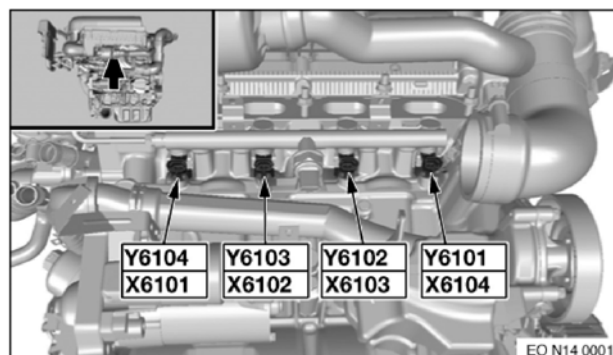


## Y6102 Fuel Injector, Cylinder 2

Y6102 Fuel Injector Cylinder 2

Y6101, X6101, Y6102, X6102, Y6103, X6103, Y6104, X6104

Y6101, X6101, Y6102, X6102, Y6103, X6103, Y6104, X6104

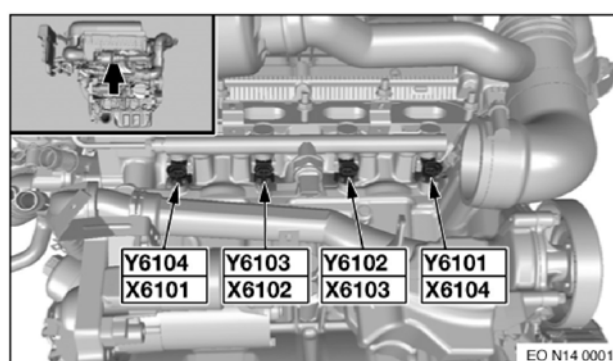


## Y6103 Fuel Injector, Cylinder 3

### Y6103 Fuel Injector Cylinder 3

Y6101, X6101, Y6102, X6102, Y6103, X6103, Y6104, X6104

Y6101, X6101, Y6102, X6102, Y6103, X6103, Y6104, X6104

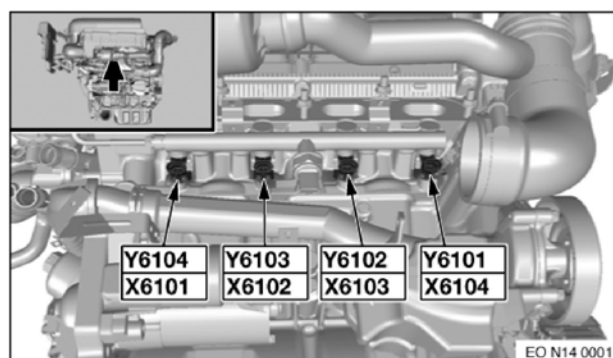


## Y6104 Fuel Injector, Cylinder 4

### Y6104 Fuel Injector Cylinder 4

Y6101, X6101, Y6102, X6102, Y6103, X6103, Y6104, X6104

Y6101, X6101, Y6102, X6102, Y6103, X6103, Y6104, X6104

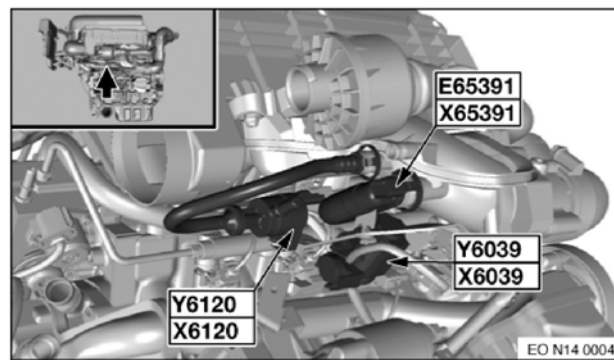


## Y6120 Evaporative Emission Valve

### Y6120 Evaporative Emission Valve

E65391, X65391, Y6039, X6039, Y6120, X6120

E65391, X65391, Y6039, X6039, Y6120, X6120

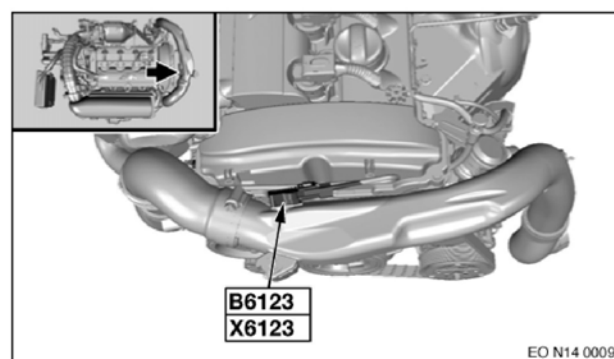


## Y6123 Charge-Air Pressure Controller

Y6123 Charge-Air Pressure Controller

B6123, X6123

B6123, X6123

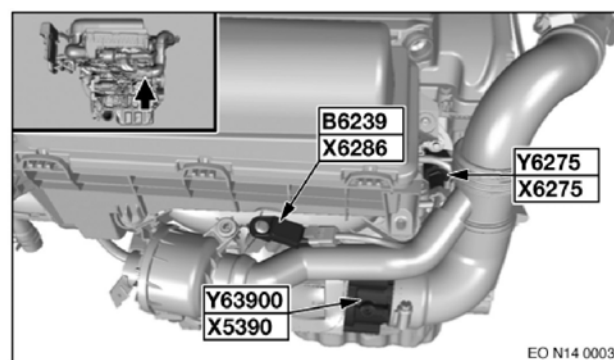


## Y6275 VANOS Solenoid Valve, Intake

Y6275 VANOS Solenoid Valve, Intake

B6239, X6286, Y6275, X6275, Y63900, X5390

B6239, X6286, Y6275, X6275, Y63900, X5390

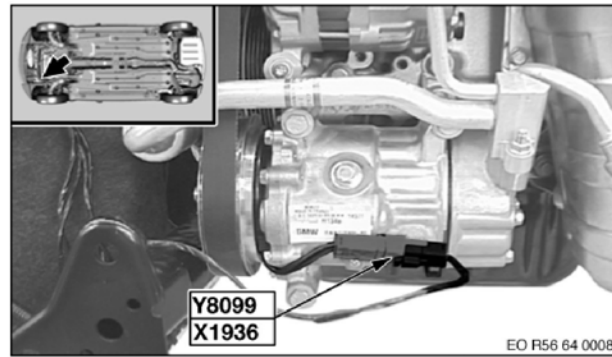


## Y8099 Compressor Clutch

Y8099 Compressor Clutch

Y8099, X1936

Y8099, X1936

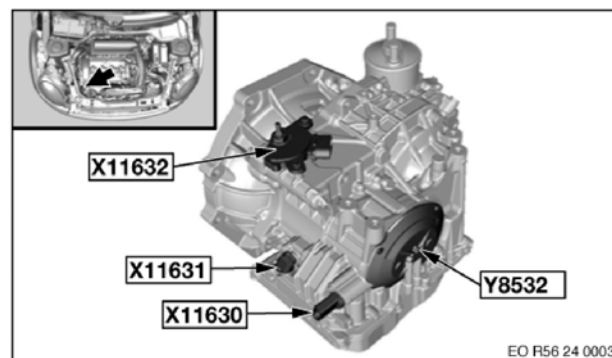


## Y8532 Transmission Shift Device

Y8532 Transmission Shift Device

X11632, X11631, X11630, Y8532

X11632, X11631, X11630, Y8532

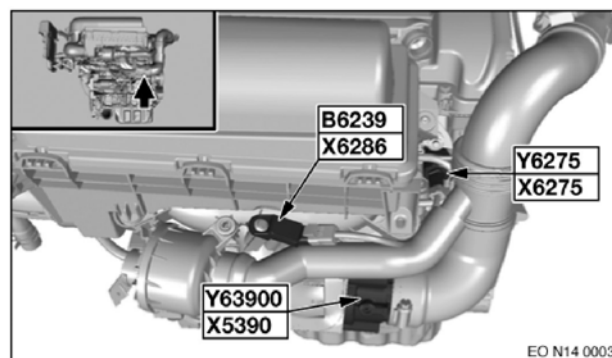


## Y63900 Electric Throttle Valve Actuator

Y63900 Electric Throttle Valve Actuator

B6239, X6286, Y6275, X6275, Y63900, X5390

B6239, X6286, Y6275, X6275, Y63900, X5390

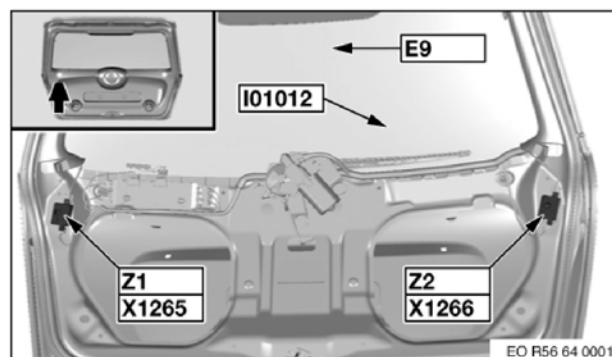


## Z1 Lockout Circuit For Rear-Window Defroster (Positive)

Z1 Lockout Circuit Door Rear-Window, Left (Positive)

E9, I01012, Z1, X1265, Z2, X1266

E9, I01012, Z1, X1265, Z2, X1266

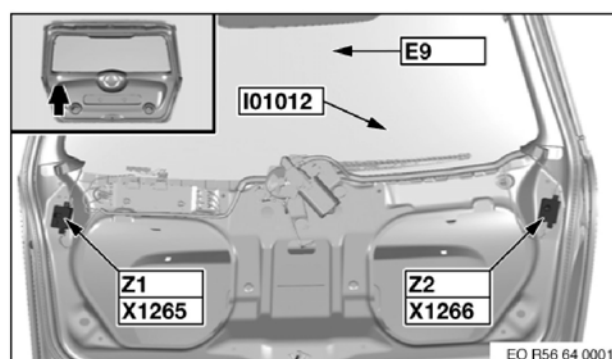


## Z2 Lockout Circuit For Rear-Window Defroster (Ground)

Z2 Lockout Circuit For Rear-Window Defroster(Ground)

E9, I01012, Z1, X1265, Z2, X1266

E9, I01012, Z1, X1265, Z2, X1266

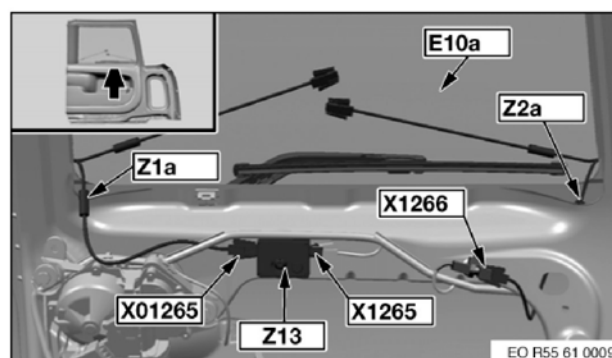


## Z2a Blocking Circuit For Heated Rear Window, Left (Ground)

Z2a Blocking Circuit For Heated Rear Window, Left(Ground)

E10a, Z1a, X01256, Z2a, X1266, X1265, Z13

E10a, Z1a, X01256, Z2a, X1266, X1265, Z13

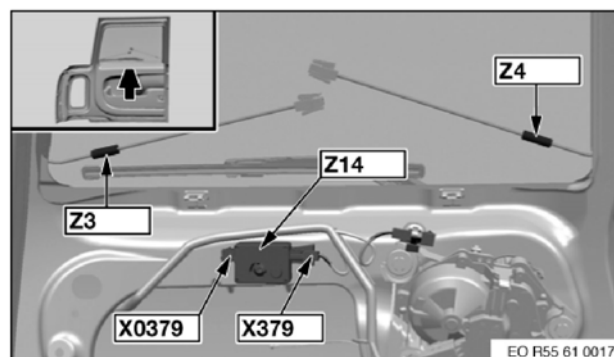


## Z3 Blocking Circuit For Heated Rear Window, Right

Z3 Blocking Circuit For Heated Rear Window, Right

Z3, Z4, Z14, X0379, X379

Z3, Z4, Z14, X0379, X379

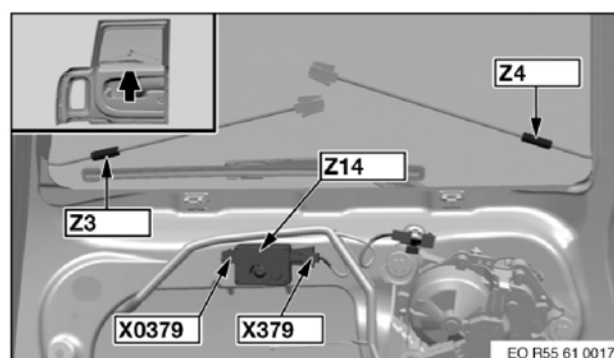


## Z4 Blocking Circuit For Heated Rear Window, Right

Z4 Blocking Circuit For Heated Rear Window, Right

Z3, Z4, Z14, X0379, X379

Z3, Z4, Z14, X0379, X379

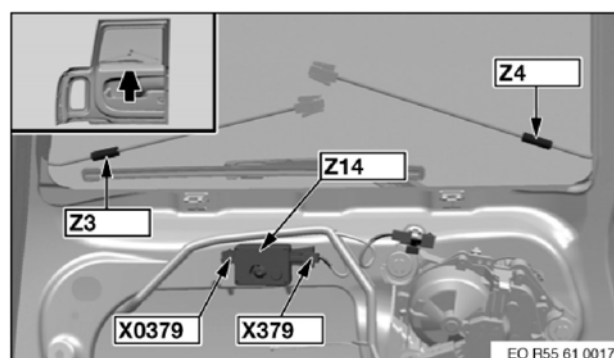


## Z14 Suppression Filter

Z14 Suppressor Filter

Z3, Z4, Z14, X0379, X379

Z3, Z4, Z14, X0379, X379

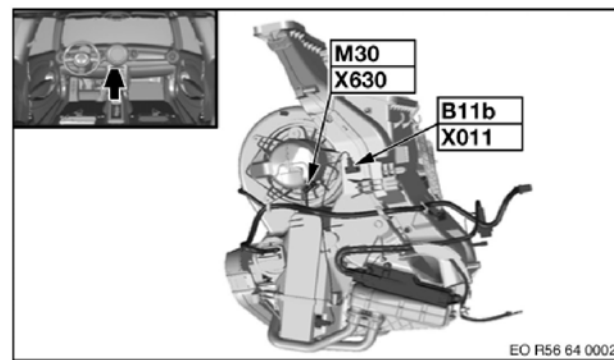


## X011 No Adapter

X011 No Adapter

B11a, X011, M30, X630

B11a, X011, M30, X630

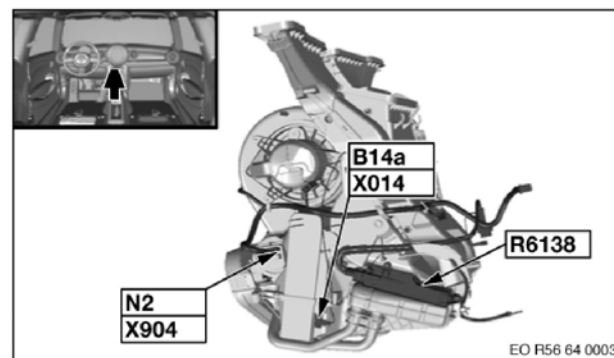


## X014 No Adapter

X014 No Adapter

N2, B14a, X014, R6138

N2, B14a, X014, R6138

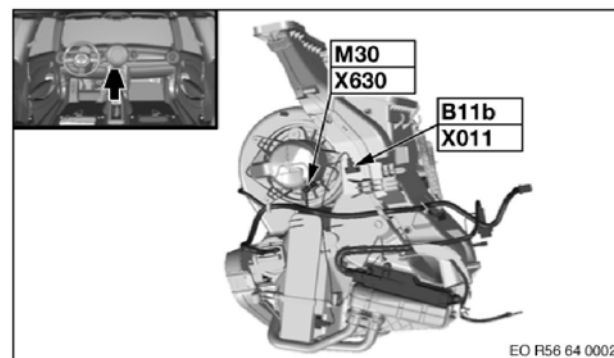


## X030 No Adapter

X030 No Adapter

B11a, X011, M30, X630

B11a, X011, M30, X630



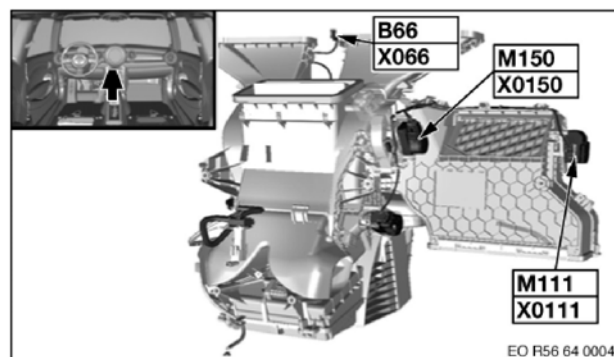
## X066 No Adapter

X066 No Adapter

B66, X066, M150, X0150, M111, X0111



B66, X066, M150, X0150, M111, X0111

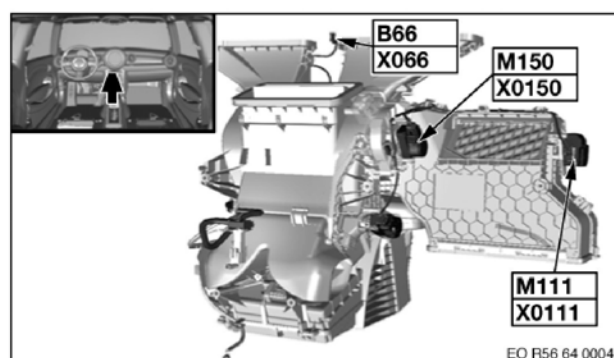


## X0111 No Adapter

X0111 No Adapter

B66, X066, M150, X0150, M111, X0111

B66, X066, M150, X0150, M111, X0111

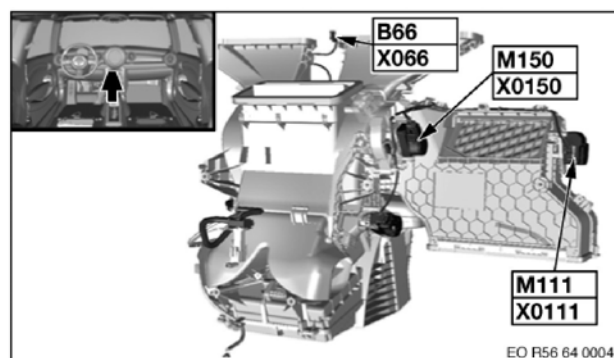


## X0150 No Adapter

X0150 No Adapter

B66, X066, M150, X0150, M111, X0111

B66, X066, M150, X0150, M111, X0111

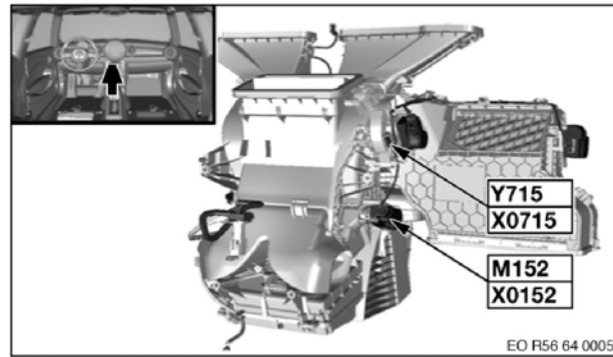


## X0152 No Adapter

X0152 No Adapter

Y715, X0715, M152, X0152

Y715, X0715, M152, X0152

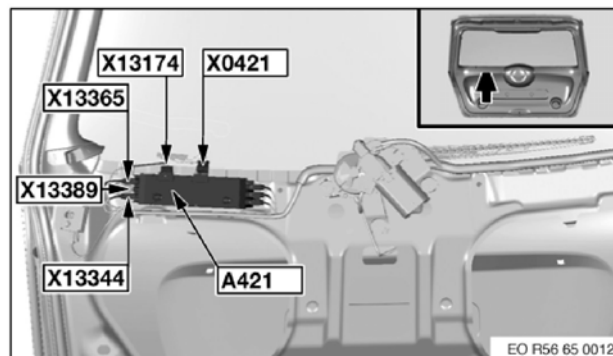


## X0421 No Adapter

X0421 No Adapter

X13174, X13365, X13389, X13344, X0421, A421

X13174, X13365, X13389, X13344, X0421, A421

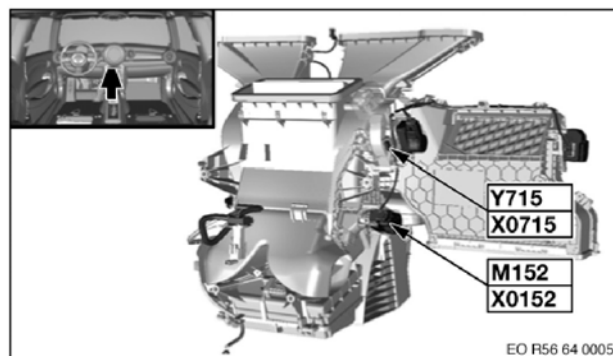


## X0715 No Adapter

X0715 No Adapter

Y715, X0715, M152, X0152

Y715, X0715, M152, X0152

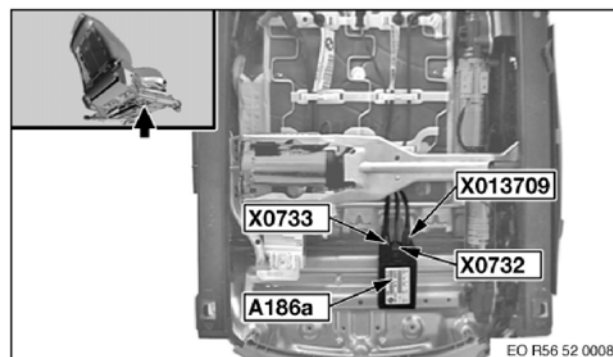


## X0732 No Adapter

X0732 No Adapter

A186a, X0733, X0732, X013709

A186a, X0733, X0732, X013709

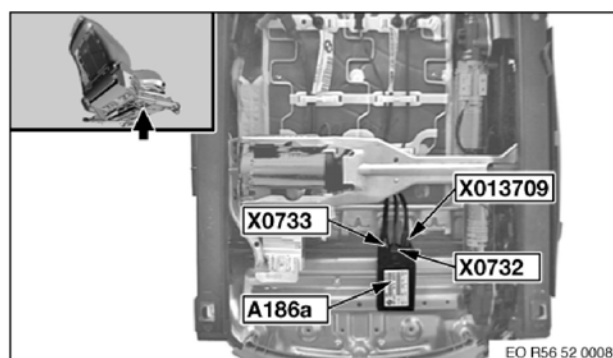


## X0733 No Adapter

X0733 No Adapter

A186a, X0733, X0732, X013709

A186a, X0733, X0732, X013709

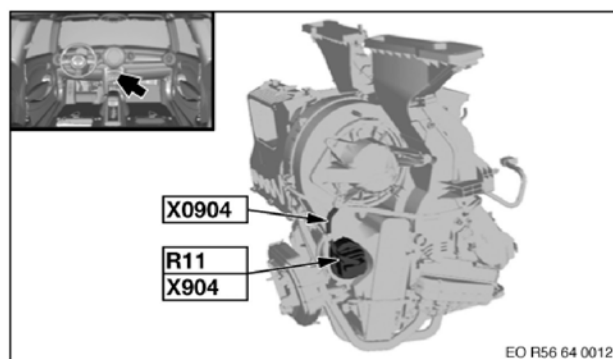


## X0904 No Adapter

X0904 No Adapter

R11; X904; X0904

R11; X904; X0904

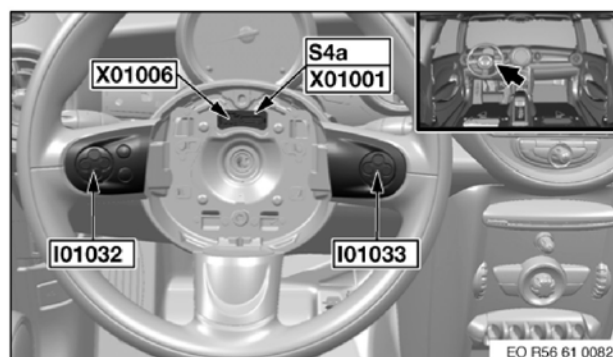


## X01001 No Adapter

X01001 No Adapter

S4a, X01006, X01001, I01032, I01033

S4a, X01006, X01001, I01032, I01033

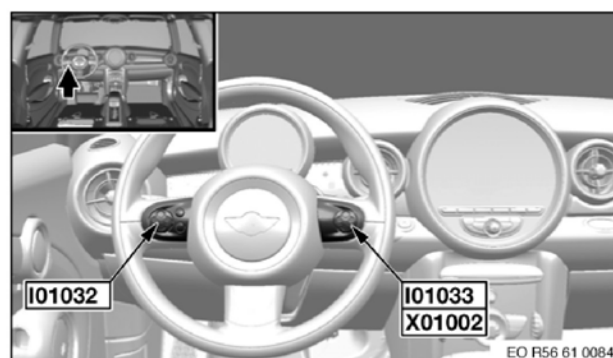


## X01002 No Adapter

X01002 No Adapter

I01032, I01033, X01002

I01032, I01033, X01002

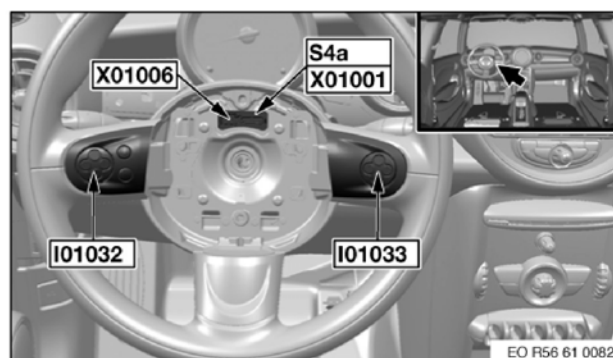


## X01006 No Adapter

X01006 No Adapter

S4a, X01006, X01001, I01032, I01033

S4a, X01006, X01001, I01032, I01033

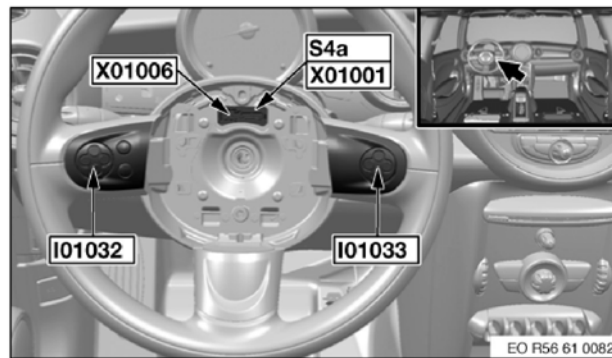


## X01032 No Adapter

X01032 No Adapter

S4a, X01006, X01001, I01032, I01033

S4a, X01006, X01001, I01032, I01033

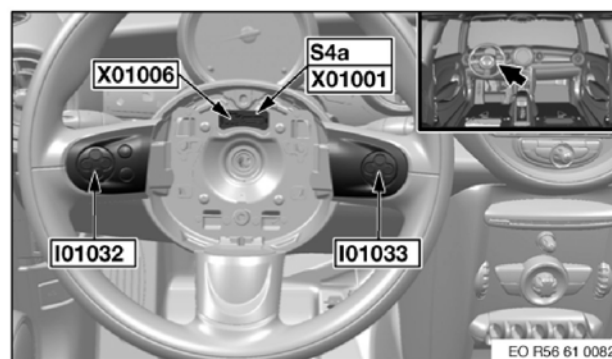


## X01033 No Adapter

X01033 No Adapter

S4a, X01006, X01001, I01032, I01033

S4a, X01006, X01001, I01032, I01033



## X01071 No Adapter

X01071 No Adapter

G5, X01071, X01072

G5, X01071, X01072

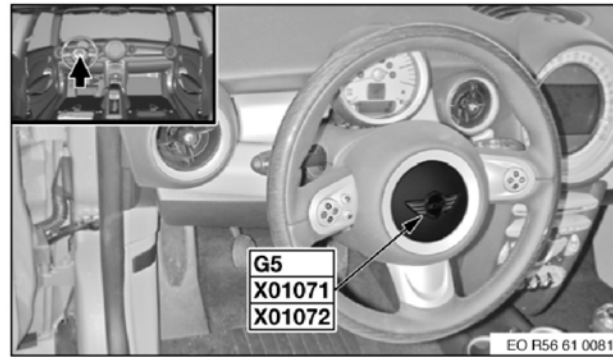


## X01072 No Adapter

X01072 No Adapter

G5, X01071, X01072

G5, X01071, X01072

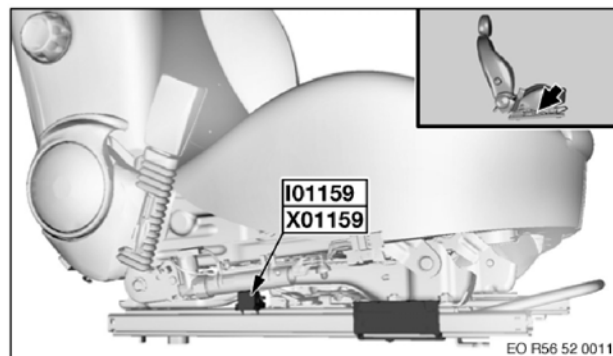


## X01159 No Adapter

X01159 No Adapter

I01159; X01159

I01159; X01159

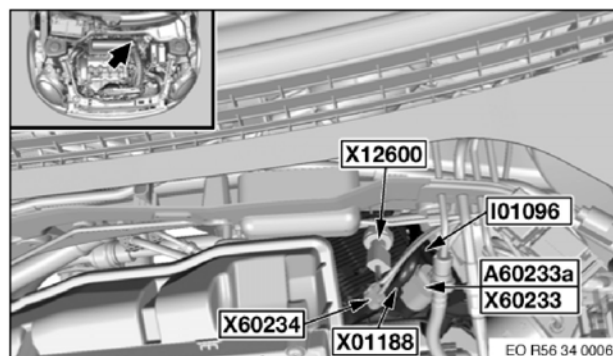


## X01188 No Adapter

X01188 No Adapter

X12600, I01096, A60233a, X60233, X01188, X60234

X12600, I01096, A60233a, X60233, X01188, X60234

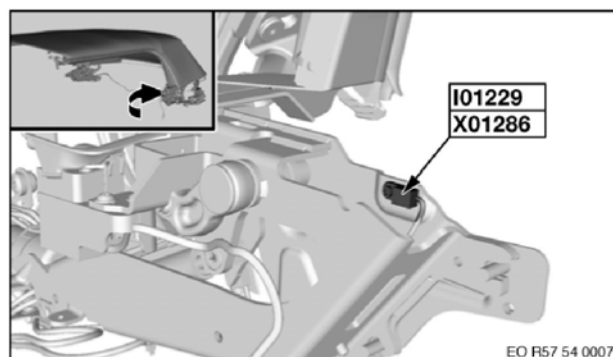


## X01286 No Adapter

X01286 No Adapter

I01229; X01286

I01229; X01286

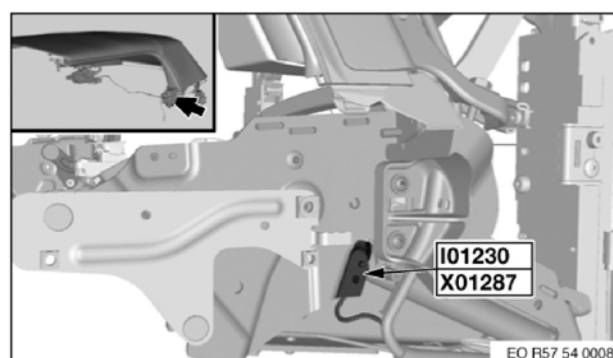


## X01287 No Adapter

X01287 No Adapter

I01230; X01287

I01230; X01287

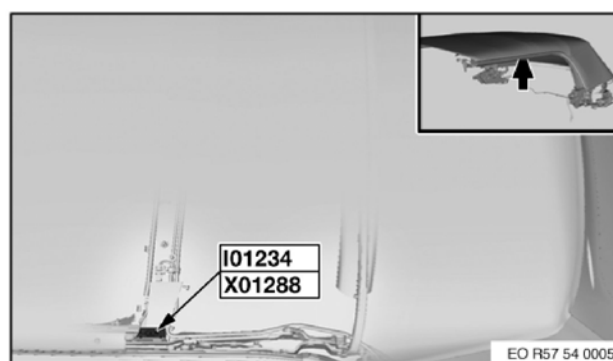


## X01288 No Adapter

X01288 No Adapter

I01234; X01288

I01234; X01288

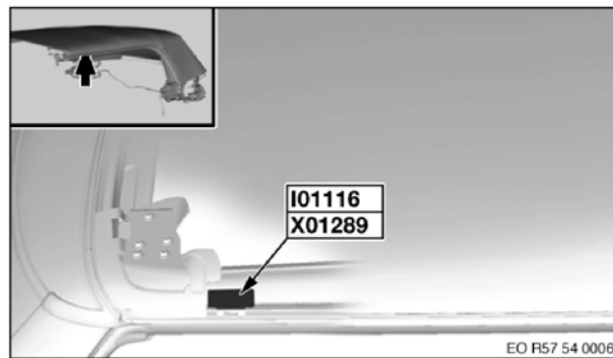


## X01289 No Adapter

X01289 No Adapter

I01116; X01289

I01116; X01289

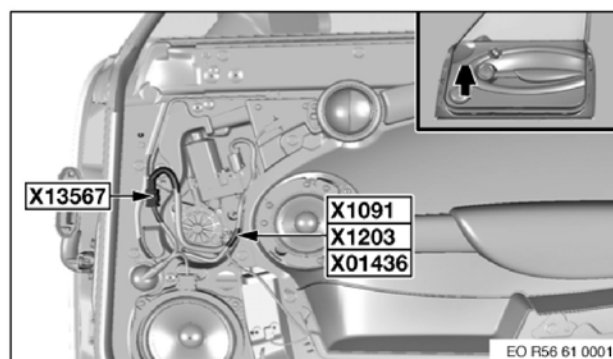


## X01436 No Adapter

X01463 No Adapter

X13567, X1091, X1203, X01436

X13567, X1091, X1203, X01436

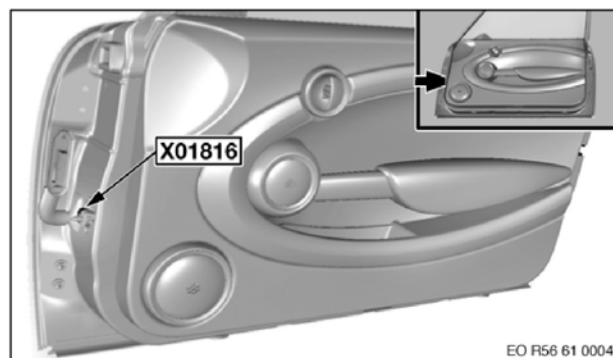


## X01816 No Adapter

X01816 No Adapter

X01816

X01816



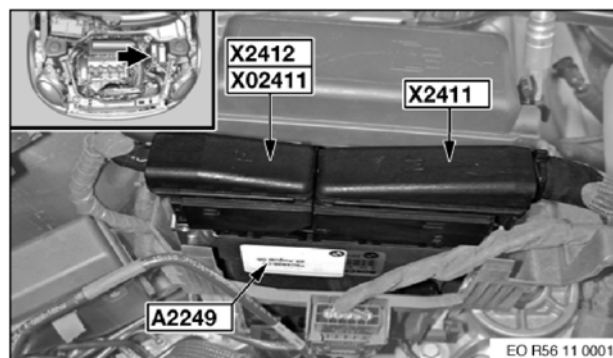
## X02411 Adapter 127420, Storage Location Q204

X02411 Adapter 127420, Storage Location Q204

A2249, X2412, X02411, X2411



A2249, X2412, X02411, X2411

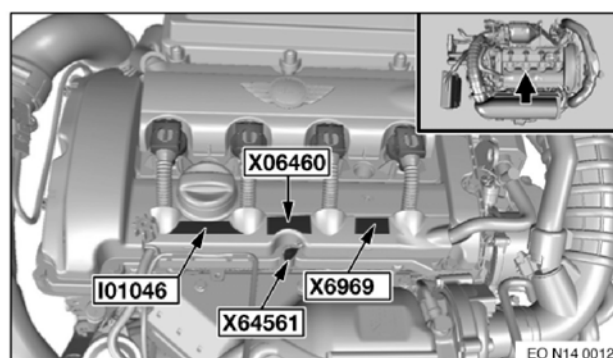


## X06460 No Adapter

X06460 No Adapter

X06460, I01046, X64561, X6969

X06460, I01046, X64561, X6969

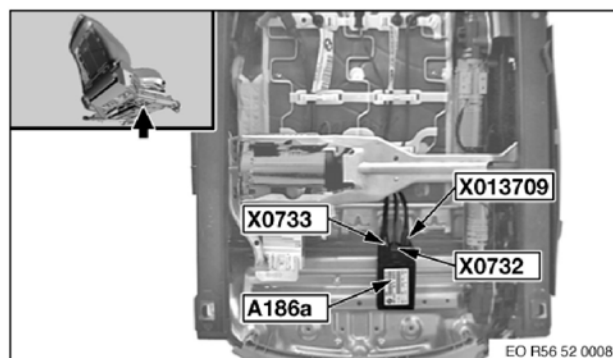


## X013709 No Adapter

X013709 No Adapter

A186a, X0733, X0732, X013709

A186a, X0733, X0732, X013709

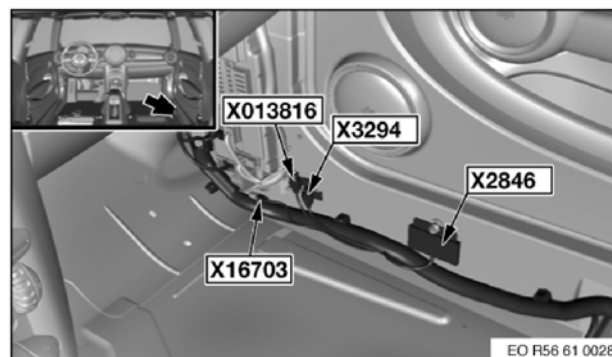


## X013816 No Adapter

X013816 No Adapter

X013816, X3294, X2846, X16703

X013816, X3294, X2846, X16703

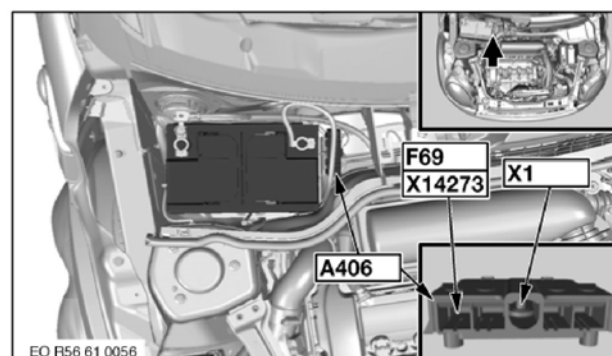


## X1 No Adapter

X1 No Adapter

A406, F69, X14273, X1

A406, F69, X14273, X1

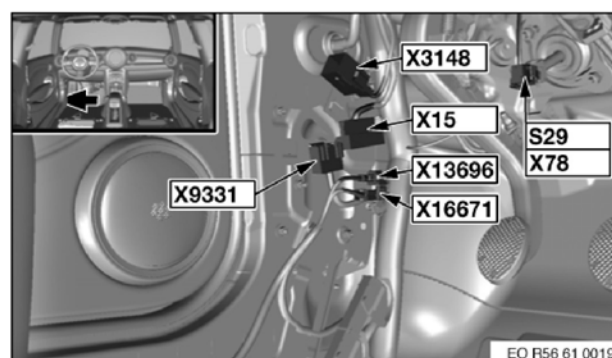


## X15 Adapter Is Being Developed

X15 Adapter Is Being Developed

X3148, X9331, X16671, X13696, X15, S29, X78

X3148, X9331, X16671, X13696, X15, S29, X78

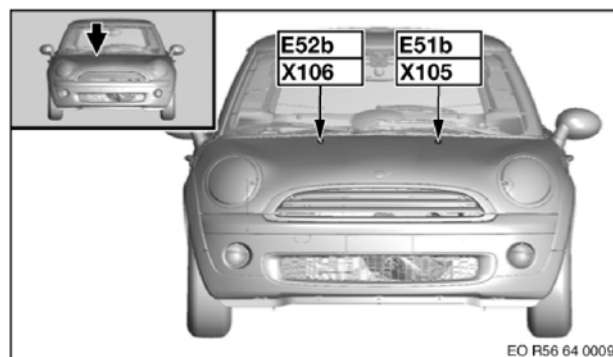


## X105 Adapter 616043 Storage Location D114

X105 Adapter 616043 Storage Location D114

E52b, X106, E51b, X105

E52b, X106, E51b, X105

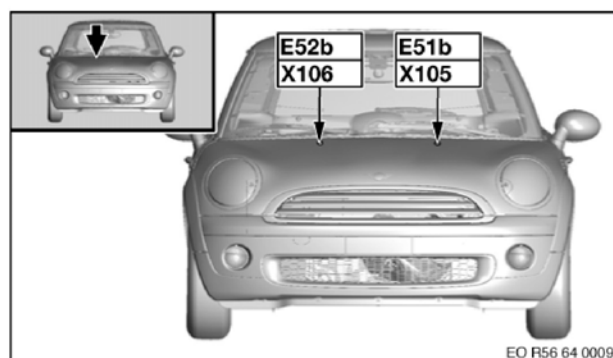


## X106 Adapter 616043 Storage Location D114

X106 Adapter 616043 Storage Location D114

E52b, X106, E51b, X105

E52b, X106, E51b, X105

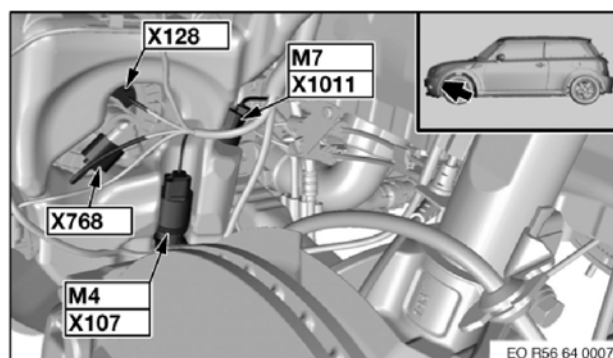


## X107 Adapter 616043 Storage Location D114

X107 Adapter 616043 Storage Location D114

X128, M7, X1011, M4, X107, X768

X128, M7, X1011, M4, X107, X768

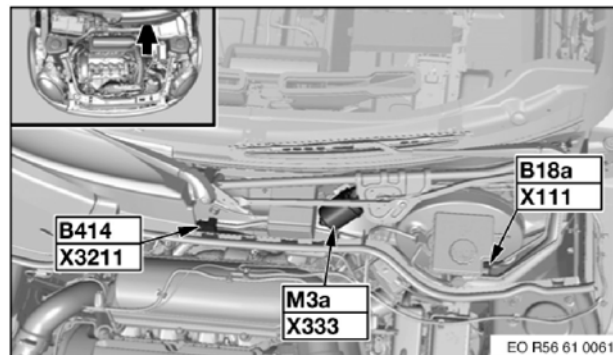


## X111 Adapter 616043 Storage Location D114

X111 Adapter 616043 Storage Location D114

B18a, X111, B414, X3211, M3a, X333

B18a, X111, B414, X3211, M3a, X333

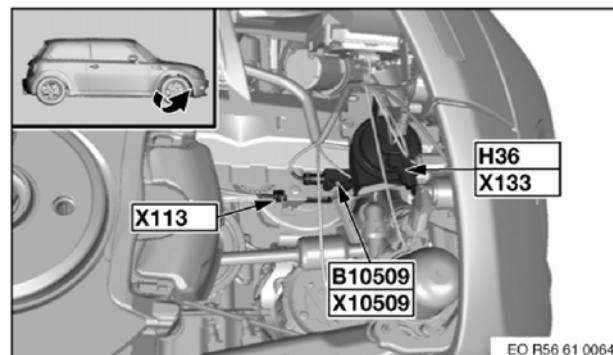


## X113 Adapter 616042, Storage Location D113

X113 Adapter 616042 Storage Location D113

H3b, X133, B10509, X10509, X113

H3b, X133, B10509, X10509, X113

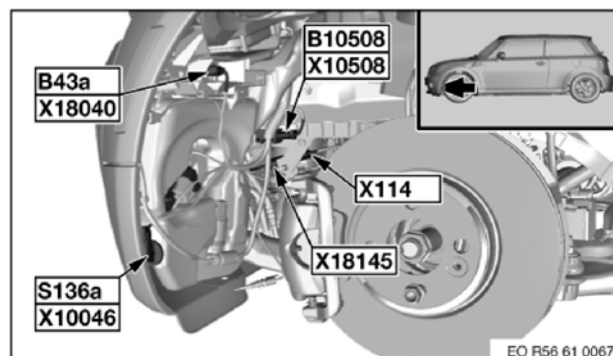


## X114 Adapter 616042, Storage Location D113

X114 Adapter 616042 Storage Location D113

B43a, X18040, S136a, X10046, X18145, X114, B10508, X10508

B43a, X18040, S136a, X10046, X18145, X114, B10508, X10508

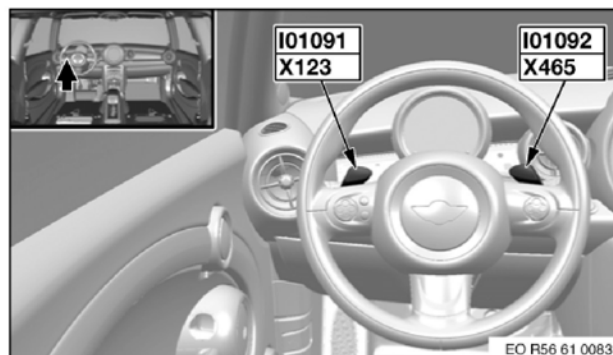


## X123 No Adapter

X123 No Adapter

I01091, X123, I01092, X465

I01091, X123, I01092, X465

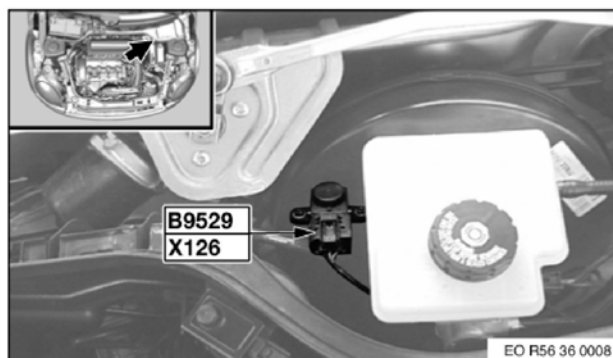


## X126 Adapter 612050 Storage Location Q210

X126 Adapter 612050 Storage Location Q210

B9529, X126

B9529, X126

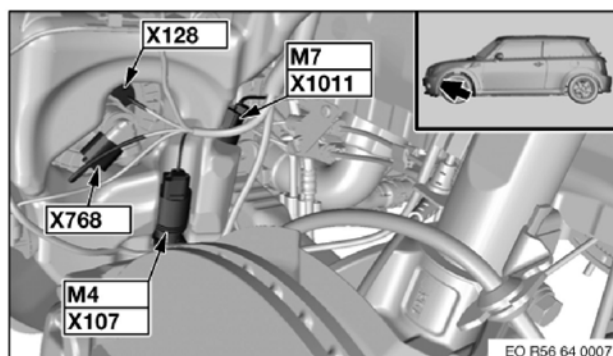


## X128 No Adapter

X128 No Adapter

X128, M7, X1011, M4, X107, X768

X128, M7, X1011, M4, X107, X768

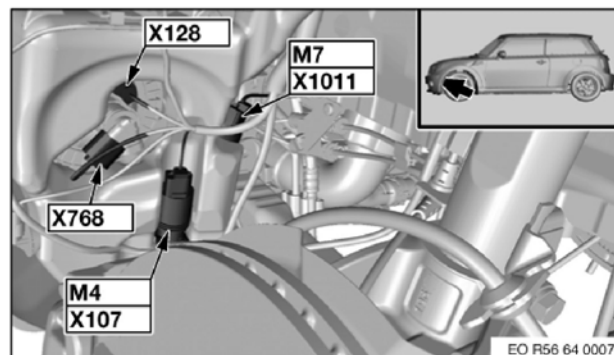


## X129 No Adapter

X129 No Adapter

X128, M7, X1011, M4, X107, X768

X128, M7, X1011, M4, X107, X768

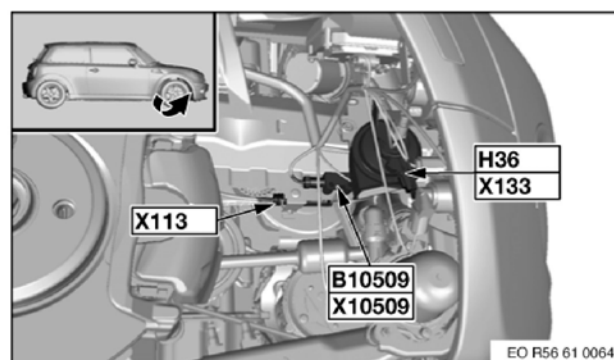


## X133 Adapter 616043, Storage Location D114

X133 Adapter 616043, Storage Location D114

H3b, X133, B10509, X10509, X113

H3b, X133, B10509, X10509, X113

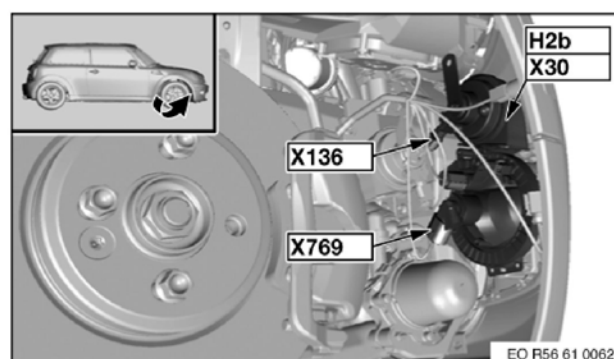


## X136 No Adapter

X136 No Adapter

H2b, X30, X136, X769

H2b, X30, X136, X769

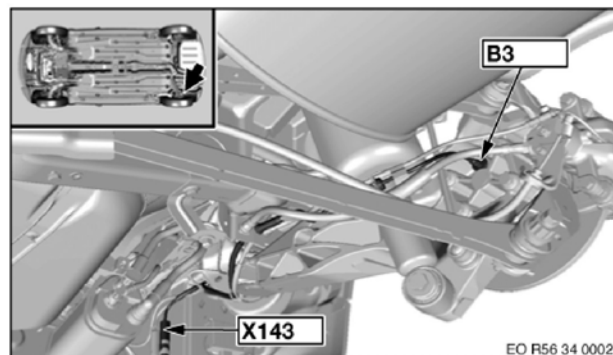


## X143 Adapter 616042, Storage Location D113

X143 Adapter 616042, Storage Location D113

X143, B3

X143, B3

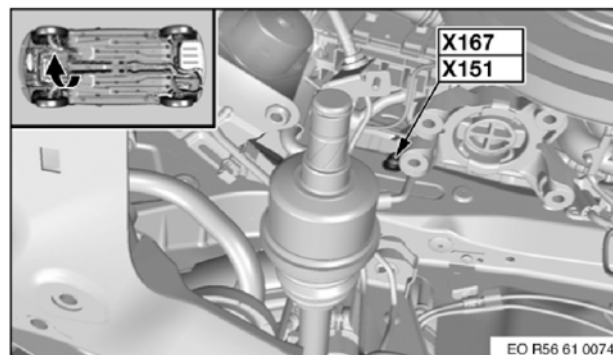


## X151 No Adapter

X151 No Adapter

X167, X151

X167, X151

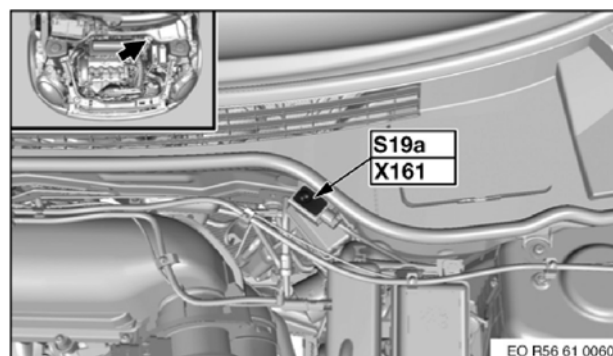


## X161 Adapter 616044, Storage Location D115

X161 Adapter 616044, Storage Location D115

S19a, X161

S19a, X161

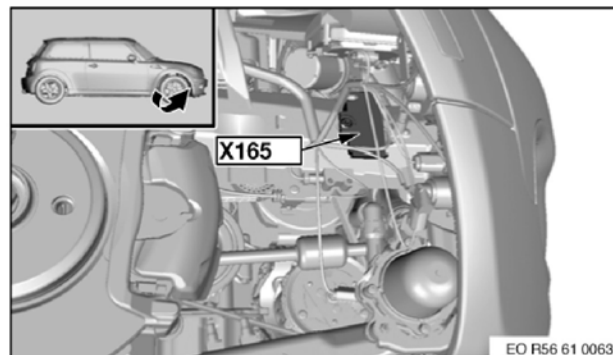


## X165 No Adapter

X165 No Adapter

X165

X165

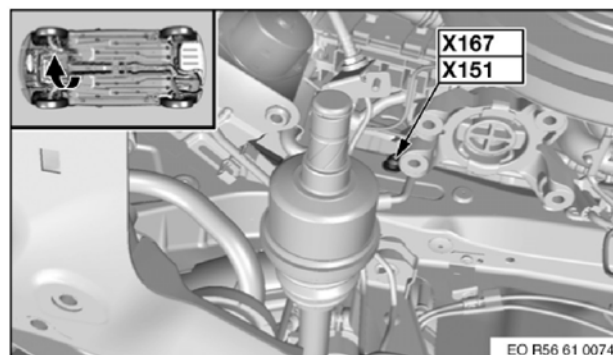


## X167 No Adapter

X167 No Adapter

X167, X151

X167, X151

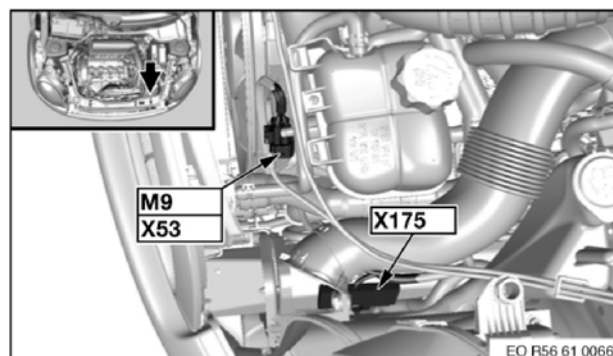


## X175 No Adapter

X175 No Adapter

M9, X53, X175

M9, X53, X175



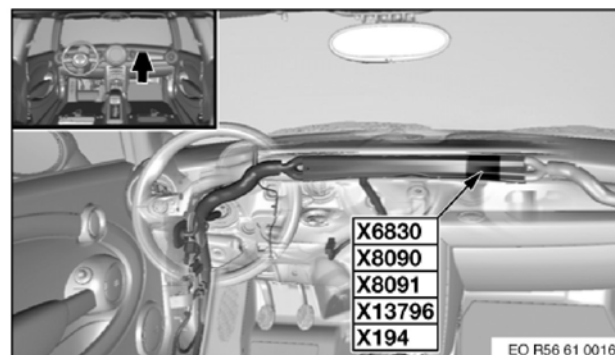
## X194 No Adapter

X194 No Adapter

X6830, X8090, X8091, X13796, X194 (Left-Hand Drive)



X6830, X8090, X8091, X13796, X194

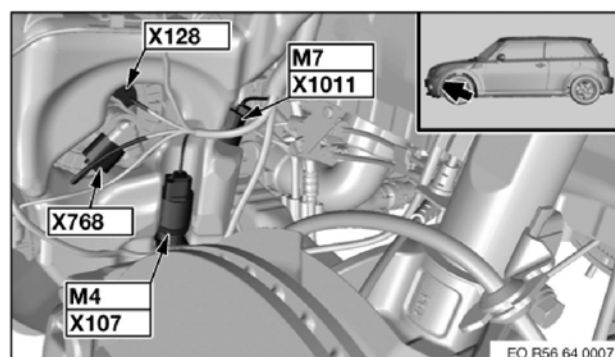


## X1011 Adapter 616043, Storage Location D114

X1011 Adapter 616043, Storage Location D114

X128, M7, X1011, M4, X107, X768

X128, M7, X1011, M4, X107, X768

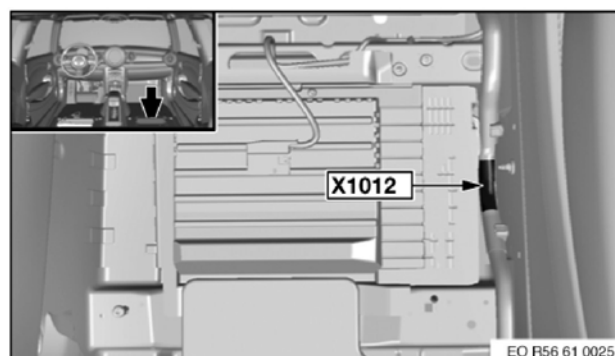


## X1012 No Adapter

X1012 No Adapter

X1012

X1012

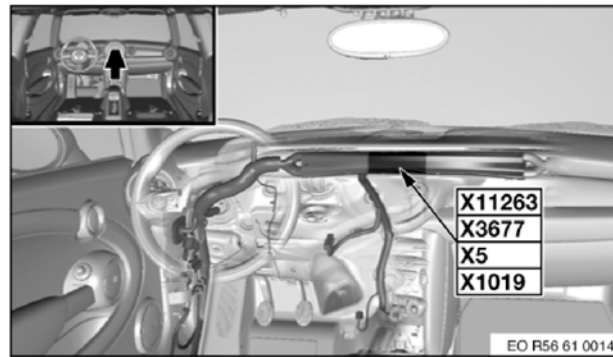


## X1019 No Adapter

X1019 No Adapter

X11263, X3677, X5, X1019

X11263, X3677, X5, X1019

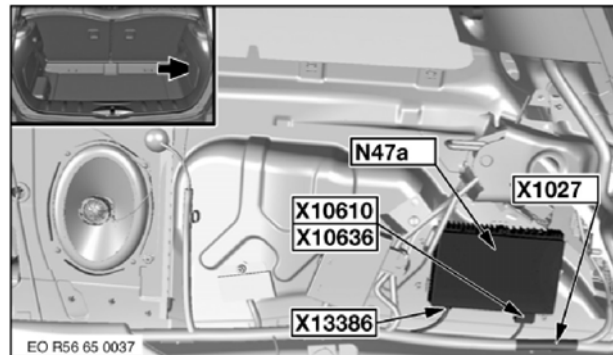


## X1027 No Adapter

X1027 No Adapter

N47a, X10610, X10636, X13386, X1027 (MINI\_MINI-R55/R56/R57 as of 2007-08)

N47a, X10610, X10636, X13386, X1027

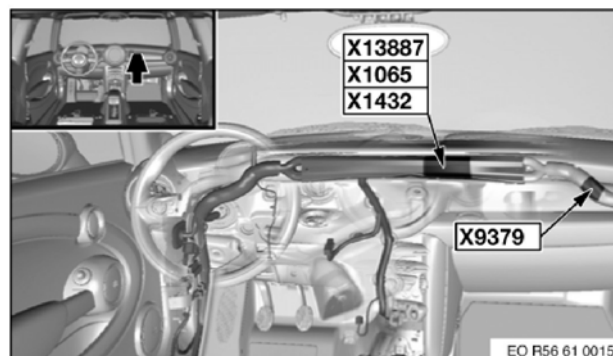


## X1065 No Adapter

X1065 No Adapter

X13887, X1065, X1432, X9379

X13887, X1065, X1432, X9379

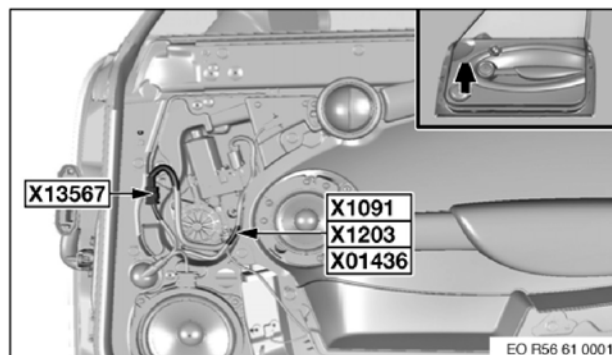


## X1091 No Adapter

X1091 No Adapter

X13567, X1091, X1203, X01436

X13567, X1091, X1203, X01436

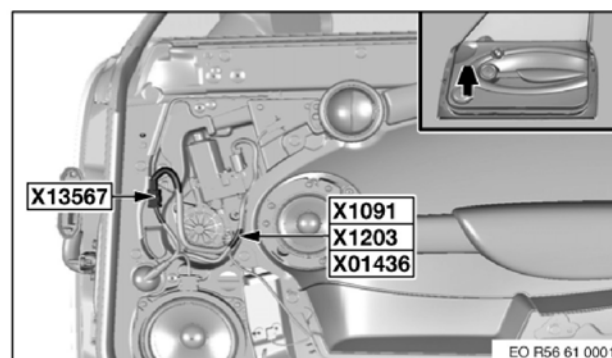


## X1203 No Adapter

X1203 No Adapter

X13567, X1091, X1203, X01436

X13567, X1091, X1203, X01436

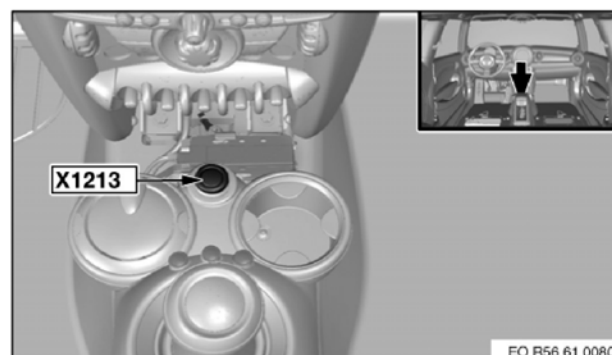


## X1213 No Adapter

X1213 No Adapter

X1213

X1213

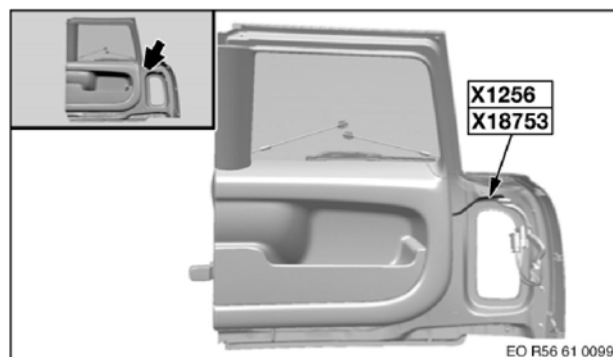


## X1256 No Adapter

X1256 No Adapter

X1256; X18753

X1256; X18753

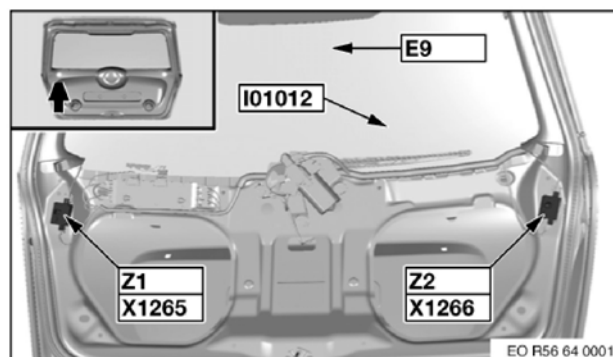


## X1266 No Adapter

X1266 No Adapter

E9, I01012, Z1, X1265, Z2, X1266

E9, I01012, Z1, X1265, Z2, X1266

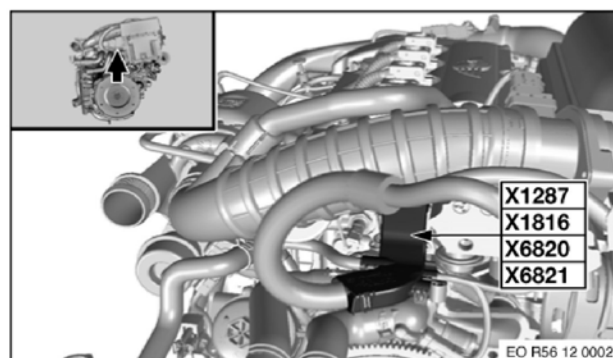


## X1287 No Adapter

X1287 No Adapter

X1287, X1816, X6820, X6821

X1287, X1816, X6820, X6821

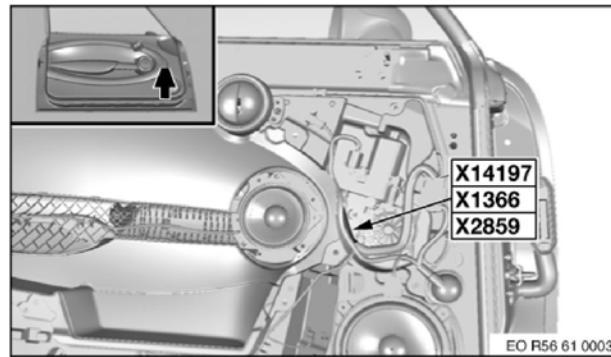


## X1366 No Adapter

X1366 No Adapter

X14197, X1566, X2859

X14197, X1566, X2859

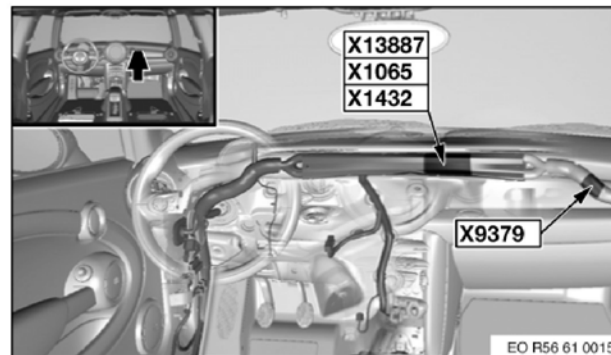


## X1432 No Adapter

X1432 No Adapter

X13887, X1065, X1432, X9379

X13887, X1065, X1432, X9379

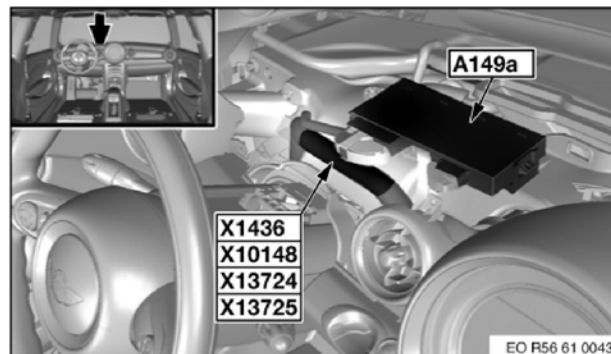


## X1436 No Adapter

X1436 No Adapter

A149a, X1436, X10148, X13724, X13725

A149a, X1436, X10148, X13724, X13725

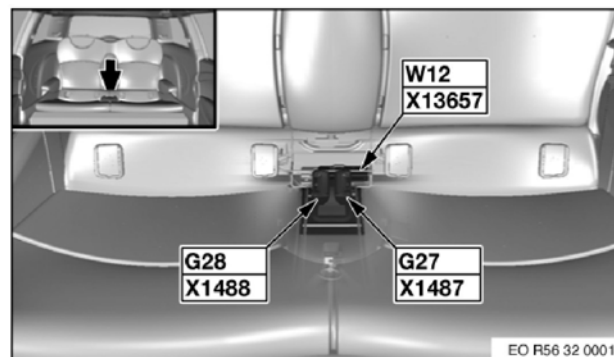


## X1487 No Adapter

X1487 No Adapter

W12, X13657, G27, X1487, G28, X1488 (Left-Hand Drive)

W12, X13657, G27, X1487, G28, X1488

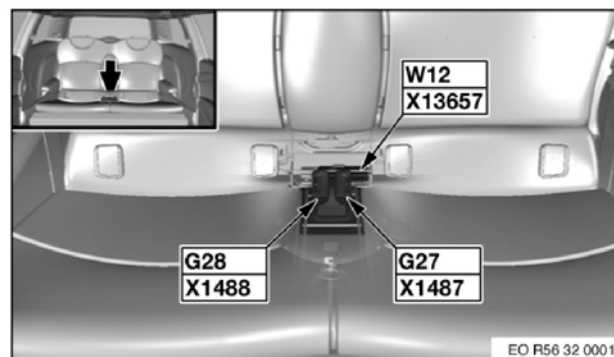


## X1488 No Adapter

X1488 No Adapter

W12, X13657, G27, X1487, G28, X1488 (Left-Hand Drive)

W12, X13657, G27, X1487, G28, X1488

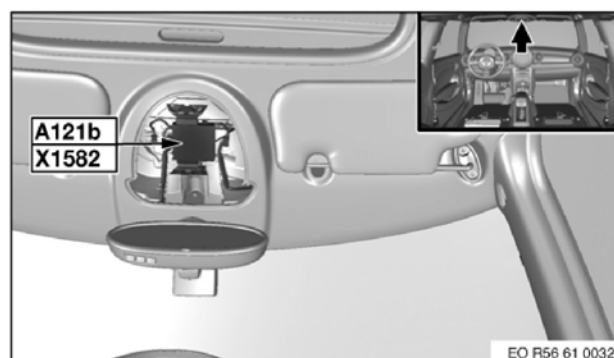


## X1582 Adapter 616032, Storage Location D108

X1582 Adapter 616032, Storage Location D108

A121a, X1582

A121a, X1582

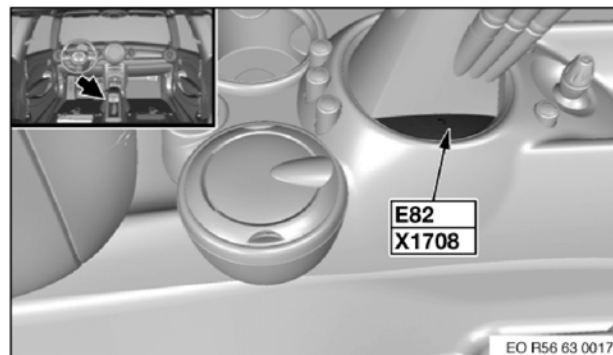


## X1708 Adapter 616035, Storage Location D111

X1708 Adapter 616035, Storage Location D111

E82, X1708

E82, X1708

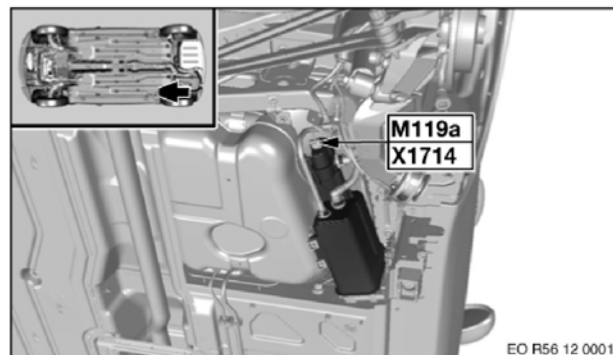


## X1714 Adapter 616045, Storage Location D116

X1714 Adapter 616045, Storage Location D116

M119a, X1714

M119a, X1714

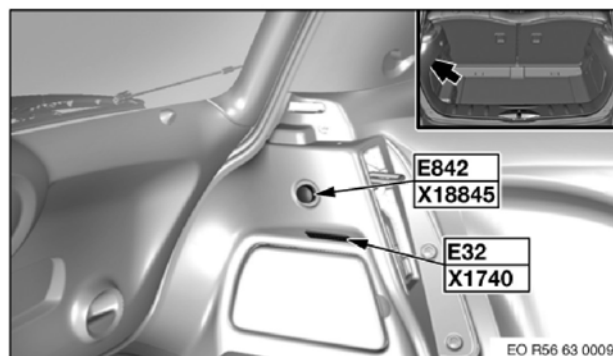


## X1740 No Adapter

X1740 No Adapter

E842, X18845, E32, X1740(MINI\_MINI-R55/R56/R57)

E842, X18845, E32, X1740

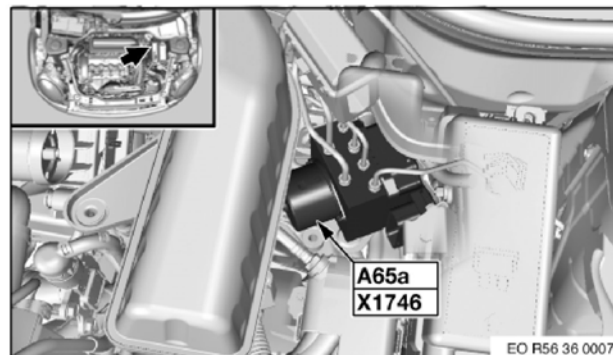


## X1746 Adapter 613140, Storage Location Y3

X1746 Adapter 613140, Storage Location Y3

A65a, X1746

A65a, X1746

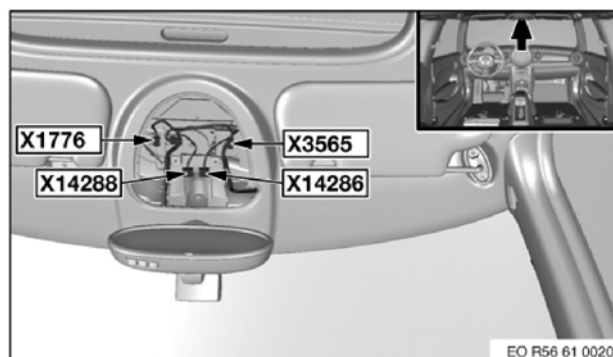


## X1765 Adapter 616031, Storage Location D107

X1765 Adapter 616031, Storage Location D107

X1776, X14288, X3565, X14286 (MINI\_MINI/R55/R56/R57 Without Convertible)

X1776, X14288, X3565, X14286

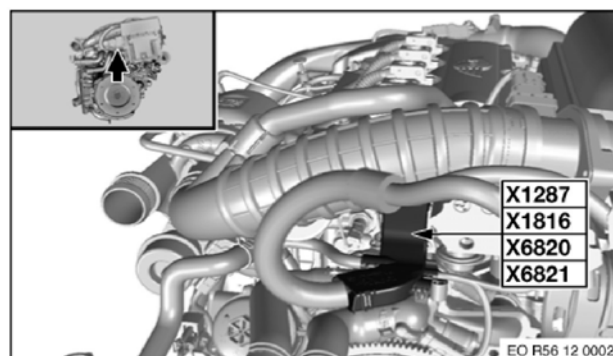


## X1816 No Adapter

X1816 No Adapter

X1287, X1816, X6820, X6821

X1287, X1816, X6820, X6821



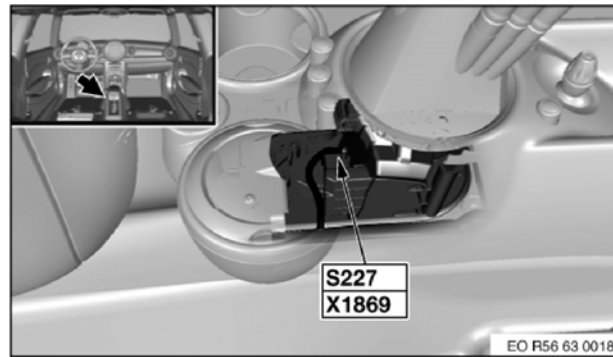
## X1869 Prototype Adapter Is Being Developed

X1869 Prototype Adapter Is Being Developed

S227, X1869



S227, X1869

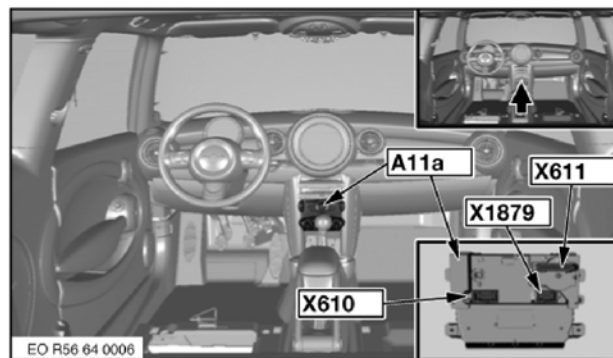


## X1879 Adapter 614480, Storage Location C111

X1879 Adapter 614480, Storage Location C111

A11a, X611, X1879, X610

A11a, X611, X1879, X610

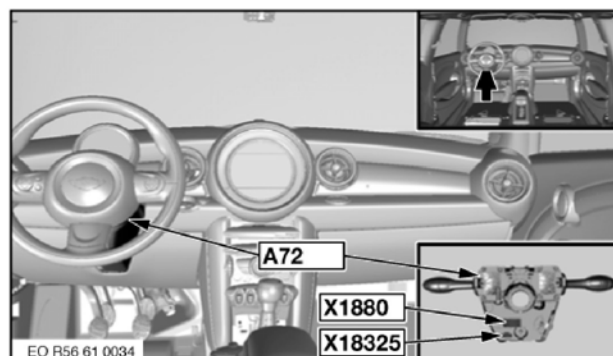


## X1880 Adapter 614470, Storage Location C110

X1880 Adapter 614470, Storage Location C110

A72, X1880, X18325

A72, X1880, X18325

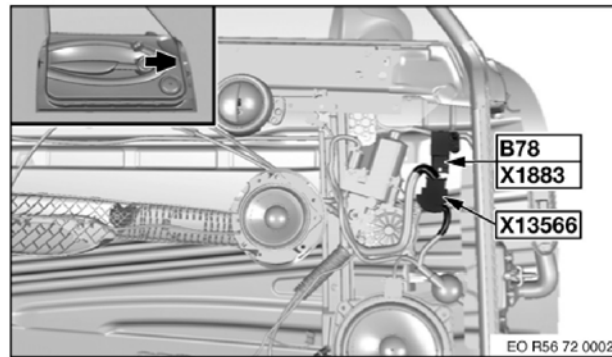


## X1883 No Adapter

X1883 No Adapter

B78, X1883, X13566

B78, X1883, X13566

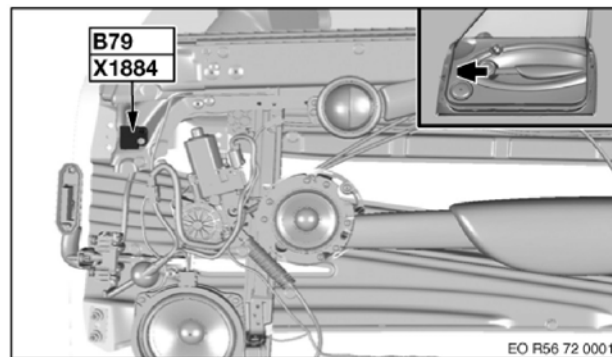


## X1884 No Adapter

X1884 No Adapter

B79, X1884

B79, X1884

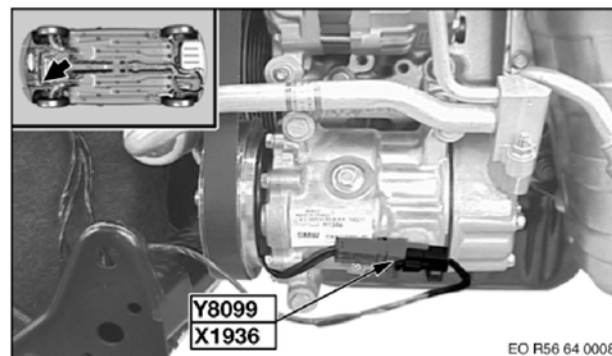


## X1936 Adapter 613430, Storage Location Y3

X1936 Adapter 613430, Storage Location Y3

Y8099, X1936

Y8099, X1936



## X1991 No Adapter

X1991 No Adapter

X1991, X1992, X1993, X1994, X10546, X10545

X1991, X1992, X1993, X1994, X10546, X10545



## X1992 No Adapter

X1992 No Adapter

X1991, X1992, X1993, X1994, X10546, X10545

X1991, X1992, X1993, X1994, X10546, X10545



## X1993 No Adapter

X1993 No Adapter

X1991, X1992, X1993, X1994, X10546, X10545

X1991, X1992, X1993, X1994, X10546, X10545

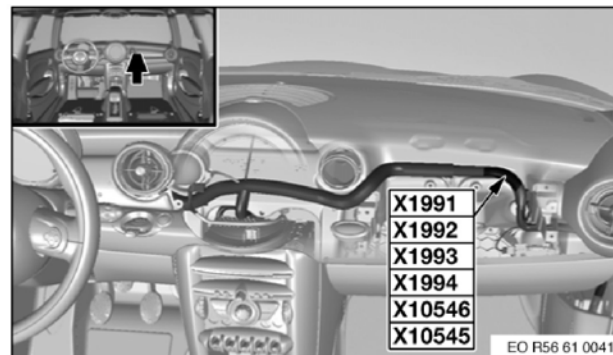


## X1994 No Adapter

X1994 No Adapter

X1991, X1992, X1993, X1994, X10546, X10545

X1991, X1992, X1993, X1994, X10546, X10545

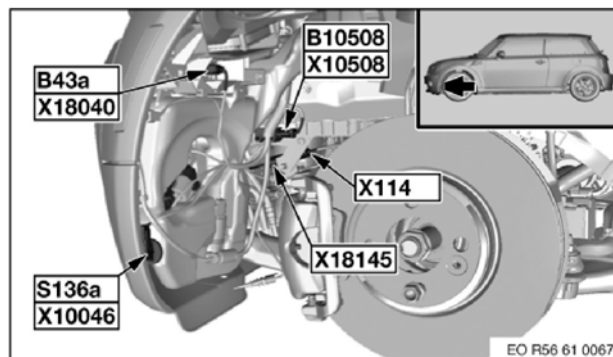


## X10046 Adapter 616043, Storage Location D114

X10046 Adapter 616043, Storage Location D114

B43a, X18040, S136a, X10046, X18145, X114, B10508, X10508

B43a, X18040, S136a, X10046, X18145, X114, B10508, X10508

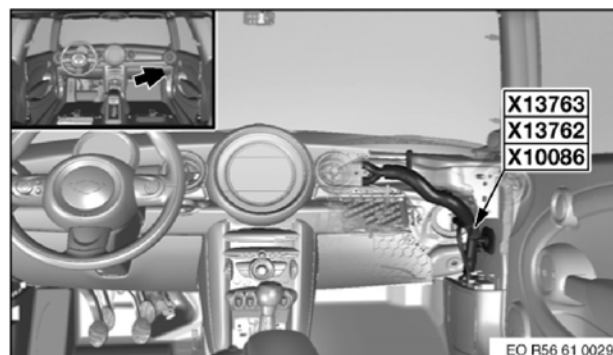


## X10086 No Adapter

X10086 No Adapter

X13763, X13762, X10086 (Up to 08/07)

X13763, X13762, X10086

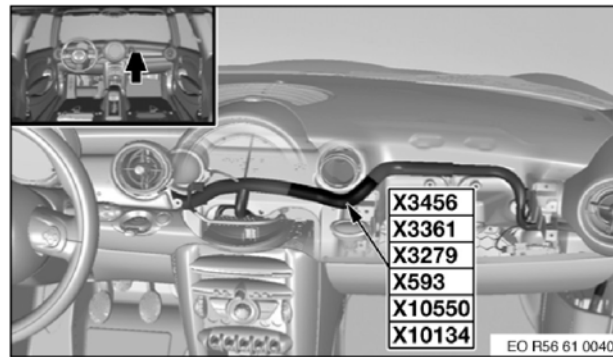


## X10134 No Adapter

X10134 No Adapter

X3456, X3361, X3279, X593, X10550, X10134

X3456, X3361, X3279, X593, X10550, X10134

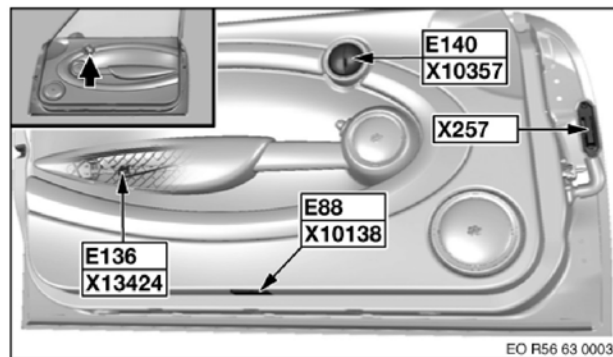


## X10138 No Adapter

X10138 No Adapter

E140, X10357, E88, X10138, E136, X13424

E140, X10357, E88, X10138, E136, X13424

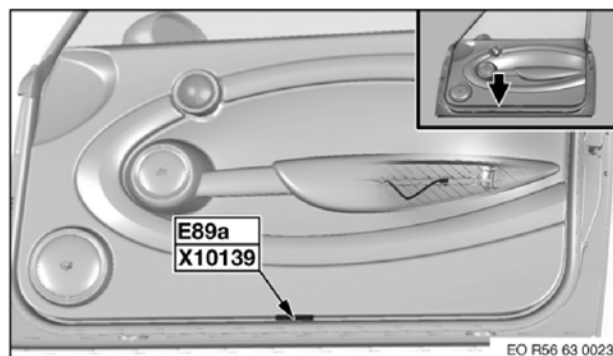


## X10139 No Adapter

X10139 No Adapter

E89a, X10139

E89a, X10139

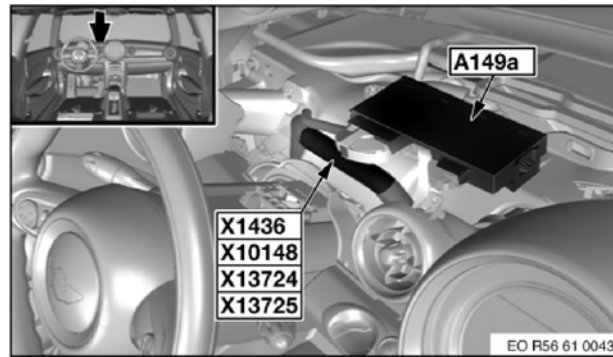


## X10148 No Adapter

X10148 No Adapter

A149a, X1436, X10148, X13724, X13725

A149a, X1436, X10148, X13724, X13725

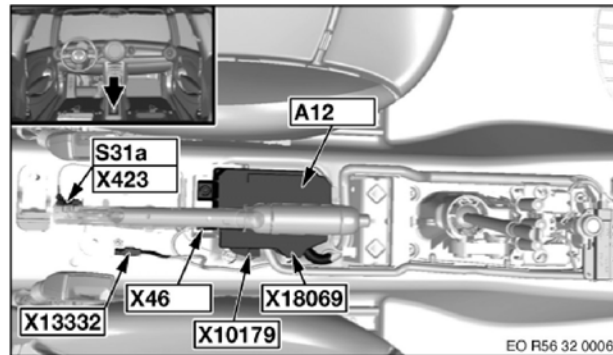


## X10179 Adapter 614464, Storage Location C109

X10179 Adapter 614464, Storage Location C109

A12, S31a, X423, X13322, X46, X10179, X18069

A12, S31a, X423, X13322, X46, X10179, X18069

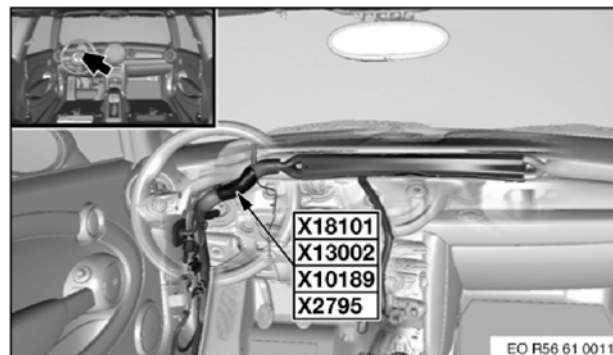


## X10189 No Adapter

X10189 No Adapter

X18101, X13002, X10189, X2795

X18101, X13002, X10189, X2795

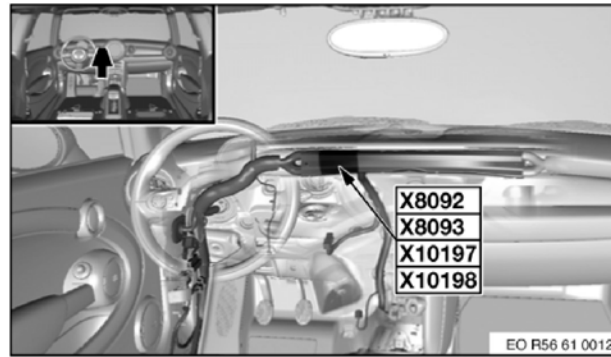


## X10197 No Adapter

X10197 No Adapter

X8092, X8093, X10197, X10198

X8092, X8093, X10197, X10198

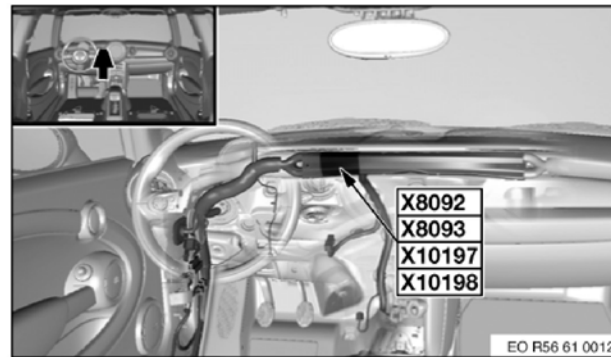


## X10198 No Adapter

X10198 No Adapter

X8092, X8093, X10197, X10198

X8092, X8093, X10197, X10198

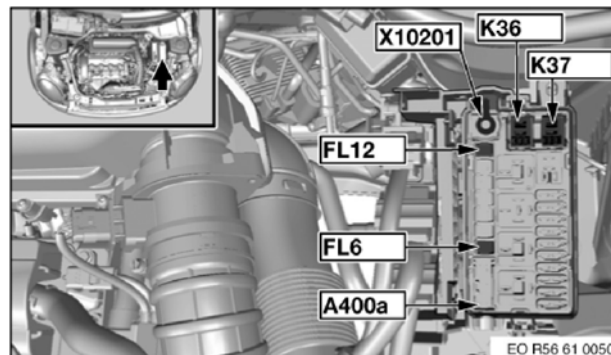


## X10201 No Adapter

X10201 No Adapter

X10201, K36, K37, FL12, FL6, A400a

X10201, K36, K37, FL12, FL6, A400a

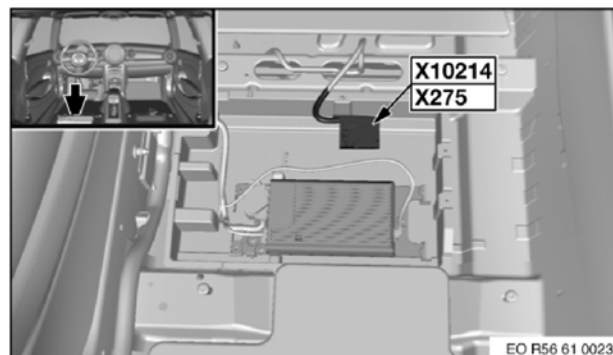


## X10214 Adapter 614360, Storage Location F109

X10214 Adapter 614360, Storage Location F109

X10214, X275 (Left-Hand Drive)

X10214, X275

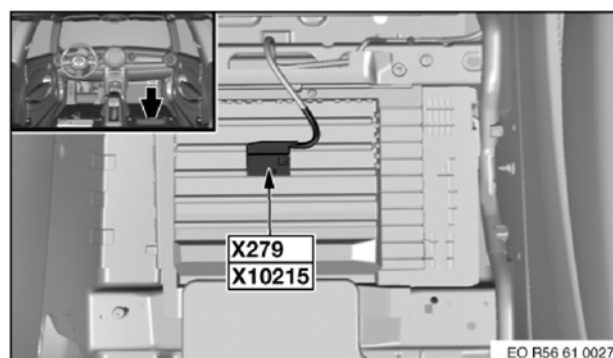


## X10215 Adapter 614360, Storage Location F109

X10215 Adapter 614360, Storage Location F109

X279, X10215 (Left-Hand Drive)

X279, X10215

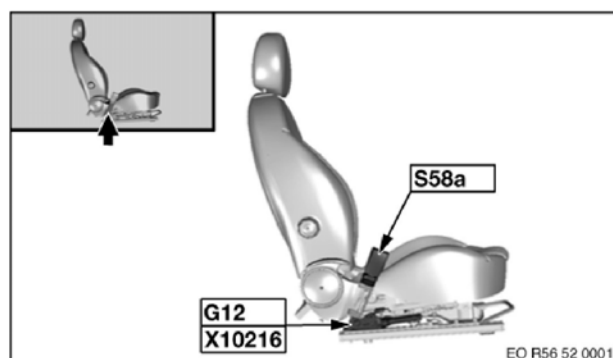


## X10216 No Adapter

X10216 No Adapter

S58a, G12, X10216

S58a, G12, X10216



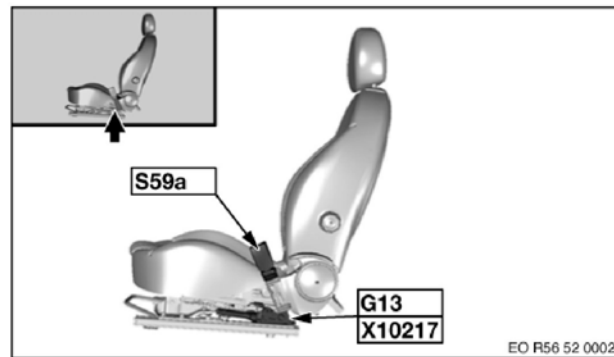
## X10217 No Adapter

X10217 No Adapter

S59a, G13, X10217



S59a, G13, X10217

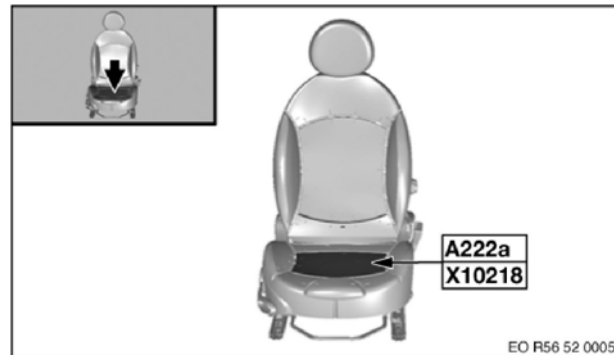


## X10218 No Adapter

X10218 No Adapter

A222a, X10218

A222a, X10218

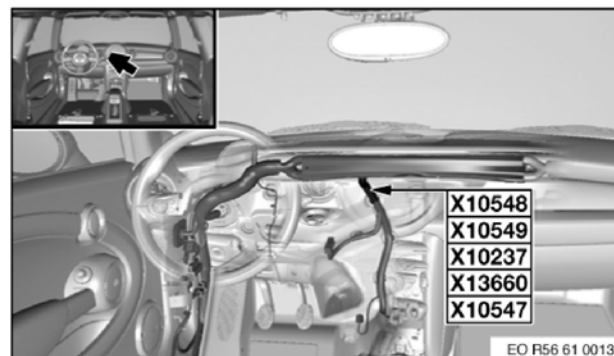


## X10237 No Adapter

X10237 No Adapter

X10548, X10549, X10237, X13660, X10547

X10548, X10549, X10237, X13660, X10547

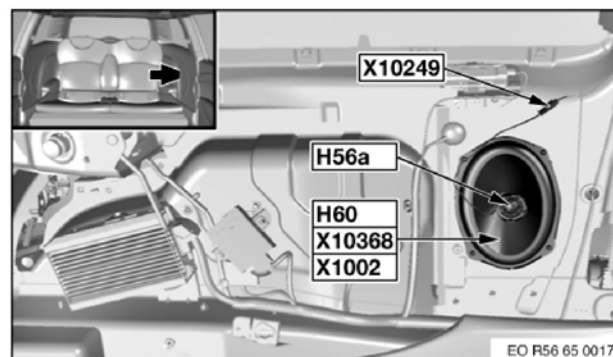


## X10249 No Adapter

X10249 No Adapter

H56a, X10249, H60, X10368, X1002

H56a, X10249, H60, X10368, X1002

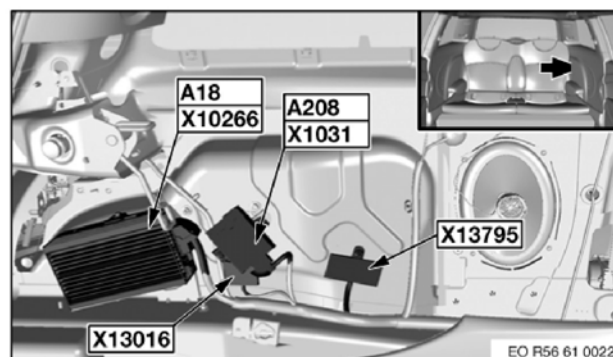


## X10266 Adapter 651150, Storage Location M212

X10266 Adapter 651150, Storage Location M212

A208, X10313, X13795, X13016, A18, X10266 (MINI\_MINI-R55/R56/R57)

A208, X10313, X13795, X13016, A18, X10266

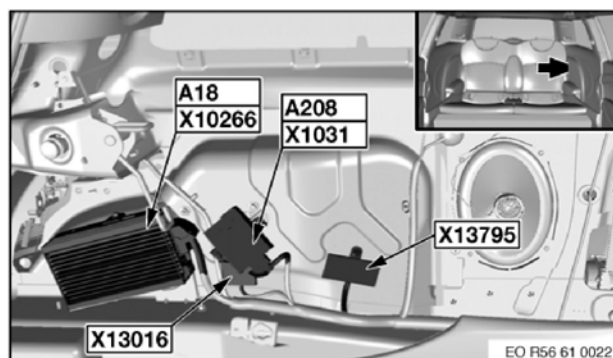


## X10313 Adapter 614480, Storage Location C111

X10313 Adapter 614480, Storage Location C111

A208, X10313, X13795, X13016, A18, X10266

A208, X10313, X13795, X13016, A18, X10266

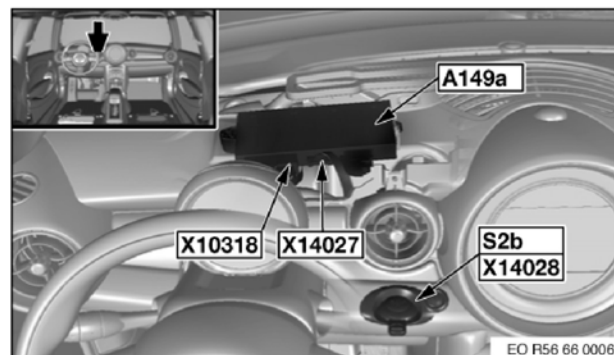


## X10318 Adapter 612240, Storage Location F110

X10318 Adapter 612240, Storage Location F110

X14027, A149a, X10318, S2B, X14028

X14027, A149a, X10318, S2B, X14028

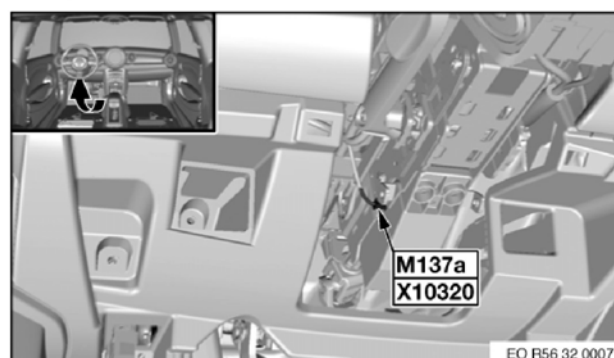


## X10320 Adapter 616032, Storage Location D108

X10320 Adapter 616032, Storage Location D108

M137a, X10320

M137a, X10320

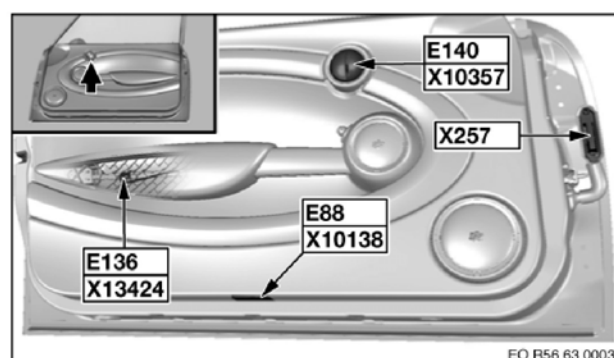


## X10357 Adapter 616031, Storage Location D107

X10357 Adapter 616031, Storage Location D107

E140, X10357, E88, X10138, E136, X13424

E140, X10357, E88, X10138, E136, X13424

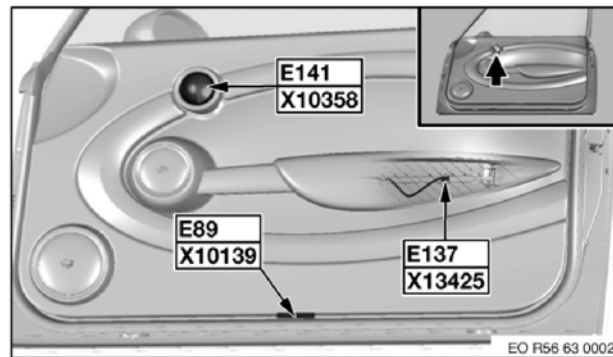


## X10358 Adapter 616031, Storage Location D107

X10358 Adapter 616031, Storage Location D107

E141, X10358, E89, X10139, E137, X13425

E141, X10358, E89, X10139, E137, X13425

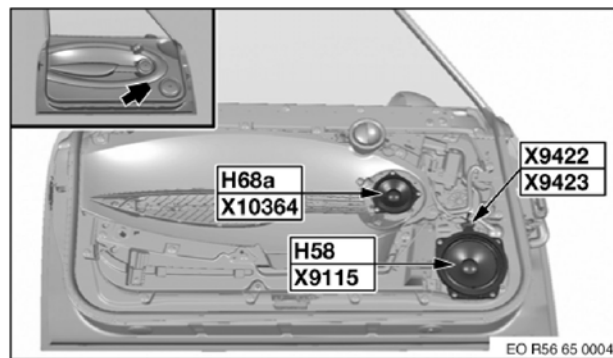


## X10364 No Adapter

X10364 No Adapter

H68a, X10364, X9422, X9423, H58, X9115

H68a, X10364, X9422, X9423, H58, X9115

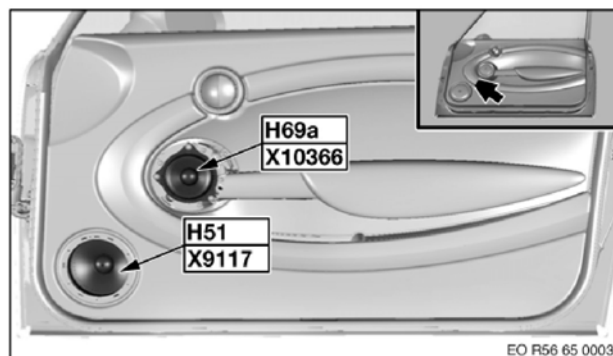


## X10366 No Adapter

X10366 No Adapter

H69a, X10366, H51, X9117

H69a, X10366, H51, X9117

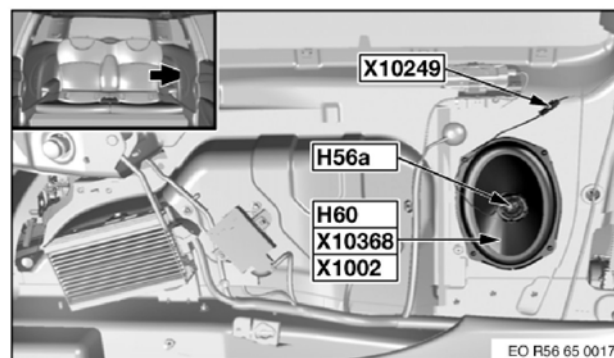


## X10368 No Adapter

X10368 No Adapter

H56a, X10249, H60, X10368, X1002

H56a, X10249, H60, X10368, X1002

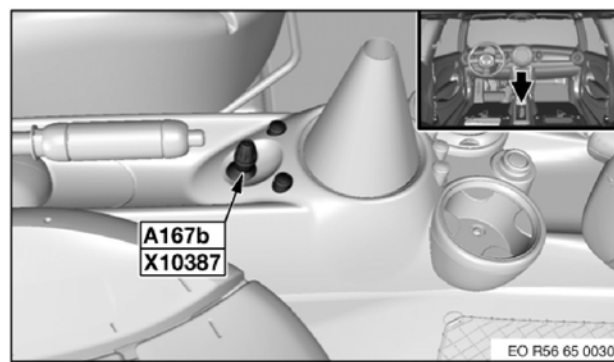


## X10387 Adapter 616032, Storage Location D108

X10387 Adapter 616032, Storage Location D108

A167b, X10387

A167b, X10387

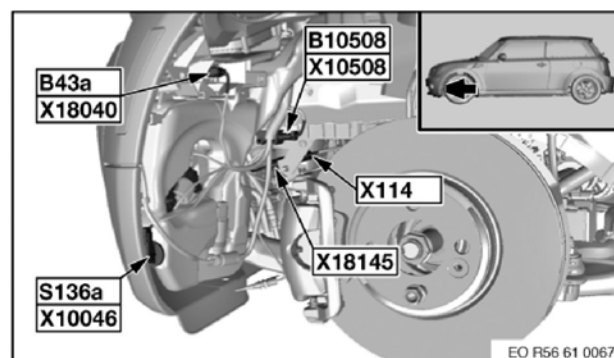


## X10508 Adapter 616403, Storage Location D114

X10508 Adapter 616403, Storage Location D114

B43a, X18040, S136a, X10046, X18145, X114, B10508, X10508

B43a, X18040, S136a, X10046, X18145, X114, B10508, X10508

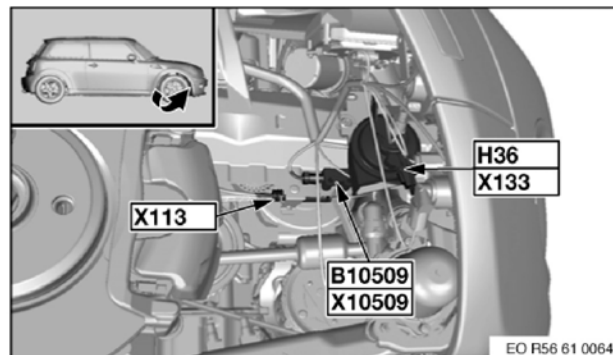


## X10509 Adapter 616403, Storage Location D114

X10509 Adapter 616403, Storage Location D114

H3b, X133, B10509, X10509, X113

H36, X133, B10509, X10509, X113

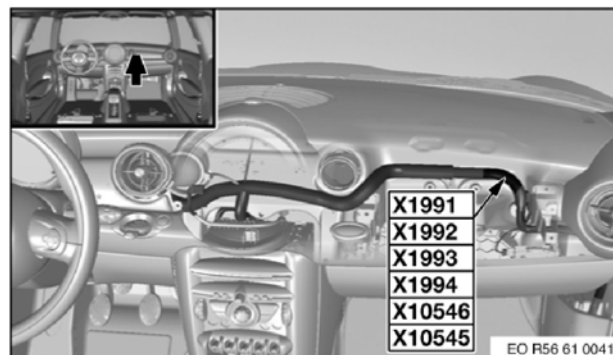


## X10545 No Adapter

X10545 No Adapter

X1991, X1992, X1993, X1994, X10546, X10545

X1991, X1992, X1993, X1994, X10546, X10545

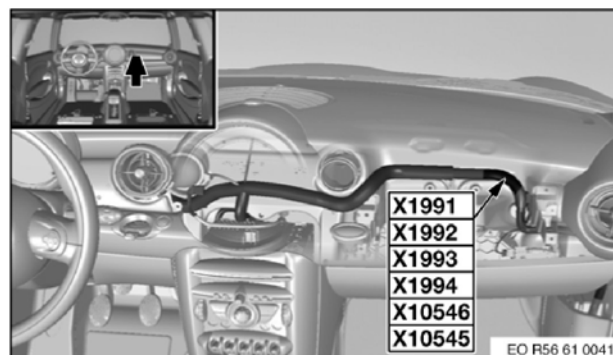


## X10546 No Adapter

X10546 No Adapter

X1991, X1992, X1993, X1994, X10546, X10545

X1991, X1992, X1993, X1994, X10546, X10545

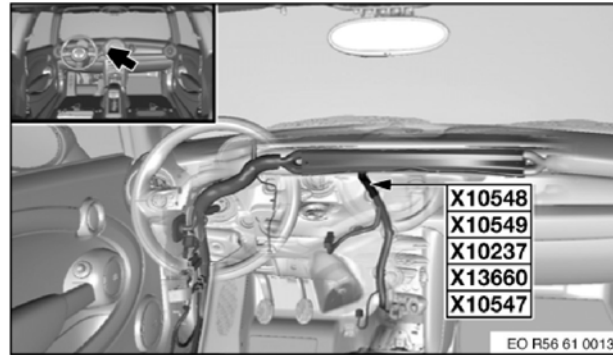


## X10547 No Adapter

X10547 No Adapter

X10548, X10549, X10237, X13660, X10547

X10548, X10549, X10237, X13660, X10547

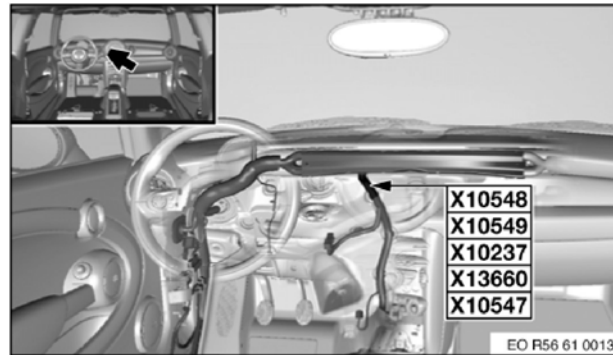


## X10548 No Adapter

X10548 No Adapter

X10548, X10549, X10237, X13660, X10547

X10548, X10549, X10237, X13660, X10547

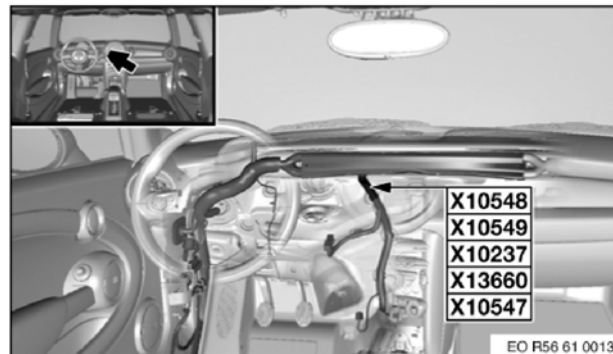


## X10549 No Adapter

X10549 No Adapter

X10548, X10549, X10237, X13660, X10547

X10548, X10549, X10237, X13660, X10547

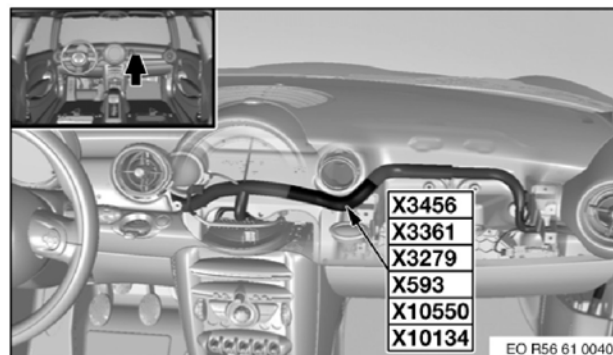


## X10550 No Adapter

X10550 No Adapter

X3456, X3361, X3279, X593, X10550, X10134

X3456, X3361, X3279, X593, X10550, X10134

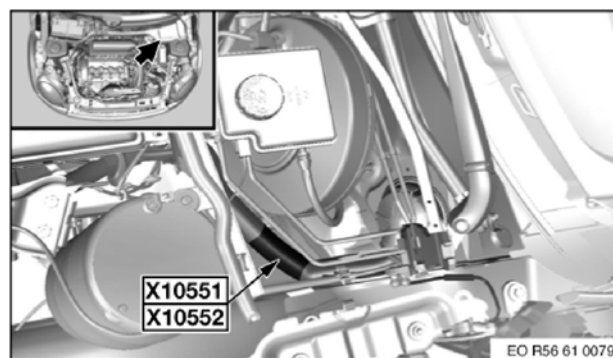


## X10551 No Adapter

X10551 No Adapter

X10551, X10552

X10551, X10552

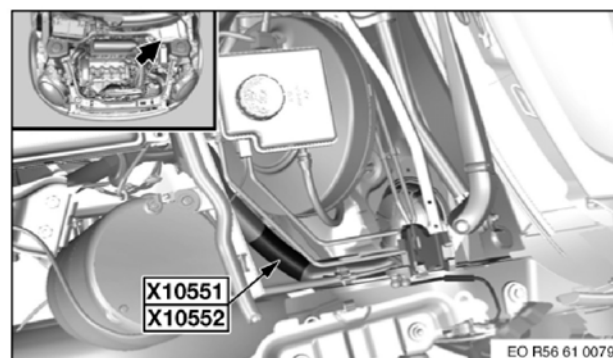


## X10552 No Adapter

X10552 No Adapter

X10551, X10552

X10551, X10552



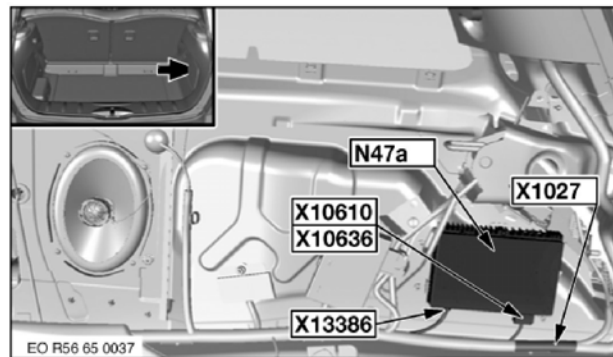
## X10610 OPPS Adapter 663120, Storage Location X2..

X10610 OPPS Adapter 663120, Storage Location X2..

N47a, X10610, X10636, X13386, X1027 (MINI\_MINI-R55/R56/R57)



N47a, X10610, X10636, X13386, X1027

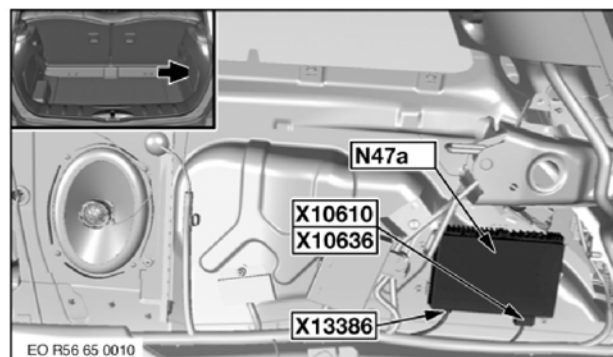


## X10636 OPPS Adapter 663120, Storage Location X2..

X10636 OPPS Adapter 663120, Storage Location X2..

N47a, X13386, X10610, X10636 (MINI\_MINI-R55/R56/R57)

N47a, X13386, X10610, X10636

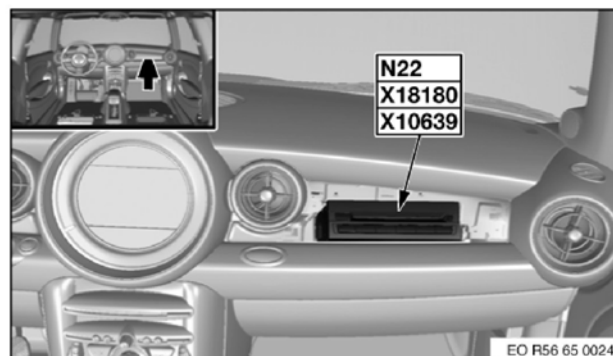


## X10639 OPPS Adapter 663120, Storage Location X2..

X10639 OPPS Adapter 663120, Storage Location X2..

N22, X18180, X10639

N22, X18180, X10639

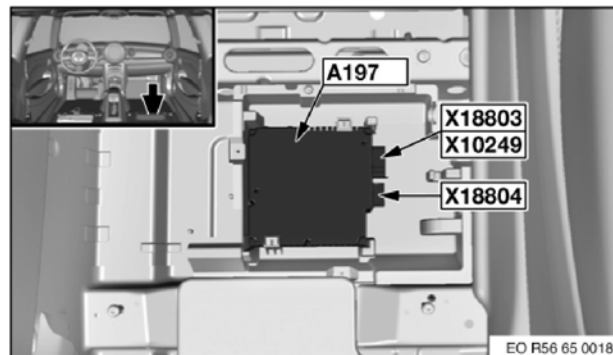


## X10642 OPPS Adapter 663120, Storage Location X2..

X10642 OPPS Adapter 663120, Storage Location X2..

A197, X18803, X10642, X18804

A197, X18803, X10642, X18804

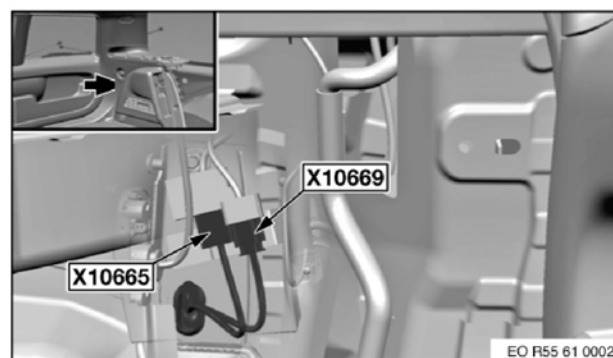


## X10665 Adapter 616023, Storage Location D103

X10665 Adapter 616023, Storage Location D103

X10669, X10665

X10669, X10665

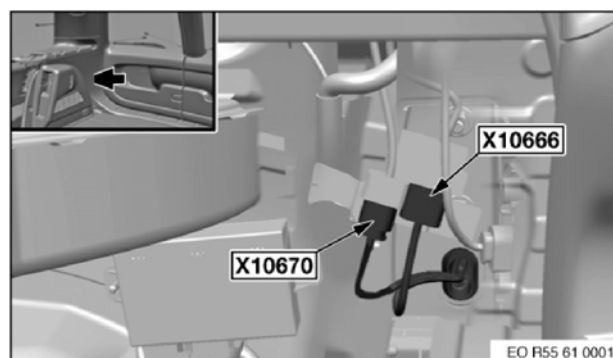


## X10666 Adapter 616023, Storage Location D103

X10666 Adapter 616023, Storage Location D103

X10666, X10670

X10666, X10670

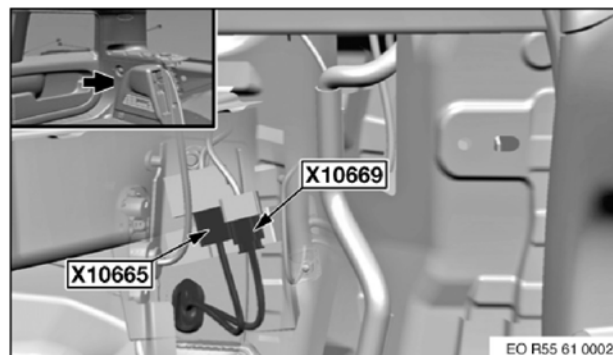


## X10669 Adapter 613240, Storage Location M210

X10669 Adapter 613240, Storage Location M210

X10669, X10665

X10669, X10665

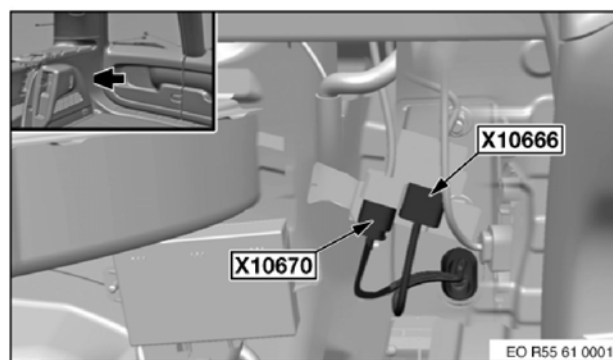


## X10670 Adapter 613240, Storage Location M210

X10670 Adapter 613240, Storage Location M210

X10666, X10670

X10666, X10670

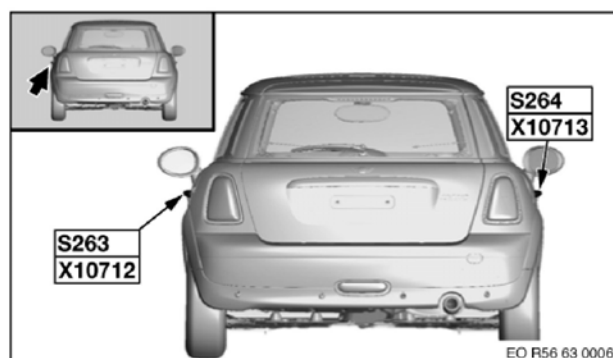


## X10712 Adapter 616043, Storage Location D114

X10712 Adapter 616043, Storage Location D114

S263, X10712, S264, X10713

S263, X10712, S264, X10713

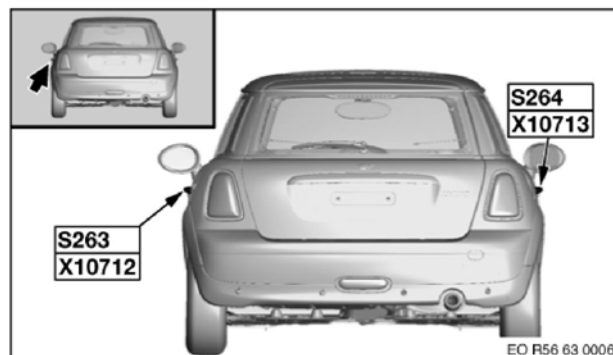


## X10713 Adapter 616043, Storage Location D114

X10713 Adapter 616043, Storage Location D114

S263, X10712, S264, X10713

S263, X10712, S264, X10713

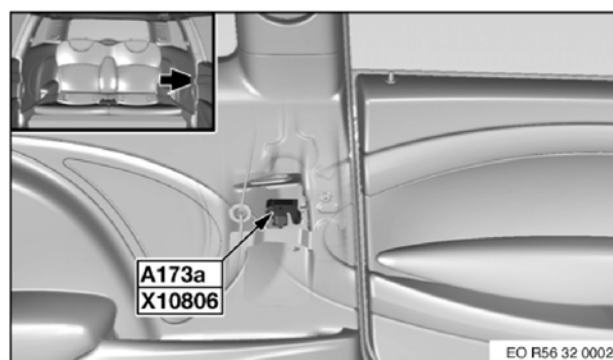


## X10806 Adapter 616045, Storage Location D116

X10806 Adapter 616045, Storage Location D116

A173a, X10806 (Left-Hand Drive)

A173a, X10806

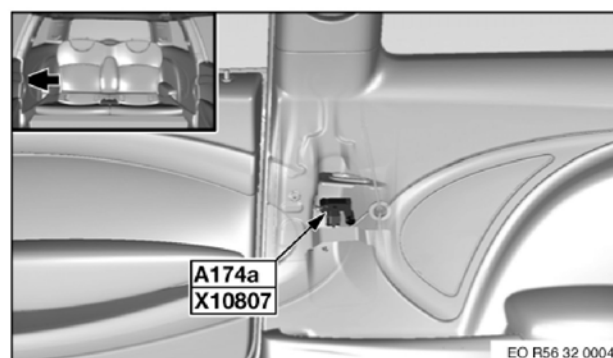


## X10807 Adapter 616045, Storage Location D116

X10807 Adapter 616045, Storage Location D116

A174a, X10807 (Left-Hand Drive)

A174a, X10807

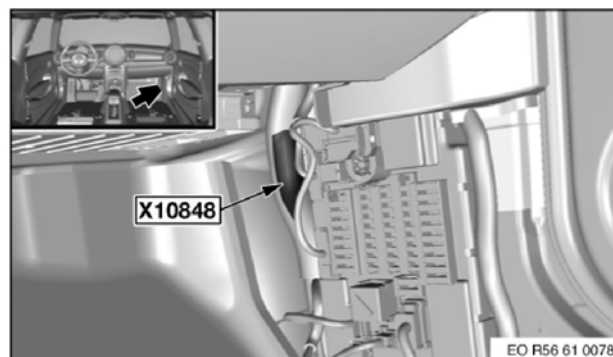


## X10848 No Adapter

X10848 No Adapter

X10848

X10848

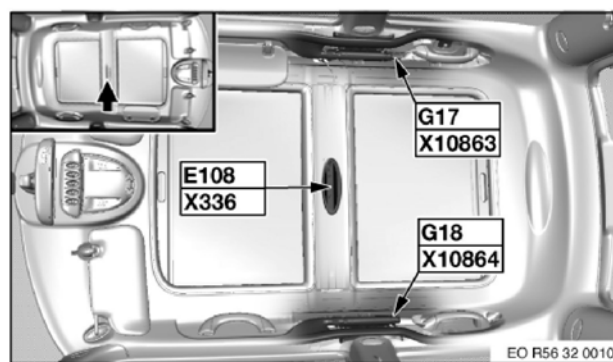


## X10863 No Adapter

X10863 No Adapter

E108, X336, G17, X10863, G18, X10864

E108, X336, G17, X10863, G18, X10864

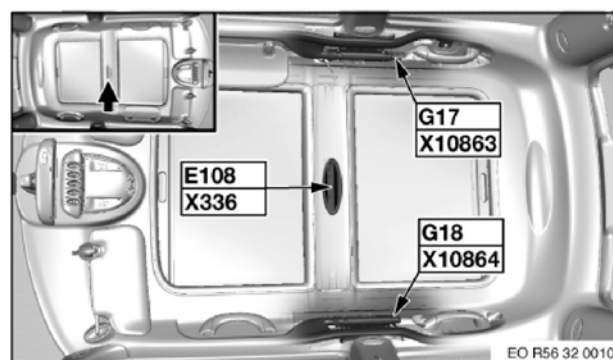


## X10864 No Adapter

X10864 No Adapter

E108, X336, G17, X10863, G18, X10864

E108, X336, G17, X10863, G18, X10864

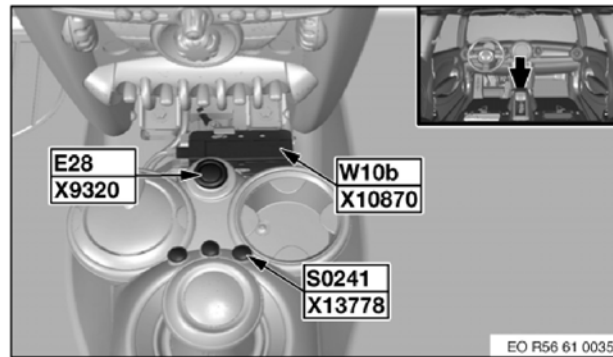


## X10870 No Adapter

X10870 No Adapter

E28, X9320, W10B, X10870, S0241, X13778

E28, X9320, W10b, X10870, S0241, X13778

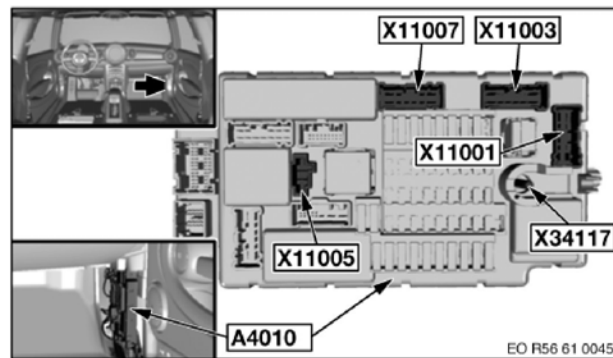


## X11001 No Adapter

X11001 No Adapter

X11007, X11003, X11001, X34117, X11005, A4010

X11007, X11003, X11001, X34117, X11005, A4010

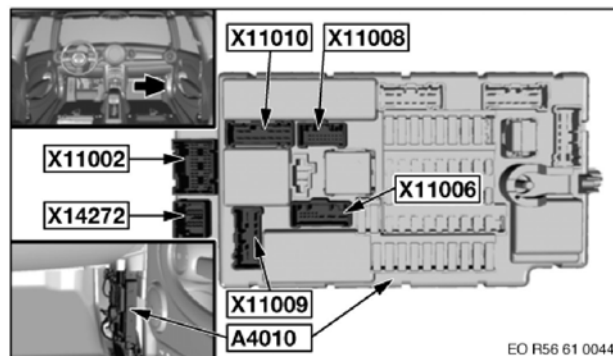


## X11002 Adapter 121304, Storage Location N204

X11002 Adapter 121304, Storage Location N204

A4010, X11010, X11008, X11002, X14272, X11009, X11006

A4010, X11010, X11008, X11002, X14272, X11009, X11006

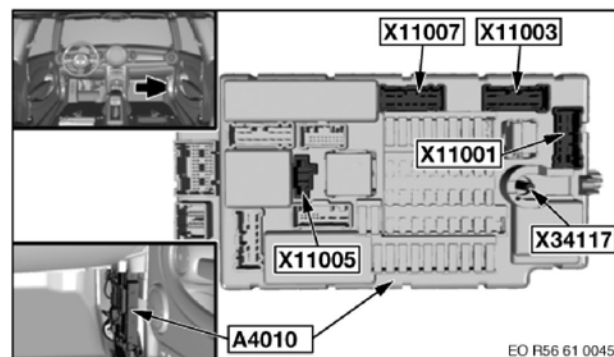


## X11003 No Adapter

X11003 No Adapter

X11007, X11003, X11001, X34117, X11005, A4010

X11007, X11003, X11001, X34117, X11005, A4010

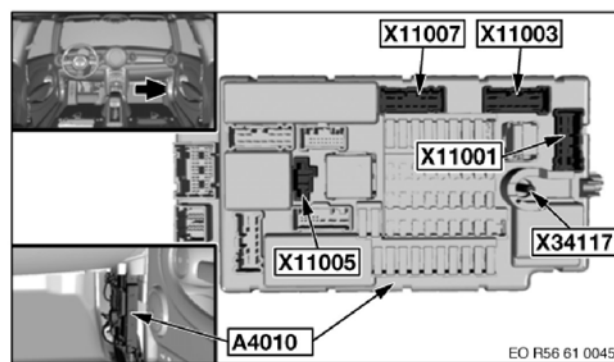


## X11005 No Adapter

X11005 No Adapter

X11007, X11003, X11001, X34117, X11005, A4010

X11007, X11003, X11001, X34117, X11005, A4010

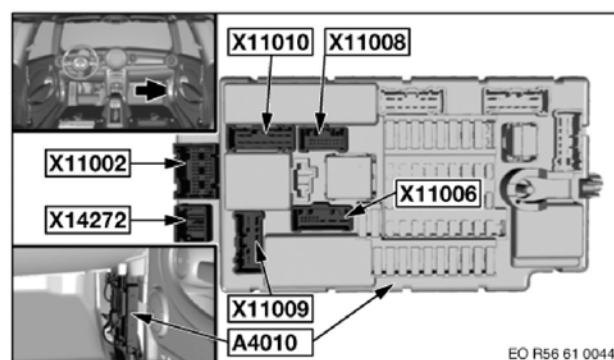


## X11006 Adapter 613190, Storage Location Y2

X11006 Adapter 613190, Storage Location Y2

A4010, X11010, X11008, X11002, X14272, X11009, X11006

A4010, X11010, X11008, X11002, X14272, X11009, X11006

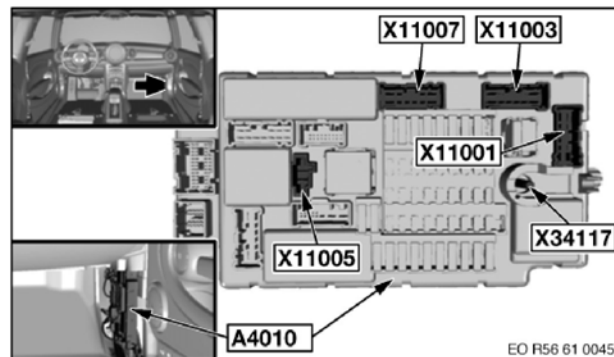


## X11007 No Adapter

X11007 No Adapter

X11007, X11003, X11001, X34117, X11005, A4010

X11007, X11003, X11001, X34117, X11005, A4010

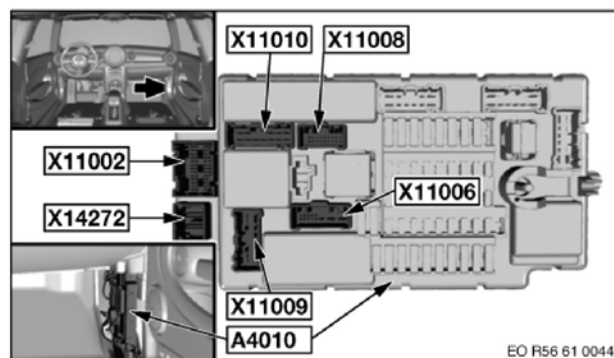


## X11008 No Adapter

X11008 No Adapter

A4010, X11010, X11008, X11002, X14272, X11009, X11006

A4010, X11010, X11008, X11002, X14272, X11009, X11006

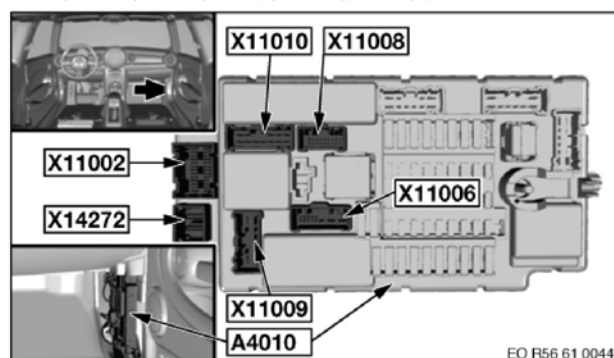


## X11009 No Adapter

X11009 No Adapter

A4010, X11010, X11008, X11002, X14272, X11009, X11006

A4010, X11010, X11008, X11002, X14272, X11009, X11006



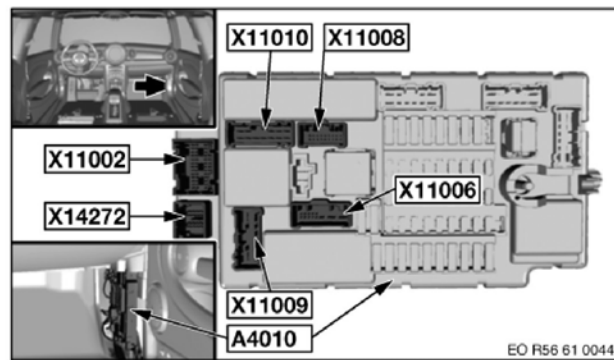
## X11010 No Adapter

X11010 No Adapter

A4010, X11010, X11008, X11002, X14272, X11009, X11006



A4010, X11010, X11008, X11002, X14272, X11009, X11006

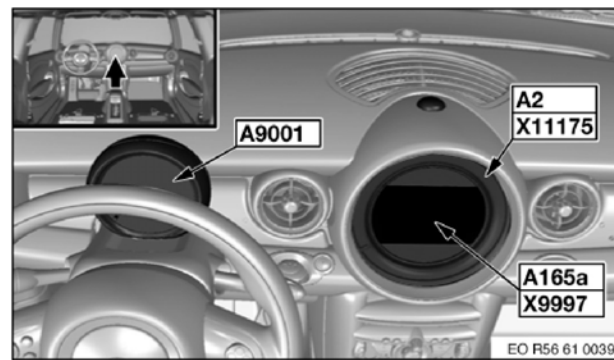


## X11175 No Adapter

X11175 No Adapter

A9001, S18a, X516, A2, X11175, A165a, X9997

A9001, S18a, X516, A2, X11175, A165a, X9997

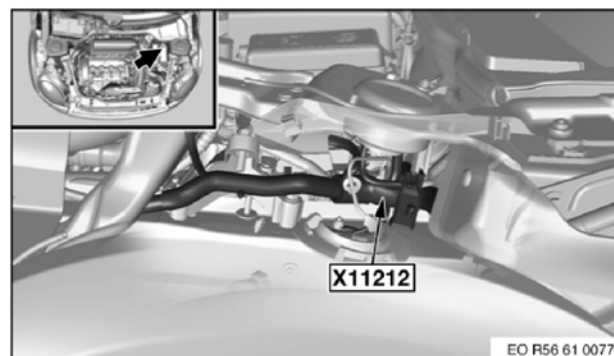


## X11212 No Adapter

X11212 No Adapter

X11212

X11212

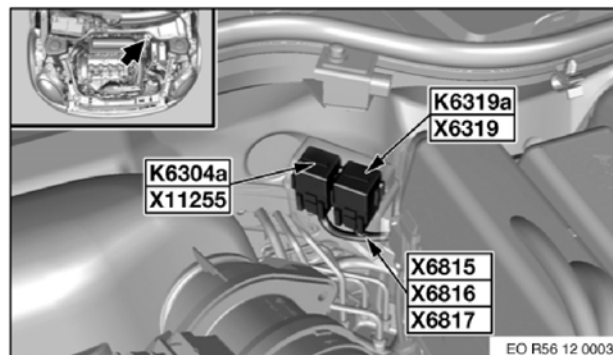


## X11255 No Adapter

X11255 No Adapter

K6304a, X11255, X6815, X6816, X6817, K6319a, X6319

K6304a, X11255, X6815, X6816, X6817, K6319a, X6319

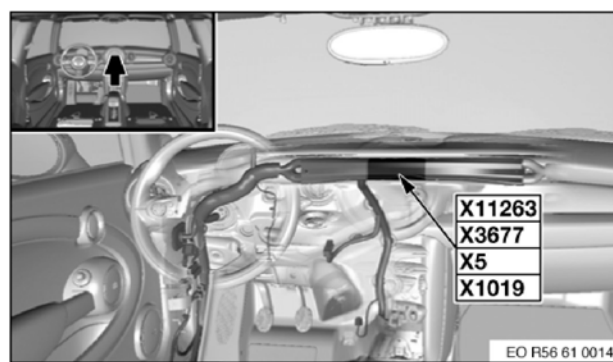


## X11263 No Adapter

X11263 No Adapter

X11263, X3677, X5, X1019

X11263, X3677, X5, X1019

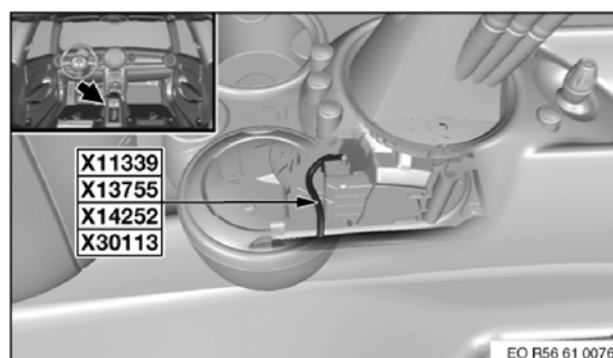


## X11339 No Adapter

X11339 No Adapter

X11339, X13755, X14252, X30113

X11339, X13755, X14252, X30113

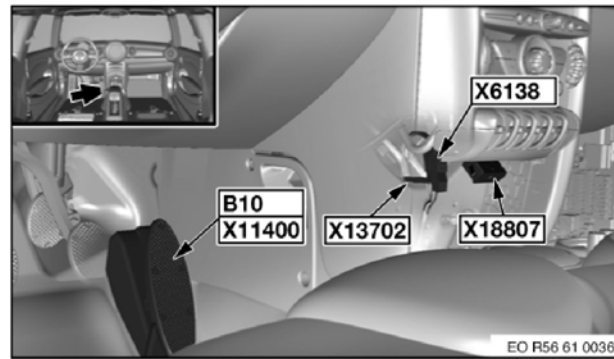


## X11400 Adapter 616050/-126050, Storage Location D117/F116

X11400 Adapter 616050/-126050, Storage Location D117/F116

B10, X11400, X6138, X18807, X13702

B10, X11400, X6138, X18807, X13702

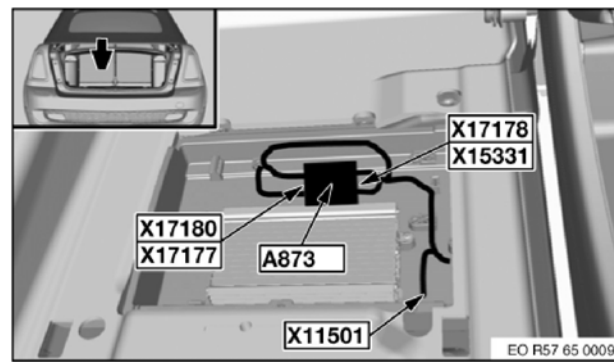


## X11501 No Adapter

X11501 No Adapter

A873, X17180, X17177, X17178, X15331, X11501

A873, X17180, X17177, X17178, X15331, X11501

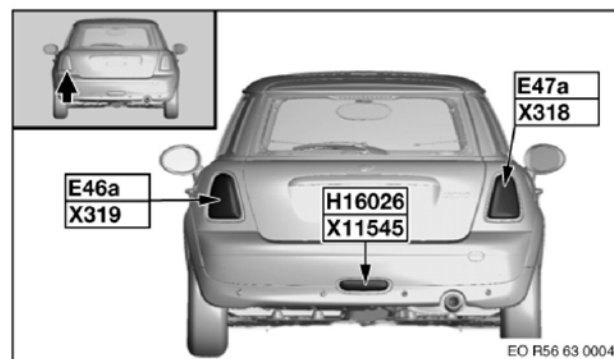


## X11545 No Adapter

X11545 No Adapter

E46a, X319, E47a, X318, H16026, X11545

E46a, X319, E47a, X318, H16026, X11545

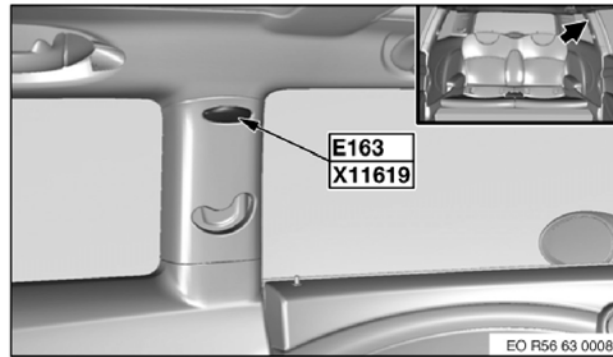


## X11609 Adapter 616031, Storage Location D107

X11609 Adapter 616031, Storage Location D107

E163, X11619

E163, X11619



## X11619 Adapter 616031, Storage Location D107

X11619 Adapter 616031, Storage Location D107

E164, X11619

E164, X11619

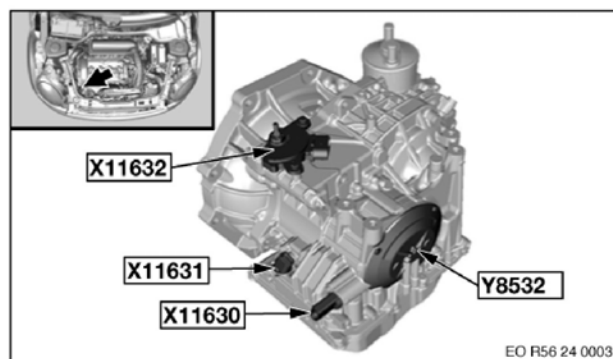


## X11630 Adapter 613450, Storage Location Y3

X11630 Adapter 613450, Storage Location Y3

X11632, X11631, X11630, Y8532

X11632, X11631, X11630, Y8532

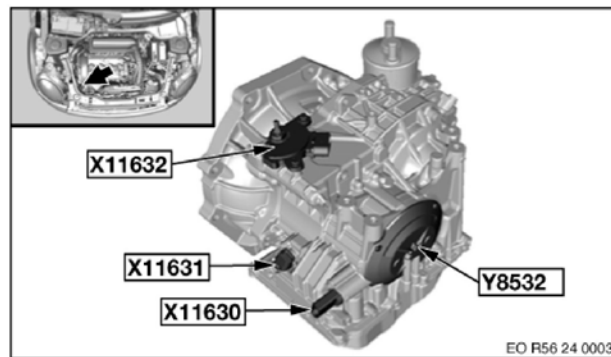


## X11631 Prototype Adapter Is Being Developed

X11631 Prototype Adapter Is Being Developed

X11632, X11631, X11630, Y8532

X11632, X11631, X11630, Y8532

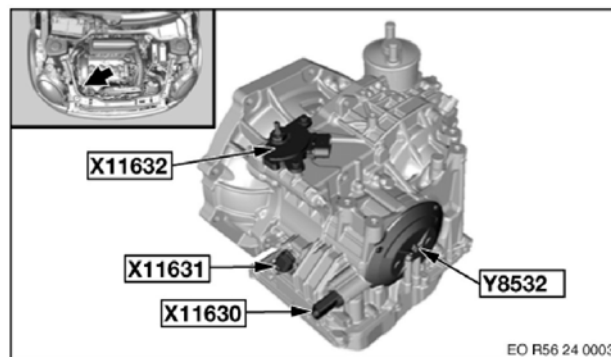


## X11632 Adapter 613440, Storage Location Y3

X11632 Adapter 613440, Storage Location Y3

X11632, X11631, X11630, Y8532

X11632, X11631, X11630, Y8532

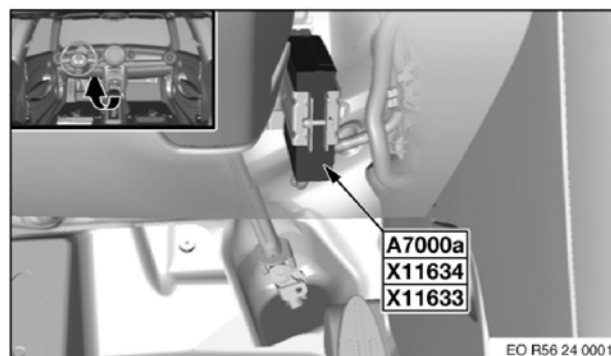


## X11633 Adapter 613440, Storage Location Y3

X11633 Adapter 613440, Storage Location Y3

A7000a, X11634, X11633

A7000a, X11634, X11633

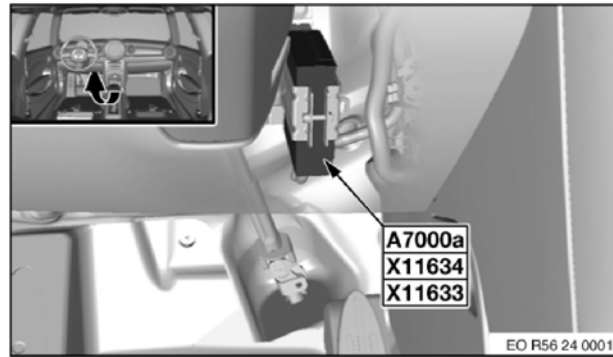


## X11634 Adapter 121302, Storage Location N202

X11634 Adapter 121302, Storage Location N202

A7000a, X11634, X11633

A7000a, X11634, X11633

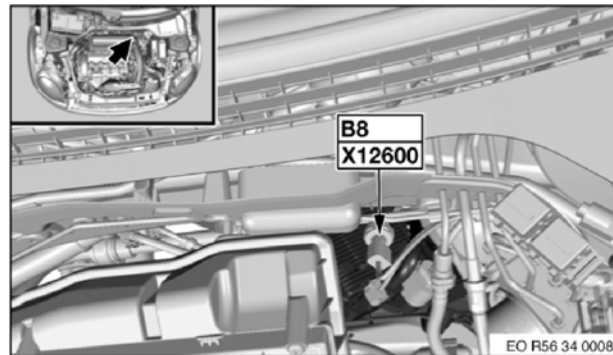


## X12600 No Adapter 616044, Storage Location D115

X12600 No Adapter

B8, X12600

B8, X12600

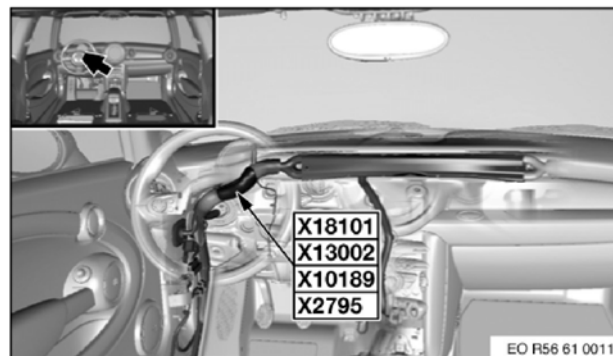


## X13002 No Adapter

X13002 No Adapter

X18101, X13002, X10189, X2795

X18101, X13002, X10189, X2795

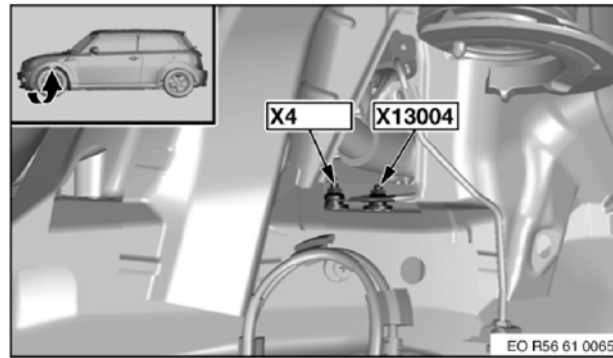


## X13004 No Adapter

X13004 No Adapter

X4, X13004

X4, X13004

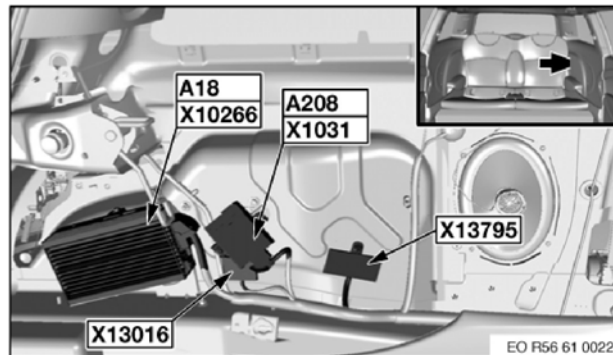


## X13016 No Adapter

X13016 No Adapter

A208, X10313, X13795, X13016, A18, X10266

A208, X10313, X13795, X13016, A18, X10266

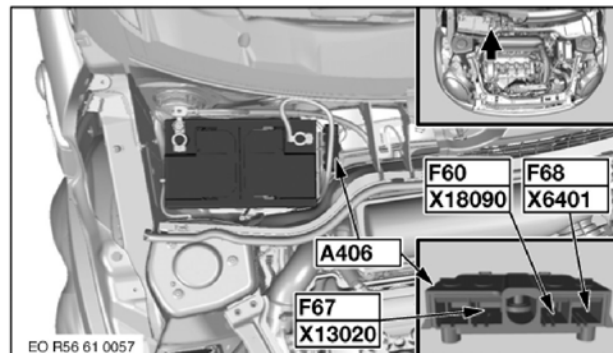


## X13020 No Adapter

X13020 No Adapter

A406, F67, X13020, F60, X18090, F68, X6401

A406, F67, X13020, F60, X18090, F68, X6401

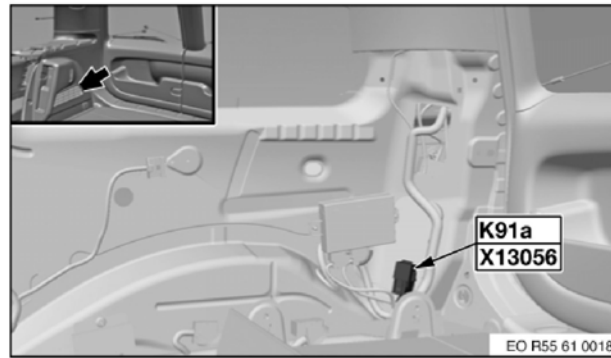


## X13056 No Adapter

X13056 No Adapter

K91a, X13056

K91a, X13056

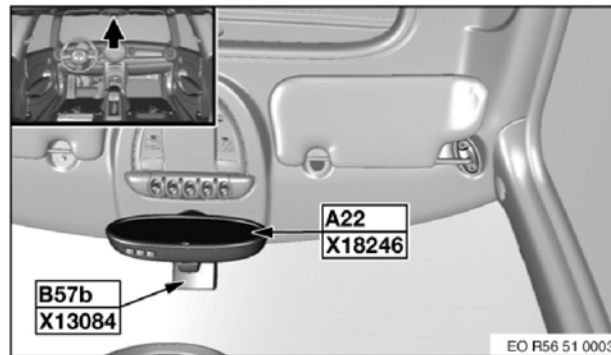


## X13084 Adapter 616032, Storage Location D108

X13084 Adapter 616032, Storage Location D108

A22, X18246, B57B, X13084, X382

A22, X18246, B57b, X13084, X382

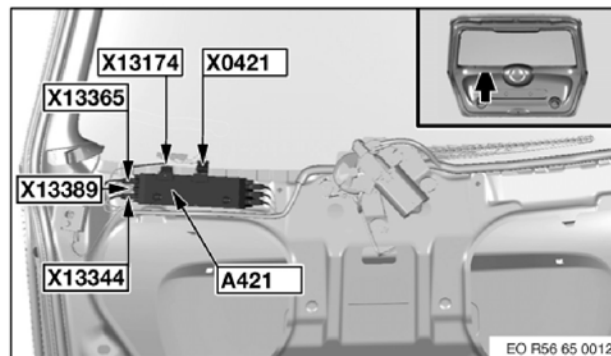


## X13174 Adapter 616033, Storage Location D109

X13174 Adapter 616033, Storage Location D109

X13174, X13365, X13389, X13344, X0421, A421 (MINI-MINI-R55/R56/R57)

X13174, X13365, X13389, X13344, X0421, A421



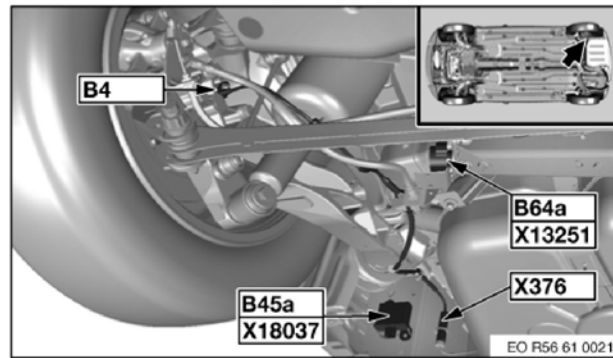
## X13251 Adapter 616050, Storage Location D117

X13251 Adapter 616050, Storage Location D117

B4, B45a, X18037, X376, B64a, X13251



B4, B45a, X18037, X376, B64a, X13251

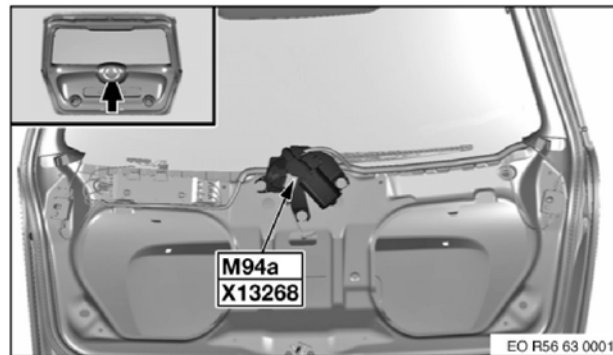


## X13268 No Adapter

X13268 No Adapter

M94a, X13268

M94a, X13268

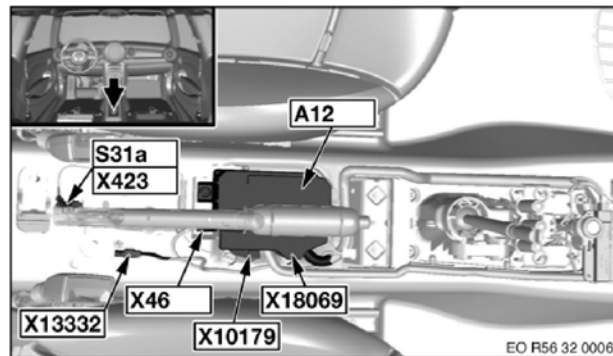


## X13322 No Adapter

X13322 No Adapter

A12, S31a, X423, X13322, X46, X10179, X18069

A12, S31a, X423, X13322, X46, X10179, X18069

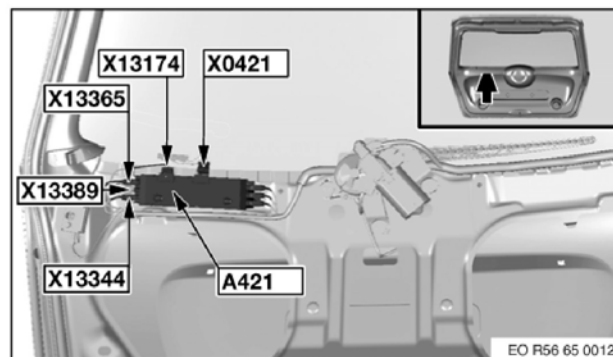


## X13344 No Adapter

X13344 No Adapter

X13174, X13365, X13389, X13344, X0421, A421 (MINI\_MINI-R55/R56/R57)

X13174, X13365, X13389, X13344, X0421, A421

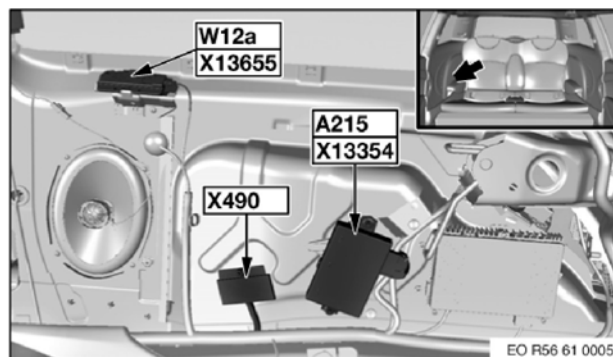


## X13354 Adapter 614464, Storage Location C109

X13354 Adapter 614464, Storage Location C109

W12a, X13655, X490, A215, X13354 (MINI\_MINI-R55/R56/R57)

W12a, X13655, X490, A215, X13354

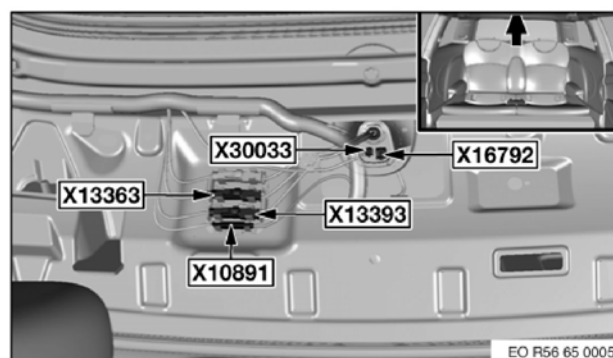


## X13363 No Adapter

X13363 No Adapter

X13363, X13393, X10891, X30033, X16792

X13363, X13393, X10891, X30033, X16792

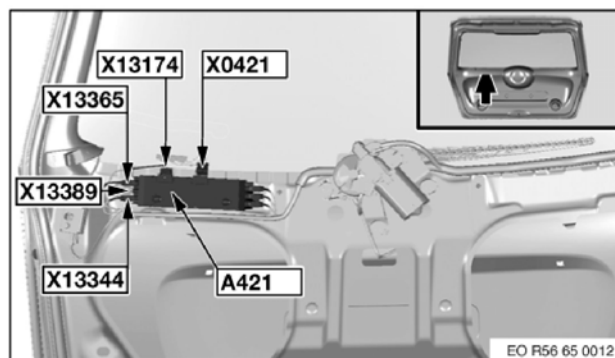


## X13365 No Adapter

X13365 No Adapter

X13174, X13365, X13389, X13344, X0421, A421 (MINI\_MINI-R55/R56/R57)

X13174, X13365, X13389, X13344, X0421, A421

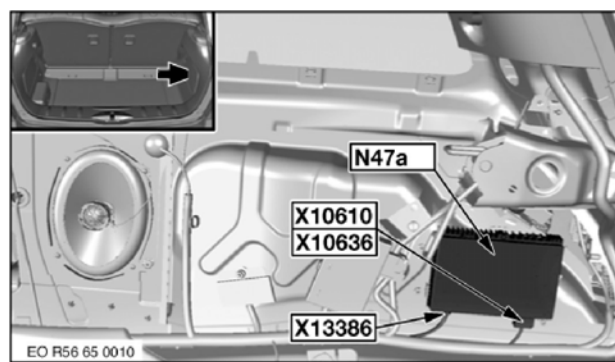


## X13386 No Adapter

X13386 No Adapter

N47a, X13386, X10610, X10636 (MINI\_MINI-R55/R56/R57)

N47a, X13386, X10610, X10636

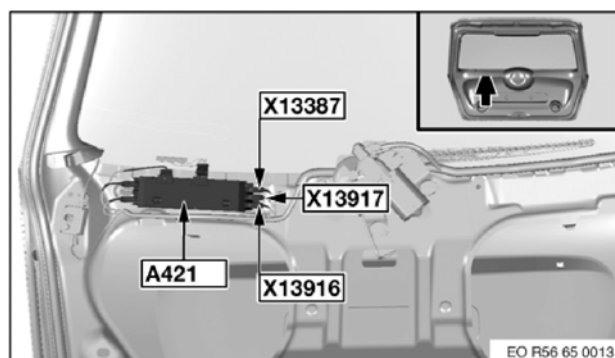


## X13387 No Adapter

X13387 No Adapter

X13387, X13917, X13916, A421 (MINI\_MINI-R55/R56/R57)

X13387, X13917, X13916, A421

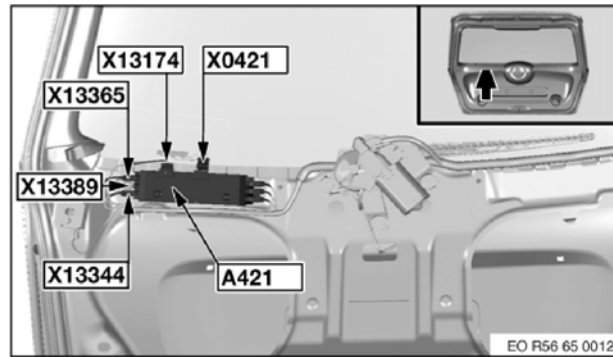


## X13389 No Adapter

X13389 No Adapter

X13174, X13365, X13389, X13344, X0421, A421 (MINI\_MINI-R55/R56/R57)

X13174, X13365, X13389, X13344, X0421, A421

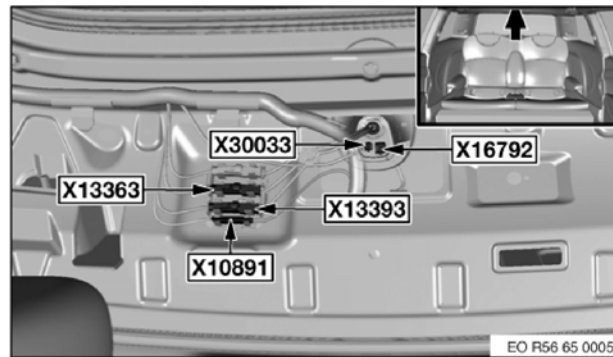


## X13393 No Adapter

X13393 No Adapter

X13363, X13393, X10891, X30033, X16792

X13363, X13393, X10891, X30033, X16792

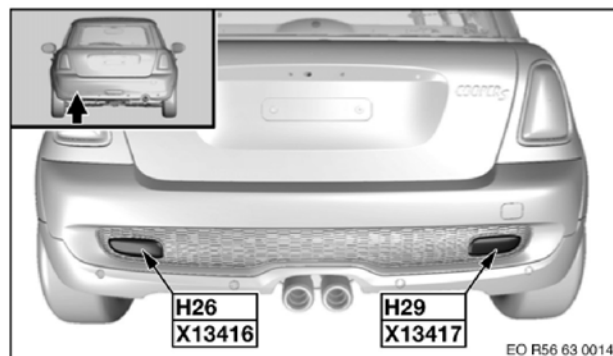


## X13416 No Adapter

X13416 No Adapter

H26, X13416, H29, X13417

H26, X13416, H29, X13417

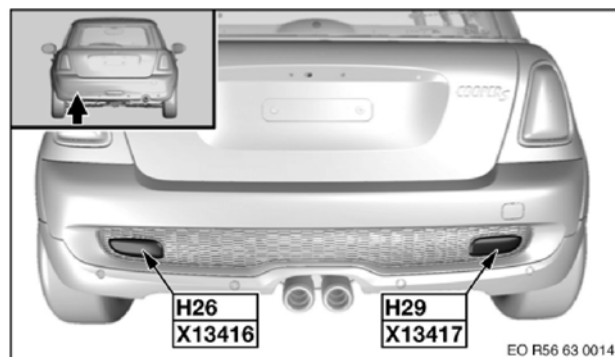


## X13417 No Adapter

X13417 No Adapter

H26, X13416, H29, X13417

H26, X13416, H29, X13417

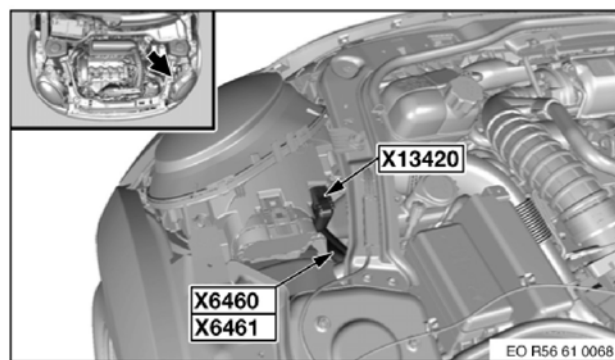


## X13420 No Adapter

X13420 No Adapter

X6460, X6461, X13420

X6460, X6461, X13420

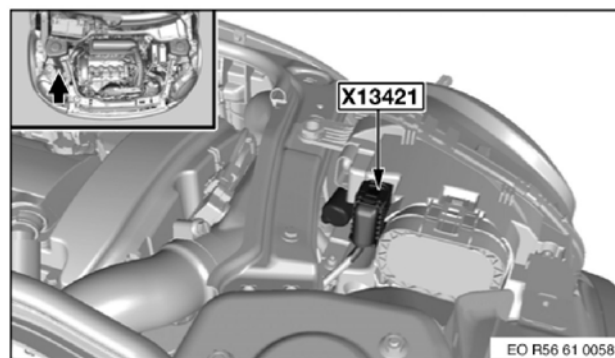


## X13421 No Adapter

X13421 No Adapter

X13421

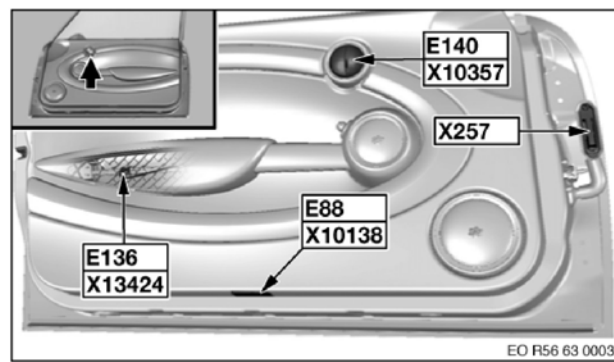
X13421



## X13424 Adapter 616031, Storage Location D107

X13424 Adapter 616031, Storage Location D107

E140, X10357, E88, X10138, E136, X13424

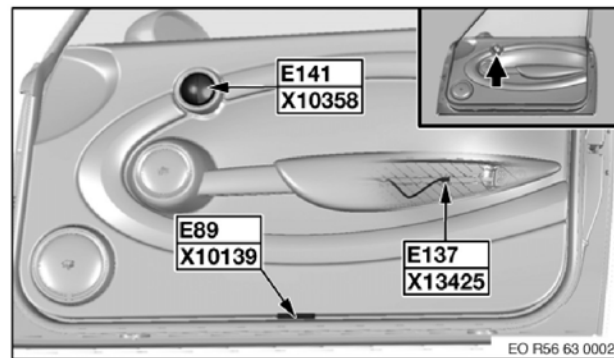


## X13425 Adapter 616031, Storage Location D107

X13425 Adapter 616031, Storage Location D107

E141, X10358, E89, X10139, E137, X13425

E141, X10358, E89, X10139, E137, X13425

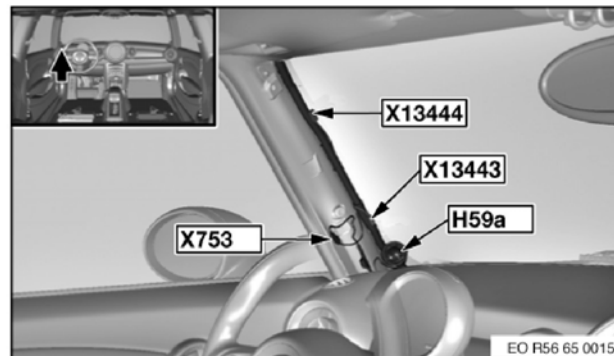


## X13443 No Adapter

X13443 No Adapter

X13444, X753, X13443, H59a

X13444, X753, X13443, H59a

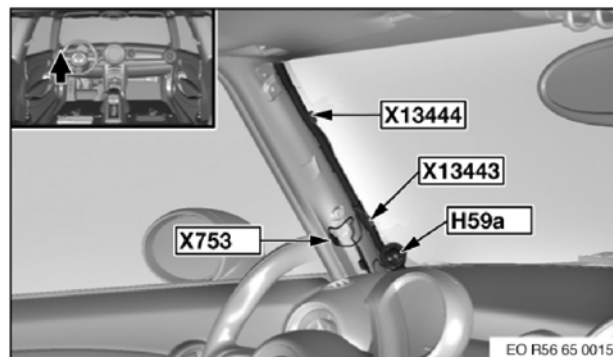


## X13444 No Adapter

X13444 No Adapter

X13444, X753, X13443, H59a

X13444, X753, X13443, H59a

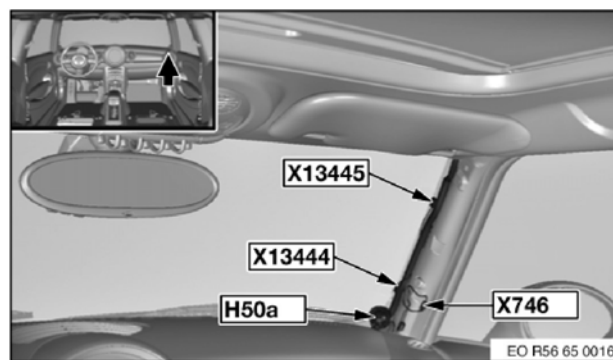


## X13445 No Adapter

X13445 No Adapter

X13445, X13446, H50a, X746

X13445, X13446, H50a, X746

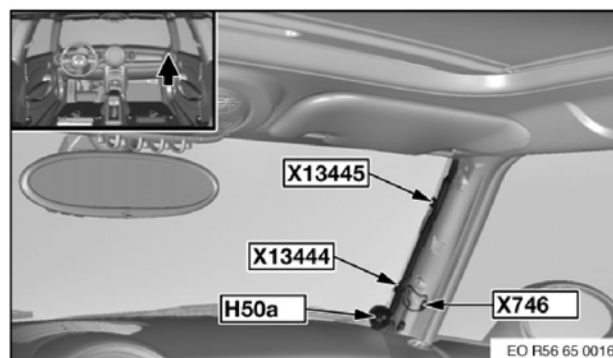


## X13446 No Adapter

X13446 No Adapter

X13445, X13446, H50a, X746

X13445, X13446, H50a, X746

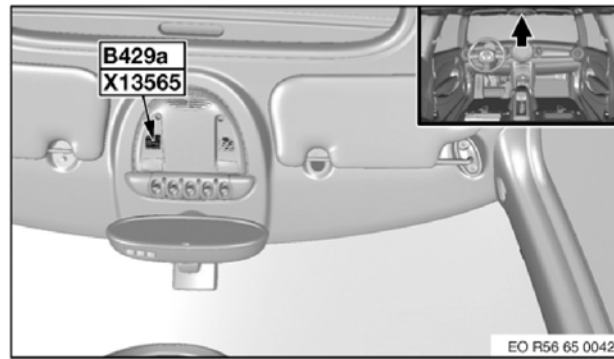


## X13565 No Adapter

X13565 No Adapter

B429a; X13565

B429a; X13565

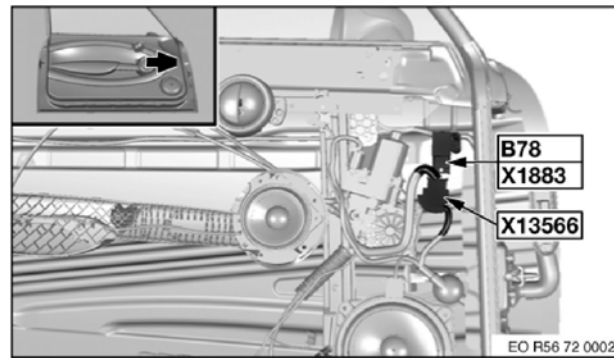


## X13566 Adapter 614470, Storage Location C110

X13566 Adapter 614470, Storage Location C110

B78, X1883, X13566

B78, X1883, X13566

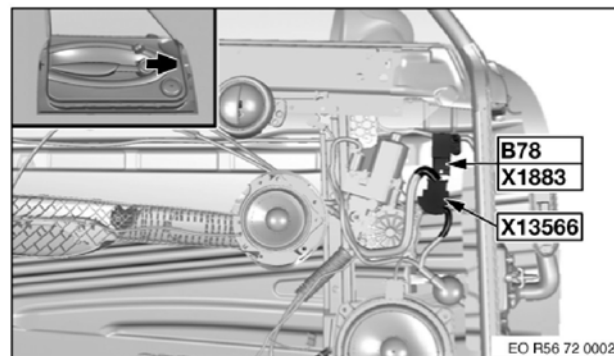


## X13566 Adapter 616035, Storage Location D111

X13566 Adapter 616035, Storage Location D111

B78, X1883, X13566

B78, X1883, X13566



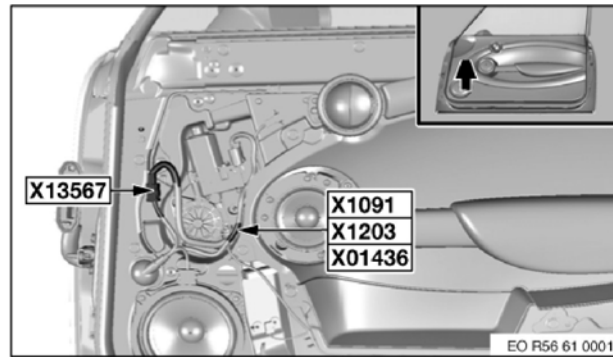
## X13567 Adapter 611465/-66, Storage Location B112/-13

X13567 Adapter 611465/-66, Storage Location B112/-13

X13567, X1091, X1203, X01436



X13567, X1091, X1203, X01436

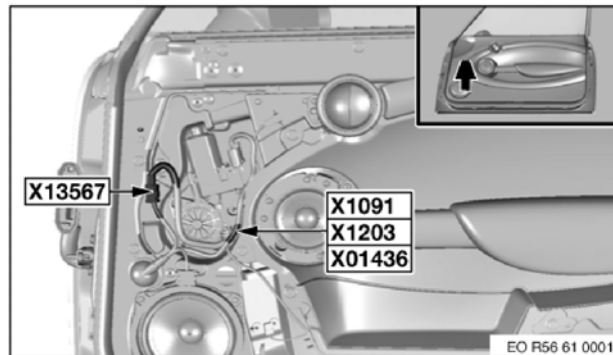


## **X13567 Adapter 616035, Storage Location D111**

**X13567 Adapter 616035, Storage Location D111**

**X13567, X1091, X1203, X01436**

X13567, X1091, X1203, X01436

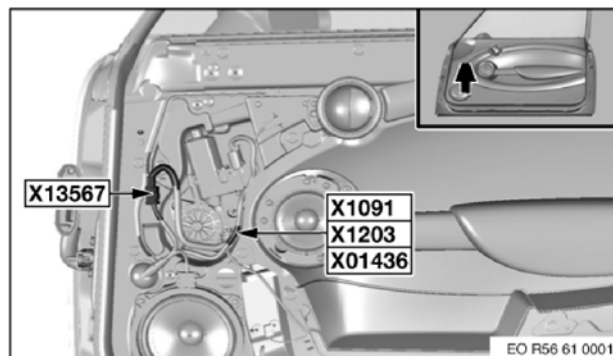


## **X13567 Adapter 611465, Storage Location B112**

**X13567 Adapter 611465, Storage Location B112**

**X13567, X1091, X1203, X01436**

X13567, X1091, X1203, X01436

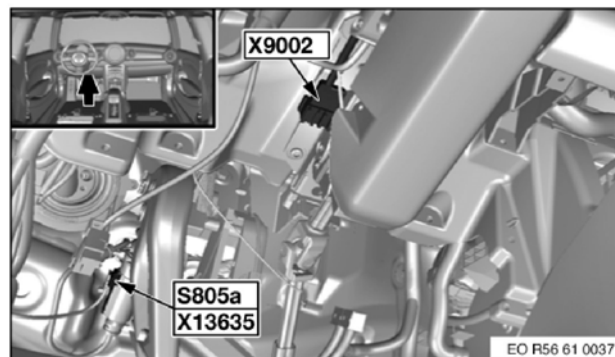


## **X13635 Adapter 616032, Storage Location D108**

**X13635 Adapter 616032, Storage Location D108**

**X9002, S805a, X13635**

X9002, S805a, X13635



## X13653 Adapter 616033, Storage Location D109

X13653 Adapter 616033, Storage Location D109

X16671, X13696, X13653 (Left-Hand Drive)

X16671, X13696, X13653

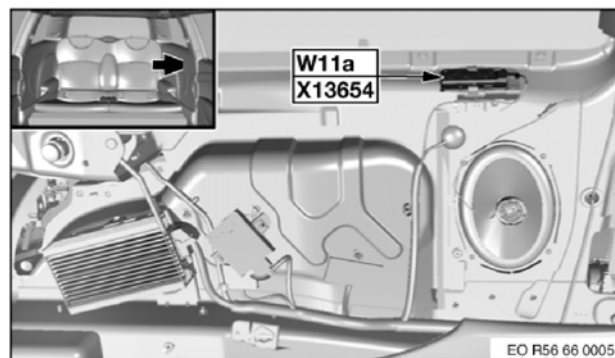


## X13654 No Adapter

X13654 No Adapter

W11a, X13654

W11a, X13654

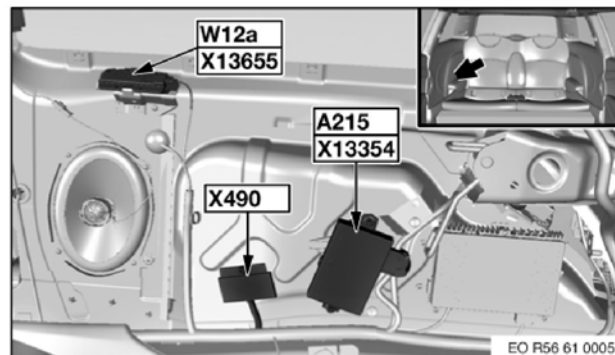


## X13655 No Adapter

X13655 No Adapter

W12a, X13655, X490, A215, X13354(Left-Hand Drive)

W12a, X13655, X490, A215, X13354

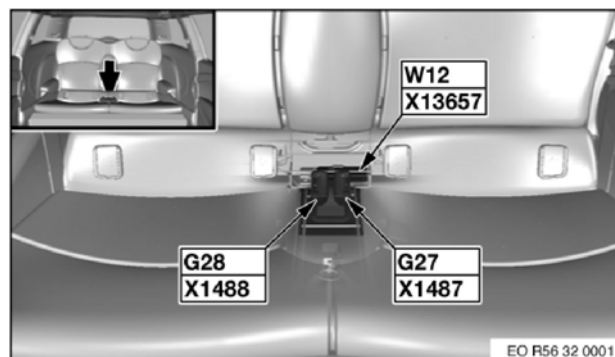


## X13657 No Adapter

X13657 No Adapter

W12, X13657, G27, X1487, G28, X1488

W12, X13657, G27, X1487, G28, X1488

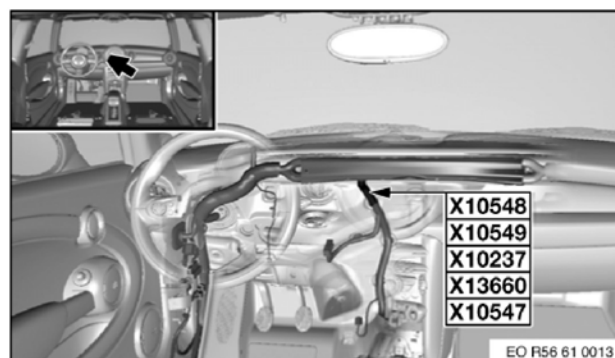


## X13660 No Adapter

X13660 No Adapter

X10548, X10549, X10237, X13660, X10547

X10548, X10549, X10237, X13660, X10547



## X13696 No Adapter

X13696 No Adapter

X16671, X13696, X13653

X16671, X13696, X13653

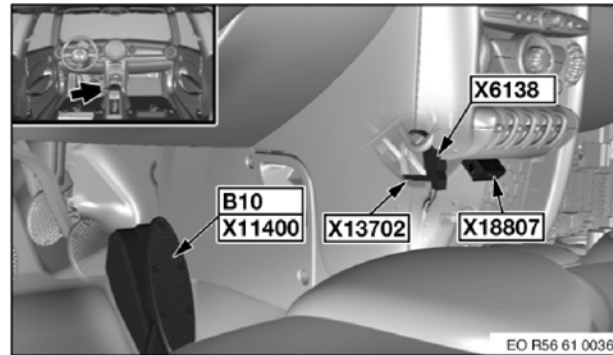


## X13702 No Adapter

X13702 No Adapter

B10, X11400, X6138, X18807, X13702

B10, X11400, X6138, X18807, X13702

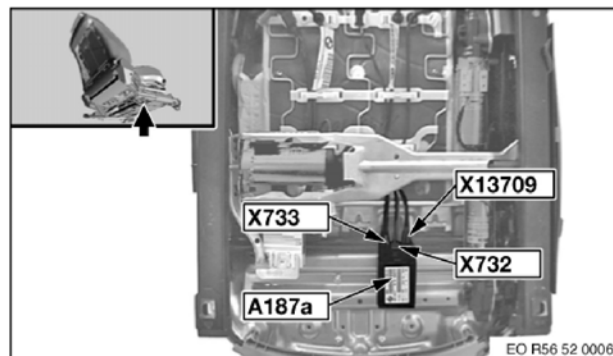


## X13709 No Adapter

X13709 No Adapter

A187a, X733, X13709, X732

A187a, X733, X13709, X732

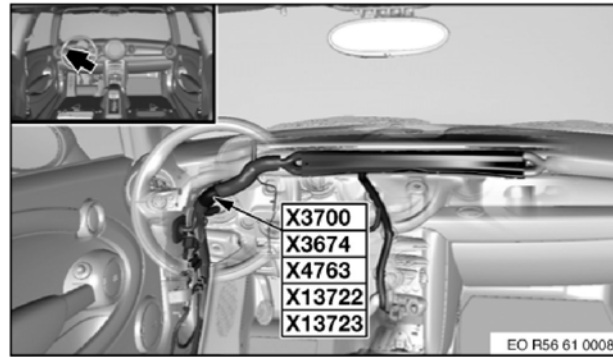


## X13722 No Adapter

X13722 No Adapter

X3700, X3674, X4763, X13722, X13723

X3700, X3674, X4763, X13722, X13723

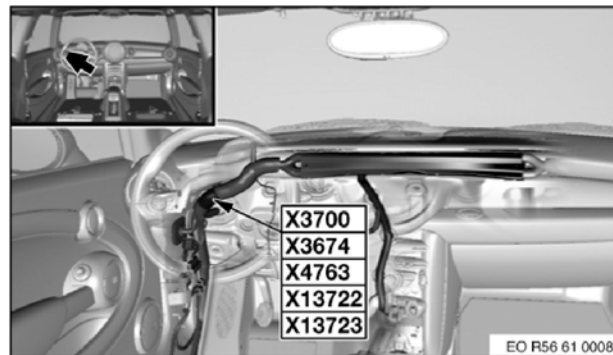


## X13723 No Adapter

X13723 No Adapter

X3700, X3674, X4763, X13722, X13723

X3700, X3674, X4763, X13722, X13723

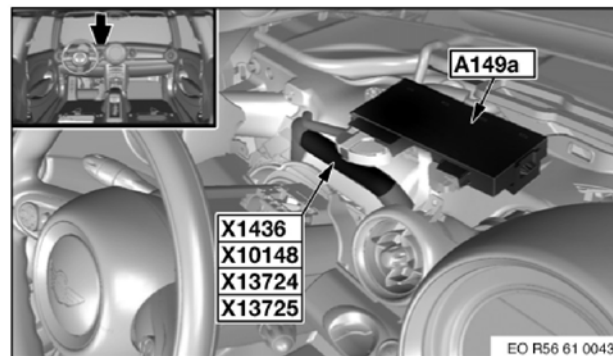


## X13724 No Adapter

X13724 No Adapter

A149a, X1436, X10148, X13724, X13725

A149a, X1436, X10148, X13724, X13725

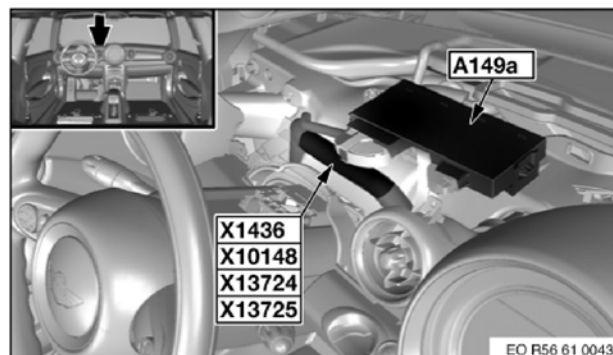


## X13725 No Adapter

X13725 No Adapter

A149a, X1436, X10148, X13724, X13725

A149a, X1436, X10148, X13724, X13725

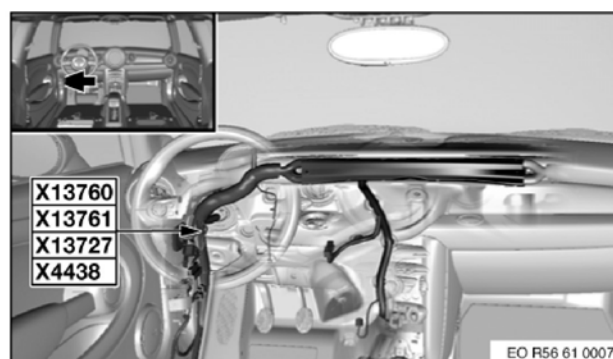


## X13727 No Adapter

X13727 No Adapter

X13760, X13761, X13727, X4438

X13760, X13761, X13727, X4438

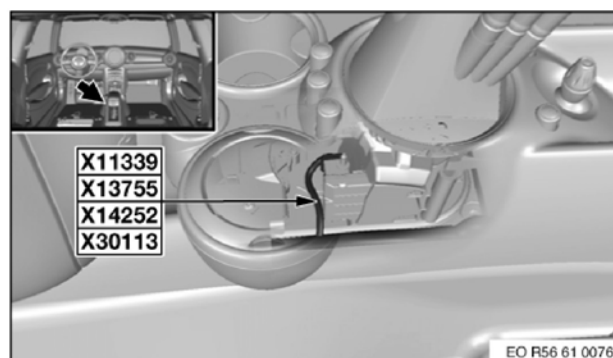


## X13755 No Adapter

X13755 No Adapter

X11339, X13755, X14252, X30113

X11339, X13755, X14252, X30113

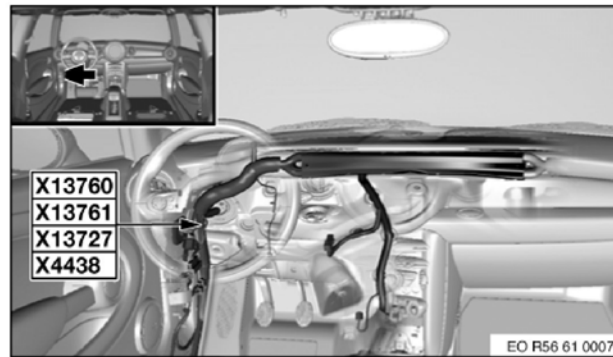


## X13760 No Adapter

X13760 No Adapter

X13760, X13761, X13727, X4438 (MINI\_MINI-R55/R56/R57 with Left-Hand Drive)

X13760, X13761, X13727, X4438

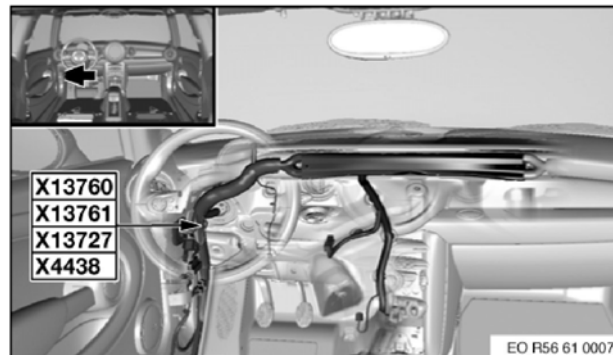


## X13761 No Adapter

X13761 No Adapter

X13760, X13761, X13727, X4438 (MINI\_MINI-R55/R56/R57 With Left-Hand Drive)

X13760, X13761, X13727, X4438

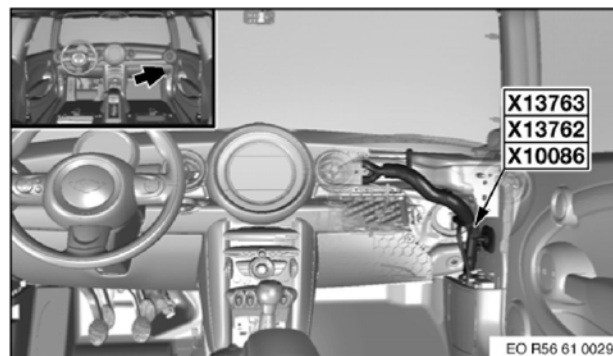


## X13762 No Adapter

X13762 No Adapter

X13763, X13762, X10086 (MINI\_MINI-R55/R56/R57 with Left-Hand Drive)

X13763, X13762, X10086

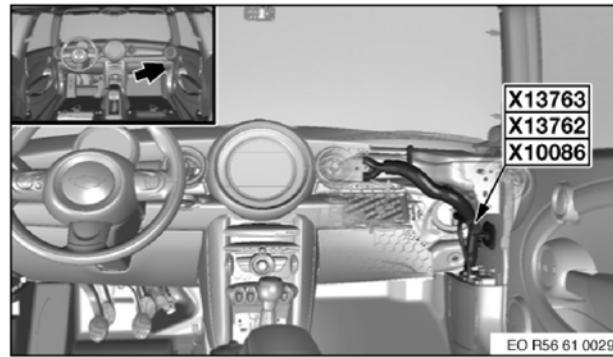


## X13763 No Adapter

X13763 No Adapter

X13763, X13762, X10086(MINI\_MINI-R55/R56/R57 with Left-Hand Drive)

X13763, X13762, X10086

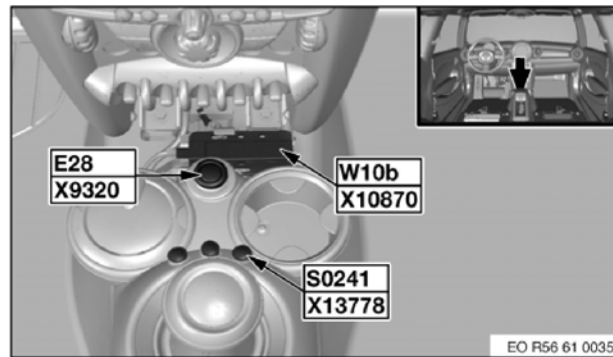


## X13778 Adapter 613220, Storage Location M209

X13778 Adapter 613220, Storage Location M209

E28, X9320, W10B, X10870, S0241, X13778

E28, X9320, W10b, X10870, S0241, X13778

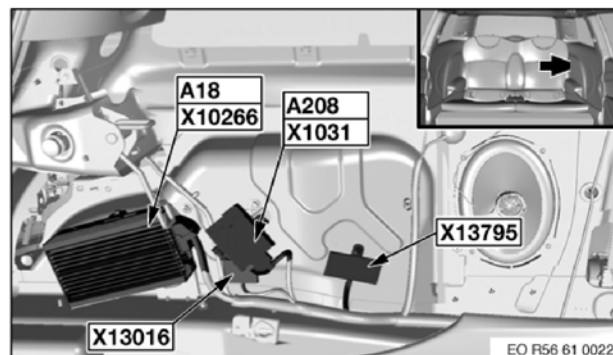


## X13795 No Adapter

X13795 No Adapter

A208, X10313, X13795, X13016, A18, X10266

A208, X10313, X13795, X13016, A18, X10266



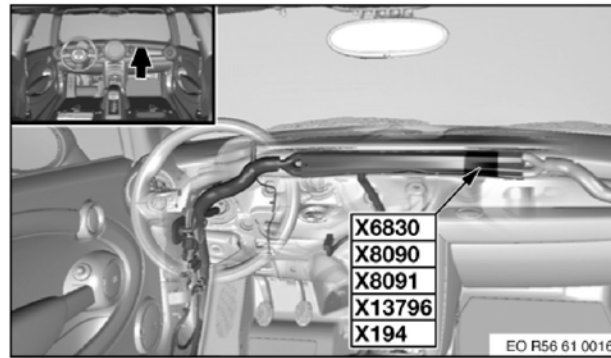
## X13796 No Adapter

X13796 No Adapter

X6830, X8090, X8091, X13796, X194



X6830, X8090, X8091, X13796, X194

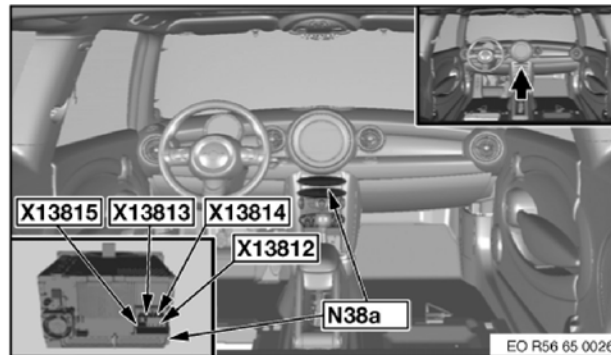


## X13815, X13813, X13814, X13812, N38a (RAD2-BO User Interface)

X13812 No Adapter

X13815, X13813, X13814, X13812, N38a (RAD2-BO User Interface)

X13815, X13813, X13814, X13812, N38a

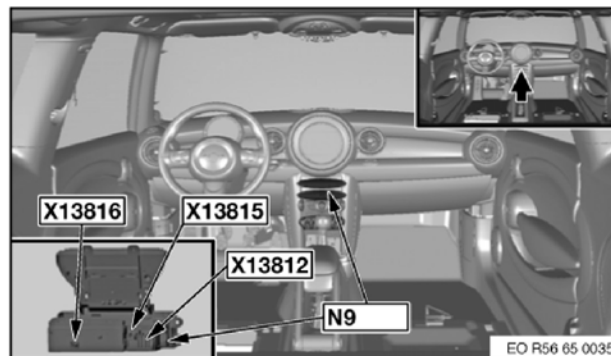


## X13816, X13815, X13812, N9 (RAD Radio)

X13812 No Adapter

X13816, X13815, X13812, N9 (RAD Radio)

X13816, X13815, X13812, N9

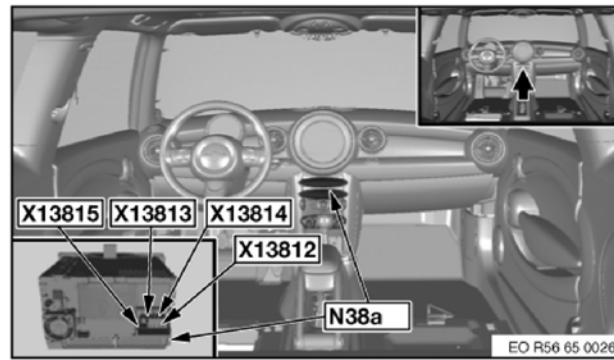


## X13813 Prototype Adapter Is Being Developed

X13813 Prototype Adapter Is Being Developed

X13815, X13813, X13814, X13812, N38a

X13815, X13813, X13814, X13812, N38a

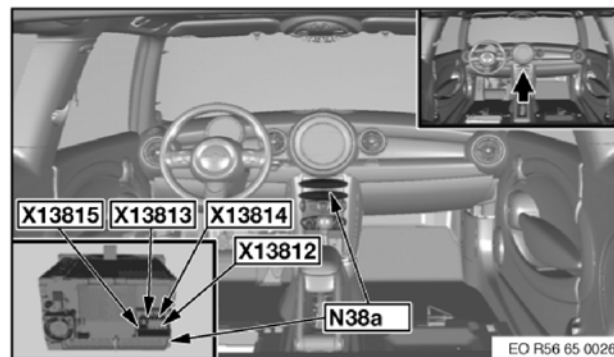


## X13814 Prototype Adapter Is Being Developed

X13814 Prototype Adapter Is Being Developed

X13815, X13813, X13814, X13812, N38a

X13815, X13813, X13814, X13812, N38a

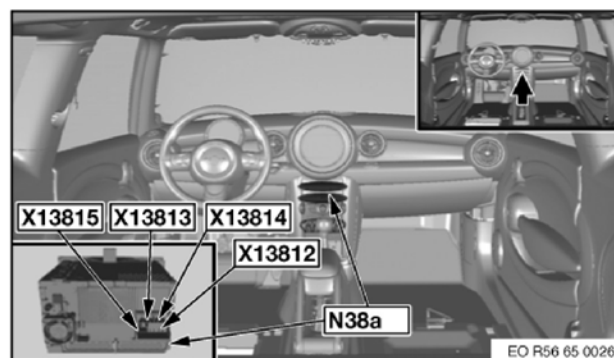


## X13815, X13813, X13814, X13812, N38a (CCC-BO User Interface)

X13815 OPPS Adapter 663120, Storage Location X2..

X13815, X13813, X13814, X13812, N38a (CCC-BO User Interface)

X13815, X13813, X13814, X13812, N38a

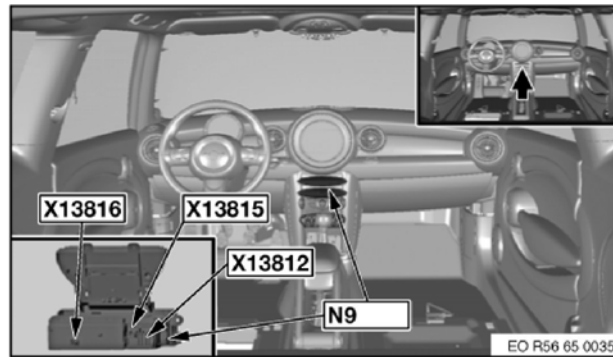


## X13816, X13815, X13812, N9 (RAD Radio)

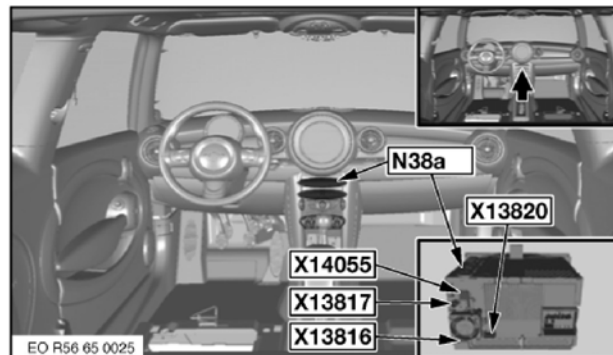
X13815 OPPS Adapter 663120, Storage Location X2..

X13816, X13815, X13812, N9 (RAD Radio)

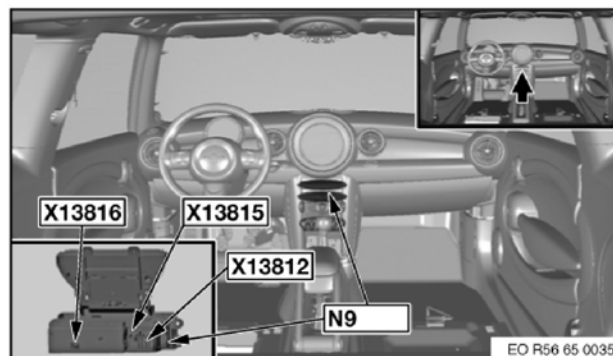
X13816, X13815, X13812, N9

**N38a, X13817, X14055, X13820, X13816 (RAD2-BO User interface)****X13816 No Adapter****N38a, X13817, X14055, X13820, X13816 (RAD2-BO User interface)**

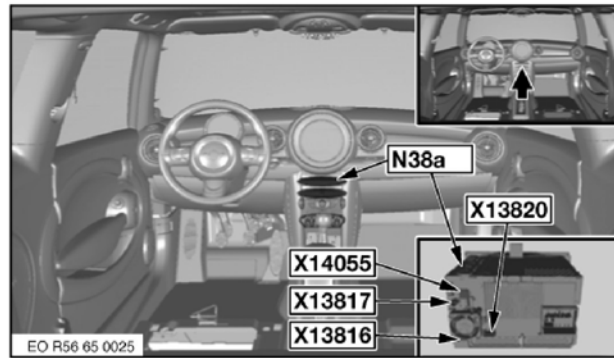
N38a, X13817, X14055, X13820, X13816

**X13816, X13815, X13812, N9 (RAD Radio)****X13816 No Adapter****X13816, X13815, X13812, N9 (RAD Radio)**

X13816, X13815, X13812, N9

**X13817 No Adapter****X13817 No Adapter****N38a, X13817, X14055, X13820, X13816**

N38a, X13817, X14055, X13820, X13816

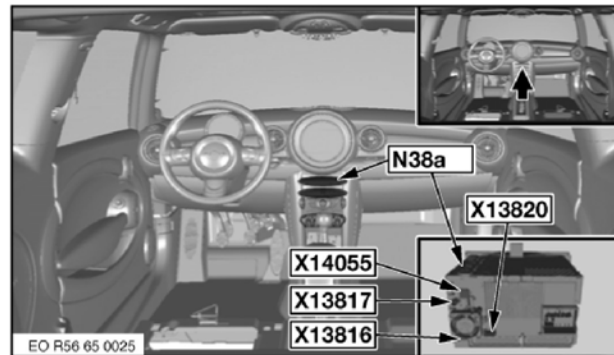


## X13820 Adapter 616035, Storage Location D111

X13820 Adapter 616035, Storage Location D111

N38a, X13817, X14055, X13820, X13816 (RAD2-BO User Interface)

N38a, X13817, X14055, X13820, X13816

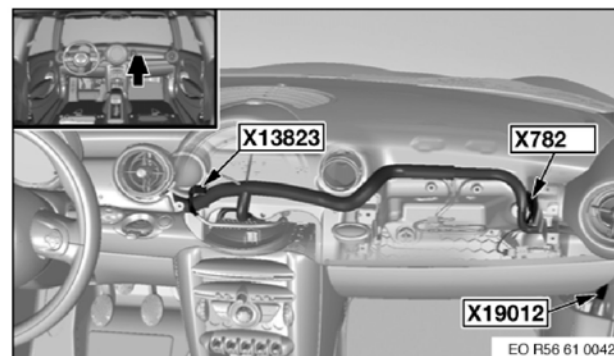


## X13823 Adapter 616035, Storage Location D111

X13823 Adapter 616035, Storage Location D111

X782, X19012, X13823

X782, X19012, X13823

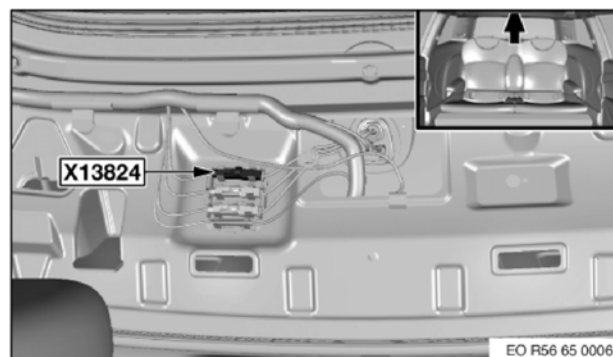


## X13824 No Adapter

X13824 No Adapter

X13824

X13824

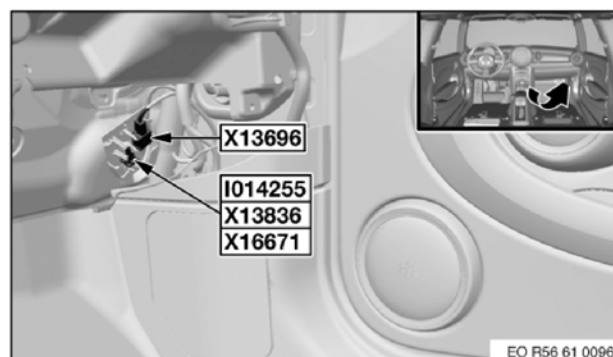


## X13836 No Adapter

X13836 No Adapter

X13696; I014255; X13836; X16671

X13696; I014255; X13836; X16671

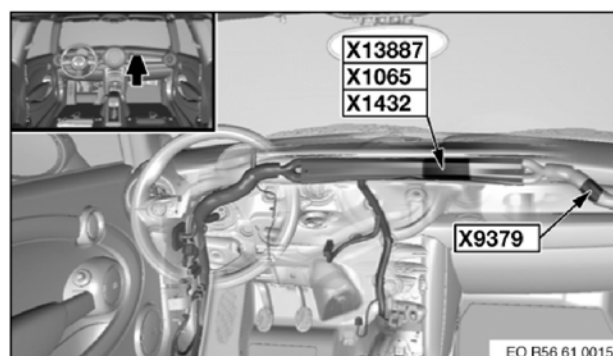


## X13887 No Adapter

X13887 No Adapter

X13887, X1065, X1432, X9379

X13887, X1065, X1432, X9379

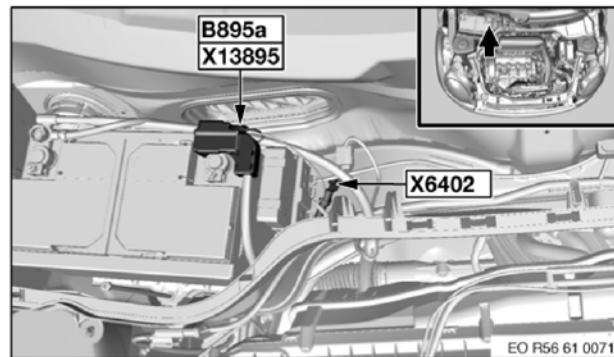


## X13895 No Adapter

X13895 No Adapter

B895a, X13895, X6402

B895a, X13895, X6402

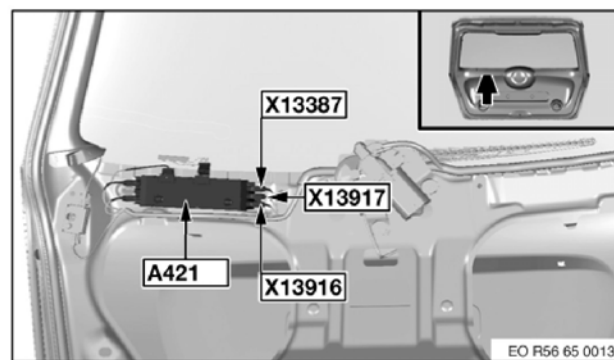


## X13916 No Adapter

X13916 No Adapter

X13387, X13917, X13916, A421 (MINI\_MINI-R55/R56/R57)

X13387, X13917, X13916, A421

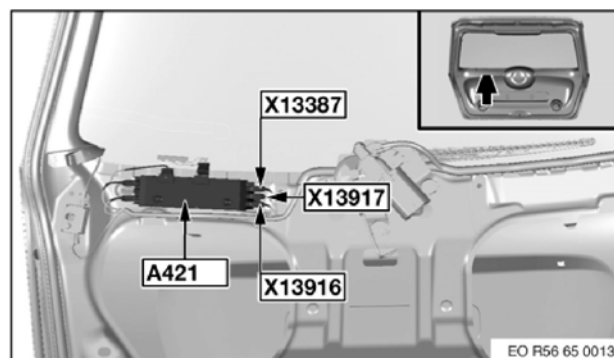


## X13917 No Adapter

X13917 No Adapter

X13387, X13917, X13916, A421(MINI\_MINI-R55/R56/R57)

X13387, X13917, X13916, A421

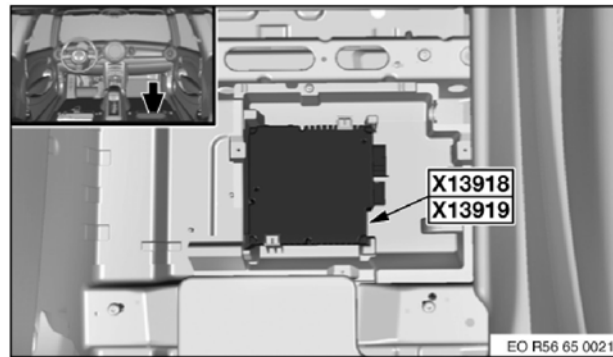


## X13918 No Adapter

X13918 No Adapter

X13918, X13919

X13918, X13919

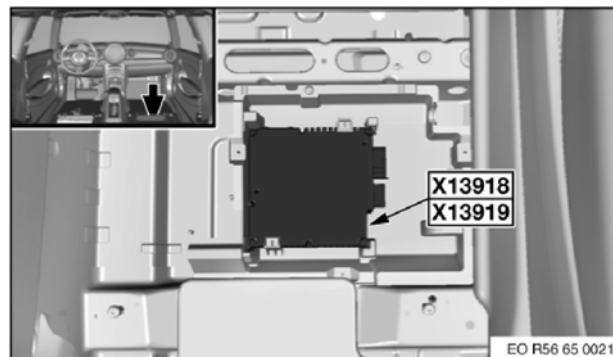


## X13919 No Adapter

X13919 No Adapter

X13918, X13919

X13918, X13919

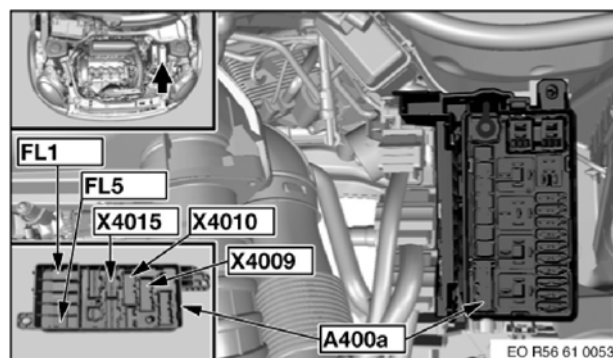


## X14009 No Adapter

X14009 No Adapter

FL1, X4015, X4010, X4009, FL5, A400a

FL1, X4015, X4010, X4009, FL5, A400a

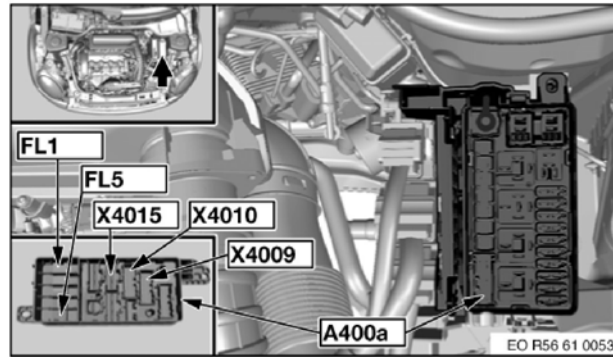


## X14010 No Adapter

X14010 No Adapter

FL1, X4015, X4010, X4009, FL5, A400a

FL1, X4015, X4010, X4009, FL5, A400a

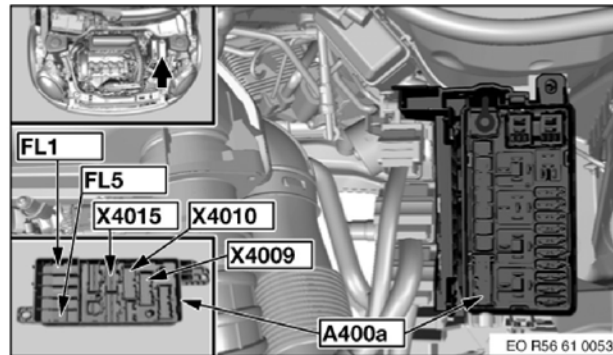


## X14015 No Adapter

X14015 No Adapter

FL1, X4015, X4010, X4009, FL5, A400a

FL1, X4015, X4010, X4009, FL5, A400a

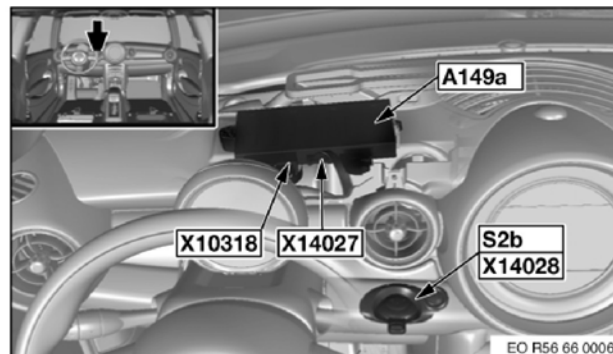


## X14027 No Adapter

X14027 No Adapter

X14027, A149a, X10318, S2B, X14028

X14027, A149a, X10318, S2B, X14028



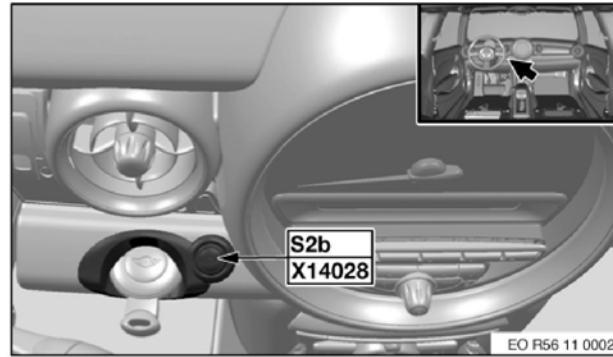
## X14028 No Adapter

X14028 No Adapter

S2b, X14028



S2b, X14028

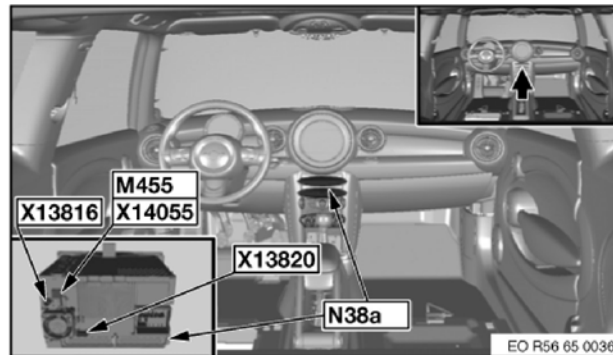


## X14055 Adapter 616031, Storage Location D107

X14055 Adapter 616031, Storage Location D107

X13816, M455, X14055, X13820, N38a

X13816, M455, X14055, X13820, N38a

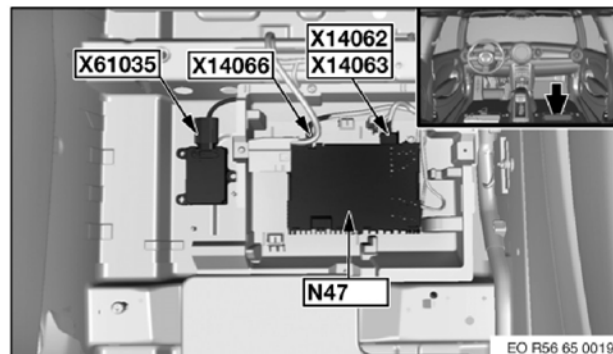


## X14062 OPPS Adapter 663120, Storage Location X2..

X14062 OPPS Adapter 663120, Storage Location X2..

X14062, X14063, X14066, X61035, N47

X14062, X14063, X14066, X61035, N47

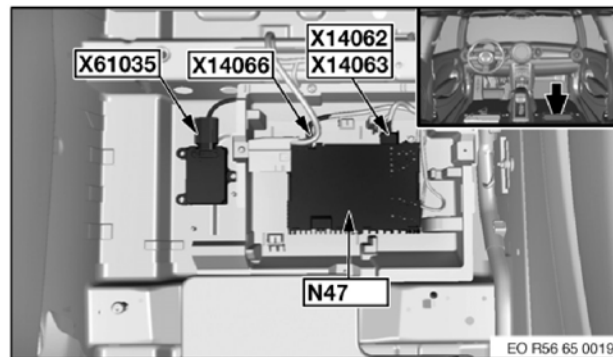


## X14063 OPPS Adapter 663120, Storage Location X2..

X14063 OPPS Adapter 663120, Storage Location X2..

X14062, X14063, X14066, X61035, N47

X14062, X14063, X14066, X61035, N47

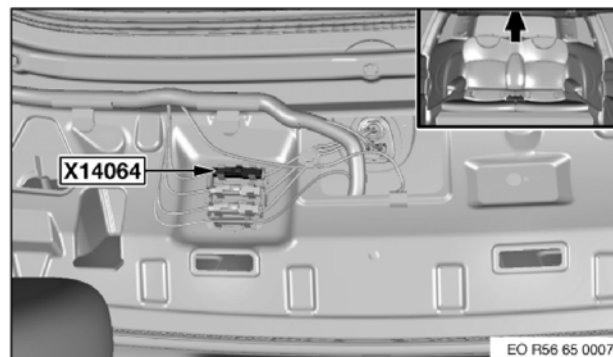


## X14064 No Adapter

X14064 No Adapter

X14064

X14064

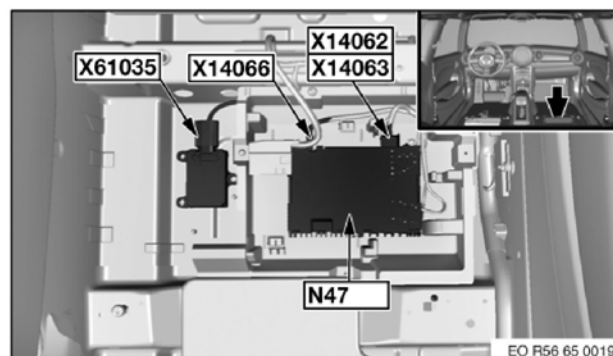


## X14066 No Adapter

X14066 No Adapter

X14062, X14063, X14066, X61035, N47

X14062, X14063, X14066, X61035, N47

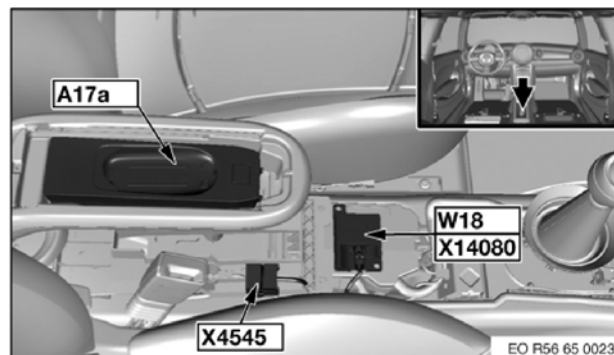


## X14080 No Adapter

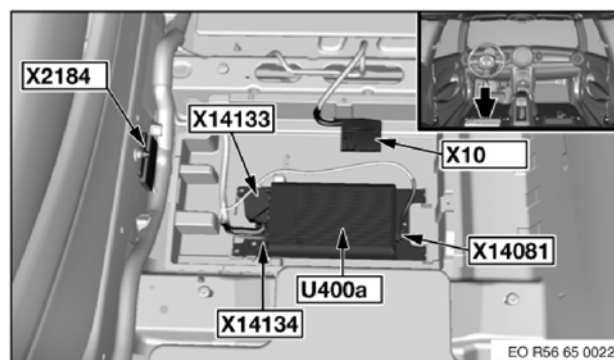
X14080 No Adapter

A117a, X4545, W18, X14080

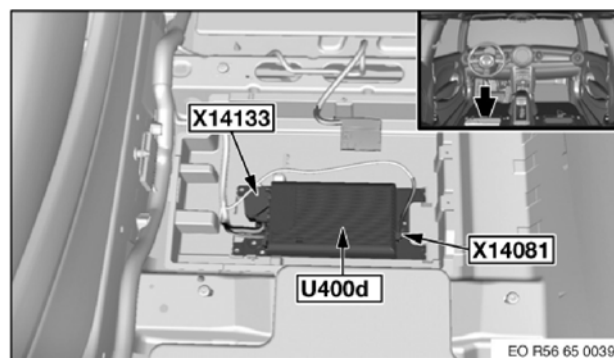
A117a, X4545, W18, X14080

**X14133, U400a, X2184, X14134, X14081****X14081 No Adapter****X14133, U400a, X2184, X14134, X14081**

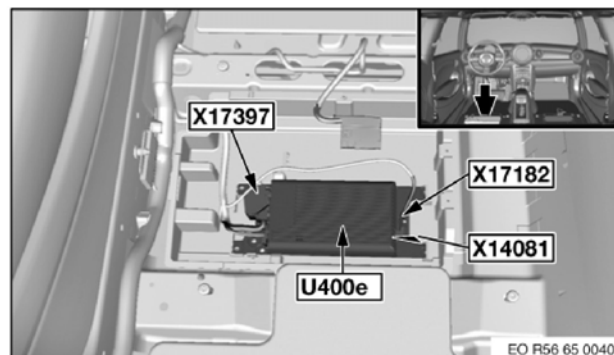
X14133, U400a, X2184, X14134, X14081

**U400d, X14133, X14081 (ULF-SBX interface box)****X14081 No Adapter****U400d, X14133, X14081 (ULF-SBX interface box)**

U400d, X14133, X14081

**U400e, X17182, X17397, X14081(ULF-SBX-H interface box high)****X14081 No Adapter****U400e, X17182, X17397, X14081(ULF-SBX-H interface box high)**

U400e, X17182, X17397, X14081

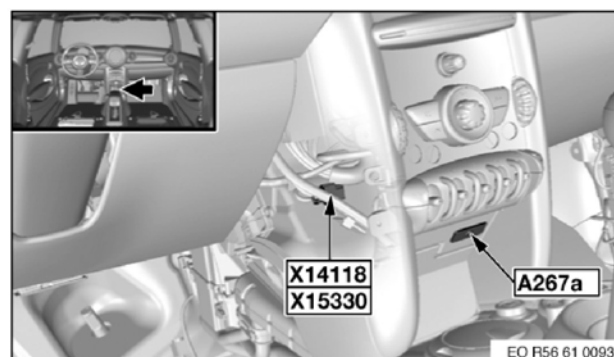


## X14118 Adapter 616032, Storage Location D108

X14118 Adapter 616032, Storage Location D108

X14118, X15330, A267a

X14118, X15330, A267a

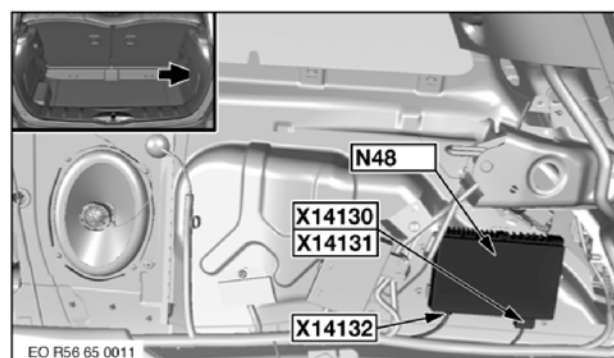


## X14130 OPPS Adapter 663120, Storage Location X2..

X14130 OPPS Adapter 663120, Storage Location X2..

N48, X14132, X14130, X14131

N48, X14132, X14130, X14131

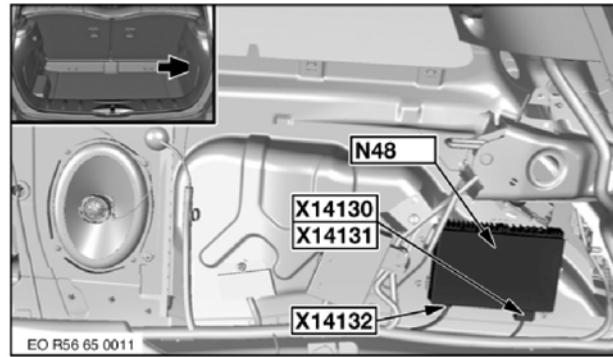


## X14131 OPPS Adapter 663120, Storage Location X2..

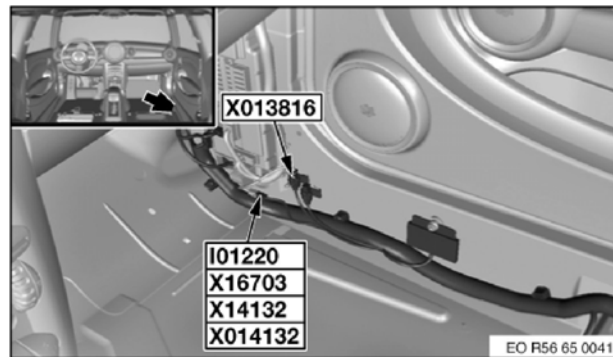
X14131 OPPS Adapter 663120, Storage Location X2..

N48, X14132, X14130, X14131

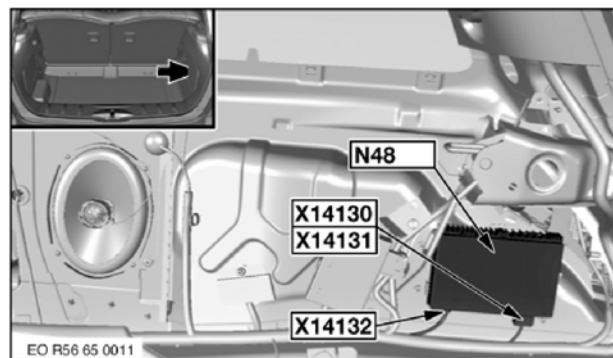
N48, X14132, X14130, X14131

**I01220; X16703; X14132; X014132****X014132 No Adapter****I01220; X16703; X14132; X014132**

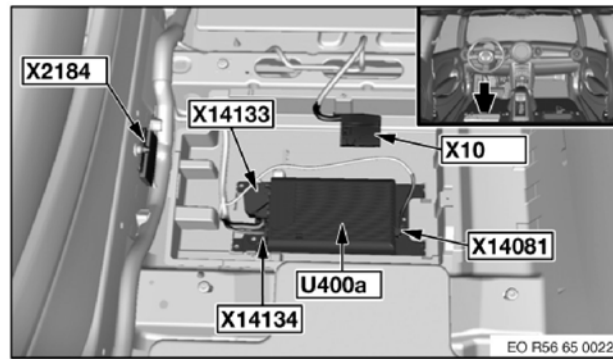
I01220; X16703; X14132; X014132

**N48, X14132, X14130, X14131 (DBA Digital Tuner With USA\_LHD)****X014132 No Adapter****N48, X14132, X14130, X14131 (DBA Digital Tuner With USA\_LHD)**

N48, X14132, X14130, X14131

**X14133, U400a, X2184, X14134, X14081****X14133 Adapter 630410, Storage Location L201****X14133, U400a, X2184, X14134, X14081**

X14133, U400a, X2184, X14134, X14081

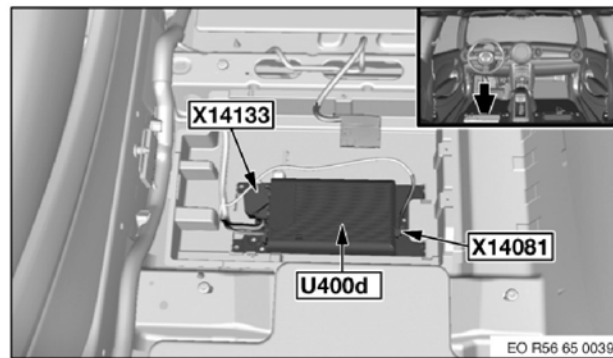


## U400d, X14133, X14081 (ULF-SBX Interface Box)

X14133 Adapter 630410, Storage Location L201

U400d, X14133, X14081 (ULF-SBX Interface Box)

U400d, X14133, X14081

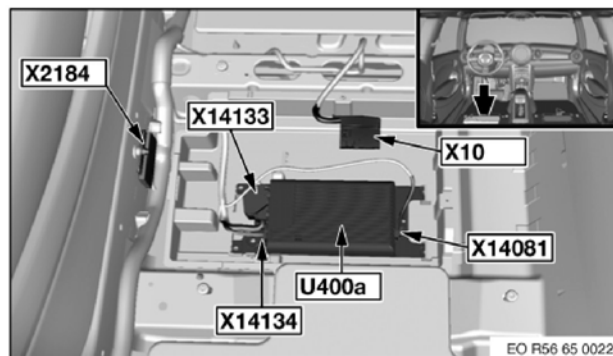


## X14134 OPPS Adapter 663120, Storage Location X2..

X14134 OPPS Adapter 6631120, Storage Location X2..

X14133, U400a, X2184, X14134, X14081

X14133, U400a, X2184, X14134, X14081

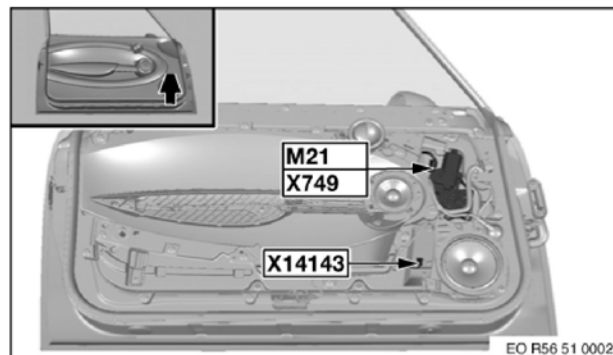


## X14143 Adapter 616032, Storage Location D108

X14143 Adapter 616032, Storage Location D108

M21, X749, X14143

M21, X749, X14143

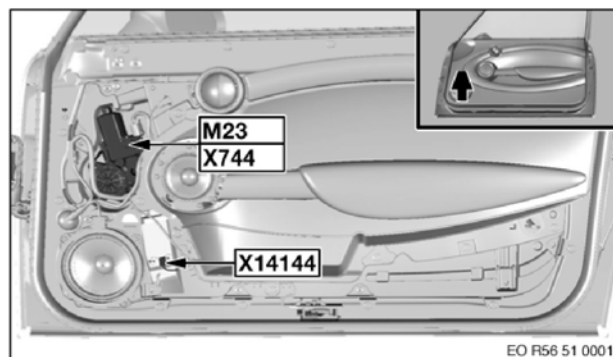


## X14144 Adapter 616032, Storage Location D108

X14144 Adapter 616032, Storage Location D108

M23, X744, X14144

M23, X744, X14144

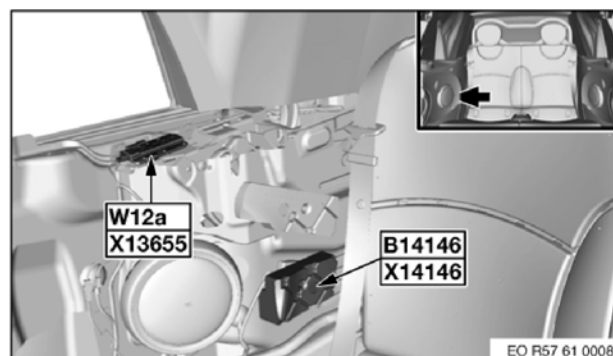


## X14146 No Adapter

X14146 No Adapter

W12a, X13655, B14146, X14146

W12a, X13655, B14146, X14146

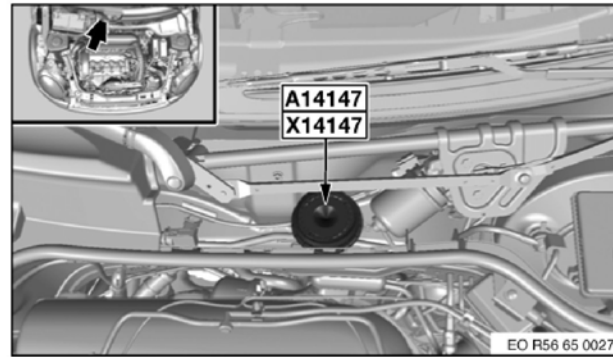


## X14147 Adapter 616050, Storage Location D117

X14147 Adapter 616050, Storage Location D117

A14147, X14147

A14147, X14147

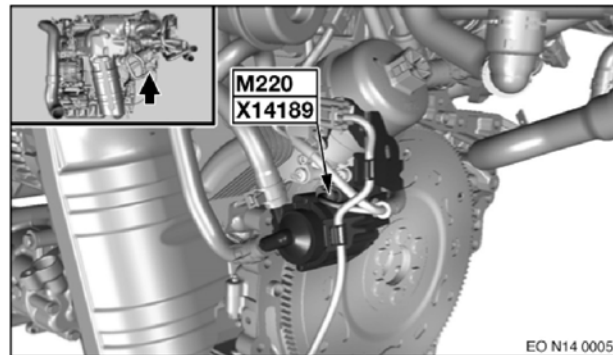


## X14189 Adapter 612390, Storage Location B105

X14189 Adapter 612390, Storage Location B106

M220, X14189 (N14 Engine)

M220, X14189

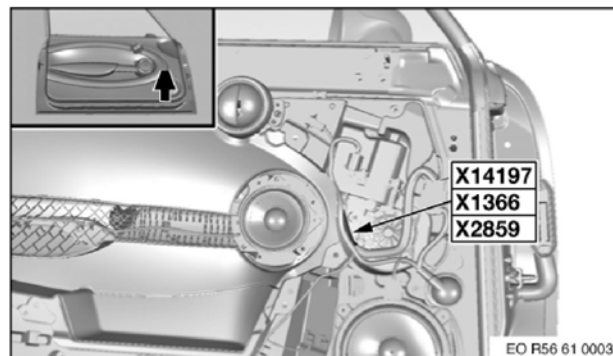


## X14197 No Adapter

X14197 No Adapter

X14197, X1566, X2859

X14197, X1566, X2859



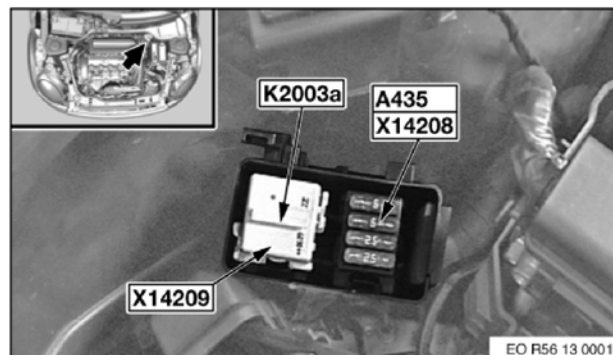
## X14208 No Adapter

X14208 No Adapter

K2003a, A435, X14208, X14209



K2003a, A435, X14208, X14209

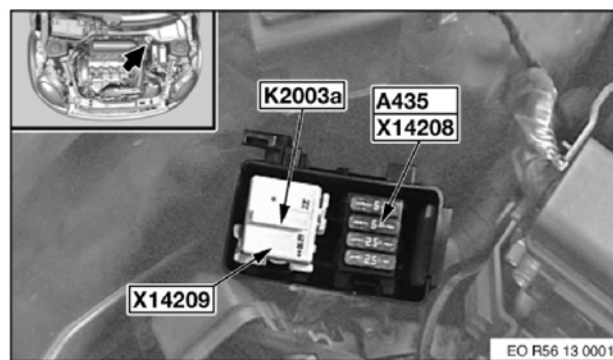


## X14209 No Adapter

X14209 No Adapter

K2003a, A435, X14208, X14209

K2003a, A435, X14208, X14209

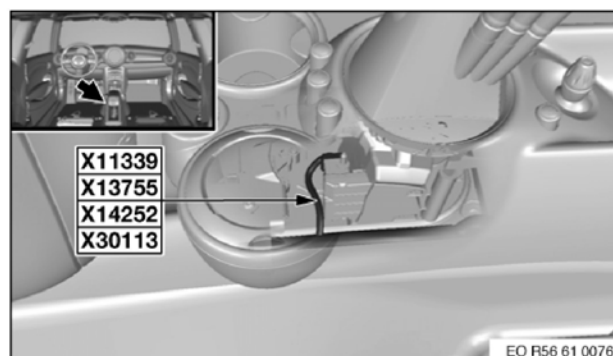


## X14252 No Adapter

X14252 No Adapter

X11339, X13755, X14252, X30113

X11339, X13755, X14252, X30113

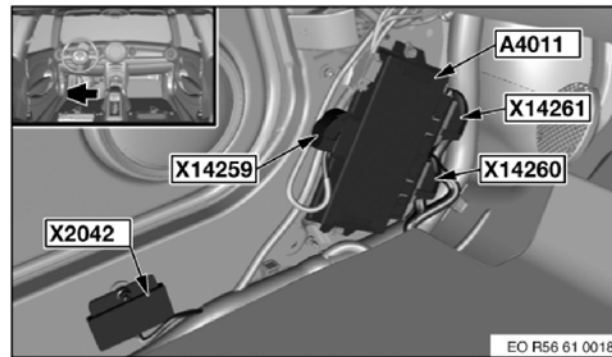


## X14259 Adapter 614464, Storage Location C109

X14259 Adapter 614464, Storage Location C109

X14259, X2042, A4011, X14260, X14261

X14259, X2042, A4011, X14260, X14261

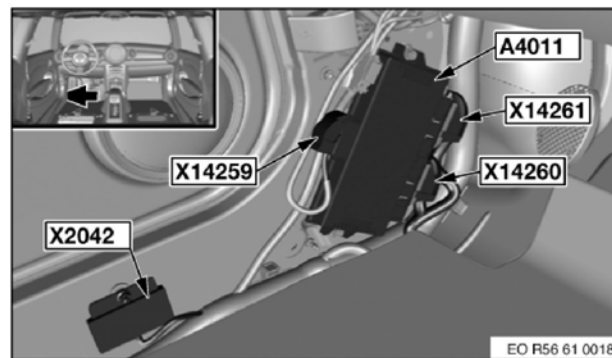


## X14260 Adapter 612340, Storage Location F101

X14260 Adapter 612340, Storage Location F101

X14259, X2042, A4011, X14260, X14261

X14259, X2042, A4011, X14260, X14261

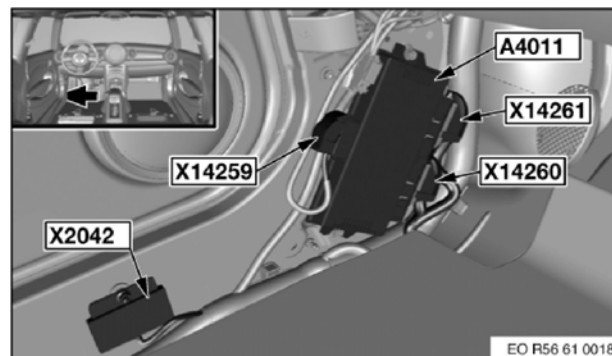


## X14261 Adapter 612340, Storage Location F101

X14261 Adapter 612340, Storage Location F101

X14259, X2042, A4011, X14260, X14261

X14259, X2042, A4011, X14260, X14261

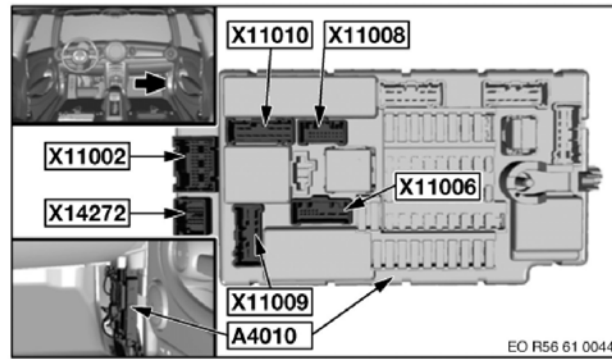


## X14272 Adapter 121302, Storage Location N202

X14272 Adapter 121302, Storage Location N202

A4010, X11010, X11008, X11002, X14272, X11009, X11006

A4010, X11010, X11008, X11002, X14272, X11009, X11006

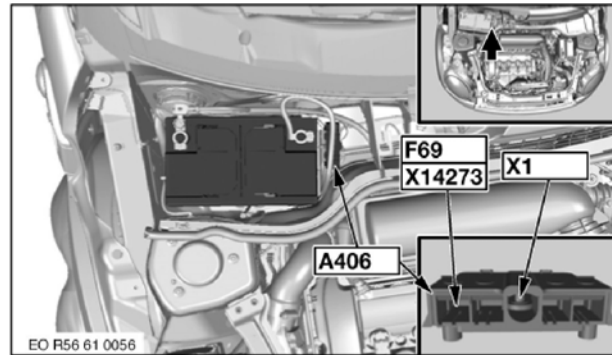


## X14273 No Adapter

X14273 No Adapter

A406, F69, X14273, X1

A406, F69, X14273, X1

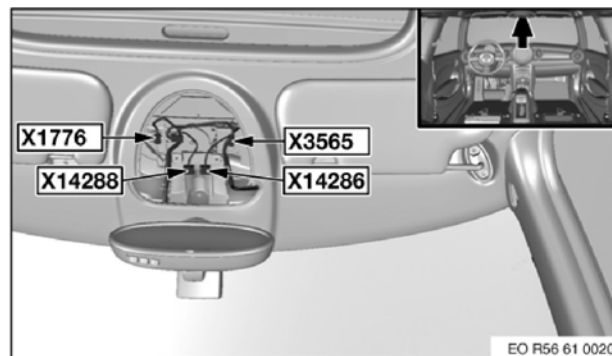


## X14286 Adapter 616033, Storage Location D109

X14286 Adapter 616033, Storage Location D109

X1776, X14288, X3565, X14286 (MINI\_MINI-R55/R56/R57 without Convertible)

X1776, X14288, X3565, X14286

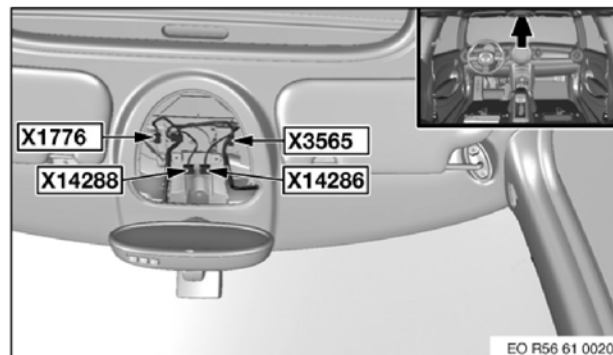


## X14288 Adapter 616033, Storage Location D109

X14288 Adapter 616033, Storage Location D109

X1776, X14288, X3565, X14286 (MINI\_MINI-R55/R56/R57 Without convertible)

X1776, X14288, X3565, X14286

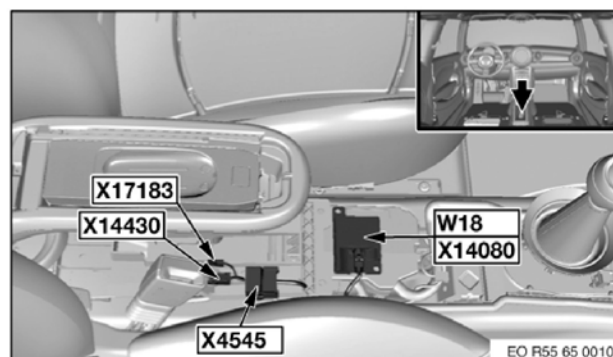


## X14430 No Adapter

X14430 No Adapter

X14430, X4545, X17183, W18, X14080

X14430, X4545, X17183, W18, X14080

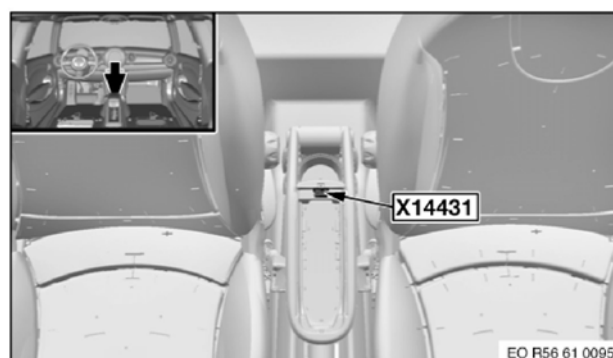


## X14431 No Adapter

X14431 No Adapter

X14431

X14431

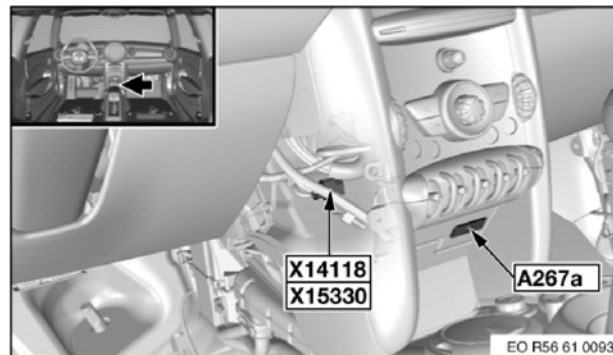


## X15330 No Adapter

X15330 No Adapter

X14118, X15330, A267a

X14118, X15330, A267a

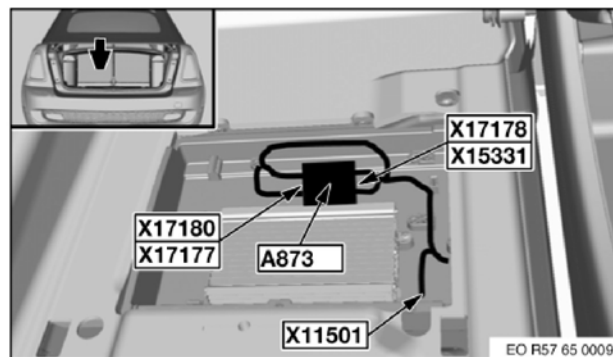


## X15331 No Adapter

X15331 No Adapter

A873, X17180, X17177, X17178, X15331, X11501

A873, X17180, X17177, X17178, X15331, X11501



## X16671 No Adapter

X16671 No Adapter

X16671, X13696, X13653 (Left-Hand Drive)

X16671, X13696, X13653

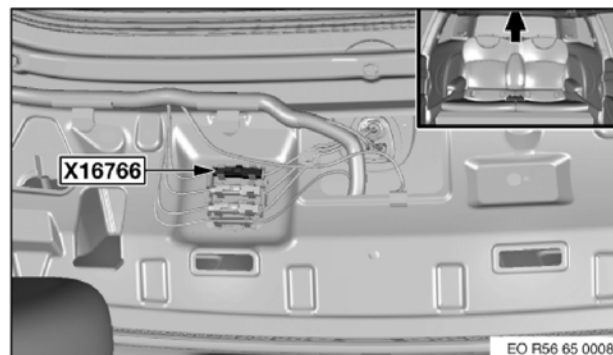


## X16766 No Adapter

X16766 No Adapter

X16766

X16766

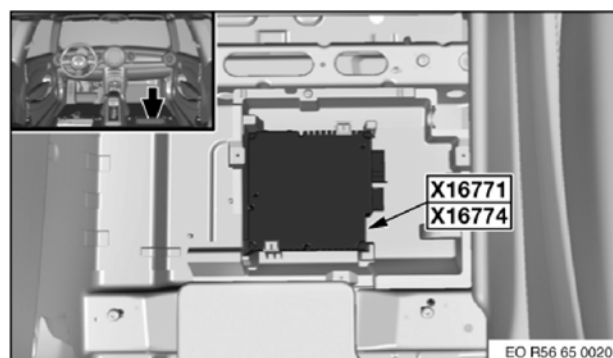


## X16771 No Adapter

X16771 No Adapter

X16771, X16774

X16771, X16774

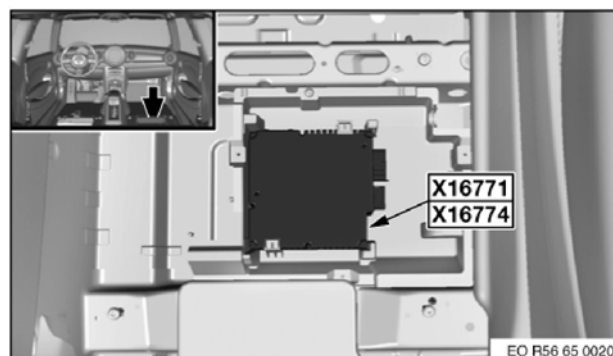


## X16774 No Adapter

X16774 No Adapter

X16771, X16774

X16771, X16774

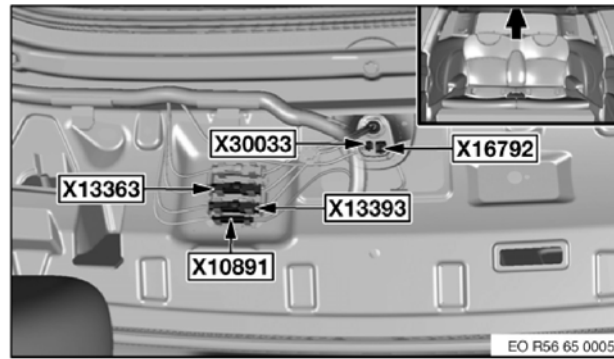


## X16792 No Adapter

X16792 No Adapter

X13363, X13393, X10891, X30033, X16792 (Coupe With Clubman)

X13363, X13393, X10891, X30033, X16792

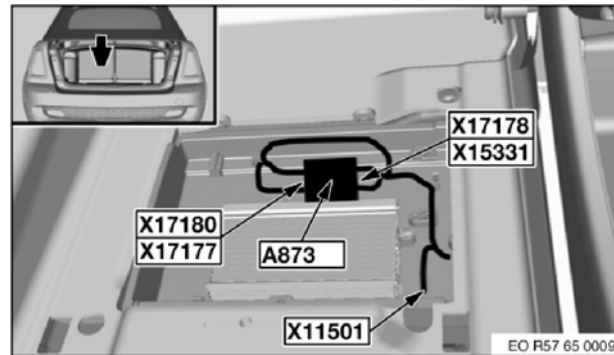


## X17177 No Adapter

X17177 No Adapter

A873, X17180, X17177, X17178, X15331, X11501

A873, X17180, X17177, X17178, X15331, X11501

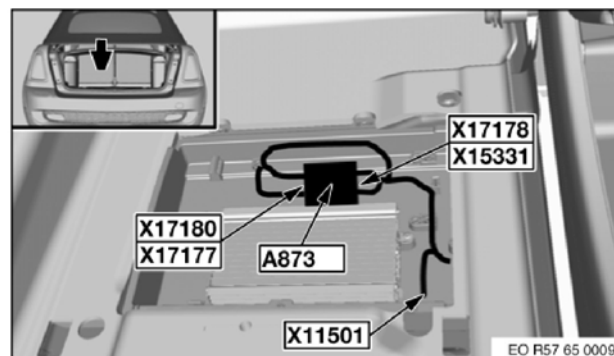


## X17178 No Adapter

X17178 No Adapter

A873, X17180, X17177, X17178, X15331, X11501

A873, X17180, X17177, X17178, X15331, X11501

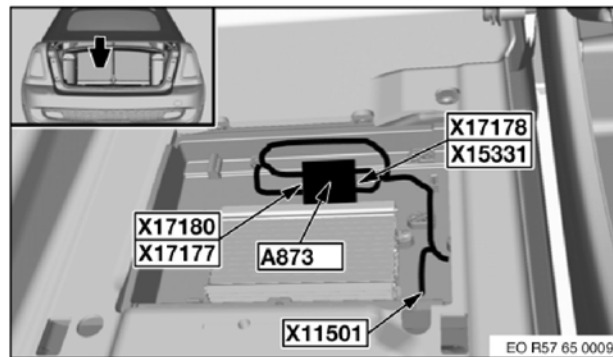


## X17180 No Adapter

X17180 No Adapter

A873, X17180, X17177, X17178, X15331, X11501

A873, X17180, X17177, X17178, X15331, X11501

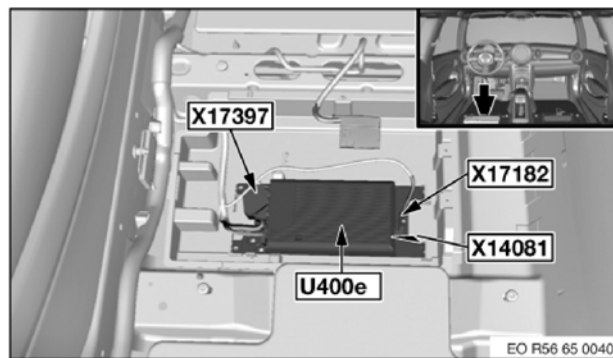


## X17182 No Adapter

X17182 No Adapter

U400e, X17182, X17397, X14081

U400e, X17182, X17397, X14081

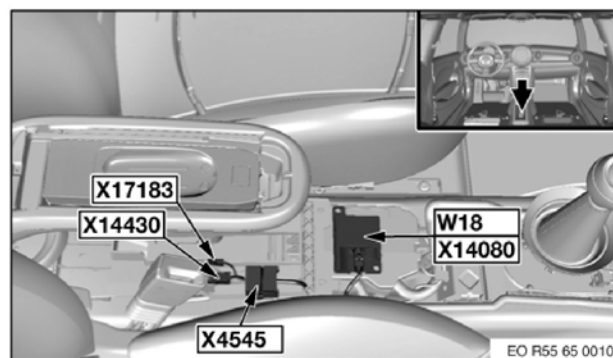


## X17183 No Adapter

X17183 No Adapter

X14430, X4545, X17183, W18, X14080

X14430, X4545, X17183, W18, X14080



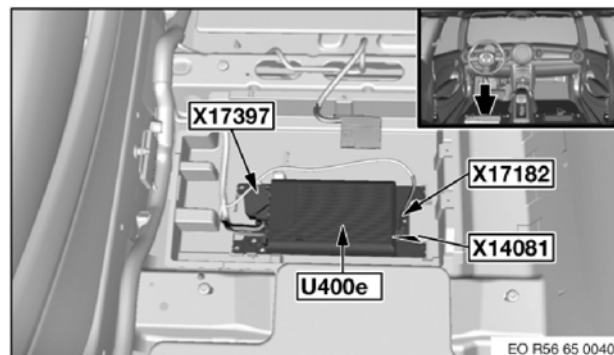
## X17397 Adapter 630410, Storage Location L201

X17397 Adapter 630410, Storage Location C110

U400e, X17182, X17397, X14081



U400e, X17182, X17397, X14081

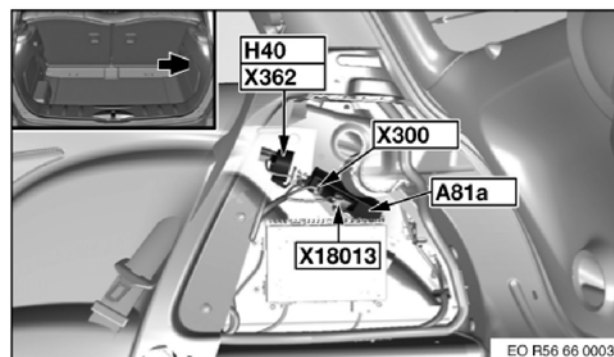


## X18013 Adapter 614470, Storage Location C110

X18013 Adapter 614470, Storage Location C110

H40, X362, X300, A81a, X18013 (MINI\_MINI-R55/R56/R57)

H40, X362, X300, A81a, X18013

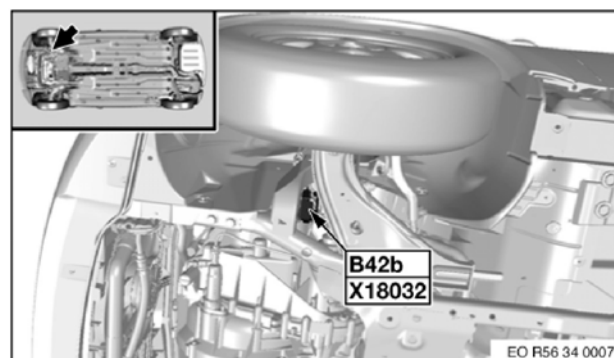


## X18032 Adapter 616050, Storage Location D117

X18032 Adapter 616050, Storage Location D117

B42b, X18032

B42b, X18032

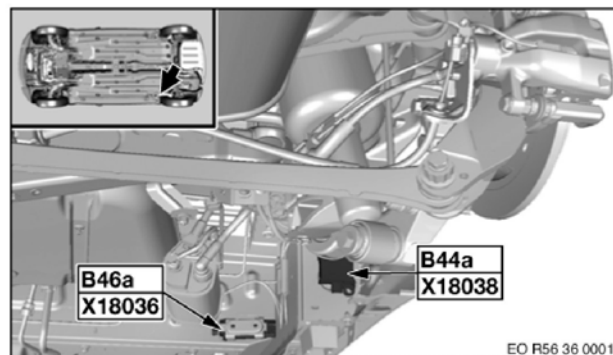


## X18036 Adapter 616045, Storage Location D116

X18036 Adapter 616045, Storage Location D116

B44a, X18038, B46a, X18036

B44a, X18038, B46a, X18036

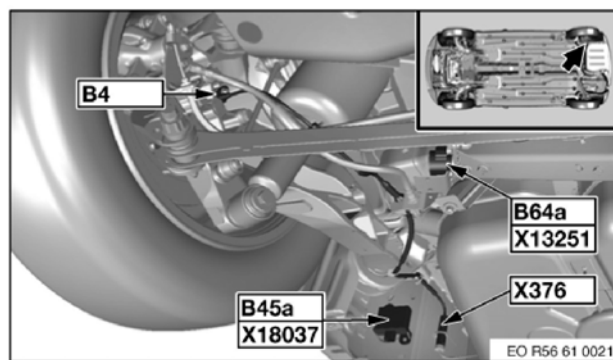


## X18037 Adapter 616045, Storage Location D116

X18037 Adapter 616045, Storage Location D116

B4, B45a, X18037, X376, B64a, X13251

B4, B45a, X18037, X376, B64a, X13251

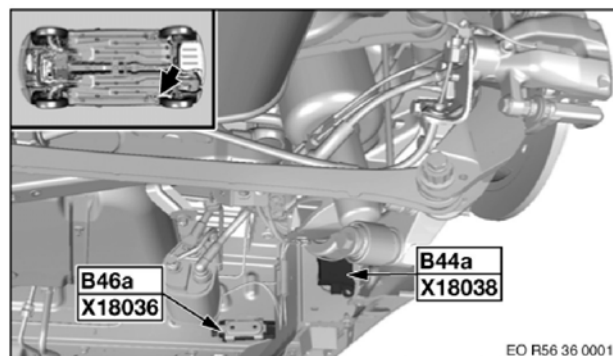


## X18038 Adapter 616045, Storage Location D116

X18038 Adapter 616045, Storage Location D116

B44a, X18038, B46a, X18036

B44a, X18038, B46a, X18036

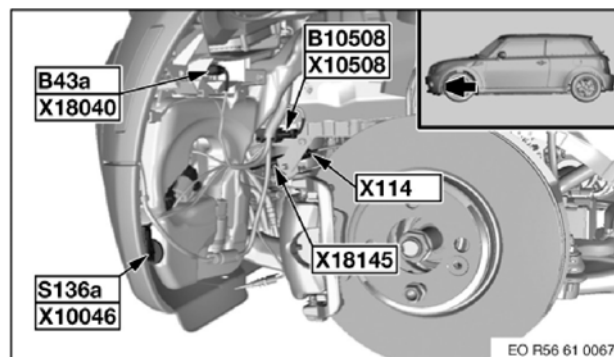


## X18040 Adapter 616045, Storage Location D116

X18040 Adapter 616045, Storage Location D116

B43a, X18040, S136a, X10046, X18145, X114, B10508, X10508

B43a, X18040, S136a, X10046, X18145, X114, B10508, X10508

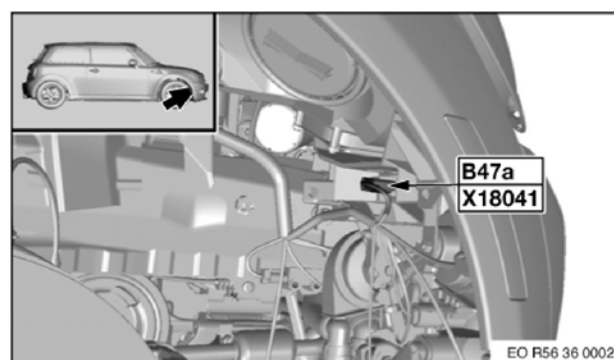


## X18041 Adapter 616045, Storage Location D116

X18041 Adapter 616045, Storage Location D116

B47a, X18041

B47a, X18041

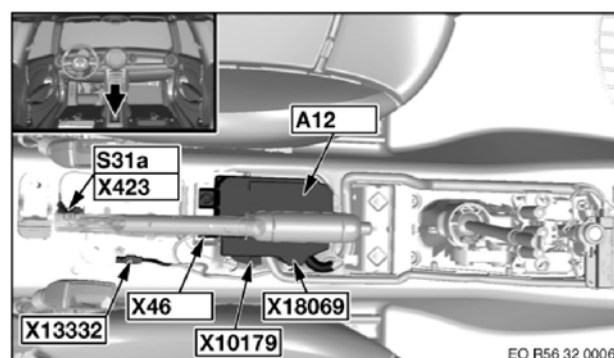


## X18069 Adapter 630410, Storage Location L201

X18069 Adapter 630410, Storage Location L201

A12, S31a, X423, X13322, X46, X10179, X18069

A12, S31a, X423, X13322, X46, X10179, X18069

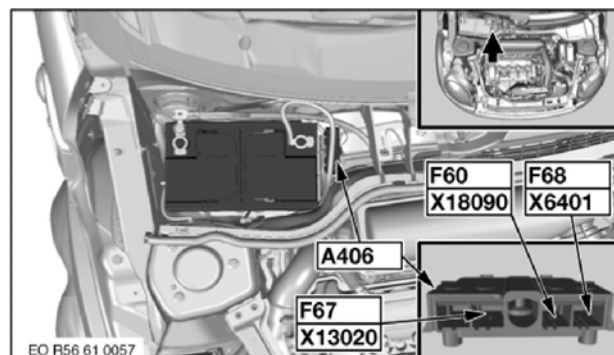


## X18090 No Adapter

X18090 No Adapter

A406, F67, X13020, F60, X18090, F68, X6401

A406, F67, X13020, F60, X18090, F68, X6401

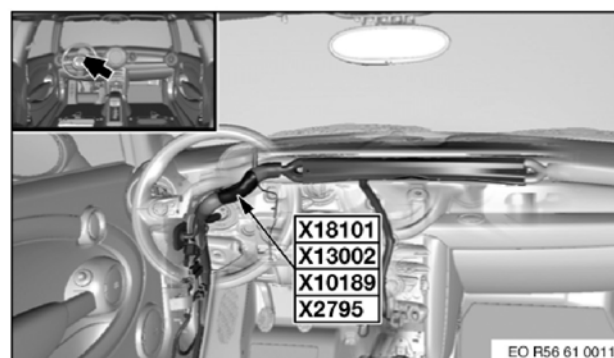


## X18101 No Adapter

X18101 No Adapter

X18101, X13002, X10189, X2795

X18101, X13002, X10189, X2795

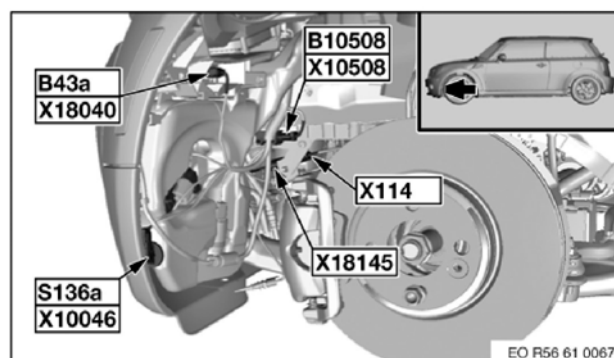


## X18145 Adapter 616042, Storage Location D113

X18145 Adapter 616042, Storage Location D113

B43a, X18040, S136a, X10046, X18145, X114, B10508, X10508

B43a, X18040, S136a, X10046, X18145, X114, B10508, X10508

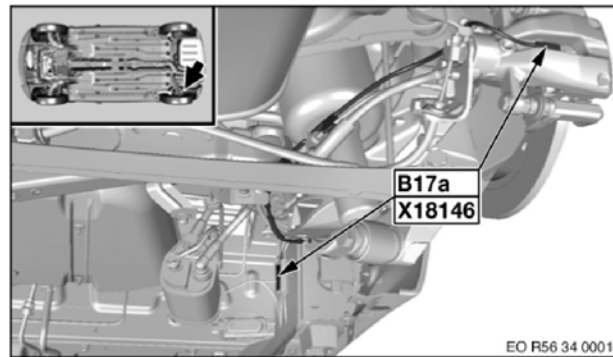


## X18146 Adapter 616042, Storage Location D113

X18146 Adapter 616042, Storage Location D113

B17a, X18146

B17a, X18146

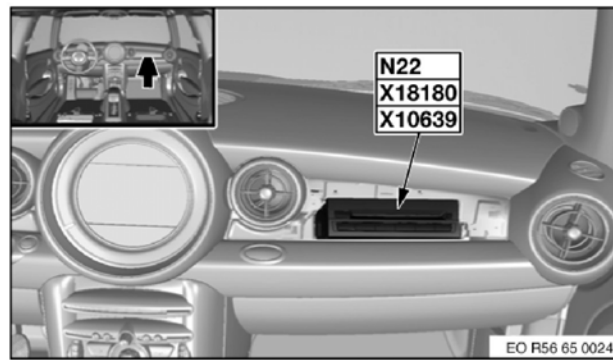


## **X18180 OPPS Adapter 663120, Storage Location X2..**

**X18180 OPPS Adapter 616042, Storage Location X2..**

**N22, X18180, X10639**

N22, X18180, X10639

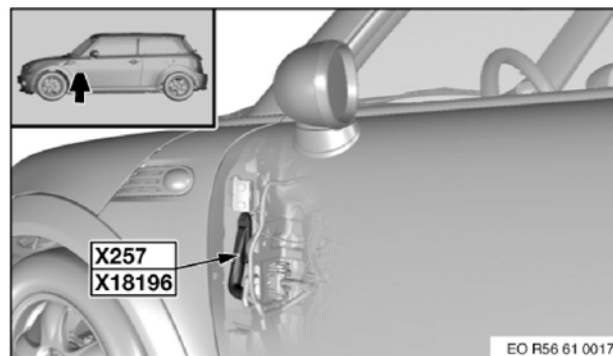


## **X18196 Adapter 612350, Storage Location B105**

**X18196 Adapter 612350, Storage Location B105**

**X257, X18196**

X257, X18196

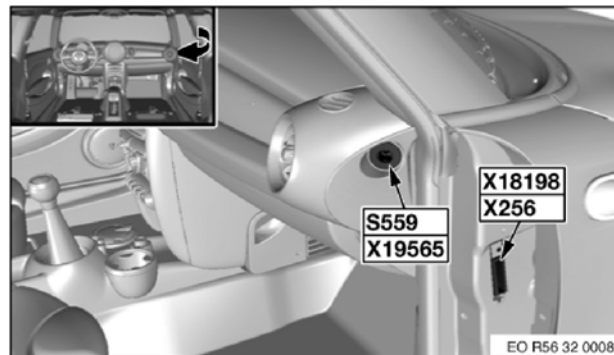


## **X18198 Adapter 612350, Storage Location B105**

**X18198 Adapter 612350, Storage Location B105**

**S559, X19565, X18198, X256**

S559, X19565, X18198, X256

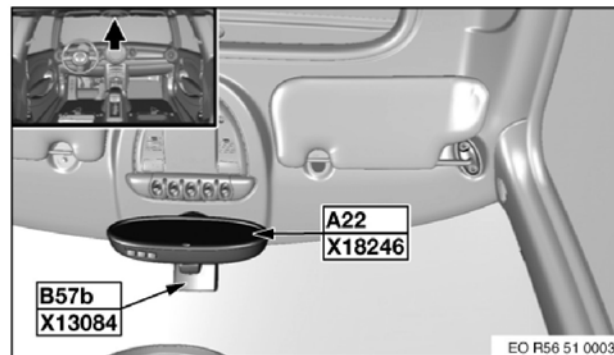


## X18246 Adapter 616035, Storage Location D111

X18246 Adapter 616035, Storage Location D111

A22, X18246, B57B, X13084, X382

A22, X18246, B57b, X13084, X382

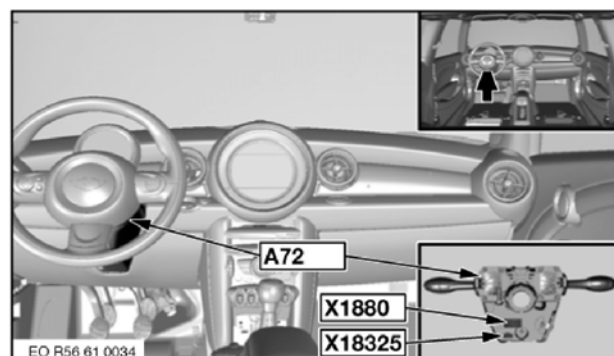


## X18325 Adapter 612370, Storage Location B103

X18325 Adapter 612370, Storage Location B103

A72, X1880, X18325

A72, X1880, X18325

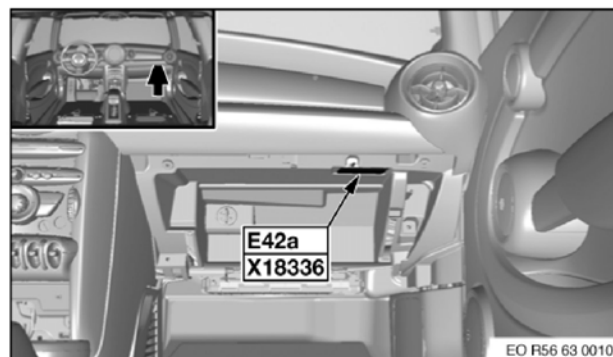


## X18336 Adapter 616032, Storage Location D108

X18336 Adapter 616032, Storage Location D108

E42a, X18336

E42a, X18336

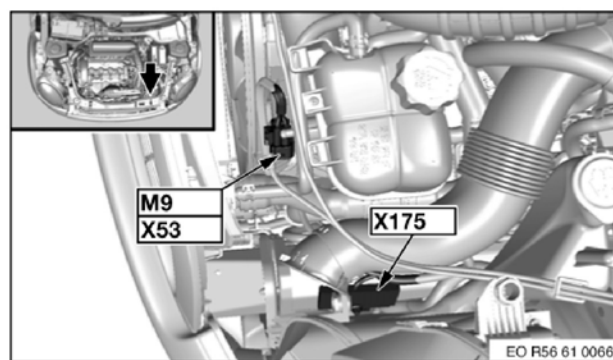


## X18722 No Adapter

X18722 No Adapter

M9, X53, X175

M9, X53, X175

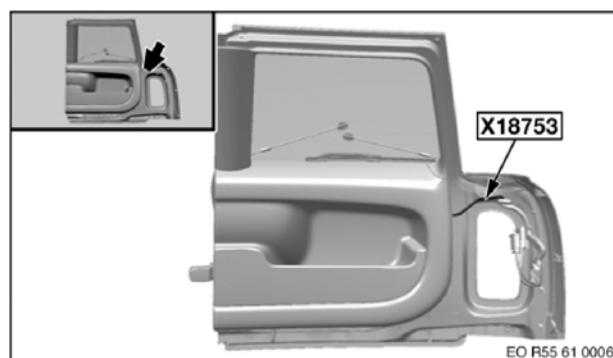


## X18753 No Adapter

X18753 No Adapter

X18753

X18753

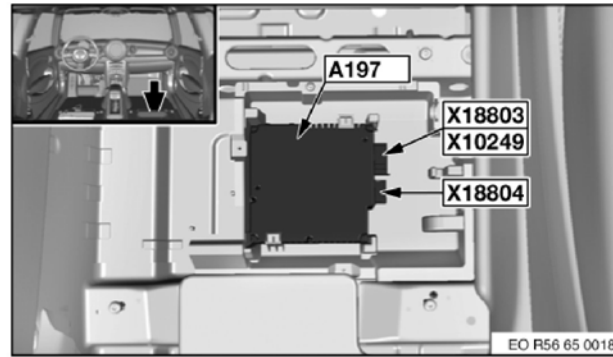


## X18803 OPSS Adapter 663120, Storage Location X2..

X18803 OPSS Adapter 663120, Storage Location X2..

A197, X18803, X10642, X18804

A197, X18803, X10642, X18804

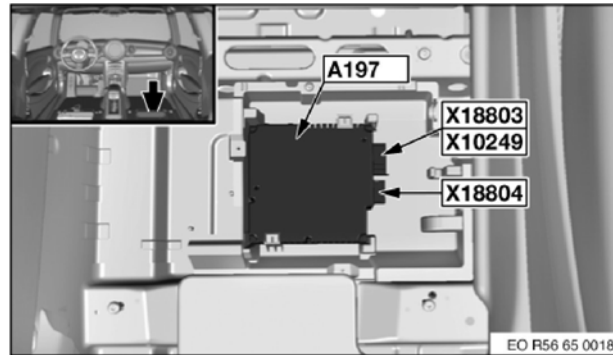


## X18804 Adapter 614470, Storage Location C110

X18804 Adapter 614470, Storage Location C110

A197, X18803, X10642, X18804

A197, X18803, X10642, X18804

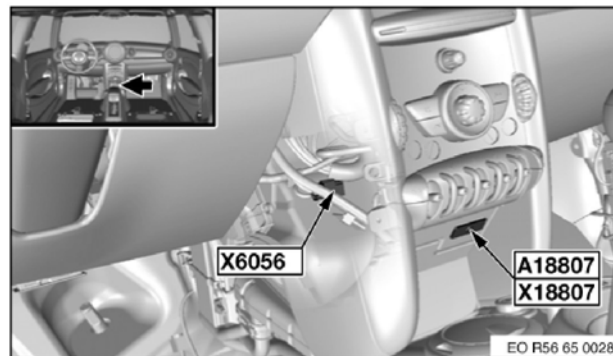


## X18807 Adapter 616032, Storage Location D108

X18807 Adapter 616032, Storage Location D108

X6056, A18807, X18807

X6056, A18807, X18807



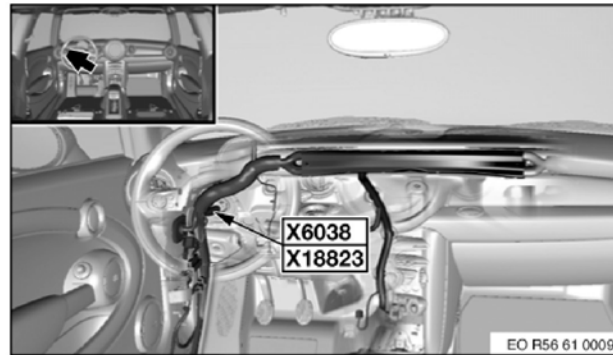
## X18823 No Adapter

X18823 No Adapter

X6038, X18823



X6038, X18823

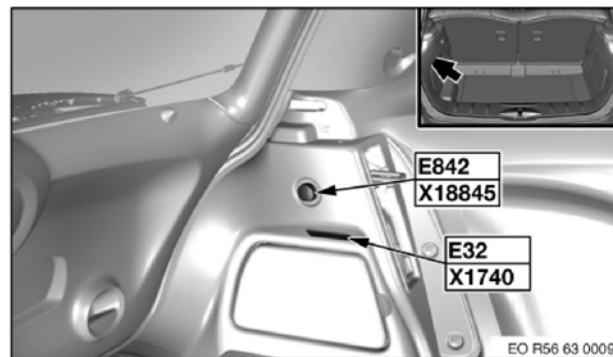


## X18845 No Adapter

X18845 No Adapter

E842, X18845, E32, X1740 (MINI\_MINI-R55/R56/R57)

E842, X18845, E32, X1740

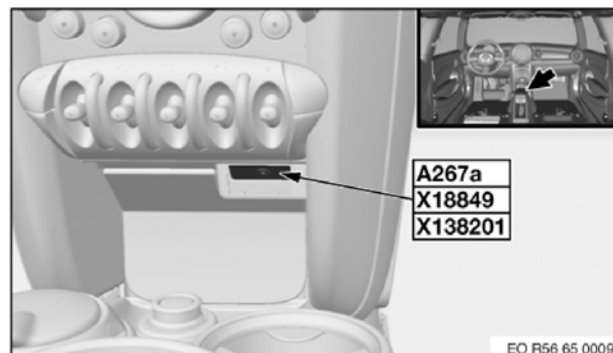


## X18849 Adapter 616032, Storage Location D108

X18849 Adapter 616032, Storage Location D108

A267a, X18849, X138201

A267a, X18849, X138201

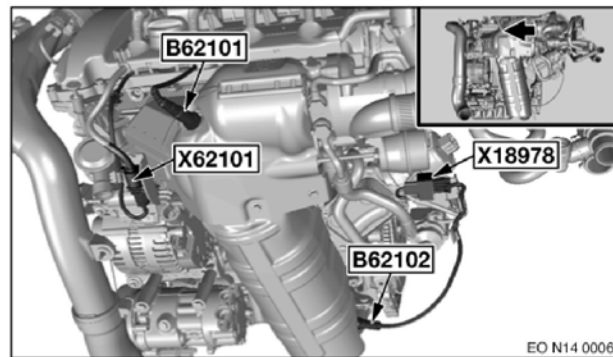


## X18978 Adapter 613380, Storage Location Y3

X18978 Adapter 613380, Storage Location Y3

X18978, B62102, X62101, B62101

X18978, B62102, X62101, B62101

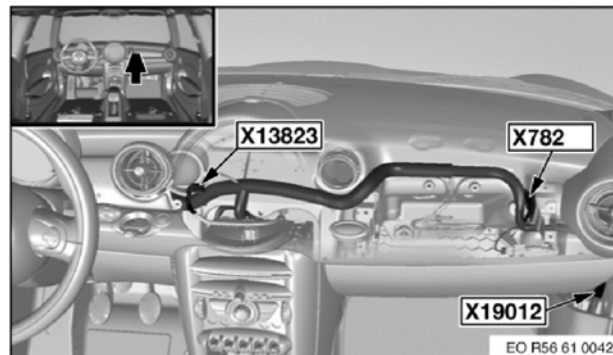


## X19012 No Adapter

X19012 No Adapter

X782, X19012, X13823

X782, X19012, X13823

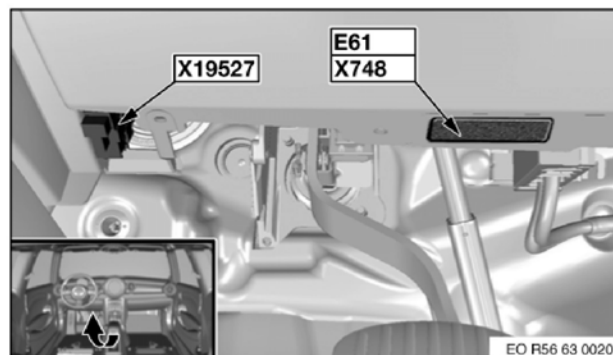


## X19527 No Adapter

X19527 No Adapter

X19527, E61, X748

X19527, E61, X748

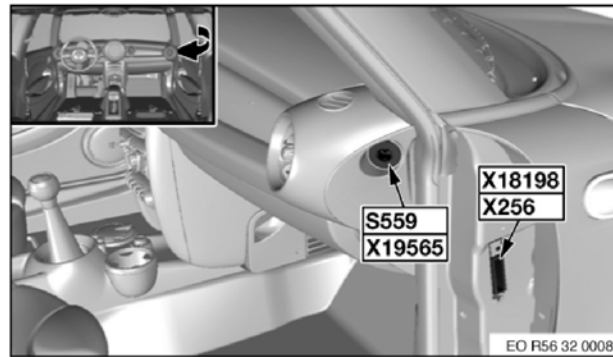


## X19565 Adapter 616033, Storage Location D109

X19565 Adapter 616033, Storage Location D109

S559, X19565, X18198, X256

S559, X19565, X18198, X256

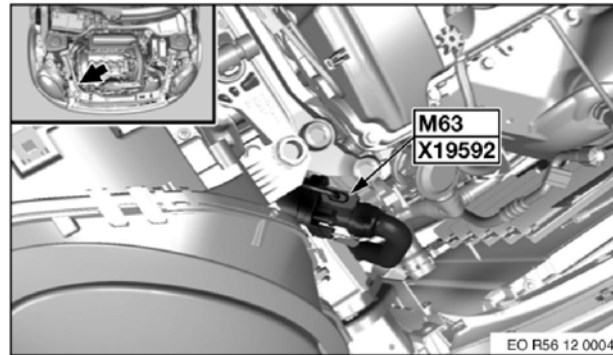


## X19592 No Adapter

X19592 No Adapter

M63, X19592

M63, X19592

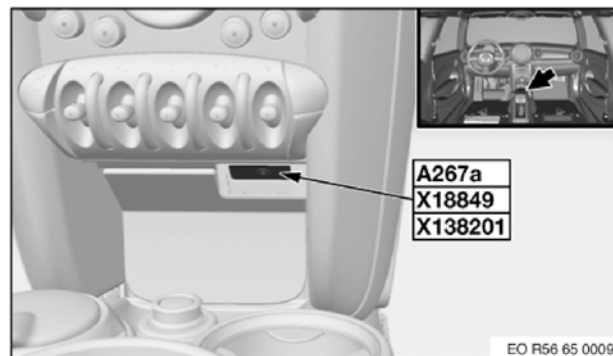


## X138201 No Adapter

X138201 No Adapter

A267a, X18849, X138201

A267a, X18849, X138201

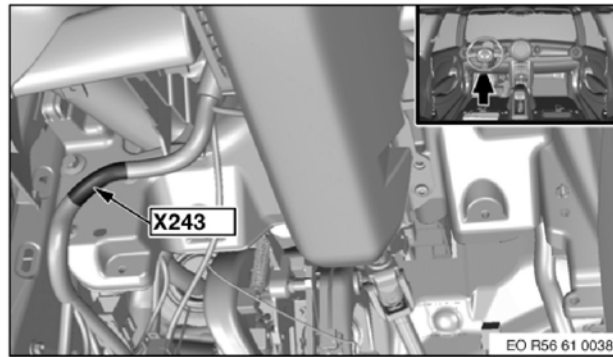


## X243 No Adapter

X243 No Adapter

X243

X243



## X256 Adapter 612360, Storage Location B106

X256 Adapter 612360, Storage Location B106

S559, X19565, X18198, X256

S559, X19565, X18198, X256

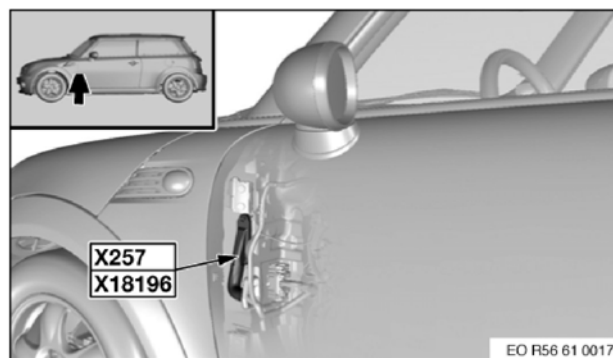


## X257 Adapter 612360, Storage Location B106

X257 Adapter 612360, Storage Location B106

X257, X18196

X257, X18196

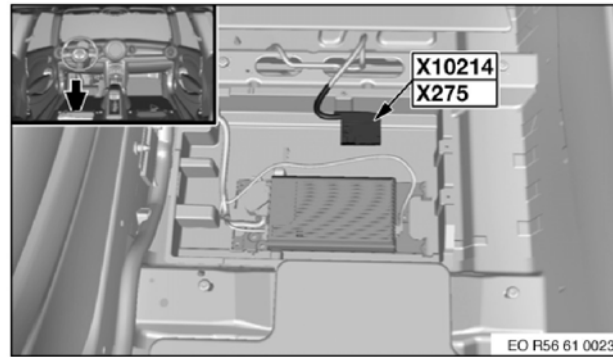


## X275 No Adapter

X275 No Adapter

X10214, X275 (Left-Hand Drive)

X10214, X275

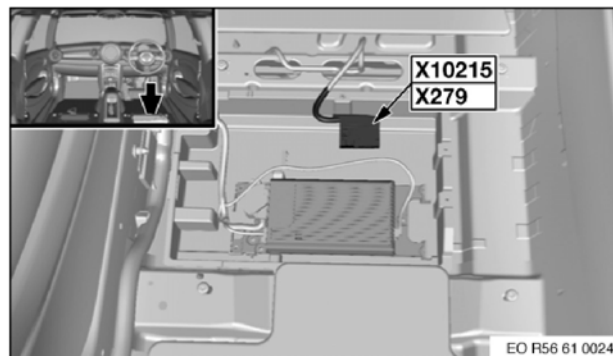


## X279 No Adapter

X279 No Adapter

X10215, X279 (Left-Hand Drive)

X10215,X279

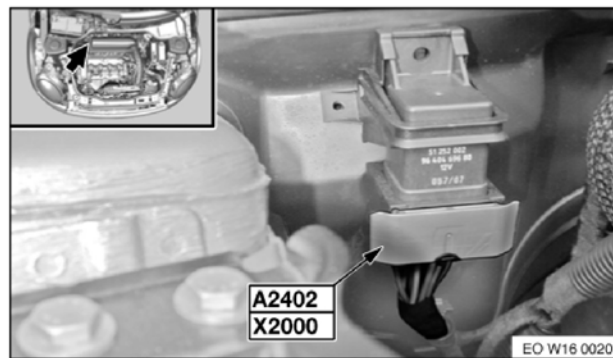


## X2000 No Adapter

X2000 No Adapter

A2402, X2000

A2402, X2000

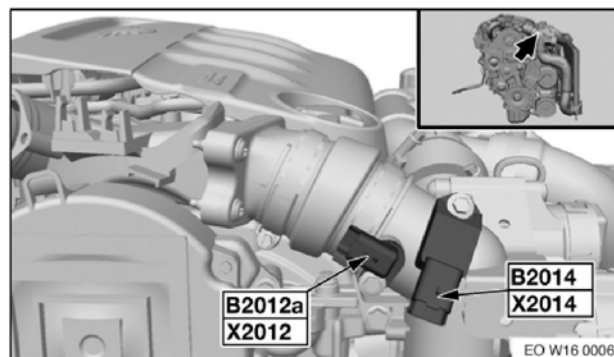


## X2012 Adapter 613430, Storage Location Y3

X2012 Adapter 613430, Storage Location Y3

B2012a, X2012, B2014, X2014

B2012a, X2012, B2014, X2014

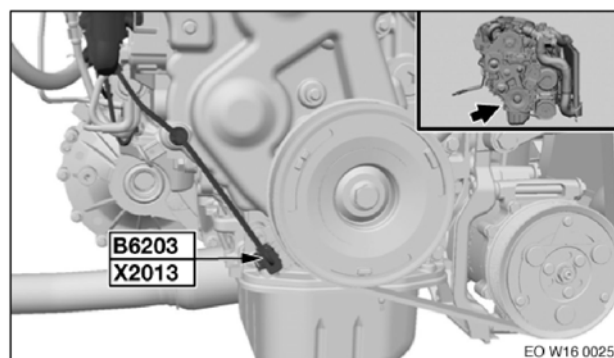


## X2013 No Adapter

X2013 No Adapter

B6203, X2013 (Engine)

B6203, X2013

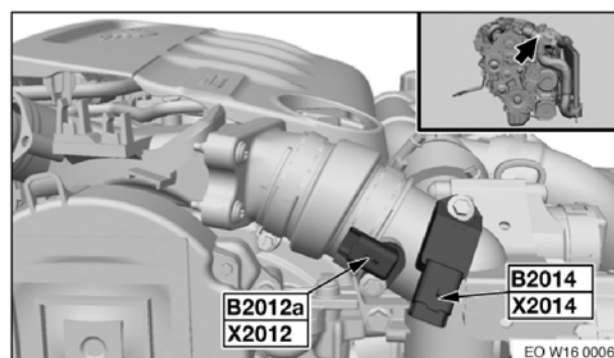


## X2014 No Adapter

X2014 No Adapter

B2012a, X2012, B2014, X2014

B2012a, X2012, B2014, X2014

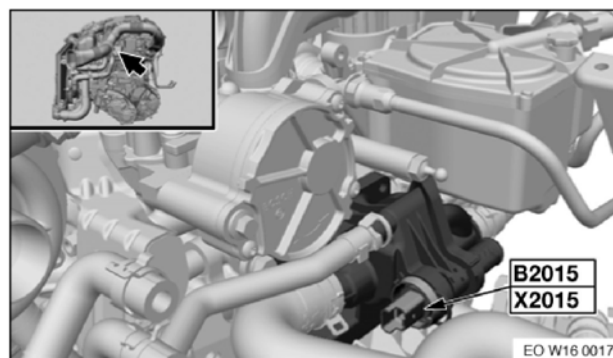


## X2015 Adapter 613430, Storage Location Y3

X2015 Adapter 613430, Storage Location Y3

B2015, X2015

B2015, X2015

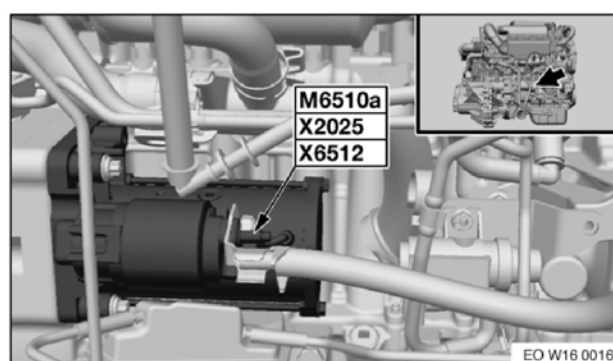


## X2025 No Adapter

X2025 No Adapter

M6510a, X2025, X6512

M6510a, X2025, X6512

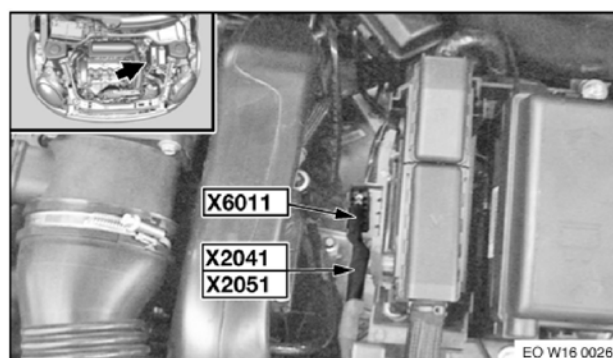


## X2041 No Adapter

X2041 No Adapter

X2041; X2051; X6011 (Engine)

X2041; X2051; X6011

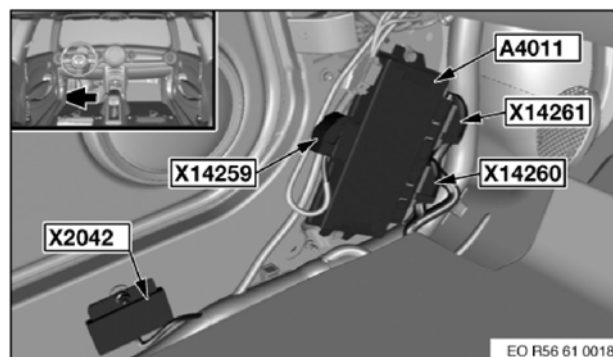


## X2042 No Adapter

X2042 No Adapter

X14259, X2042, A4011, X14260, X14261

X14259, X2042, A4011, X14260, X14261

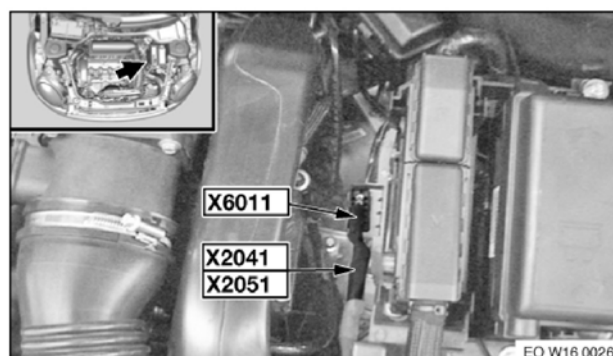


## X2051 No Adapter

X2051 No Adapter

X2041; X2051; X6011 (Engine)

X2041; X2051; X6011

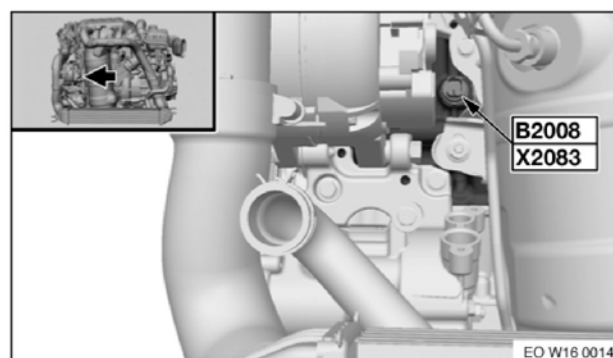


## X2083 Adapter 613430, Storage Location Y3

X2083 Adapter 613430, Storage Location Y3

B2008, X2083

B2008, X2083



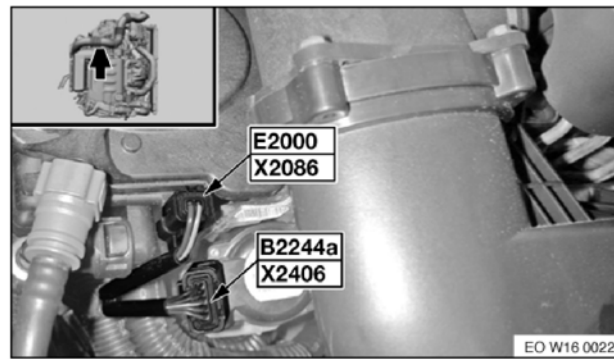
## X2086 Adapter 613430, Storage Location Y3

X2086 Adapter 613430, Storage Location Y3

E2000, X2086, B2244a, X2406



E2000, X2086, B2244a, X2406

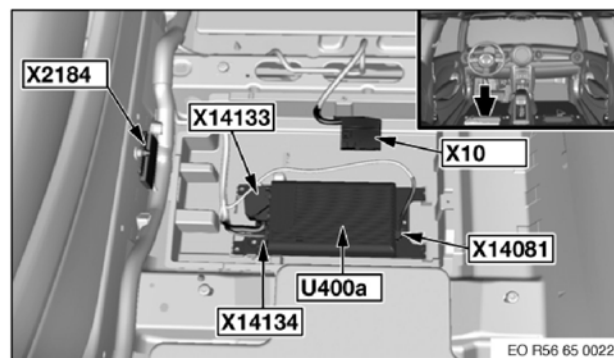


## X2184 No Adapter

X2184 No Adapter

X14133, U400a, X2184, X14134, X14081

X14133, U400a, X2184, X14134, X14081

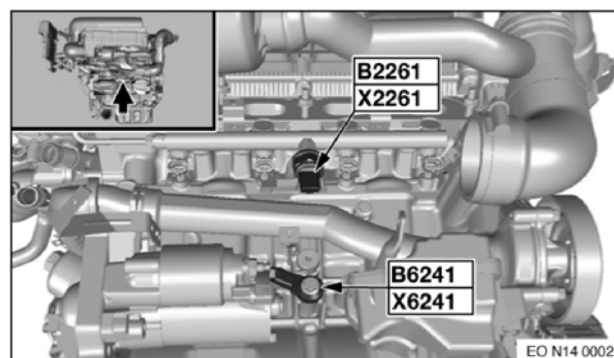


## X2261 Prototype Adapter Is Being Developed

X2261 Prototype Adapter Is Being Developed

B2261, X2261, B6241, X6241

B2261, X2261, B6241, X6241

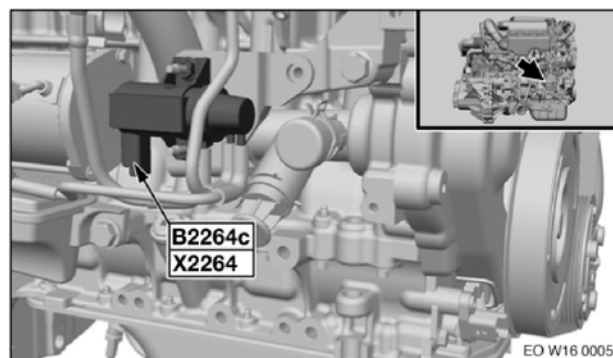


## X2264 Adapter 613430, Storage Location Y3

X2264 Adapter 613430, Storage Location Y3

B2264c, X2264

B2264c, X2264

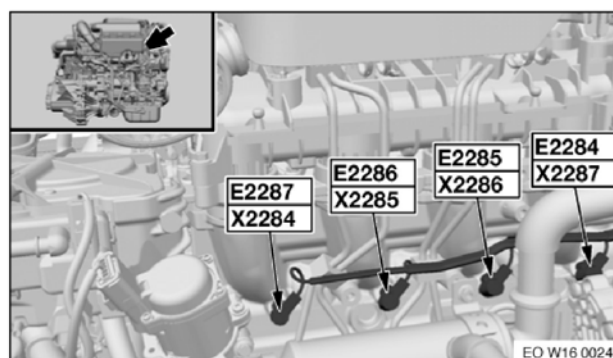


## X2284 No Adapter

### X2284 No Adapter

E2287, E2286, E2285, E2284, X2287, X2286, X2285, X2284

E2287, E2286, E2285, E2284, X2287, X2286, X2285, X2284

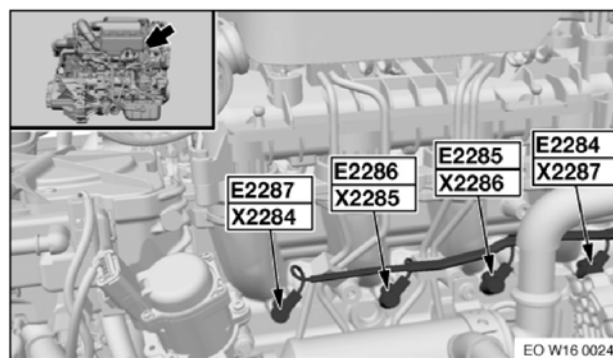


## X2285 No Adapter

### X2285 No Adapter

E2287, E2286, E2285, E2284, X2287, X2286, X2285, X2284

E2287, E2286, E2285, E2284, X2287, X2286, X2285, X2284

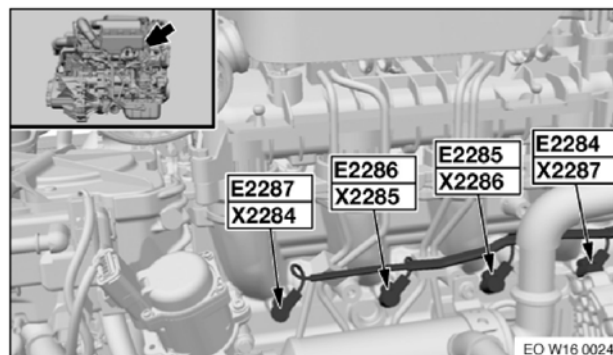


## X2286 No Adapter

### X2286 No Adapter

E2287, E2286, E2285, E2284, X2287, X2286, X2285, X2284

E2287, E2286, E2285, E2284, X2287, X2286, X2285, X2284

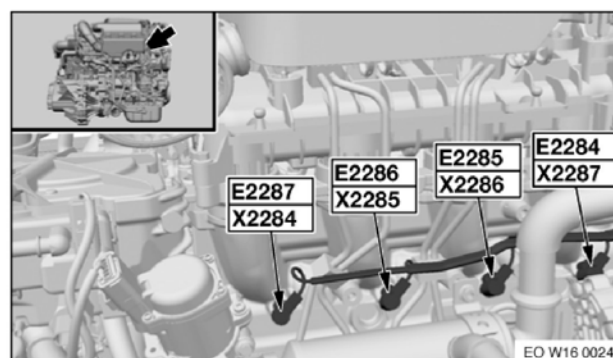


## X2287 No Adapter

### X2287 No Adapter

E2287, E2286, E2285, E2284, X2287, X2286, X2285, X2284

E2287, E2286, E2285, E2284, X2287, X2286, X2285, X2284

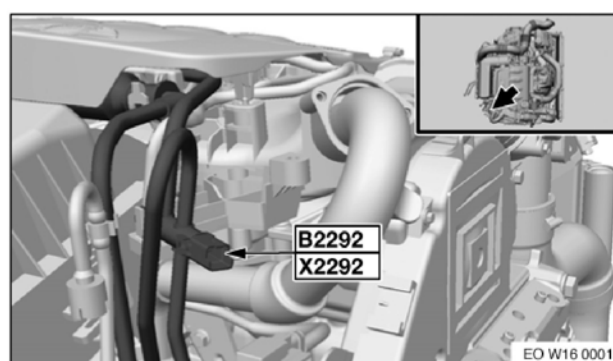


## X2292 No Adapter

### X2292 No Adapter

B2292, X2292

B2292, X2292

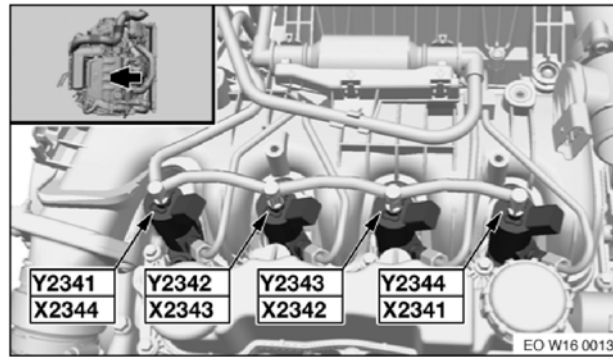


## X2341 Adapter 613480, Storage Location Y3

### X2341 Adapter 613480, Storage Location Y3

Y2341, X2344, Y2342, X2343, Y2343, X2342, Y2344, X2341

Y2341, X2344, Y2342, X2343, Y2343, X2342, Y2344, X2341

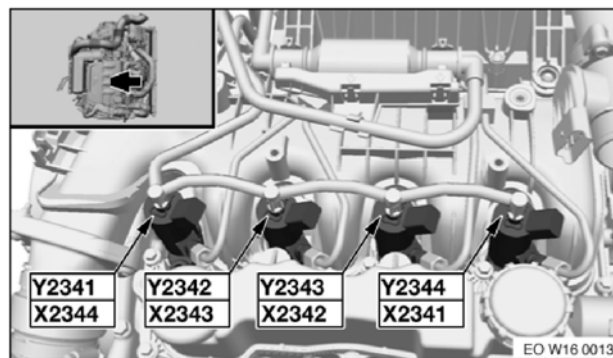


## **X2342 Adapter 613480, Storage Location Y3**

**X2342 Adapter 613480, Storage Location Y3**

**Y2341, X2344, Y2342, X2343, Y2343, X2342, Y2344, X2341**

Y2341, X2344, Y2342, X2343, Y2343, X2342, Y2344, X2341

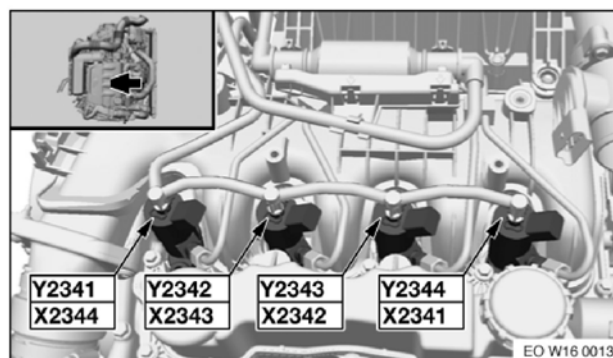


## **X2343 Adapter 612480, Storage Location Y3**

**X2343 Adapter 613480, Storage Location Y3**

**Y2341, X2344, Y2342, X2343, Y2343, X2342, Y2344, X2341**

Y2341, X2344, Y2342, X2343, Y2343, X2342, Y2344, X2341

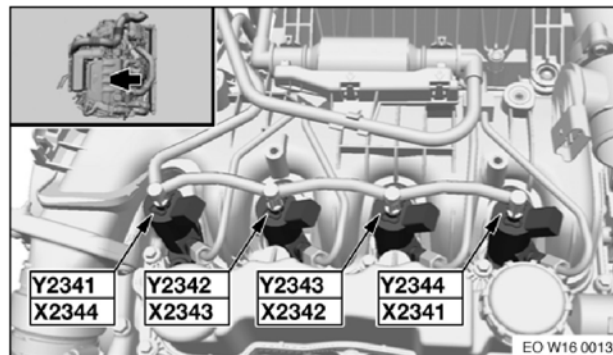


## **X2344 Adapter 613480, Storage Location Y3**

**X2344 Adapter 613480, Storage Location Y3**

**Y2341, X2344, Y2342, X2343, Y2343, X2342, Y2344, X2341**

Y2341, X2344, Y2342, X2343, Y2343, X2342, Y2344, X2341

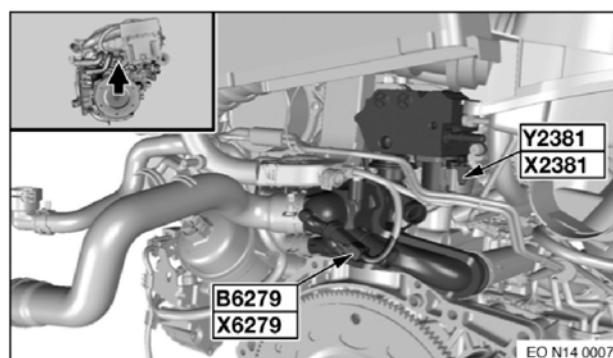


## X2381 No Adapter

X2381 No Adapter

Y2381, X2381, B6279, X6279

Y2381, X2381, B6279, X6279

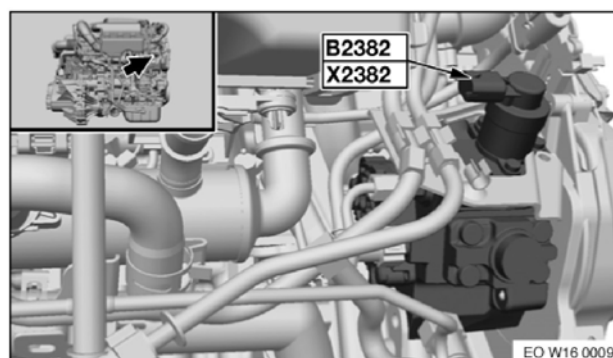


## X2382 Adapter 613480, Storage Location Y3

X2382 Adapter 613480, Storage Location Y3

B2382, X2382

B2382, X2382

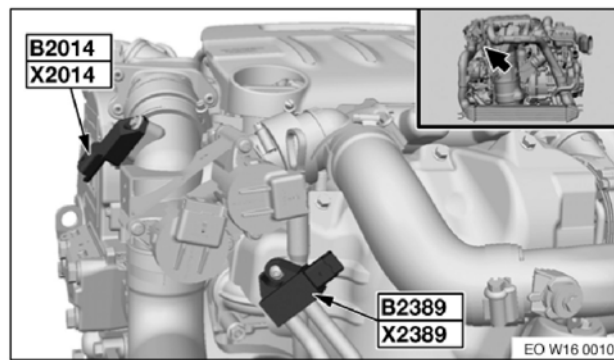


## X2389 No Adapter

X2389 No Adapter

B2014, X2014, B2389, X2389 (Engine)

B2014, X2014, B2389, X2389

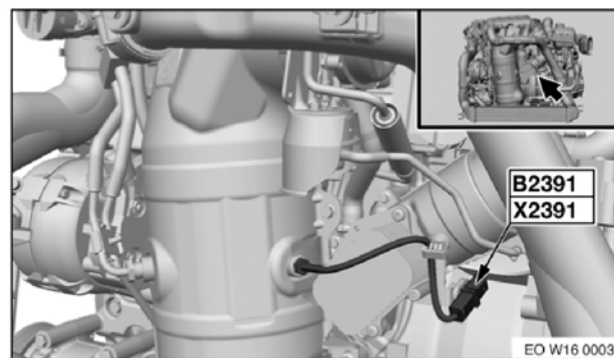


## X2391 Adapter 613430, Storage Location Y3

X2391 Adapter 613430, Storage Location Y3

B2391, X2391

B2391, X2391

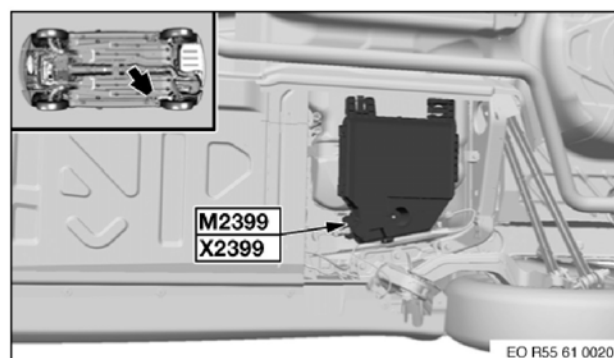


## X2399 No Adapter

X2399 No Adapter

M2399, X2399

M2399, X2399

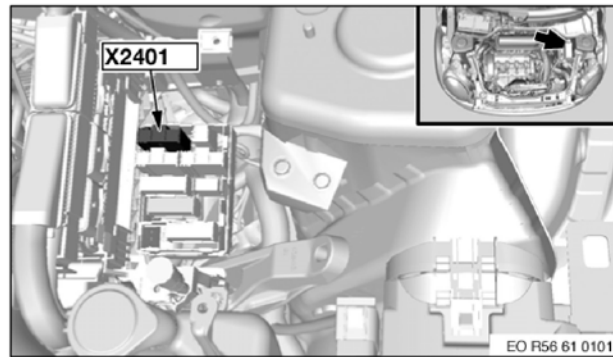


## X2401 No Adapter

X2401 No Adapter

X2401

X2401

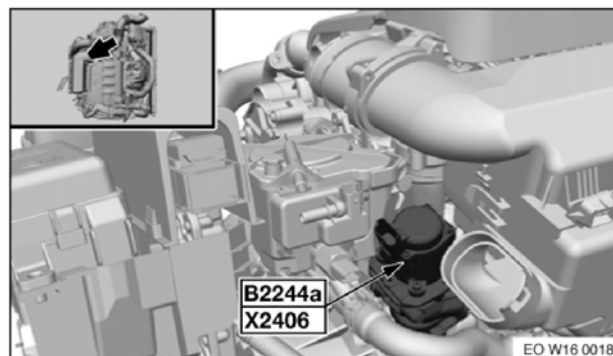


## X2406 No Adapter

X2406 No Adapter

B2244a, X2406

B2244a, X2406

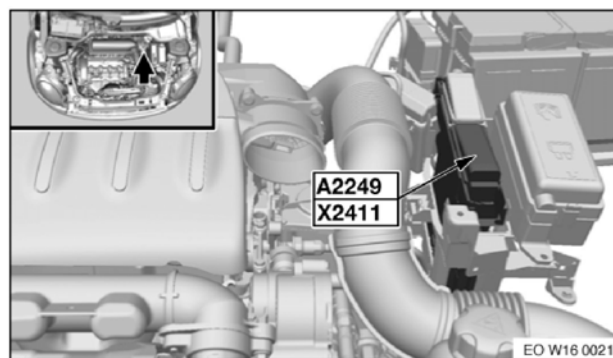


## X2411 Adapter 127410, Storage Location Q203

X2411 Adapter 127410, Storage Location Q203

A2249, X2411 (Engine)

A2249, X2411

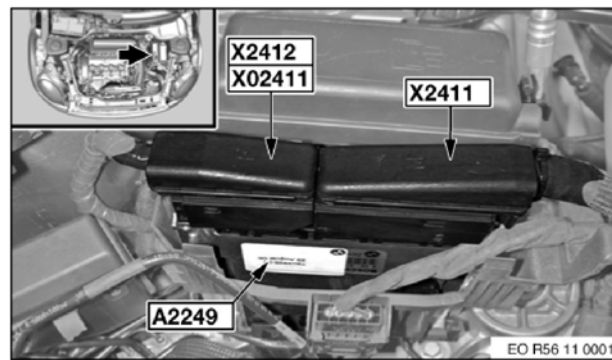


## X2412 Assignment Via Drawing

X2412 Assignment Via Drawing

A2249, X2412, X02411, X2411 (Engine)

A2249, X2412, X02411, X2411

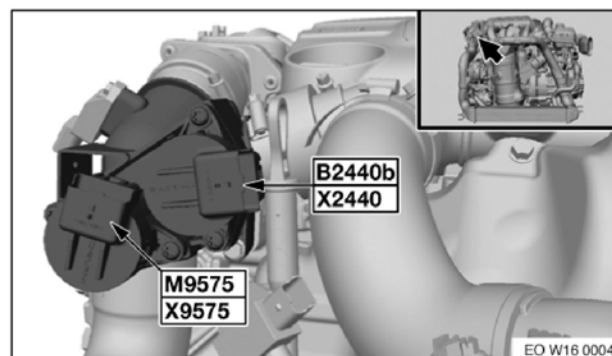


## X2440 No Adapter

X2440 No Adapter

B2440b, X2440, M9575, X9575

B2440b, X2440, M9575, X9575

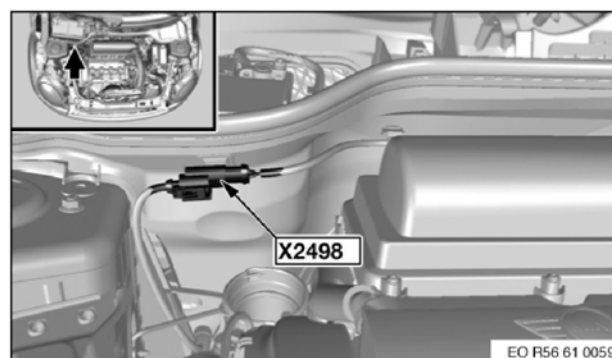


## X2498 No Adapter

X2498 No Adapter

X24498

X24498



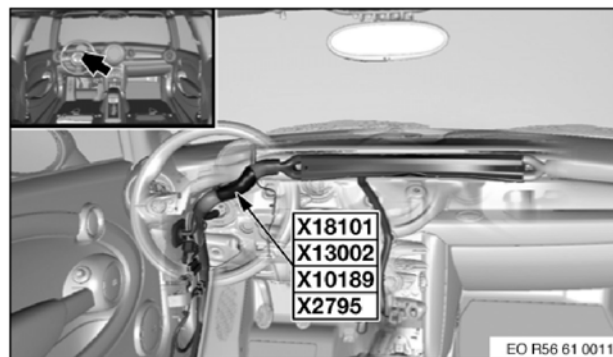
## X2795 No Adapter

X2795 No Adapter

X18101, X13002, X10189, X2795



X18101, X13002, X10189, X2795

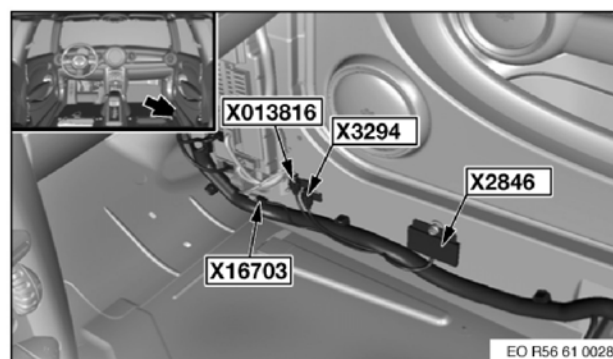


## X2846 No Adapter

X2846 No Adapter

X013816, X3294, X2846, X16703

X013816, X3294, X2846, X16703

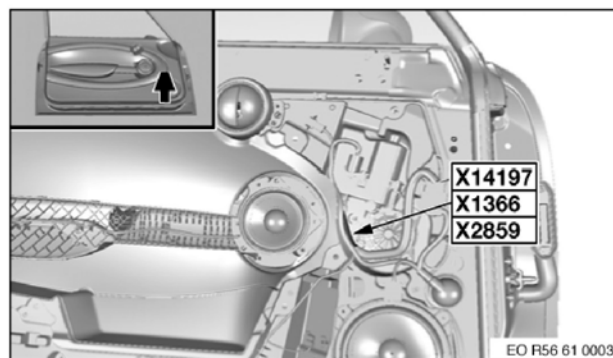


## X2859 No Adapter

X2859 No Adapter

X14197, X1566, X2859

X14197, X1566, X2859

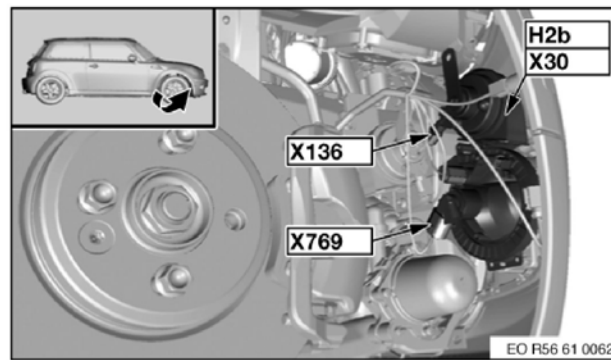


## X30 Adapter 616043, Storage Location D114

X30 Adapter 616043, Storage Location D114

H2b, X30, X136, X769

H2b, X30, X136, X769

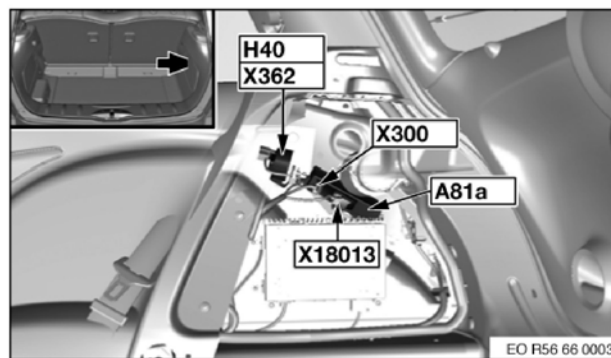


## X300 Adapter 614480, Storage Location C111

X300 Adapter 614480, Storage Location C111

H40, X362, X300, A81a, X18013 (MINI\_MINI-R55/R56/R57)

H40, X362, X300, A81a, X18013

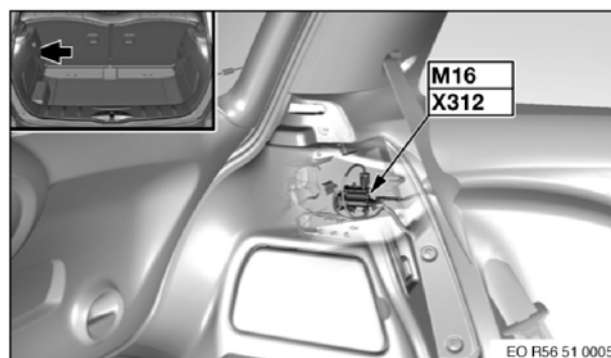


## X312 Adapter 616043, Storage Location D114

X312 Adapter 616043, Storage Location D114

M16, X312

M16, X312

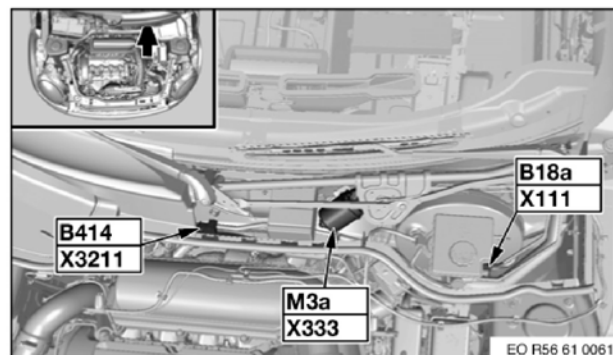


## X333 No Adapter

X333 No Adapter

B18a, X111, B414, X3211, M3a, X333

B18a, X111, B414, X3211, M3a, X333

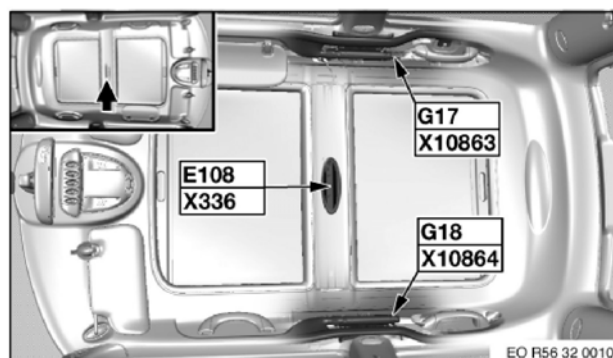


## X336 Adapter 616031, Storage Location D107

X336 Adapter 616031, Storage Location D107

E108, X336, G17, X10863, G18, X10864

E108, X336, G17, X10863, G18, X10864

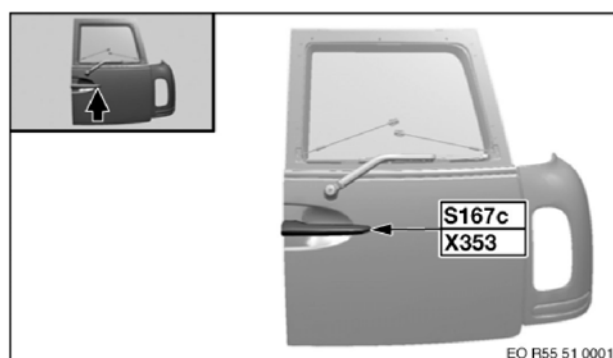


## X353 No Adapter

X353 No Adapter

S167c, X353

S167c, X353

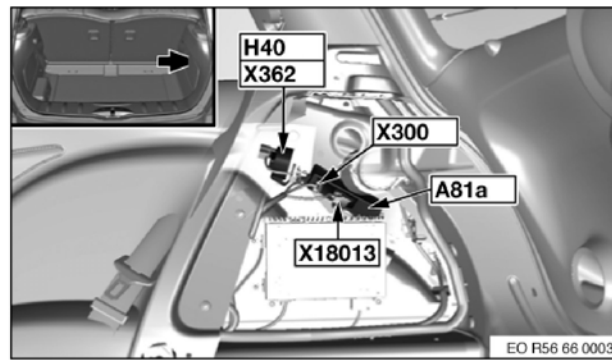


## X362 Adapter 611465/-66, Storage Location B112/-13

X362 Adapter 611465/-66, Storage Location B112/-13

H40, X362, X300, A81a, X18013

H40, X362, X300, A81a, X18013

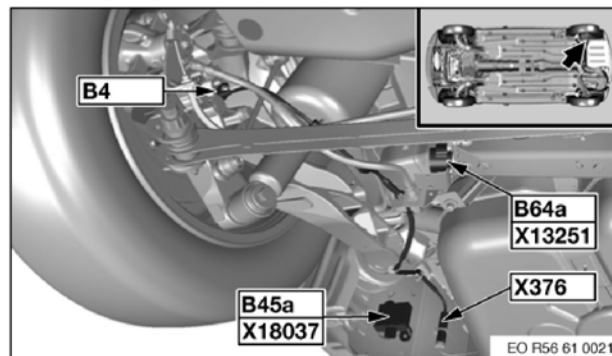


## X376 Adapter 616042, Storage Location D113

X376 Adapter 616042, Storage Location D113

B4, B45a, X18037, X376, B64a, X13251

B4, B45a, X18037, X376, B64a, X13251

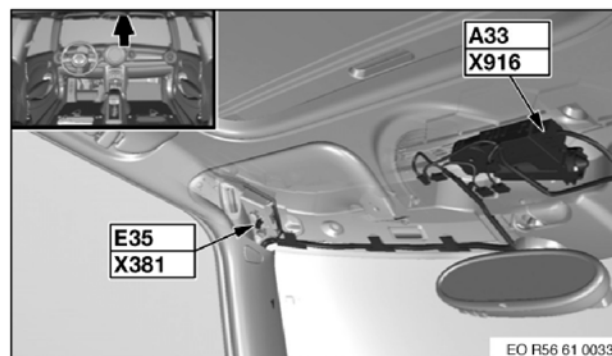


## X381 Adapter 616031, Storage Location D107

X381 Adapter 616031, Storage Location D107

A33, X916, E35, X381

A33, X916, E35, X381

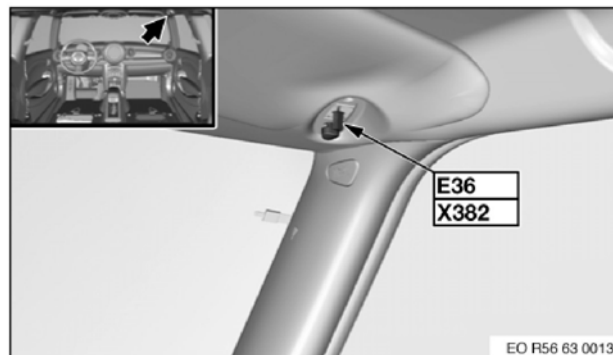


## X382 Adapter 616031, Storage Location D107

X382 Adapter 616031, Storage Location D107

E36, X382

E36, X382

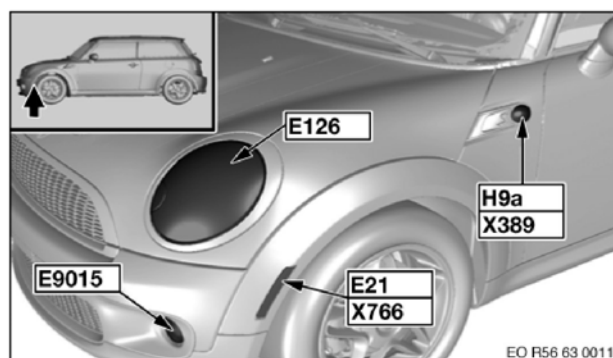


## X389 Adapter 616043, Storage Location D114

X389 Adapter 616043, Storage Location D114

E126, H9a, X389, E21, X766, E9015

E126, H9a, X389, E21, X766, E9015

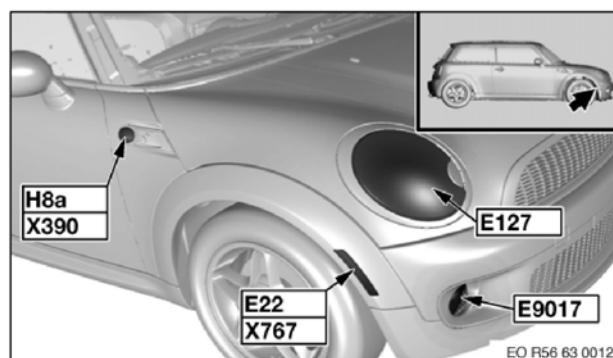


## X390 Adapter 616043, Storage Location D114

X390 Adapter 616043, Storage Location D114

E127, H8a, X390, E22, X767, E9017

E127, H8a, X390, E22, X767, E9017

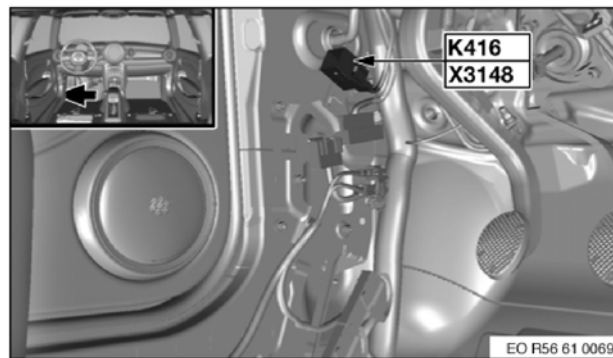


## X3148 No Adapter

X3148 No Adapter

K416, X3148

K416, X3148

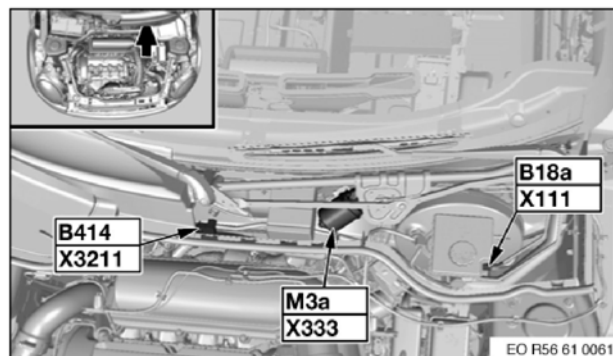


## X3211 Adapter 616044, Storage Location D115

X3211 Adapter 616044, Storage Location D115

B18a, X111, B414, X3211, M3a, X333

B18a, X111, B414, X3211, M3a, X333

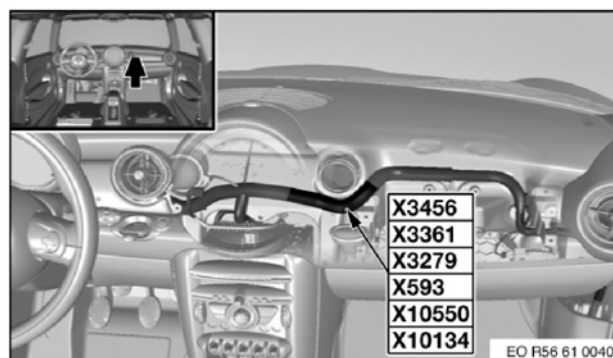


## X3279 No Adapter

X3279 No Adapter

X3456, X3361, X3279, X593, X10550, X10134

X3456, X3361, X3279, X593, X10550, X10134

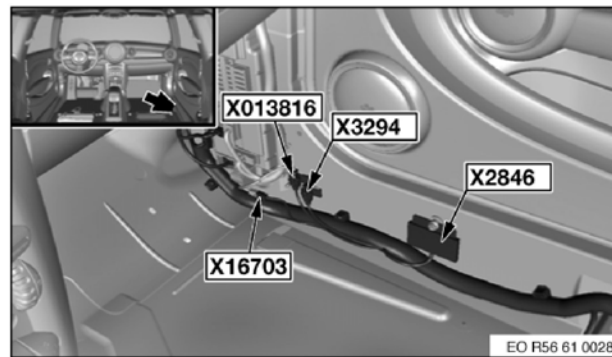


## X3294 No Adapter

X3294 No Adapter

X013816, X3294, X2846, X16703

X013816, X3294, X2846, X16703

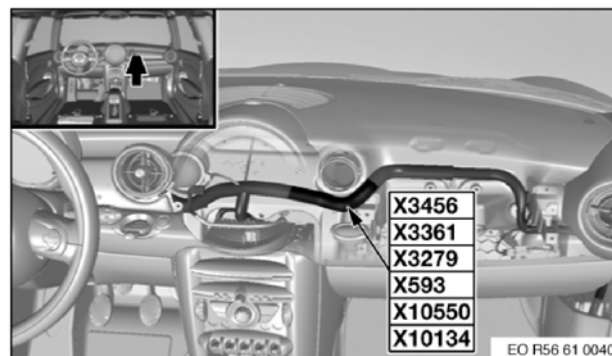


## X3361 No Adapter

X3361 No Adapter

X3456, X3361, X3279, X593, X10550, X10134

X3456, X3361, X3279, X593, X10550, X10134

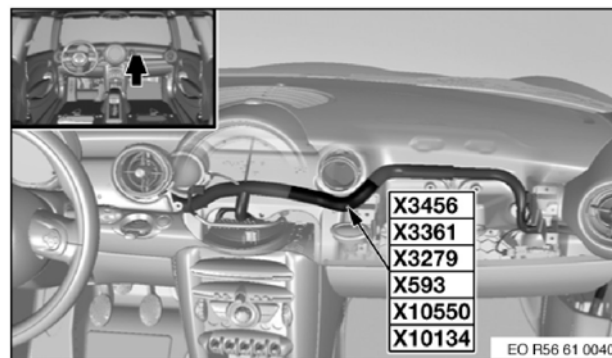


## X3456 No Adapter

X3456 No Adapter

X3456, X3361, X3279, X593, X10550, X10134

X3456, X3361, X3279, X593, X10550, X10134

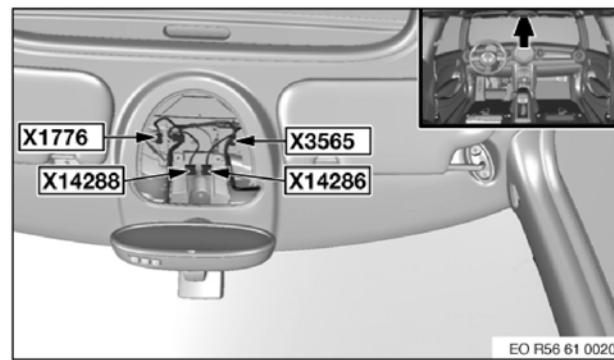


## X3565 Adapter 616031, Storage Location D107

X3565 Adapter 616031, Storage Location D107

X1776, X14288, X3565, X14286

X1776, X14288, X3565, X14286

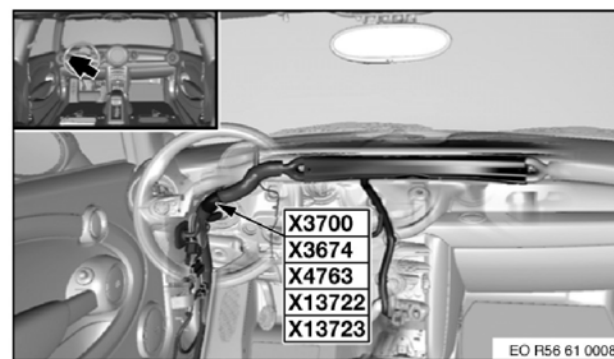


## X3674 No Adapter

X3674 No Adapter

X3700, X3674, X4763, X13722, X13723

X3700, X3674, X4763, X13722, X13723

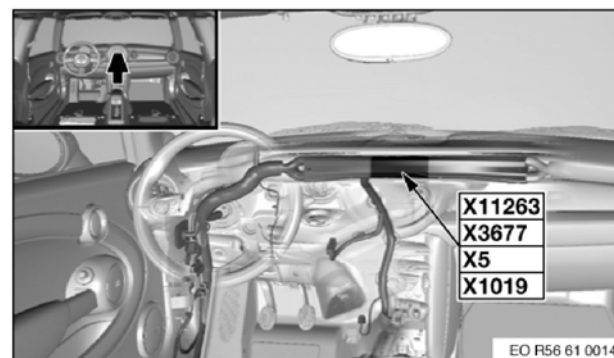


## X3677 No Adapter

X3677 No Adapter

X11263, X3677, X5, X1019 (Left-Hand Drive)

X11263, X3677, X5, X1019



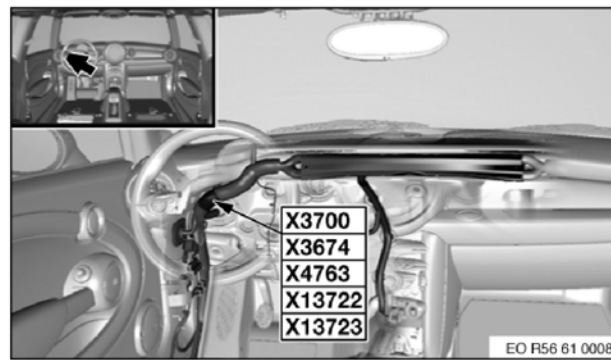
## X3700 No Adapter

X3700 No Adapter

X3700, X3674, X4763, X13722, X13723



X3700, X3674, X4763, X13722, X13723

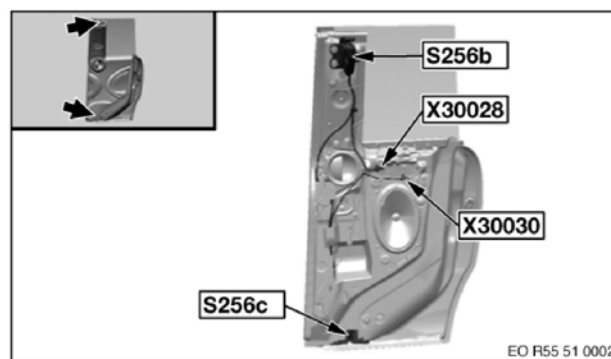


## X30028 No Adapter

X30028 No Adapter

S256b, X30028, X30030, S256c

S256b, X30028, X30030, S256c

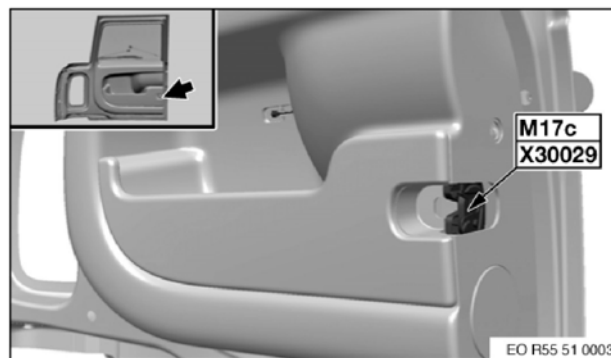


## X30029 Adapter 616045, Storage Location D116

X30029 Adapter 616045, Storage Location D116

M17c, X30029

M17c, X30029

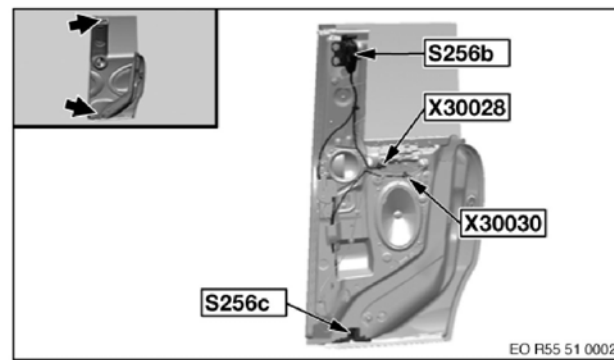


## X30030 No Adapter

X30030 No Adapter

S256b, X30028, X30030, S256c

S256b, X30028, X30030, S256c

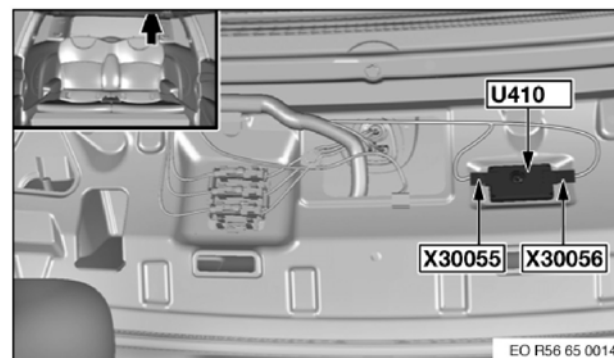


## X30055 Adapter 616031, Storage Location D107

X30055 Adapter 616031, Storage Location D107

U410, X30055, X30056

U410, X30055, X30056

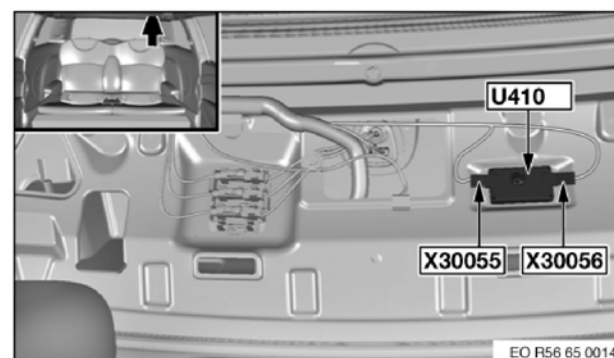


## X30056 Adapter 616031, Storage Location D107

X30056 Adapter 616031, Storage Location D107

U410, X30055, X30056

U410, X30055, X30056

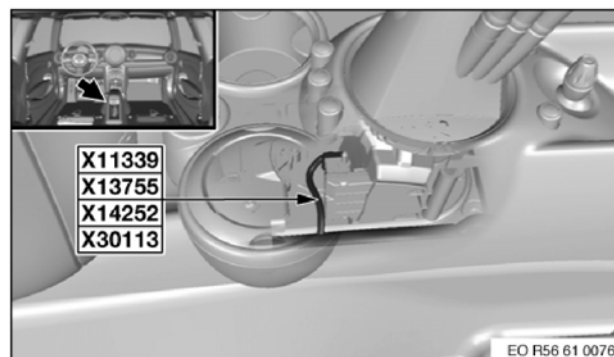


## X30113 No Adapter

X30113 No Adapter

X11339, X13755, X14252, X30113

X11339, X13755, X14252, X30113

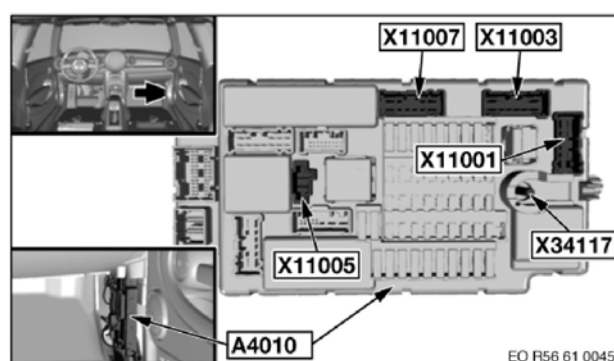


## X34117 No Adapter

X34117 No Adapter

X11007, X11003, X11001, X34117, X11005, A4010

X11007, X11003, X11001, X34117, X11005, A4010

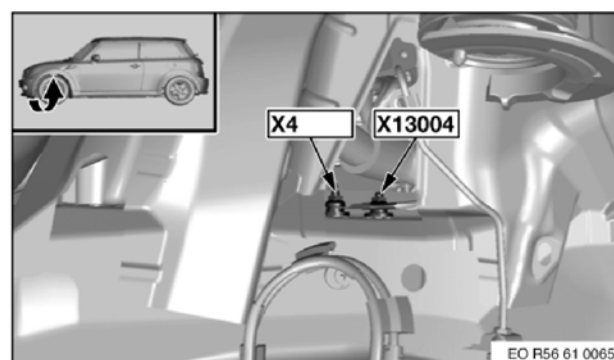


## X4 No Adapter

X4 No Adapter

X4, X13004

X4, X13004

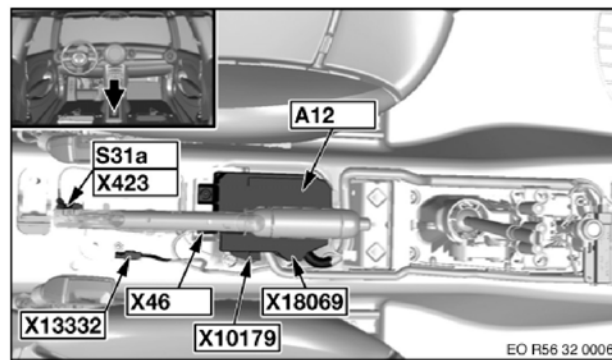


## X46 No Adapter

X46 No Adapter

A12, S31a, X423, X13322, X46, X10179, X18069

A12, S31a, X423, X13322, X46, X10179, X18069

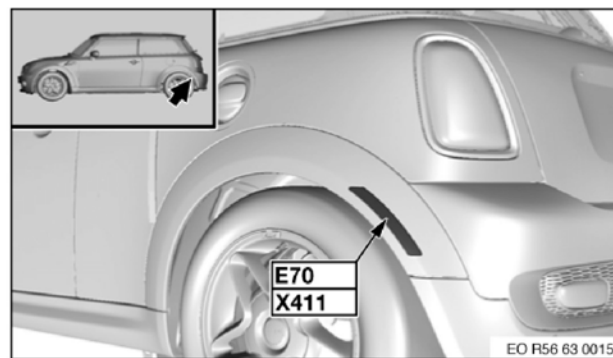


## X411 Adapter 616043, Storage Location D114

X411 Adapter 616043, Storage Location D114

E70, X411

E70, X411

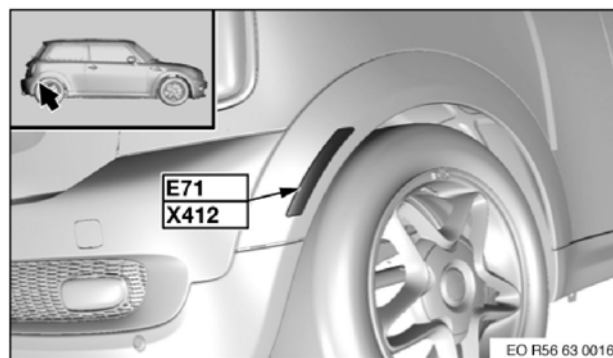


## X412 Adapter 616043, Storage Location D114

X412 Adapter 616043, Storage Location D114

E71, X412

E71, X412

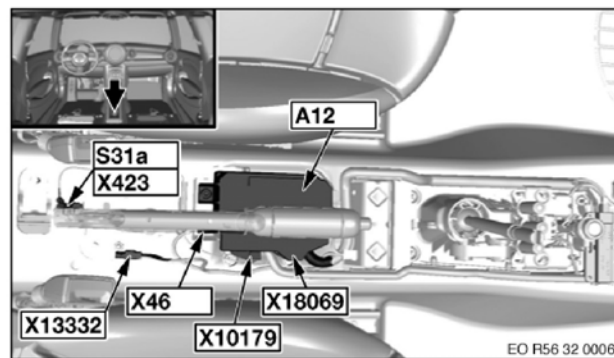


## X423 No Adapter

X423 No Adapter

A12, S31a, X423, X13322, X46, X10179, X18069

A12, S31a, X423, X13322, X46, X10179, X18069

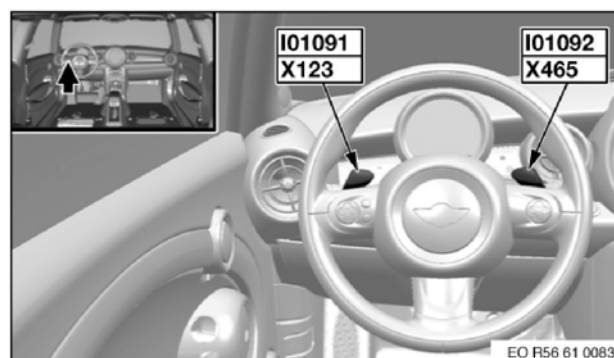


## X465 No Adapter

X465 No Adapter

I01091, X123, I01092, X465 (MINI\_MINI-R55/R56/R57)

I01091, X123, I01092, X465

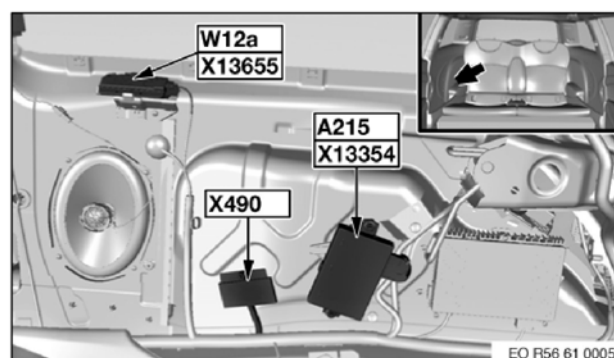


## X490 No Adapter

X490 No Adapter

W12a, X13655, X490, A215, X13354

W12a, X13655, X490, A215, X13354

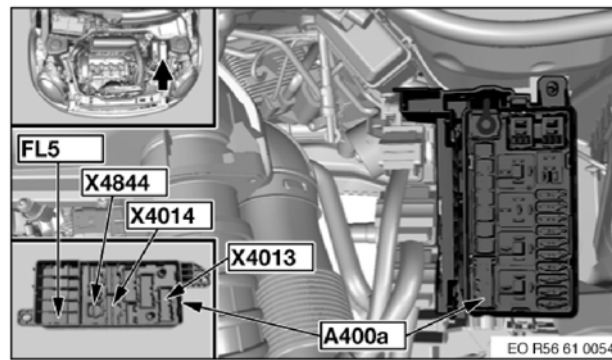


## X4007 No Adapter

X4007 No Adapter

A400a, FL5, X4844, X4007, X4014, X4013

A400a, FL5, X4844, X4007, X4014, X4013

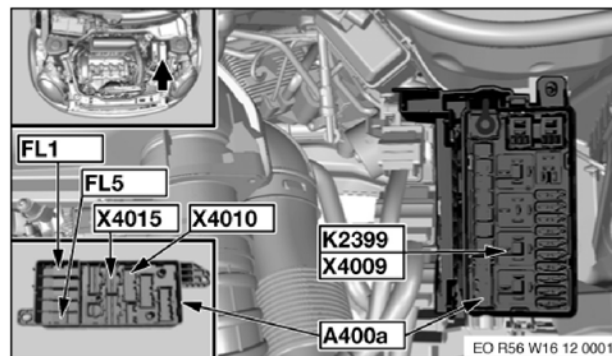


## X4009 No Adapter

X4009 No Adapter

FL1, FL5, X4015, X4010, A400a, K2399, X4009

FL1, FL5, X4015, X4010, A400a, K2399, X4009

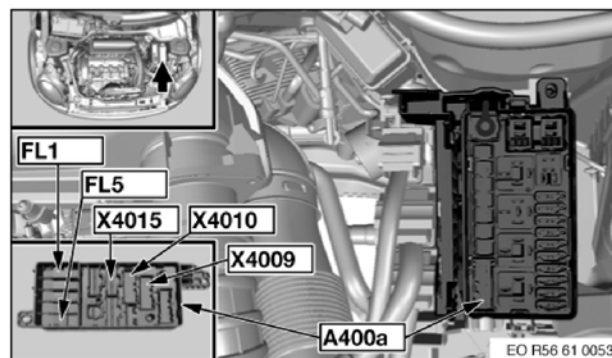


## X4010 No Adapter

X4010 No Adapter

FL1, X4015, X4010, X4009, FL5, A400a

FL1, X4015, X4010, X4009, FL5, A400a

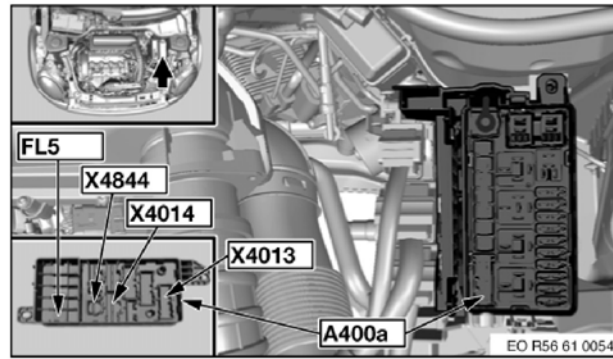


## X4013 No Adapter

X4013 No Adapter

A400a, FL5, X4844, X4007, X4014, X4013

A400a, FL5, X4844, X4007, X4014, X4013

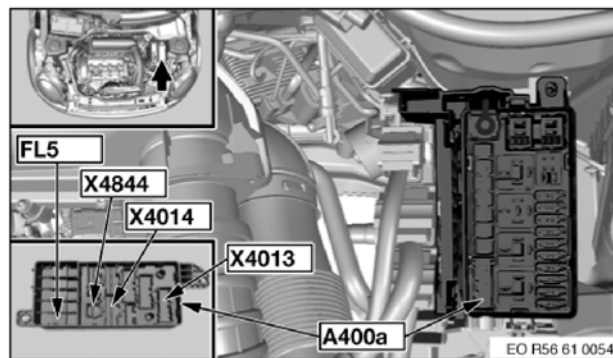


## X4014 No Adapter

X4014 No Adapter

A400a, FL5, X4844, X4007, X4014, X4013

A400a, FL5, X4844, X4007, X4014, X4013

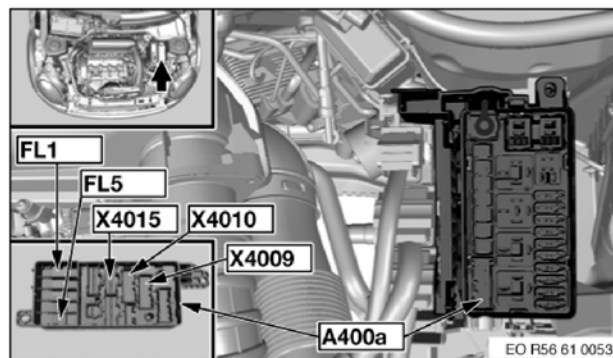


## X4015 No Adapter

X4015 No Adapter

FL1, X4015, X4010, X4009, FL5, A400a

FL1, X4015, X4010, X4009, FL5, A400a

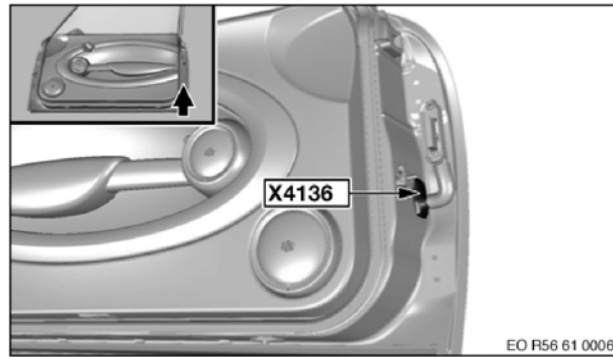


## X4136 No Adapter

X4136 No Adapter

X4136

X4136

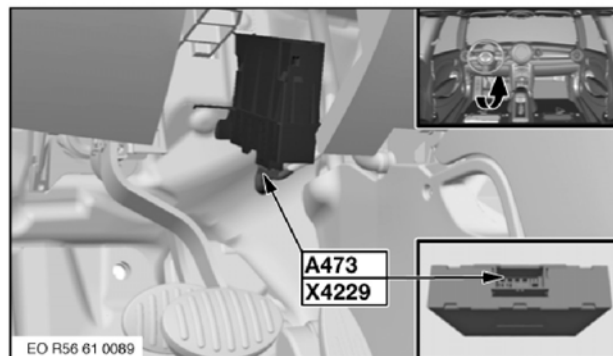


## X4229 Adapter 610160, Storage Location E106

X4229 Adapter 610160, Storage Location E109

A473, X4229

A473, X4229

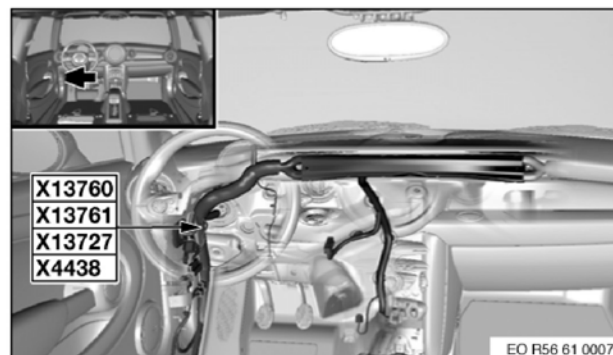


## X4438 No Adapter

X4438 No Adapter

X13760, X13761, X13727, X4438

X13760, X13761, X13727, X4438



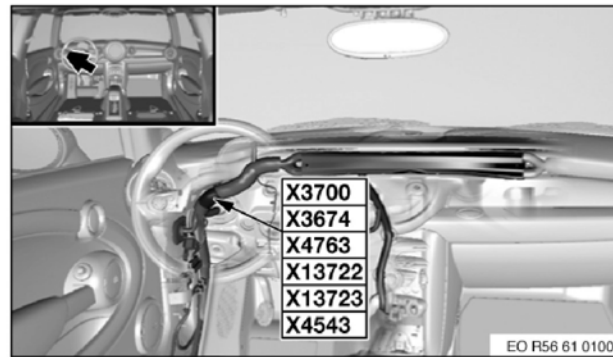
## X4543 No Adapter

X4543 No Adapter

X4543; X3700 (Left-Hand Drive)



X4543; X3700

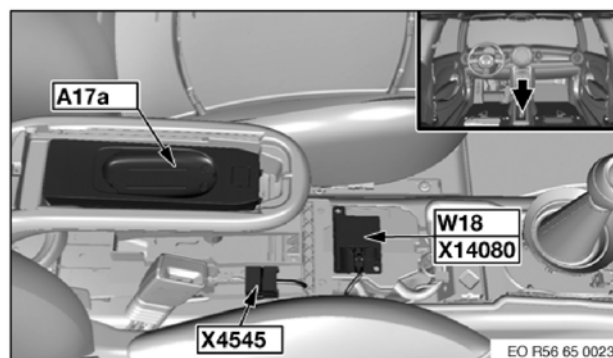


## X4545 Adapter 614470, Storage Location C110

X4545 Adapter 614470, Storage Location C110

A117a, X4545, W18, X14080

A117a, X4545, W18, X14080

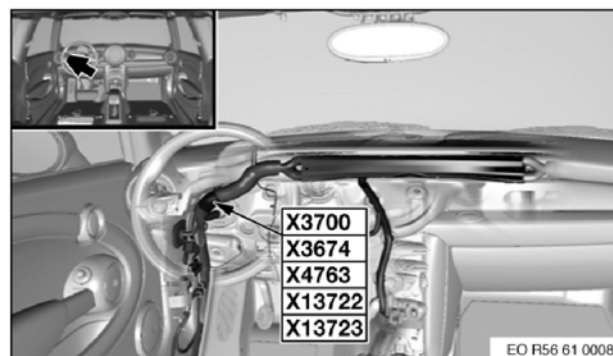


## X4763 No Adapter

X4763 No Adapter

X3700, X3674, X4763, X13722, X13723

X3700, X3674, X4763, X13722, X13723

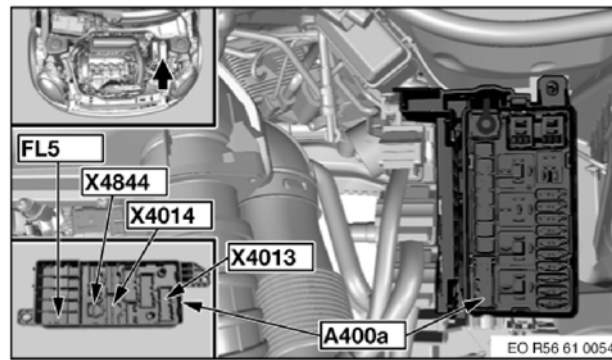


## X4844 No Adapter

X4844 No Adapter

A400a, FL5, X4844, X4007, X4014, X4013

A400a, FL5, X4844, X4007, X4014, X4013

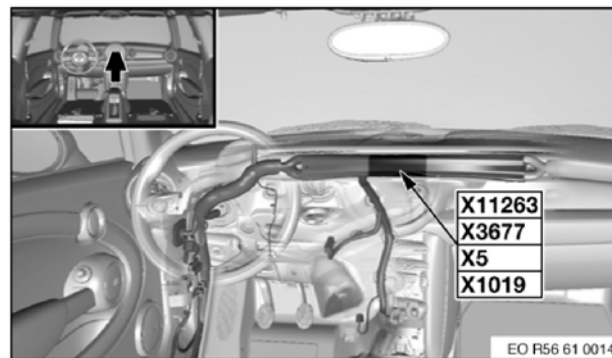


## X5 No Adapter

X5 No Adapter

X11263, X3677, X5, X1019

X11263, X3677, X5, X1019

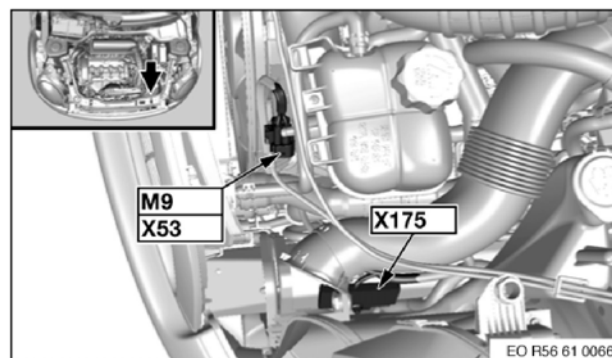


## X53 No Adapter

X53 No Adapter

M9, X53, X175

M9, X53, X175

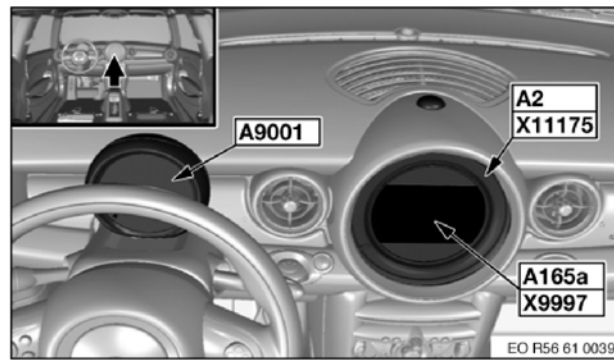


## X516 Adapter 616031, Storage Location D107

X516 Adapter 616031, Storage Location D107

A9001, S18a, X516, A2, X11175, A165a, X9997

A9001, S18a, X516, A2, X11175, A165a, X9997

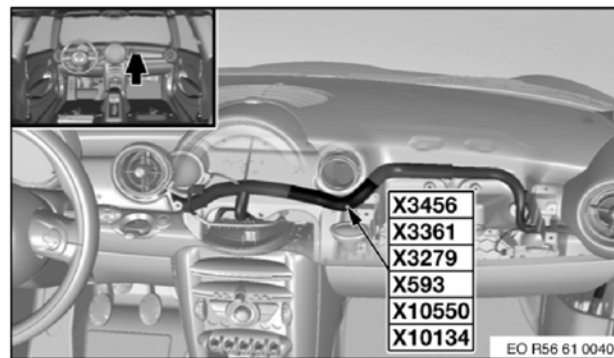


## X593 No Adapter

X593 No Adapter

X3456, X3361, X3279, X593, X10550, X10134

X3456, X3361, X3279, X593, X10550, X10134

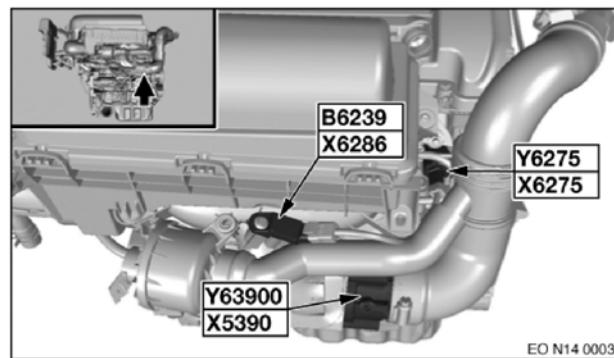


## X5390 Adapter 613420, Storage Location Y3

X5390 Adapter 613420, Storage Location Y3

B6239, X6286, Y6275, X6275, Y63900, X5390

B6239, X6286, Y6275, X6275, Y63900, X5390

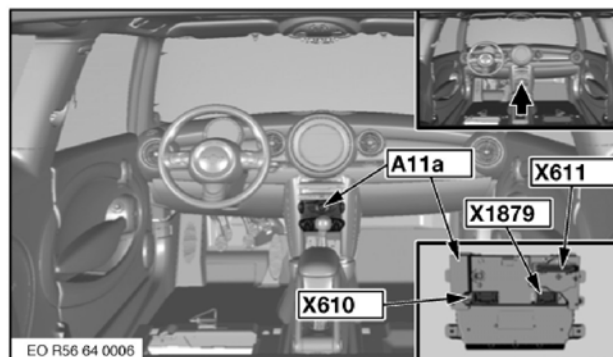


## X610 Adapter 614470, Storage Location C110

X610 Adapter 614470, Storage Location C110

A11a, X611, X1879, X610

A11a, X611, X1879, X610

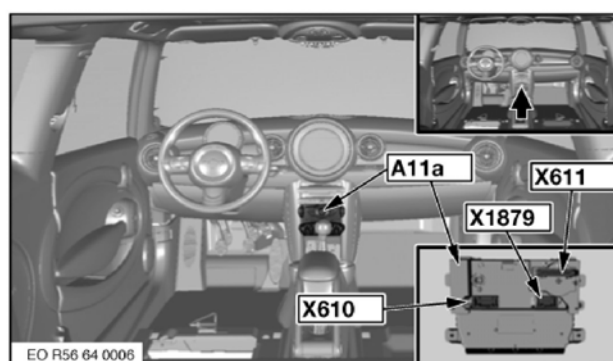


## X611 No Adapter

X611 No Adapter

A11a, X611, X1879, X610

A11a, X611, X1879, X610

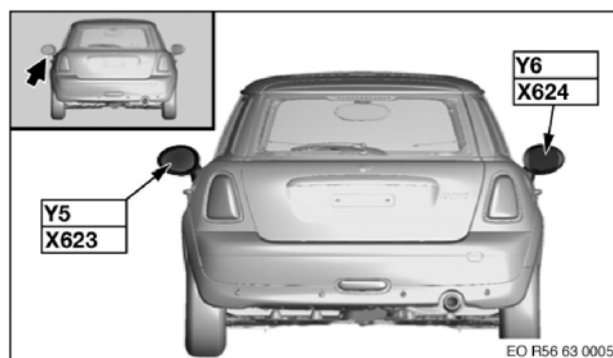


## X623 Adapter 616050, Storage Location D117

X623 Adapter 616050, Storage Location D117

Y6, X624, Y5, X623

Y6, X624, Y5, X623

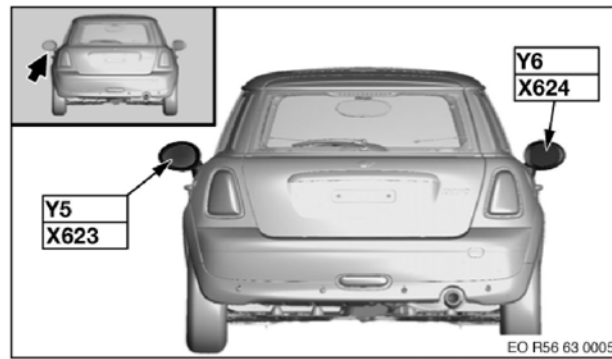


## X624 No Adapter

X624 No Adapter

Y6, X624, Y5, X623

Y6, X624, Y5, X623

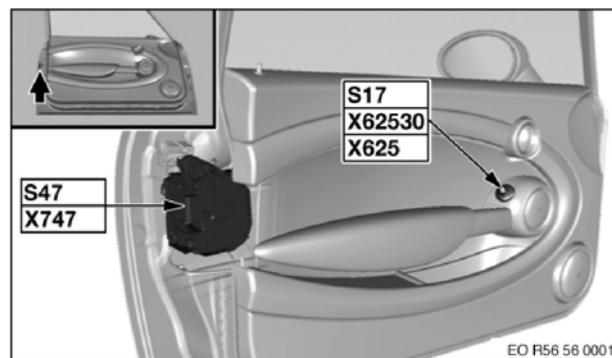


## X625 Adapter 616033, Storage Location D109

X625 Adapter 616033, Storage Location D109

S17, X62530, X625, S47, X747

S17, X62530, X625, S47, X747

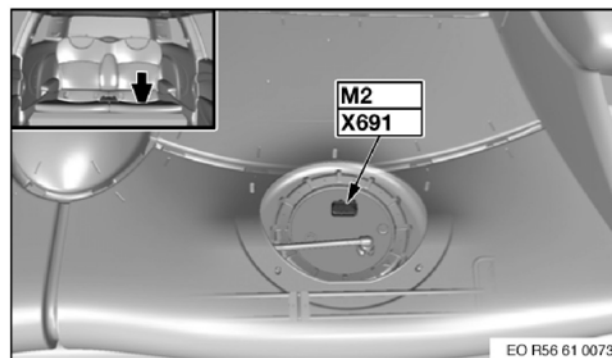


## X691 Prototype Adapter Is Being Developed

X691 Prototype Adapter Is Being Developed

M2, X691

M2, X691

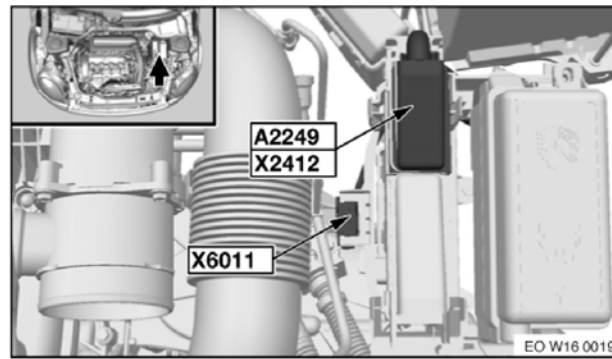


## X6011 Adapter 613390, Storage Location Y3 (Engine)

X6011 Adapter 613390, Storage Location Y3 (Engine)

A2249, X2412, X6011 (Engine)

A2249, X2412, X6011

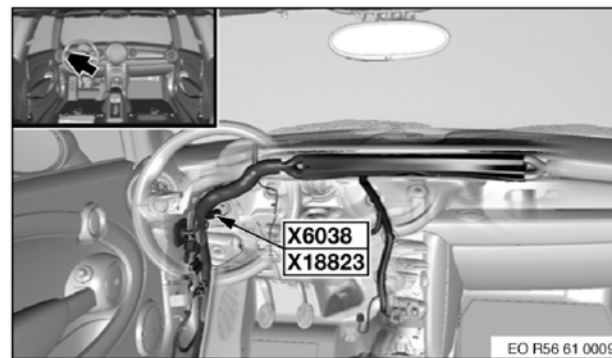


## X6038 No Adapter

X6038 No Adapter

X6038, X18823

X6038, X18823

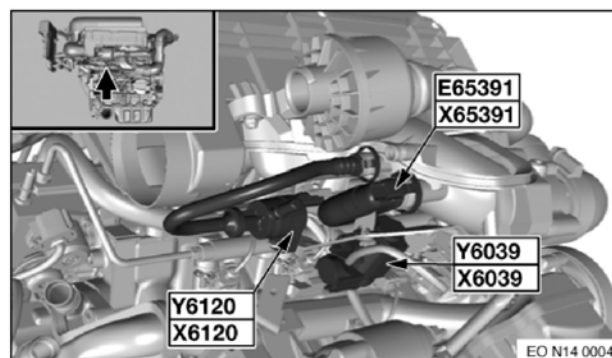


## X6039 Adapter 613430, Storage Location Y3

X6039 Adapter 613430, Storage Location Y3

E65391, X65391, Y6039, X6039, Y6120, X6120

E65391, X65391, Y6039, X6039, Y6120, X6120

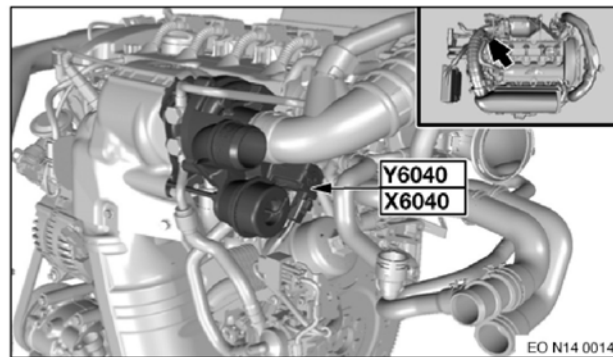


## X6040 Adapter 613430, Storage Location Y3

X6040 Adapter 613430, Storage Location Y3

Y6040, X6040

Y6040, X6040

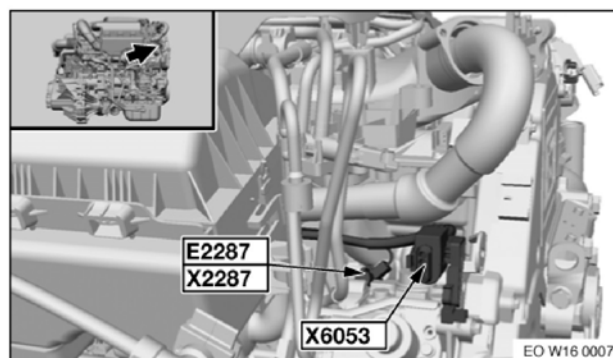


## X6053 No Adapter

X6053 No Adapter

E2287, X2287, X6053

E2287, X2287, X6053

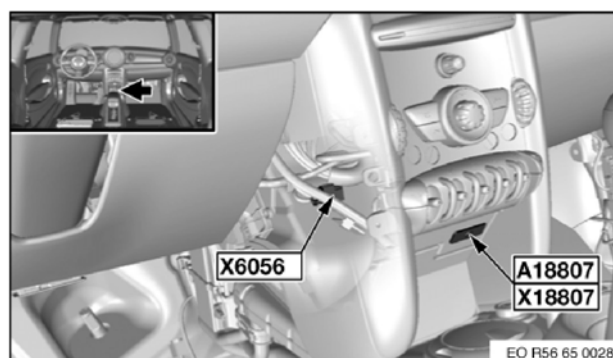


## X6056 Adapter 611466, Storage Location B113

X6056 Adapter 611466, Storage Location B113

X6056, A18807, X18807

X6056, A18807, X18807

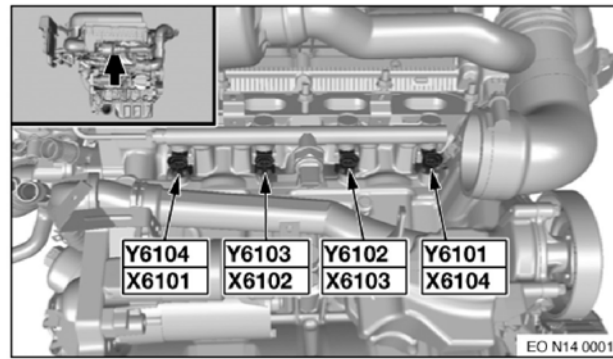


## X6101 No Adapter

X6101 No Adapter

Y6101, X6101, Y6102, X6102, Y6103, X6103, Y6104, X6104

Y6101, X6101, Y6102, X6102, Y6103, X6103, Y6104, X6104

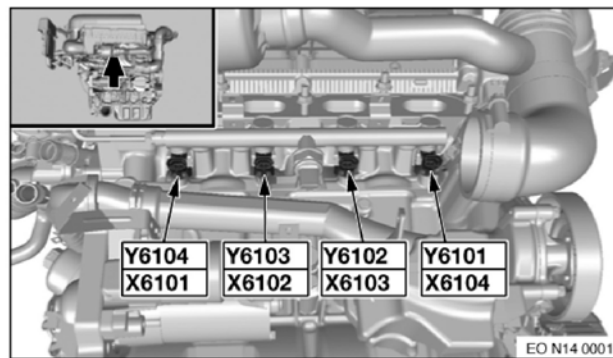


## X6102 No Adapter

X6102 No Adapter

Y6101, X6101, Y6102, X6102, Y6103, X6103, Y6104, X6104

Y6101, X6101, Y6102, X6102, Y6103, X6103, Y6104, X6104

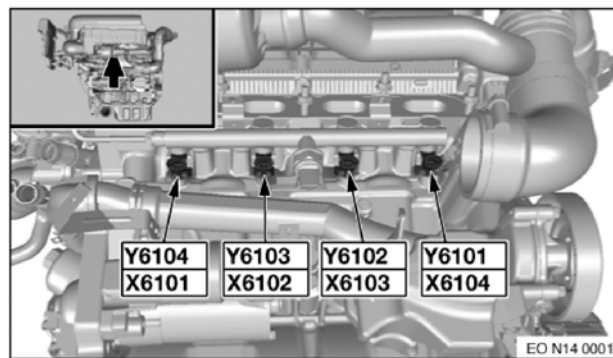


## X6103 No Adapter

X6103 No Adapter

Y6101, X6101, Y6102, X6102, Y6103, X6103, Y6104, X6104

Y6101, X6101, Y6102, X6102, Y6103, X6103, Y6104, X6104



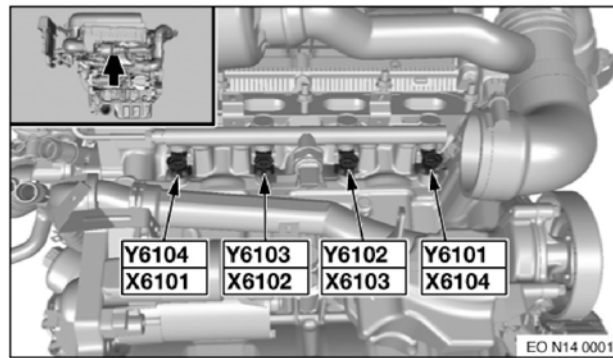
## X6104 No Adapter

X6104 No Adapter

Y6101, X6101, Y6102, X6102, Y6103, X6103, Y6104, X6104



Y6101, X6101, Y6102, X6102, Y6103, X6103, Y6104, X6104

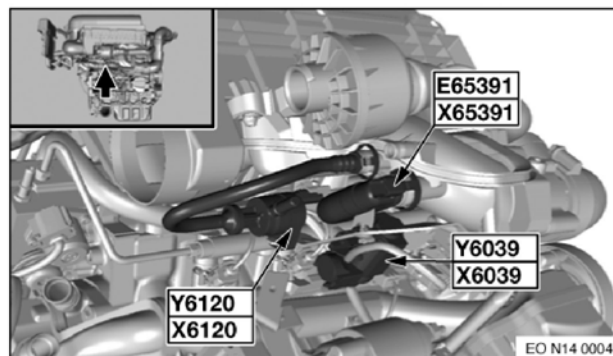


## X6120 Adapter 613430, Storage Location Y3

X6120 Adapter 613430, Storage Location Y3

E65391, X65391, Y6039, X6039, Y6120, X6120

E65391, X65391, Y6039, X6039, Y6120, X6120

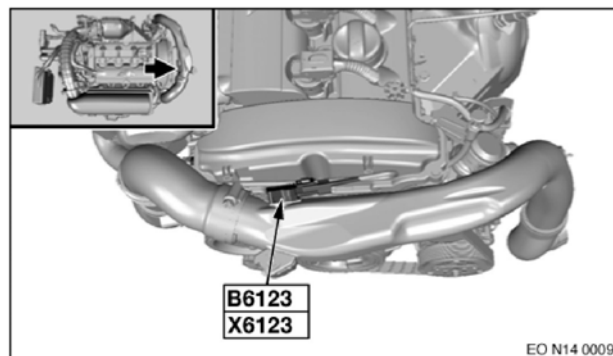


## X6123 Adapter 613400, Storage Location Y3

X6123 Adapter 613400, Storage Location Y3

B6123, X6123

B6123, X6123

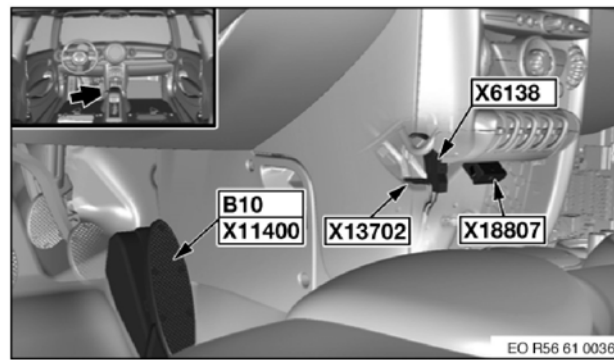


## X6138 No Adapter

X6138 No Adapter

B10, X11400, X6138, X18807, X13702

B10, X11400, X6138, X18807, X13702

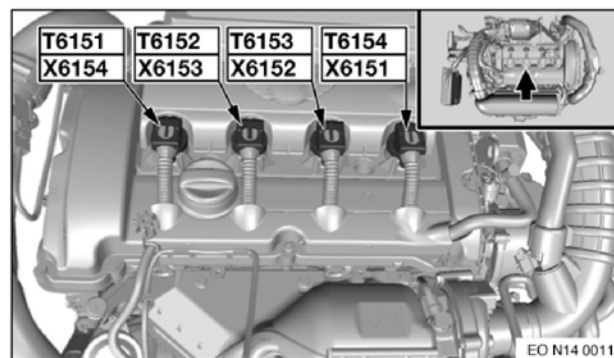


## X6151 No Adapter

X6151 No Adapter

T6151, X6151, T6152, X6152, T6153, X6153, T6154, X6154

T6151, X6151, T6152, X6152, T6153, X6153, T6154, X6154

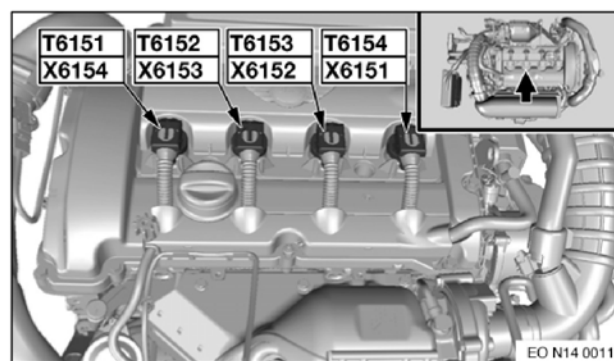


## X6152 No Adapter

X6152 No Adapter

T6151, X6151, T6152, X6152, T6153, X6153, T6154, X6154

T6151, X6151, T6152, X6152, T6153, X6153, T6154, X6154

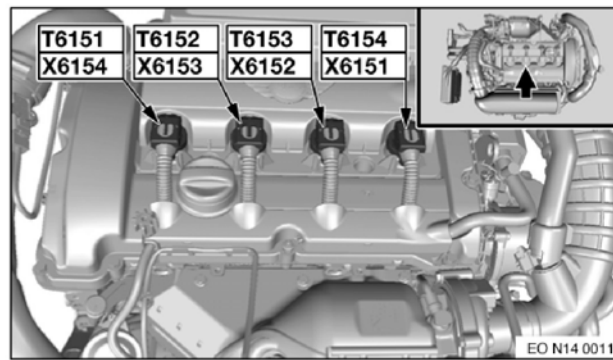


## X6153 No Adapter

X6153 No Adapter

T6151, X6151, T6152, X6152, T6153, X6153, T6154, X6154

T6151, X6151, T6152, X6152, T6153, X6153, T6154, X6154

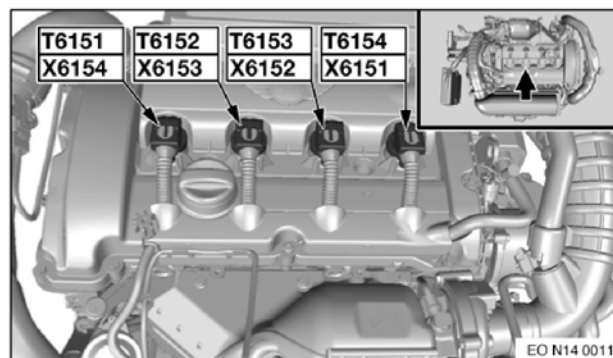


## X6154 No Adapter

X6154 No Adapter

T6151, X6151, T6152, X6152, T6153, X6153, T6154, X6154

T6151, X6151, T6152, X6152, T6153, X6153, T6154, X6154

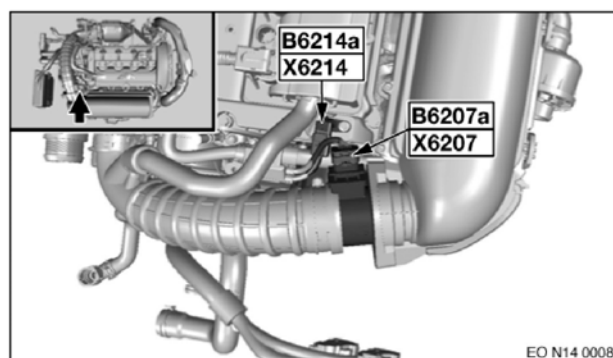


## X6207 Adapter 610140, Storage Location E104

X6207 Adapter 610140, Storage Location E104

B6214a, X6214, B6207a, X6207

B6214a, X6214, B6207a, X6207

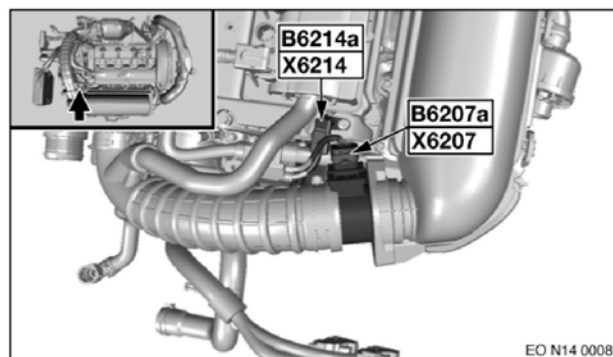


## X6214 No Adapter

X6214 No Adapter

B6214a, X6214, B6207a, X6207

B6214a, X6214, B6207a, X6207

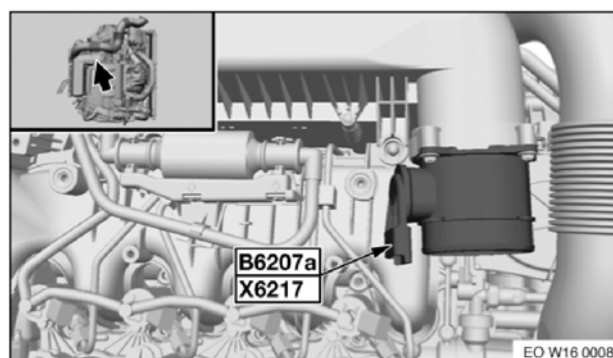


## X6217 No Adapter

X6217 No Adapter

B6207a, X6217

B6207a, X6217

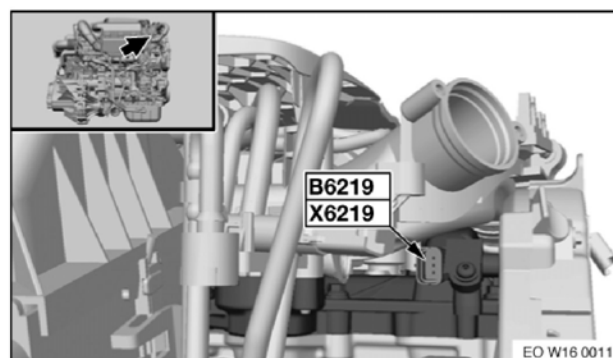


## X6219 No Adapter

X6219 No Adapter

B6219, X6219

B6219, X6219

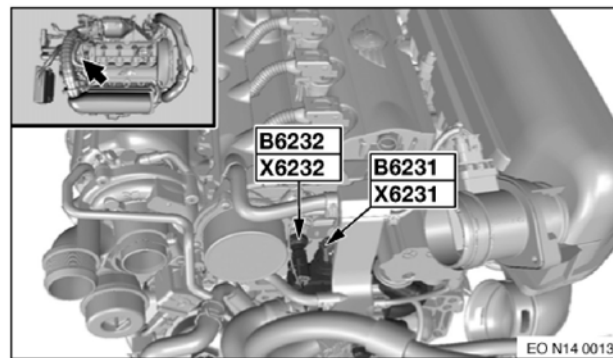


## X6231 Adapter 613430, Storage Location Y3

X6231 Adapter 613430, Storage Location Y3

B6232, X6232, B6231, X6231

B6232, X6232, B6231, X6231

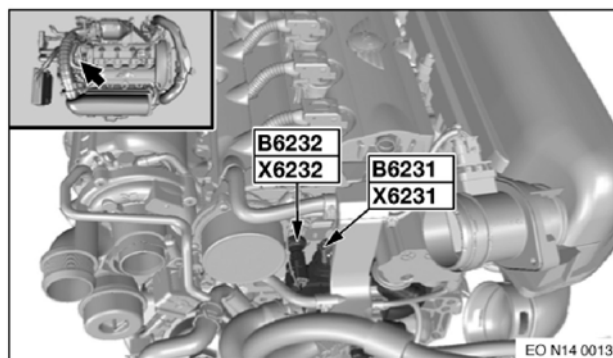


## **X6232 Adapter 613430, Storage Location Y3**

**X6232 Adapter 613430, Storage Location Y3**

**B6232, X6232, B6231, X6231**

B6232, X6232, B6231, X6231

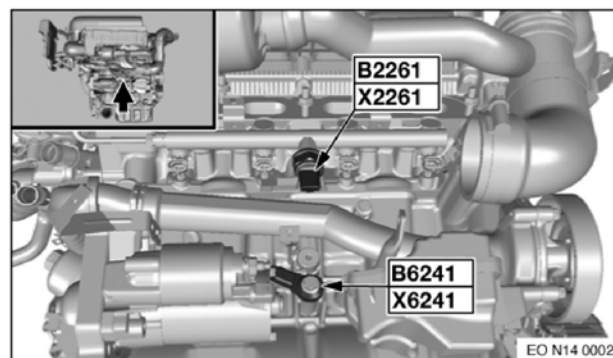


## **X6241 Adapter 613430, Storage Location Y3**

**X6241 Adapter 613430, Storage Location Y3**

**B2261, X2261, B6241, X6241**

B2261, X2261, B6241, X6241

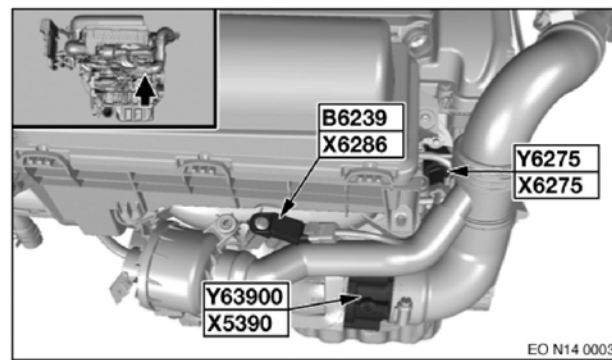


## **X6275 Adapter 613430, Storage Location Y3**

**X6275 Adapter 613430, Storage Location Y3**

**B6239, X6286, Y6275, X6275, Y63900, X5390**

B6239, X6286, Y6275, X6275, Y63900, X5390

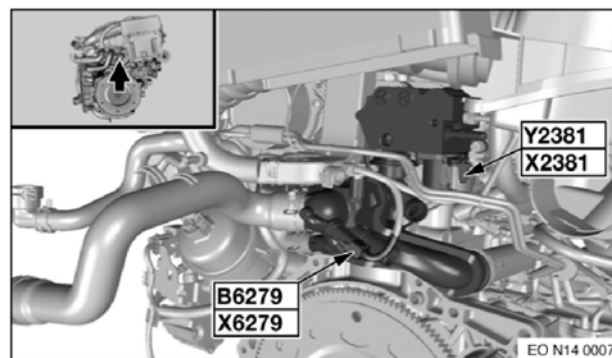


## X6279 Adapter 613430, Storage Location Y3

X6279 Adapter 613430, Storage Location Y3

Y2381, X2381, B6279, X6279

Y2381, X2381, B6279, X6279

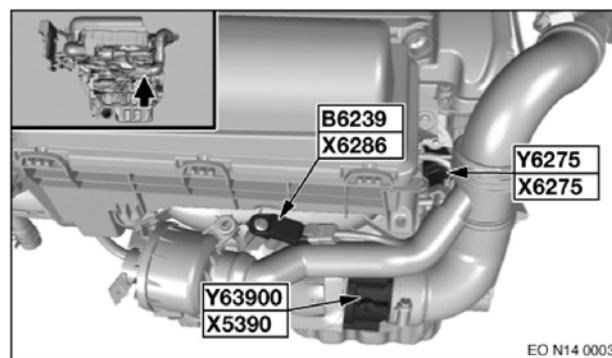


## X6286 Adapter 613400, Storage Location Y3

X6286 Adapter 613400, Storage Location Y3

B6239, X6286, Y6275, X6275, Y63900, X5390

B6239, X6286, Y6275, X6275, Y63900, X5390

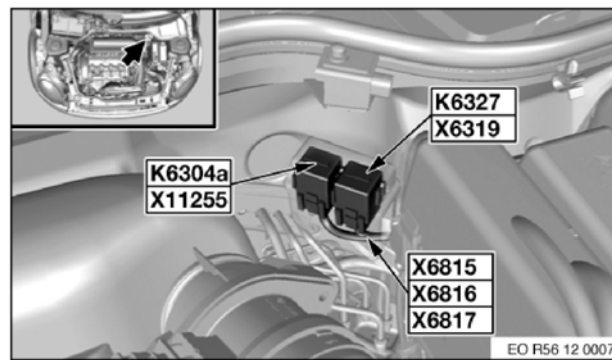


## X6319 No Adapter

X6319 No Adapter

K6327, X6319, K6304a, X11255

K6327, X6319, K6304a, X11255

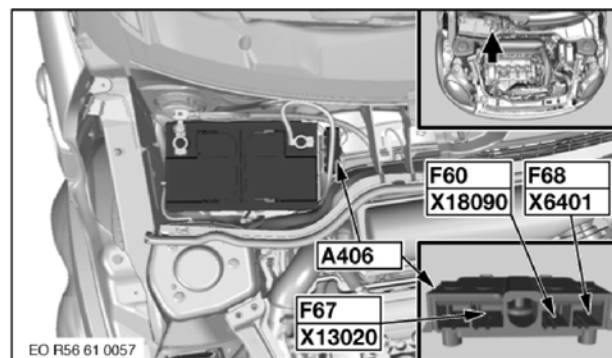


## X6401 No Adapter

X6401 No Adapter

A406, F67, X13020, F60, X18090, F68, X6401

A406, F67, X13020, F60, X18090, F68, X6401

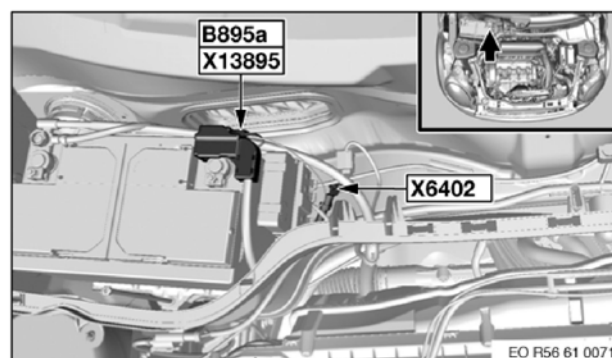


## X6402 No Adapter

X6402 No Adapter

B895a, X13895, X6402

B895a, X13895, X6402

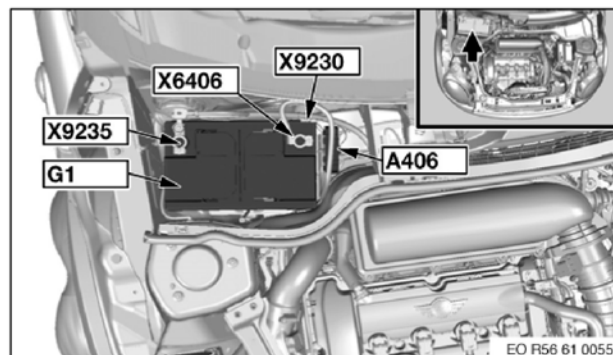


## X6406 No Adapter

X6406 No Adapter

X9230, X6406, A406, X9235, G1

X9230, X6406, A406, X9235, G1

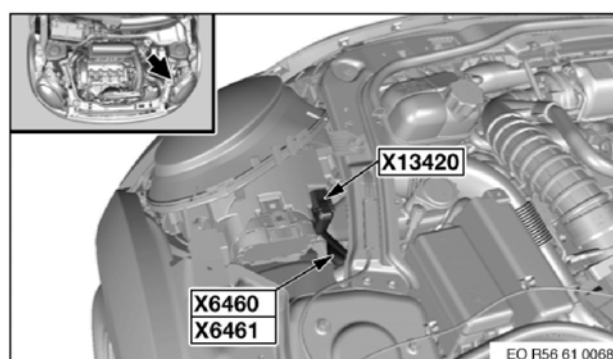


## X6460 No Adapter

X6460 No Adapter

X6460, X6461, X13420

X6460, X6461, X13420

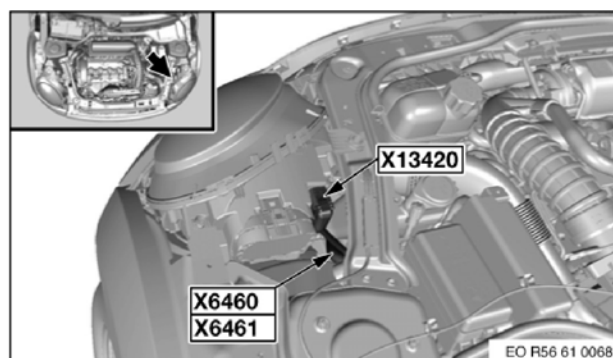


## X6461 No Adapter

X6461 No Adapter

X6460, X6461, X13420

X6460, X6461, X13420



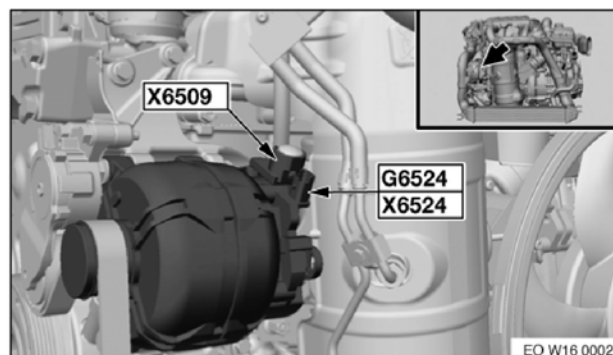
## X6509 No Adapter

X6509 No Adapter

X6509, G6524, X6524



X6509, G6524, X6524

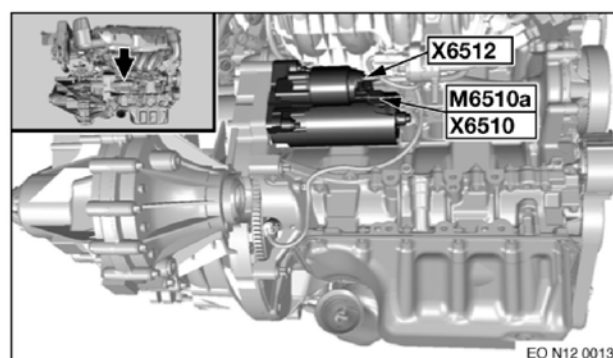


## X6513 No Adapter

X6513 No Adapter

M6510a, X2025, X6512

M6510a, X6510, X6512

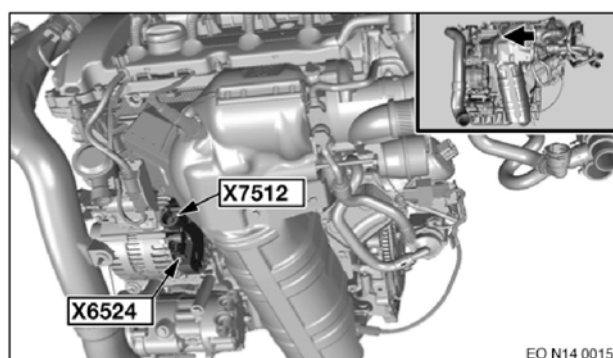


## X6524 Adapter 613430, Storage Location Y3

X6524 Adapter 613430, Storage Location Y3

X6524, X7512

X6524, X7512

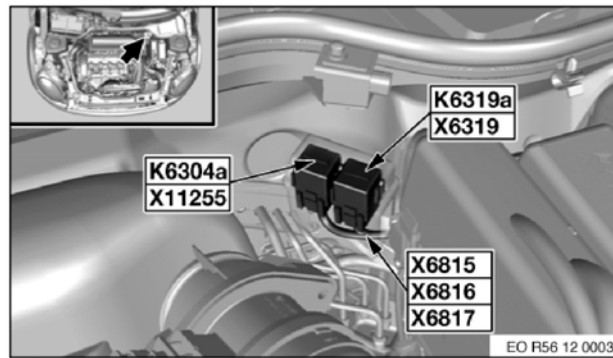


## X6815 No Adapter

X6815 No Adapter

K6304a, X11255, X6815, X6816, X6817, K6319a, X6319 (MINI\_MINI-R55/R56/R57)

K6304a, X11255, X6815, X6816, X6817, K6319a, X6319

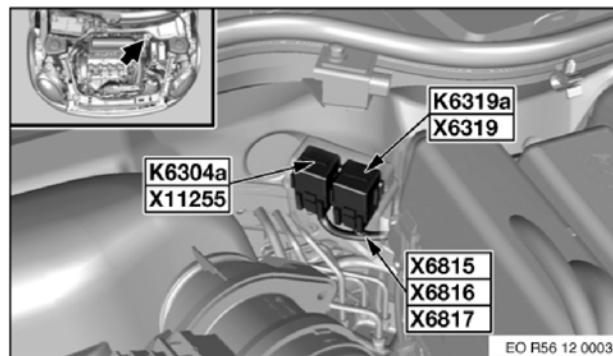


## X6816 No Adapter

X6816 No Adapter

K6304a, X11255, X6815, X6816, X6817, K6319a, X6319

K6304a, X11255, X6815, X6816, X6817, K6319a, X6319

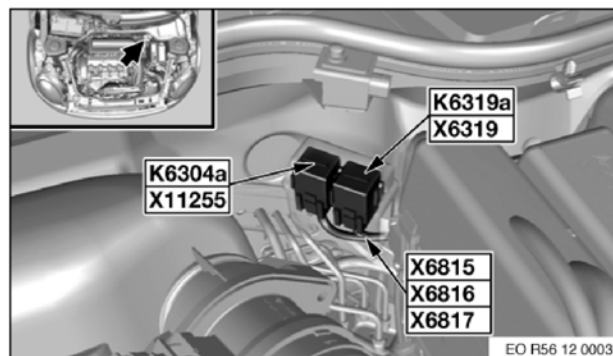


## X6817 No Adapter

X6817 No Adapter

K6304a, X11255, X6815, X6816, X6817, K6319a, X6319

K6304a, X11255, X6815, X6816, X6817, K6319a, X6319

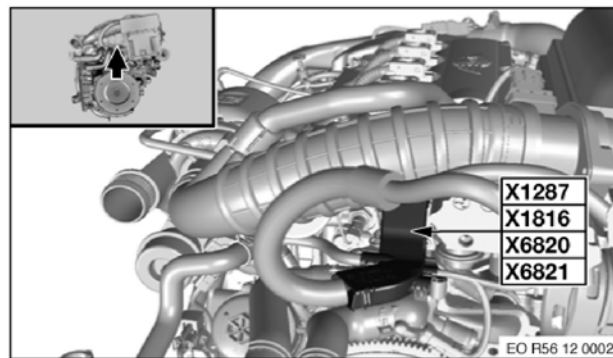


## X6820 No Adapter

X6820 No Adapter

X1287, X1816, X6820, X6821

X1287, X1816, X6820, X6821

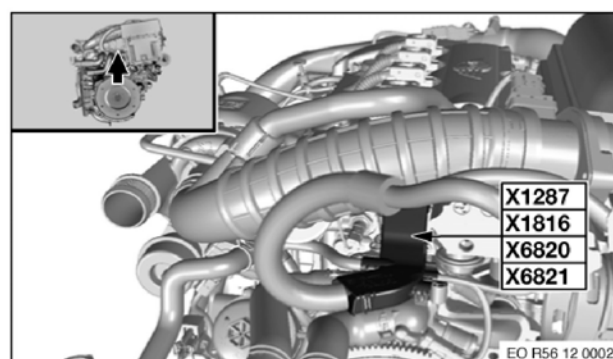


## X6821 No Adapter

X6821 No Adapter

X1287, X1816, X6820, X6821

X1287, X1816, X6820, X6821

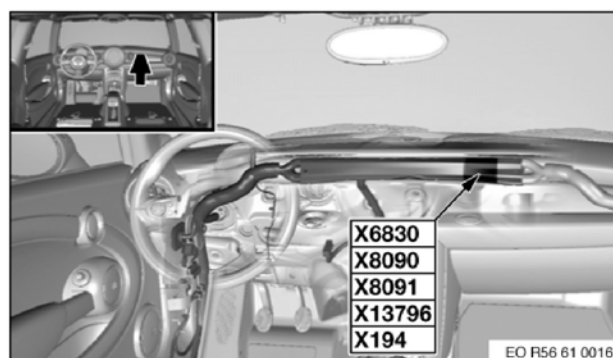


## X6830 No Adapter

X6830 No Adapter

X6830, X8090, X8091, X13796, X194

X6830, X8090, X8091, X13796, X194

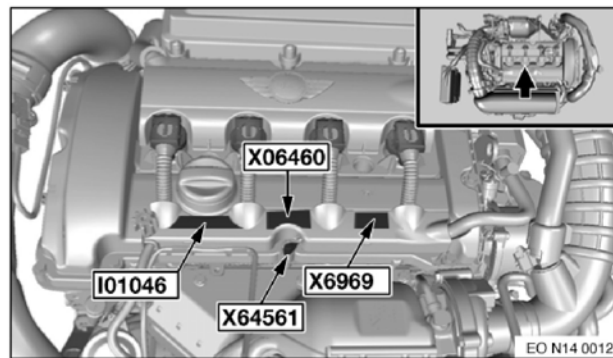


## X6969 No Adapter

X6969 No Adapter

X06460, I01046, X64561, X6969

X06460, I01046, X64561, X6969

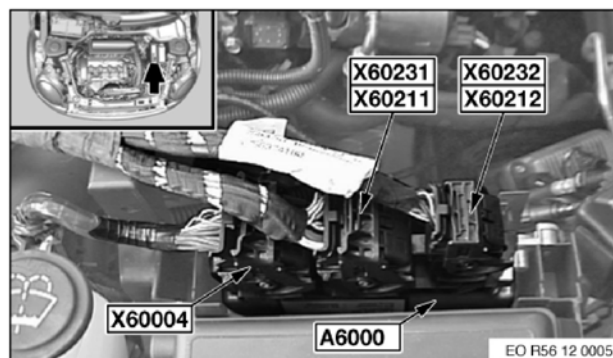


## X60004 Adapter 613360, Storage Location Y3

X60004 Adapter 613340, Storage Location Y3

X60231, X60211, X60232, X60212, X60004, A6000

X60231, X60211, X60232, X60212, X60004, A6000

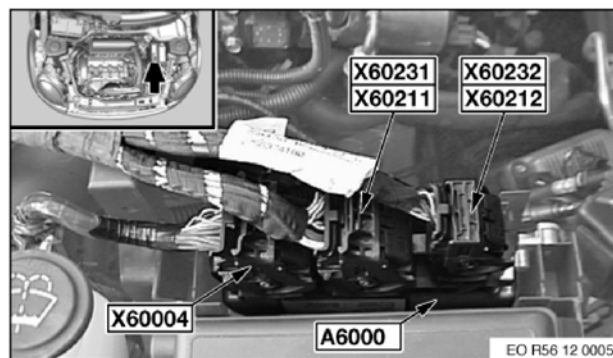


## X60211 Adapter 613360, Storage Location Y3

X60211 Adapter 613360, Storage Location Y3

X60231, X60211, X60232, X60212, X60004, A6000

X60231, X60211, X60232, X60212, X60004, A6000

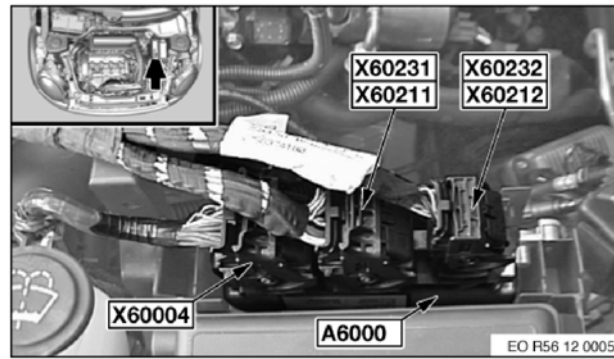


## X60212 Adapter 613350, Storage Location Y3

X60212 Adapter 613350, Storage Location Y3

X60231, X60211, X60232, X60212, X60004, A6000

X60231, X60211, X60232, X60212, X60004, A6000

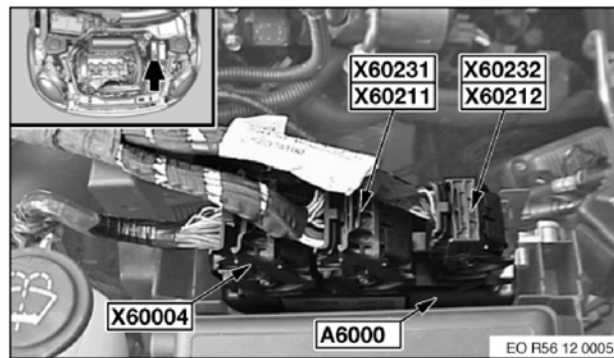


## X60231 Adapter 613360, Storage Location Y3

X60231 Adapter 613360, Storage Location Y3

X60231, X60211, X60232, X60212, X60004, A6000

X60231, X60211, X60232, X60212, X60004, A6000

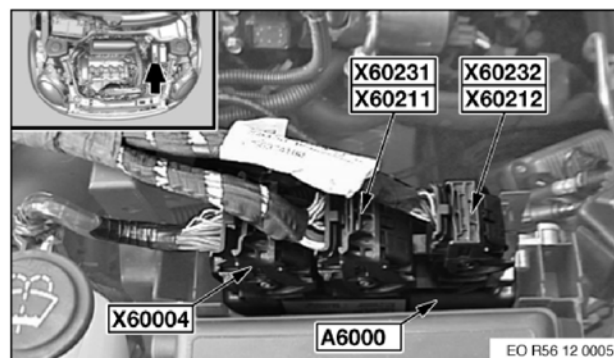


## X60232 Adapter 613350, Storage Location Y3

X60232 Adapter 613350, Storage Location Y3

X60231, X60211, X60232, X60212, X60004, A6000

X60231, X60211, X60232, X60212, X60004, A6000

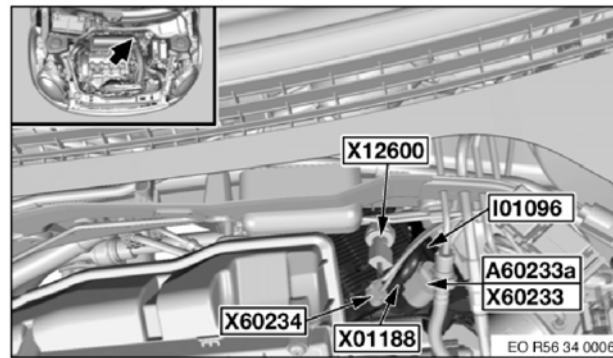


## X60233 No Adapter

X60233 No Adapter

X12600, I01096, A60233a, X60233, X01188, X60234

X12600, I01096, A60233a, X60233, X01188, X60234

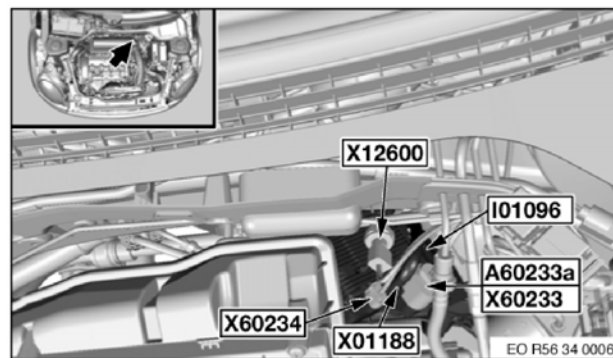


## X60234 Adapter 616045, Storage Location D116

X60234 Adapter 616045, Storage Location D116

X12600, I01096, A60233a, X60233, X01188, X60234

X12600, I01096, A60233a, X60233, X01188, X60234

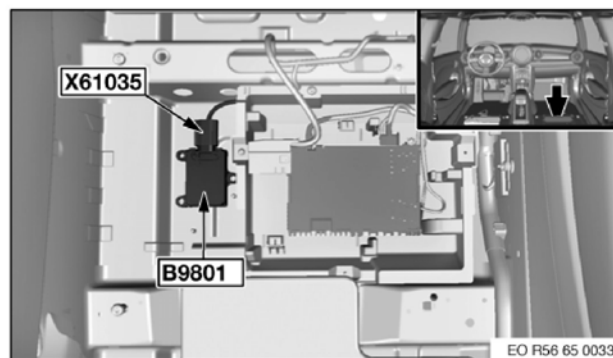


## X61035 Adapter 616050, Storage Location D117

X61035 Adapter 616050, Storage Location D117

X61035, B9801

X61035, B9801

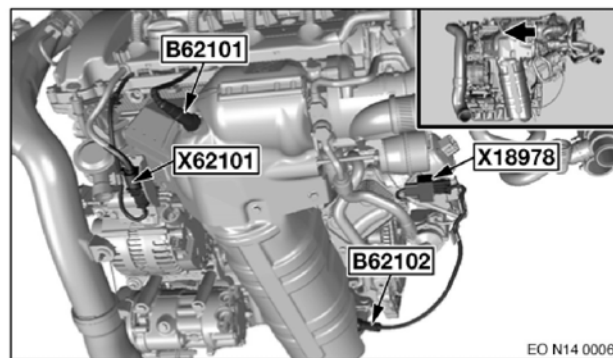


## X62101 Adapter 138030, Storage Location N206

X62001 Adapter 138030, Storage Location N206

X18978, B62102, X62101, B62101

X18978, B62102, X62101, B62101



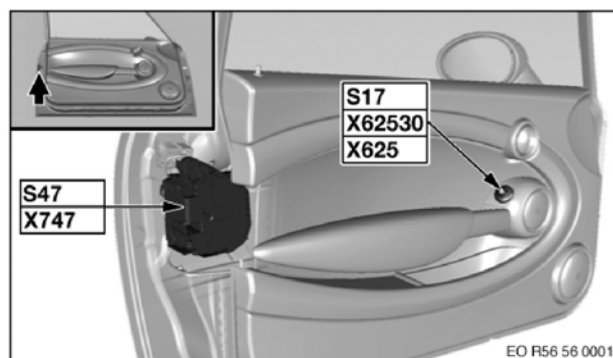
EO N14 0006

## X62530 Adapter 616033, Storage Location D109

X62530 Adapter 616033, Storage Location D109

S17, X62530, X625, S47, X747

S17, X62530, X625, S47, X747



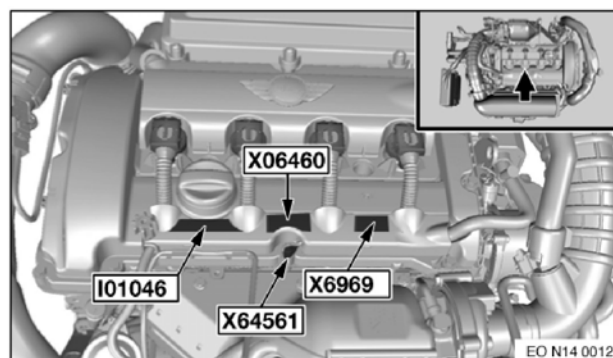
EO R56 56 0001

## X64561 No Adapter

X64551 No Adapter

X06460, I01046, X64561, X6969

X06460, I01046, X64561, X6969



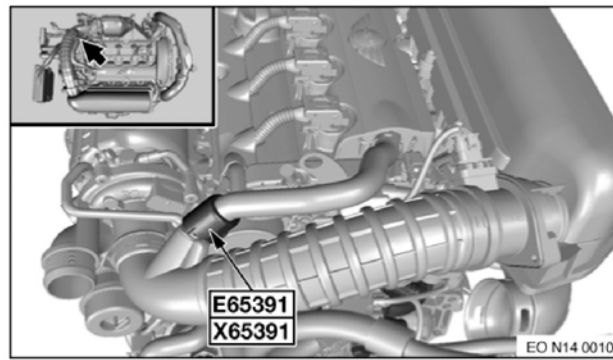
EO N14 0012

## X65391 Adapter 613430, Storage Location Y3

X65391 Adapter 613430, Storage Location Y3

E65391, X65391

E65391, X65391

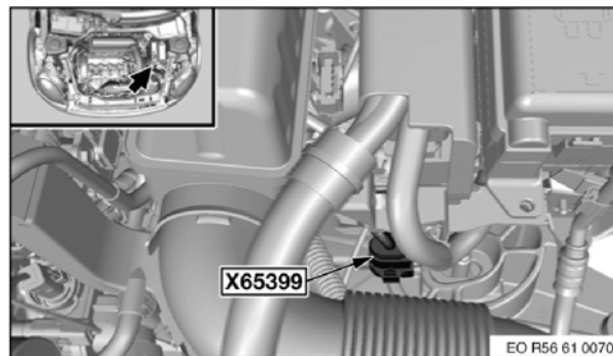


## X65399 No Adapter

X65399 No Adapter

X65399

X65399

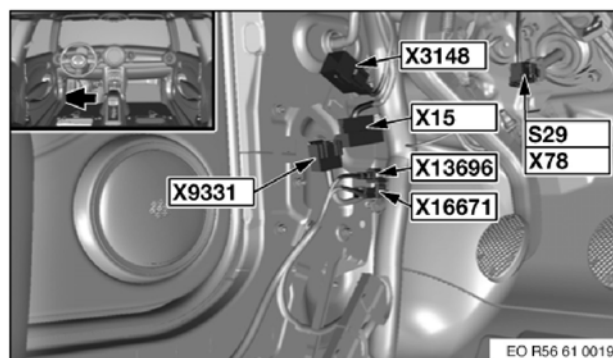


## X78 Adapter 616032, Storage Location D108

X78 Adapter 616032, Storage Location D108

X3148, X9331, X16671, X13696, X15, S29, X78

X3148, X9331, X16671, X13696, X15, S29, X78



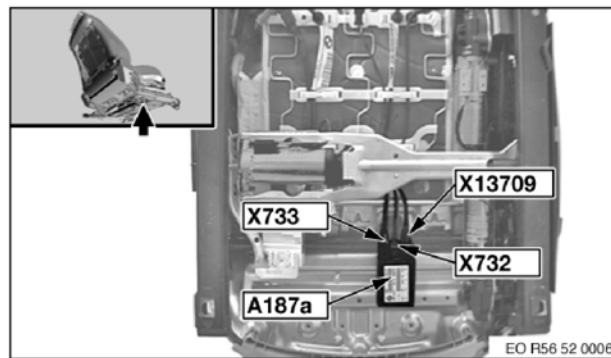
## X732 No Adapter

X732 No Adapter

A187a, X733, X13709, X732



A187a, X733, X13709, X732

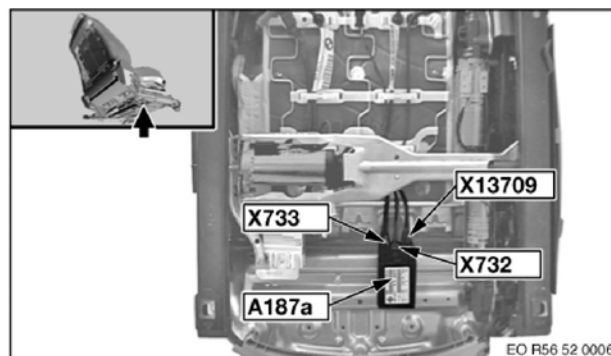


## X733 No Adapter

X733 No Adapter

A187a, X733, X13709, X732

A187a, X733, X13709, X732

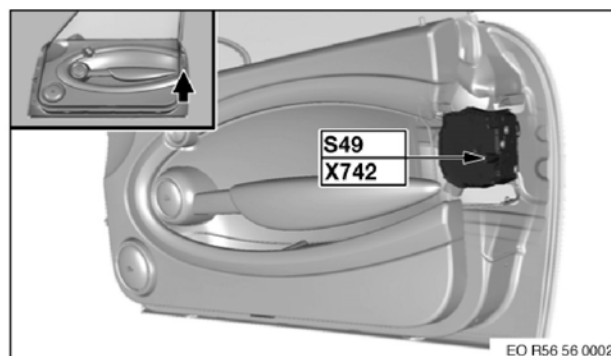


## X742 Adapter 613240, Storage Location M210

X742 Adapter 613240, Storage Location M210

S49, X742

S49, X742

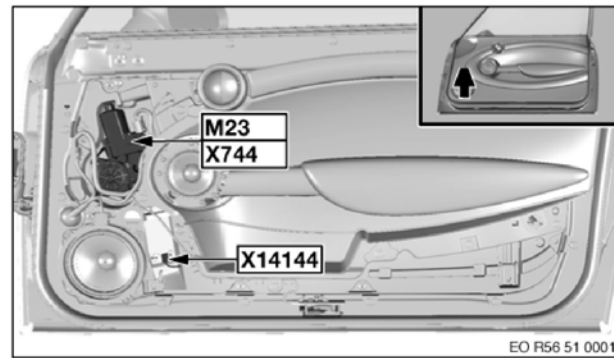


## X744 Adapter 616043, Storage Location D114

X744 Adapter 616043, Storage Location D114

M23, X744, X14144

M23, X744, X14144

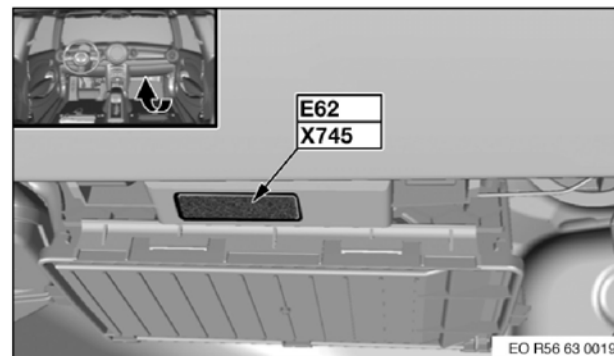


## X745 No Adapter

X745 No Adapter

E62, X745

E62, X745

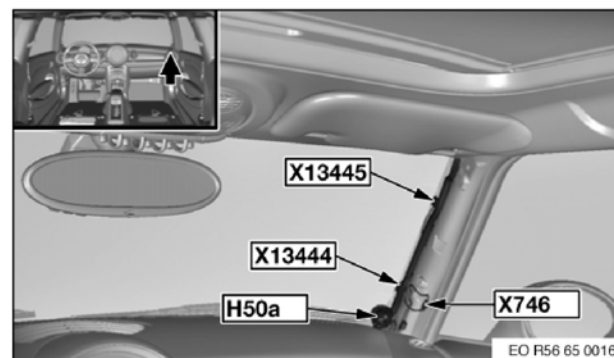


## X746 No Adapter

X746 No Adapter

X13445, X13446, H50a, X746

X13445, X13446, H50a, X746

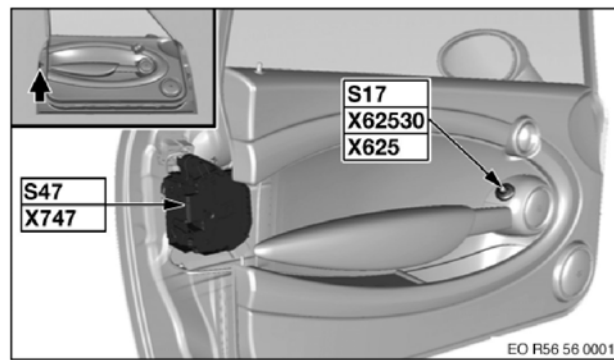


## X747 Adapter 613240, Storage Location M210

X747 Adapter 613240, Storage Location M210

S17, X62530, X625, S47, X747

S17, X62530, X625, S47, X747

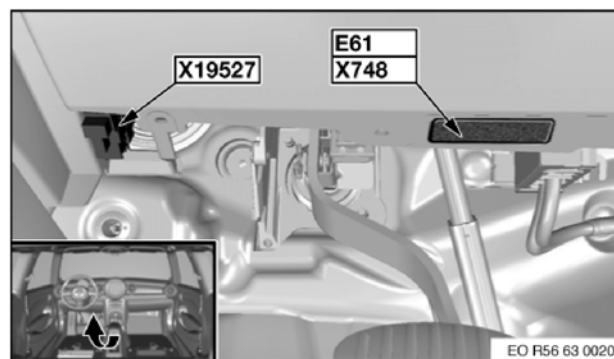


## X748 No Adapter

X748 No Adapter

X19527, E61, X748

X19527, E61, X748

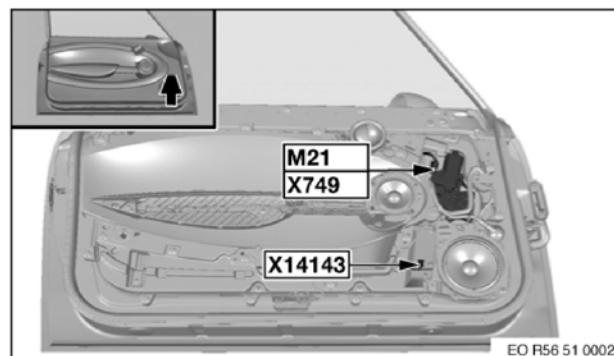


## X749 Adapter 616043, Storage Location D114

X749 Adapter 616043, Storage Location D117

M21, X749, X14143

M21, X749, X14143

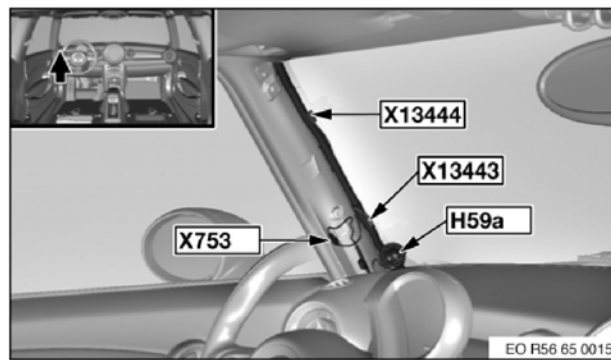


## X753 No Adapter

X753 No Adapter

X13444, X753, X13443, H59a

X13444, X753, X13443, H59a

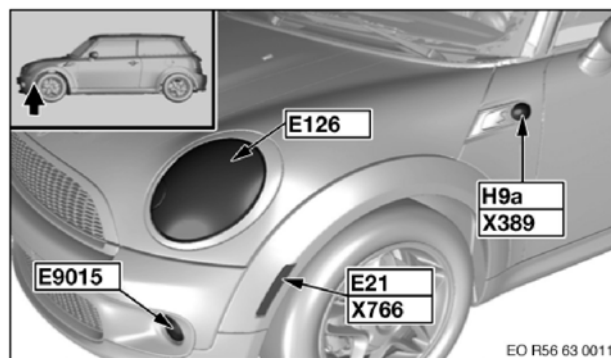


## X766 Adapter 616043, Storage Location D114

X766 Adapter 616043, Storage Location D114

E126, H9a, X389, E21, X766, E9015

E126, H9a, X389, E21, X766, E9015

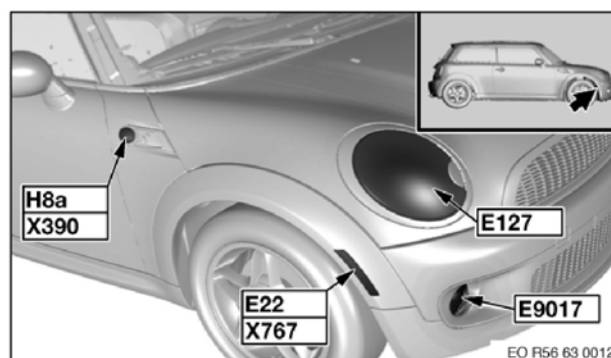


## X767 Adapter 616043, Storage Location D114

X767 Adapter 616043, Storage Location D114

E127, H8a, X390, E22, X767, E9017

E127, H8a, X390, E22, X767, E9017

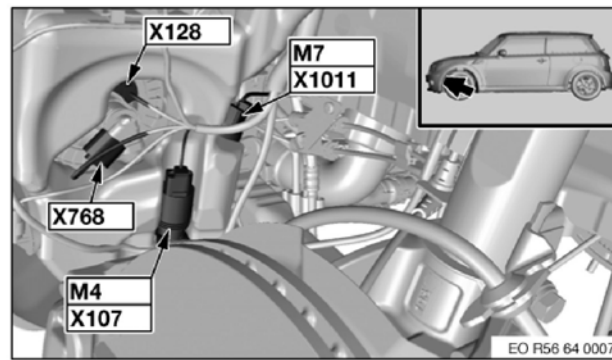


## X768 No Adapter

X768 No Adapter

X128, M7, X1011, M4, X107, X768

X128, M7, X1011, M4, X107, X768

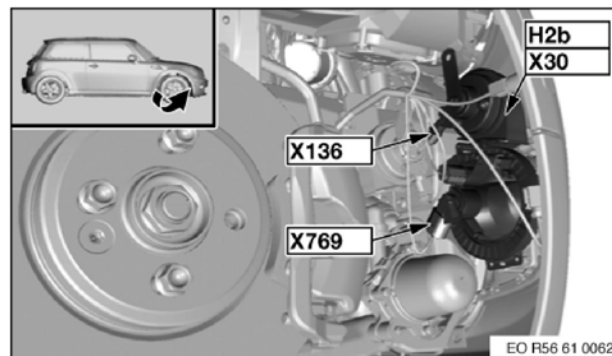


## X769 No Adapter

X769 No Adapter

H2b, X30, X136, X769

H2b, X30, X136, X769

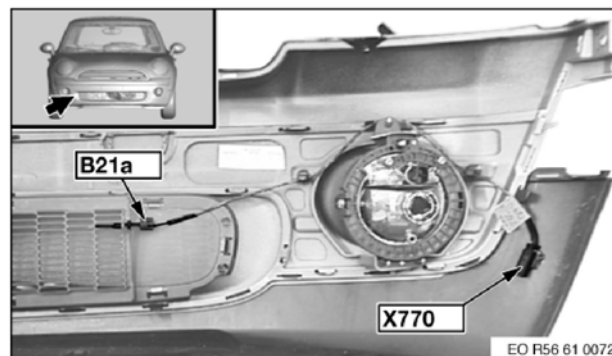


## X770 Adapter 616043, Storage Location D114

X770 Adapter 616043, Storage Location D114

B21a, X770

B21a, X770

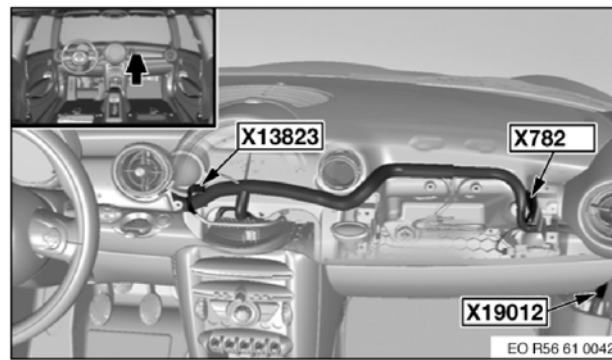


## X782 Adapter 621343, Storage Location O218

X782 Adapter 621343, Storage Location O218

X782, X19012, X13823

X782, X19012, X13823

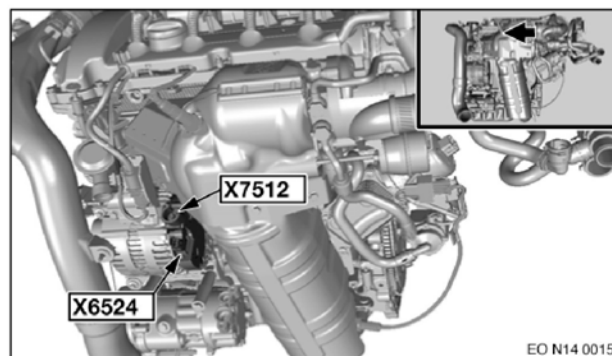


## X7512 No Adapter

X7512 No Adapter

X6524, X7512

X6524, X7512

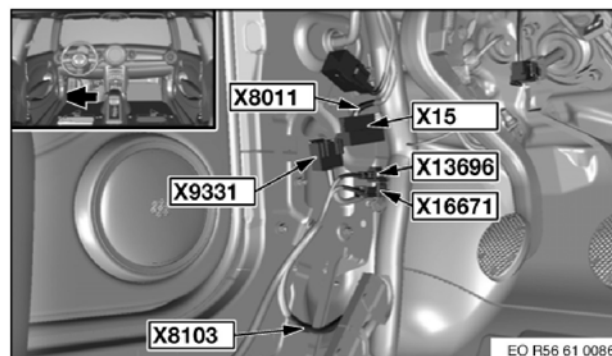


## X8011 No Adapter

X8011 No Adapter

X8011, X9331, X8103, X15, X13696, X16671 (MINI\_MINI-R55/R56/R57)

X8011, X9331, X8103, X15, X13696, X16671

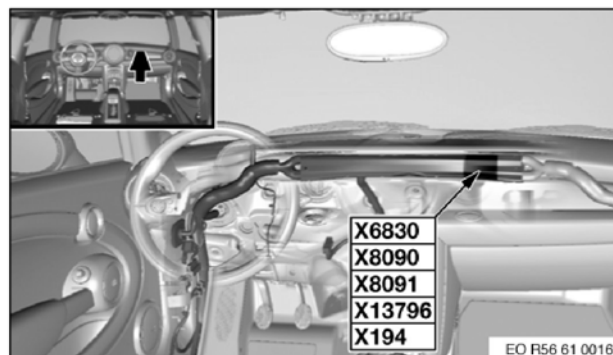


## X8090 No Adapter

X8090 No Adapter

X6830, X8090, X8091, X13796, X194

X6830, X8090, X8091, X13796, X194

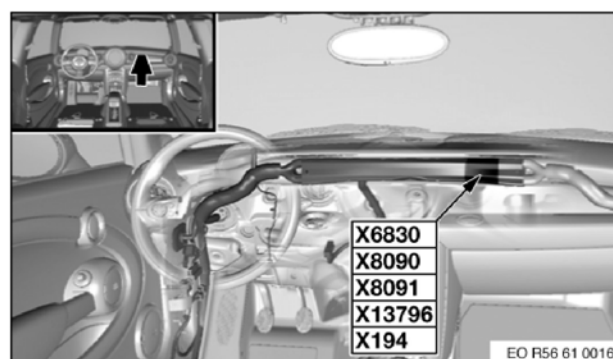


## X8091 No Adapter

X8091 No Adapter

X6830, X8090, X8091, X13796, X194

X6830, X8090, X8091, X13796, X194

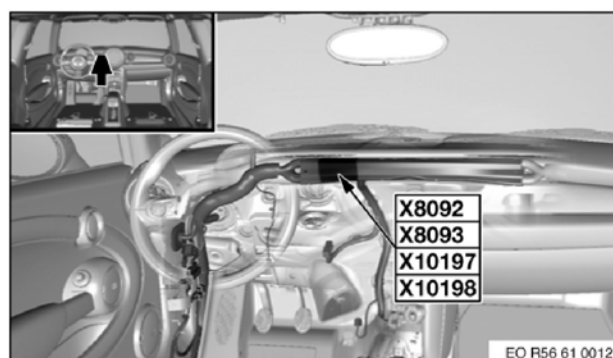


## X8092 No Adapter

X8092 No Adapter

X8092, X8093, X10197, X10198

X8092, X8093, X10197, X10198

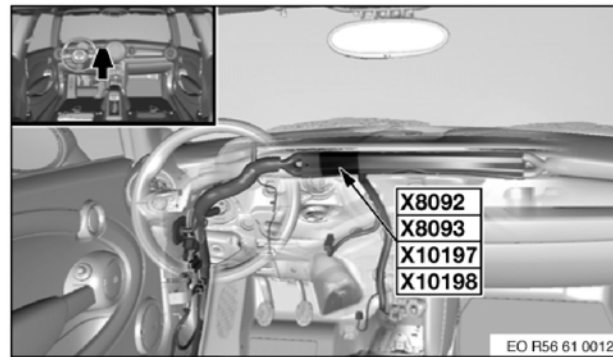


## X8093 No Adapter

X8093 No Adapter

X8092, X8093, X10197, X10198

X8092, X8093, X10197, X10198

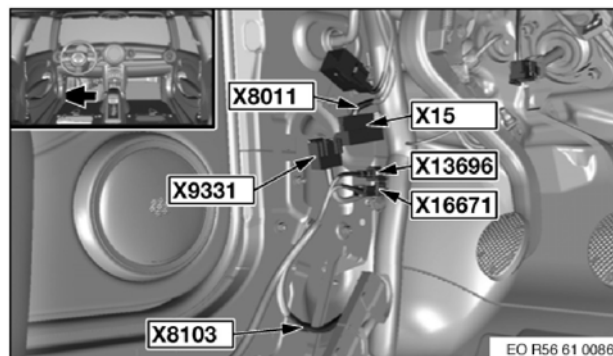


## X8103 No Adapter

### X8103 No Adapter

X8011, X9331, X8103, X15, X13696, X16671 (MINI\_MINI\_R55/R56/R57 as of 08/07)

X8011, X9331, X8103, X15, X13696, X16671

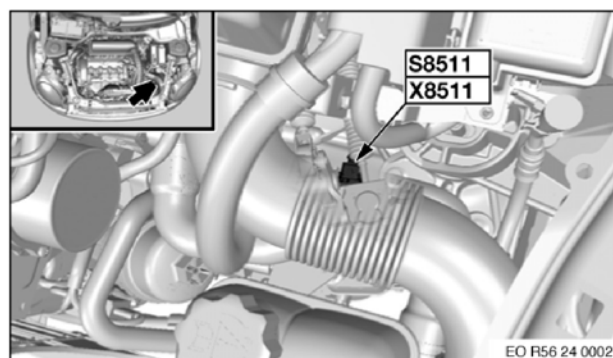


## X8511 Adapter 612050, Storage Location F110

### X8511 Adapter 612050, Storage Location F110

S8511, X8511

S8511, X8511



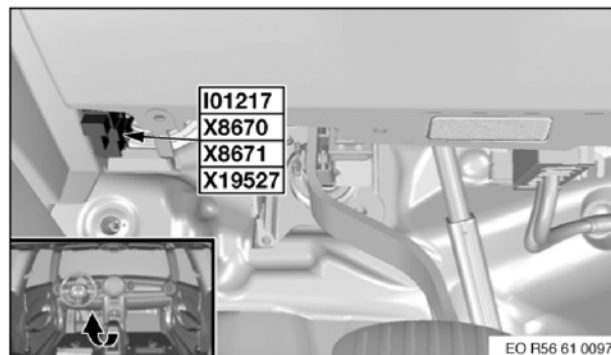
## X8670 No Adapter

### X8670 No Adapter

X19527; I01217; X8670; X8671



X19527; I01217; X8670; X8671



## X8671 No Adapter

X8671 No Adapter

X19527; I01217; X8670; X8671

X19527; I01217; X8670; X8671

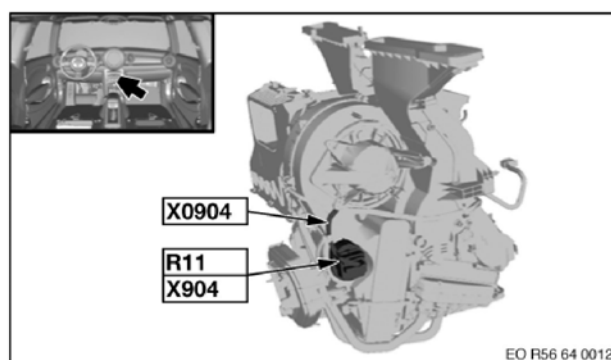


## X904 No Adapter

X904 No Adapter

R11; X904; X0904

R11; X904; X0904

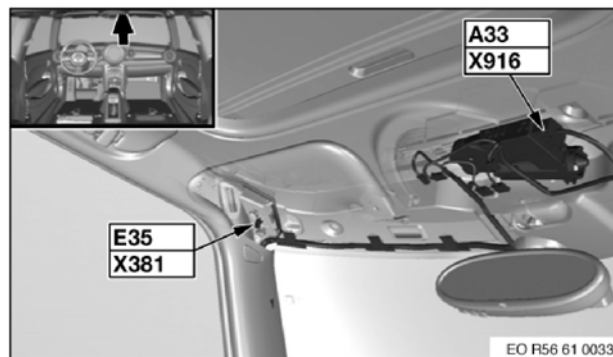


## X916 Adapter 613190, Storage Location Y2

X916 Adapter 613190, Storage Location Y2

A33, X916, E35, X381

A33, X916, E35, X381

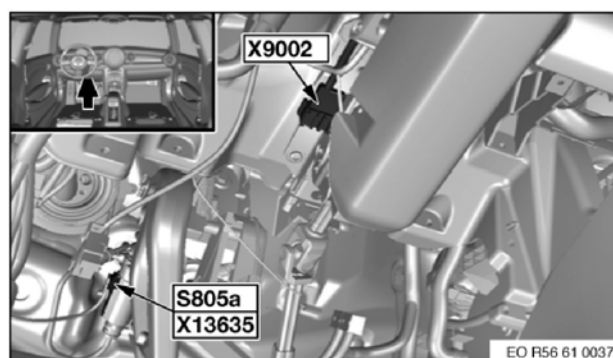


## X9002 Adapter 614470, Storage Location C110

X9002 Adapter 614470, Storage Location C110

X9002, S805a, X13635

X9002, S805a, X13635

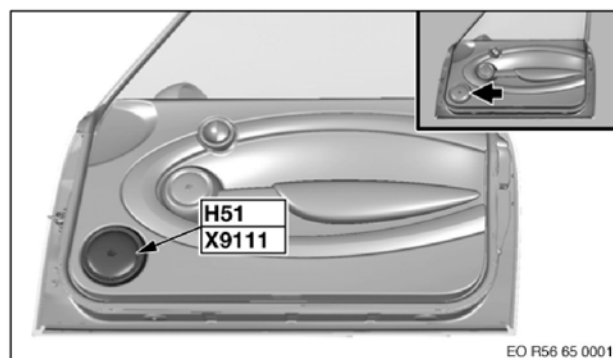


## X9111 No Adapter

X9111 No Adapter

H51, X9111

H51, X9111

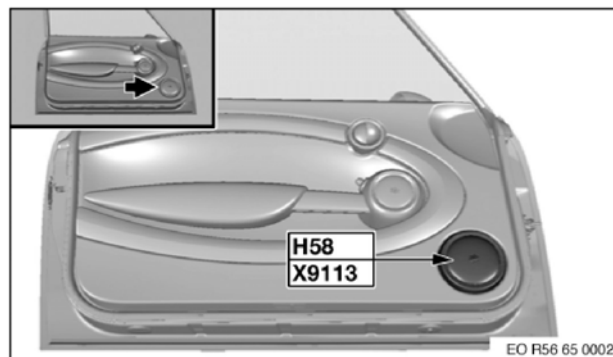


## X9113 No Adapter

X9113 No Adapter

H58, X9113

H58, X9113

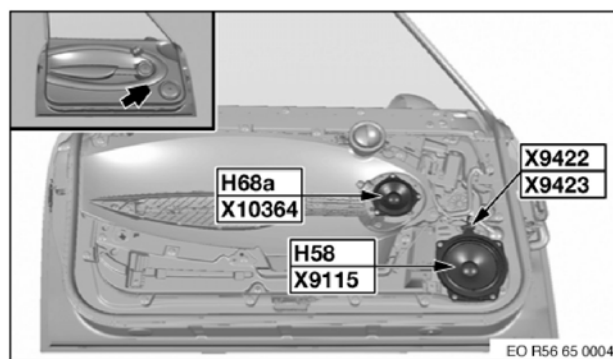


## X9115 No Adapter

X9115 No Adapter

H68a, X10364, X9422, X9423, H58, X9115

H68a, X10364, X9422, X9423, H58, X9115

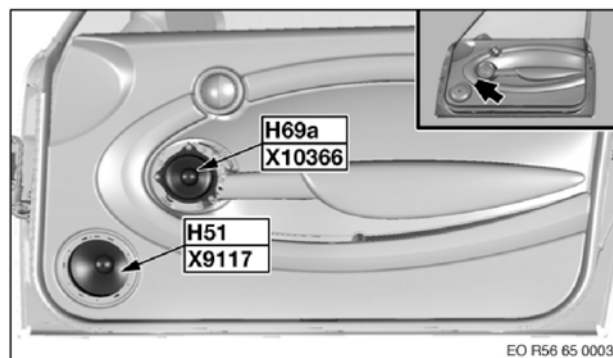


## X9117 No Adapter

X9117 No Adapter

H69a, X10366, H51, X9117

H69a, X10366, H51, X9117

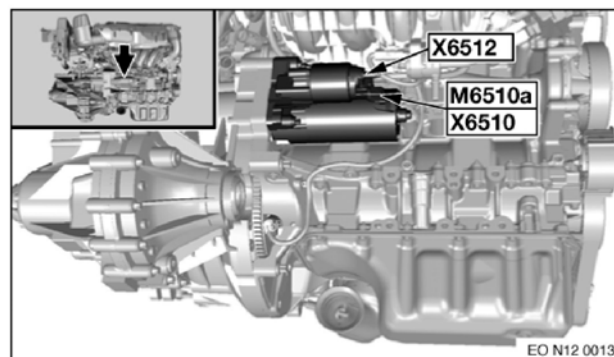


## X9135 No Adapter

X9135 No Adapter

M6510a, X6510, X6512

M6510a, X6510, X6512

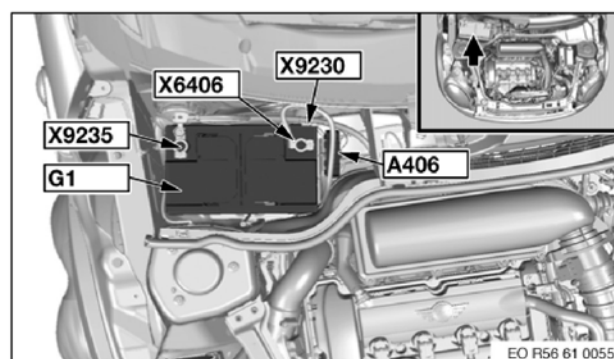


## X9230 No Adapter

X9230 No Adapter

X9230, X6406, A406, X9235, G1

X9230, X6406, A406, X9235, G1

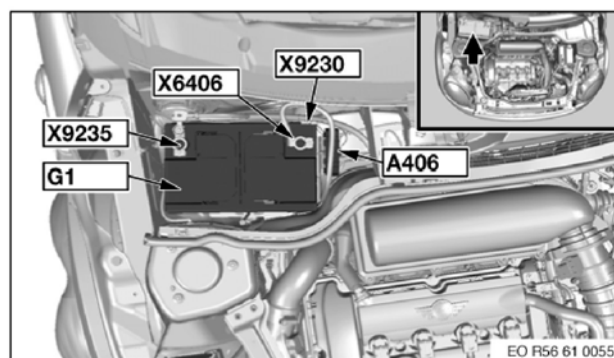


## X9235 No Adapter

X9235 No Adapter

X9230, X6406, A406, X9235, G1

X9230, X6406, A406, X9235, G1

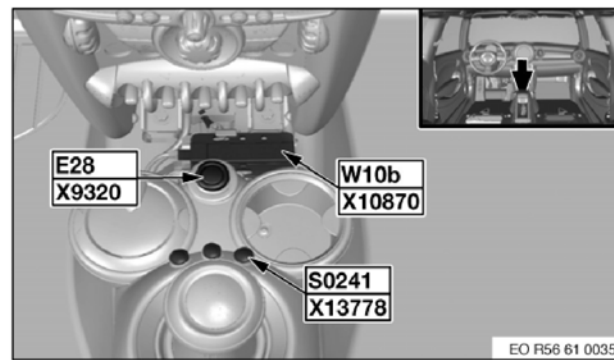


## X9320 No Adapter

X9320 No Adapter

E28, X9320, W10b, X10870, S0241, X13778

E28, X9320, W10b, X10870, S0241, X13778

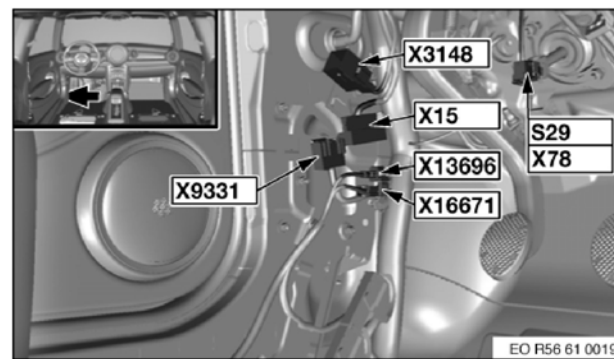


## X9331 No Adapter

X9331 No Adapter

X3148, X9331, X16671, X13696, X15, S29, X78

X3148, X9331, X16671, X13696, X15, S29, X78

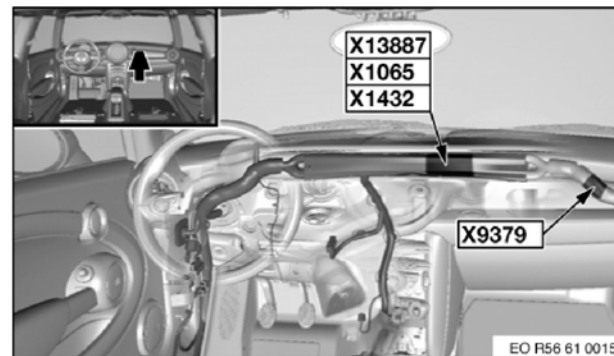


## X9379 No Adapter

X9379 No Adapter

X13887, X1065, X1432, X9379

X13887, X1065, X1432, X9379

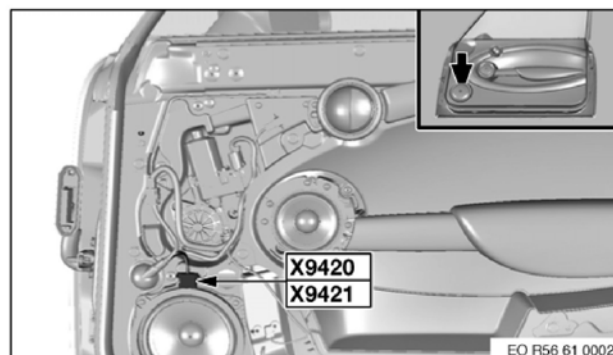


## X9420 No Adapter

X9420 No Adapter

X9420, X9421

X9420, X9421

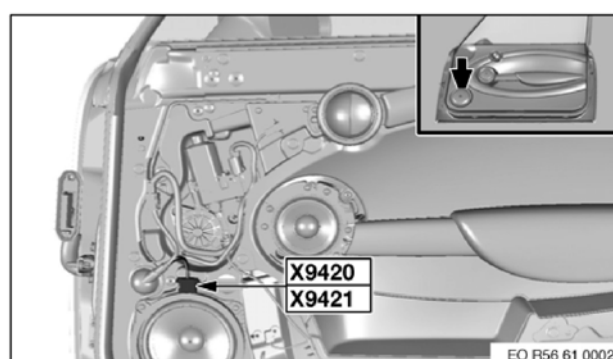


## X9421 No Adapter

X9421 No Adapter

X9420, X9421

X9420, X9421

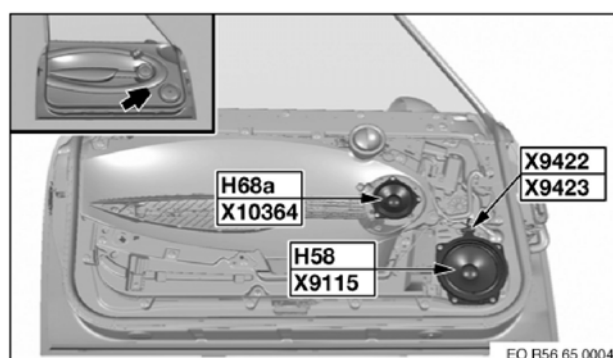


## X9422 No Adapter

X9422 No Adapter

H68a, X10364, X9422, X9423, H58, X9115

H68a, X10364, X9422, X9423, H58, X9115

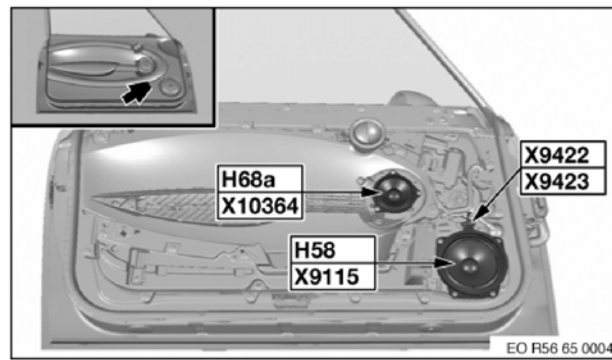


## X9423 No Adapter

X9423 No Adapter

H68a, X10364, X9422, X9423, H58, X9115

H68a, X10364, X9422, X9423, H58, X9115

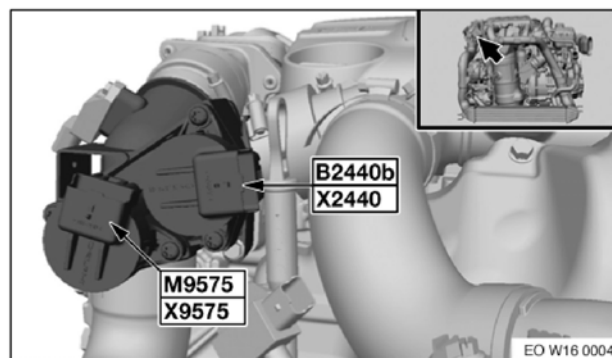


## X9575 Adapter 613420, Storage Location Y3

X9575 Adapter 613420, Storage Location Y3

B2440b, X2440, M9575, X9575

B2440b, X2440, M9575, X9575

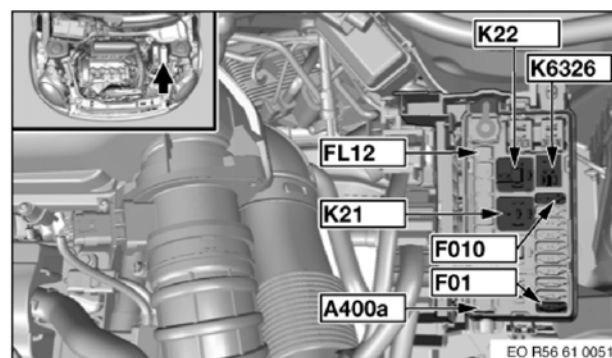


## F01

F01

K22, K6326, A400a, F010, K21, F01

K22, K6326, A400a, F010, K21, F01

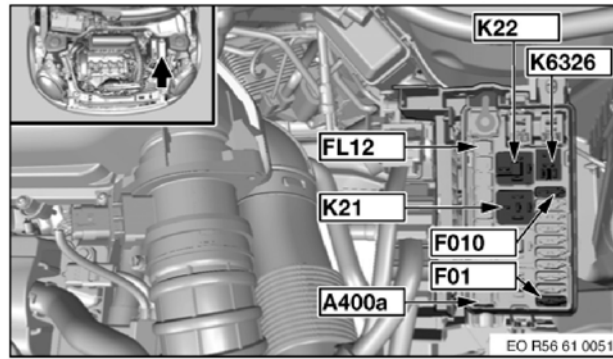


## F02

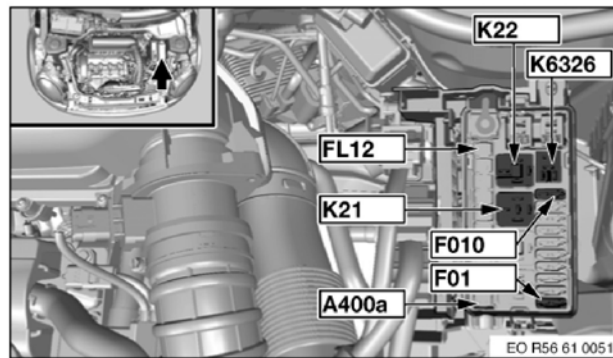
F02

K22, K6326, A400a, F010, K21, F01

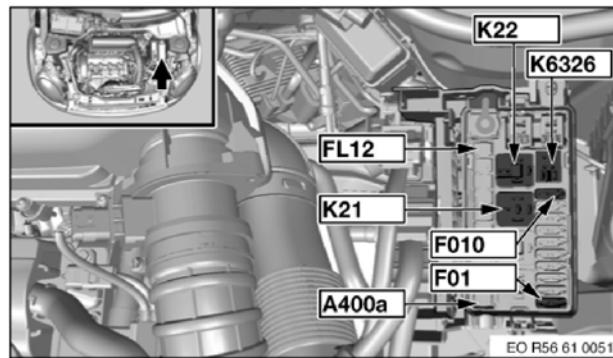
K22, K6326, A400a, F010, K21, F01

**F03****F03****K22, K6326, A400a, F010, K21, F01**

K22, K6326, A400a, F010, K21, F01

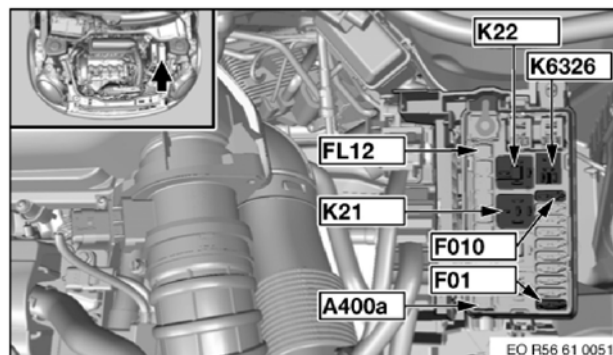
**F04****F04****K22, K6326, A400a, F010, K21, F01**

K22, K6326, A400a, F010, K21, F01

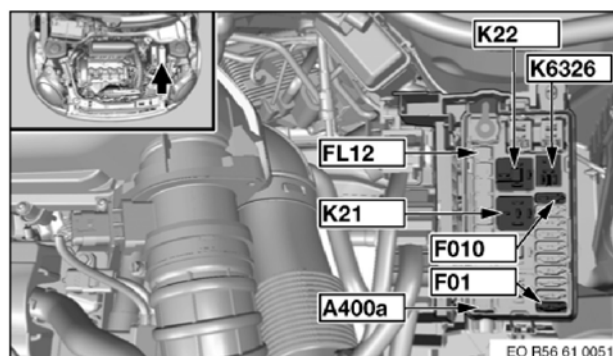
**F05****F05****K22, K6326, A400a, F010, K21, F01**



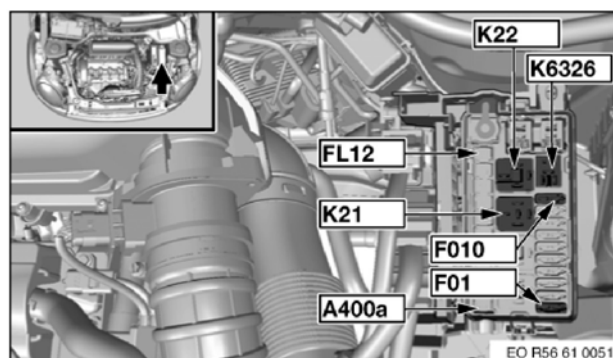
K22, K6326, A400a, F010, K21, F01

**F06****F06****K22, K6326, A400a, F010, K21, F01**

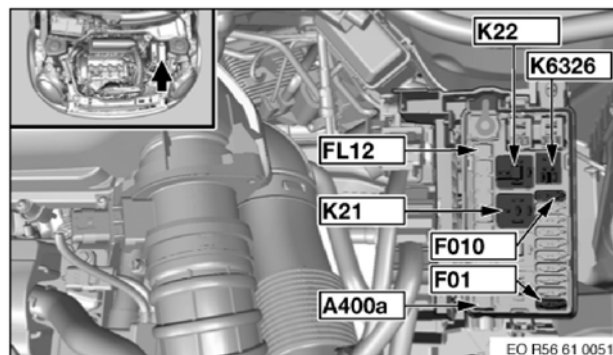
K22, K6326, A400a, F010, K21, F01

**F07****F07****K22, K6326, A400a, F010, K21, F01**

K22, K6326, A400a, F010, K21, F01

**F08****F08****K22, K6326, A400a, F010, K21, F01**

K22, K6326, A400a, F010, K21, F01

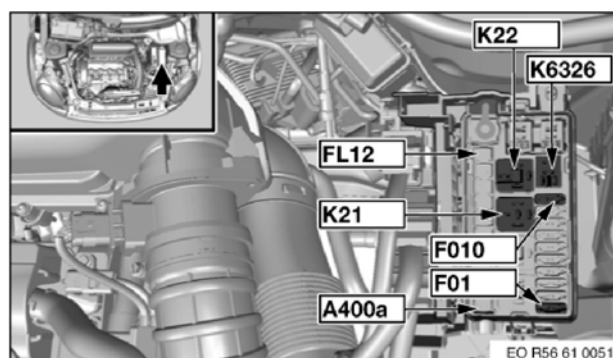


**F09**

**F09**

**K22, K6326, A400a, F010, K21, F01**

K22, K6326, A400a, F010, K21, F01

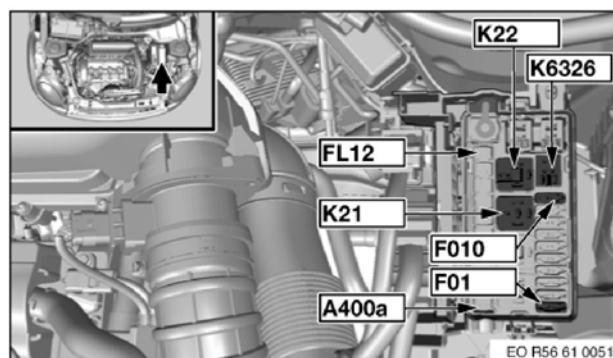


**F010**

**F010**

**K22, K6326, A400a, F010, K21, F01**

K22, K6326, A400a, F010, K21, F01

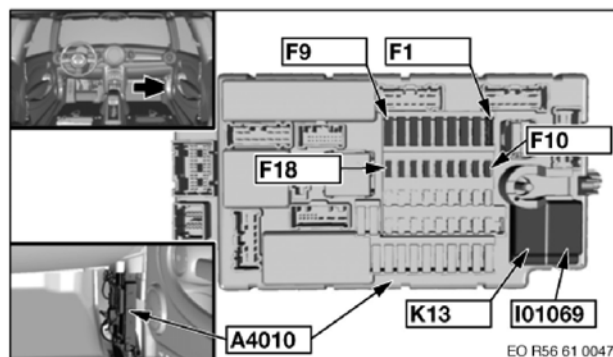


**F1**

**F1**

**A4010, F1, F9, F10, F18, K13, I01069**

A4010, F1, F9, F10, F18, K13, I01069

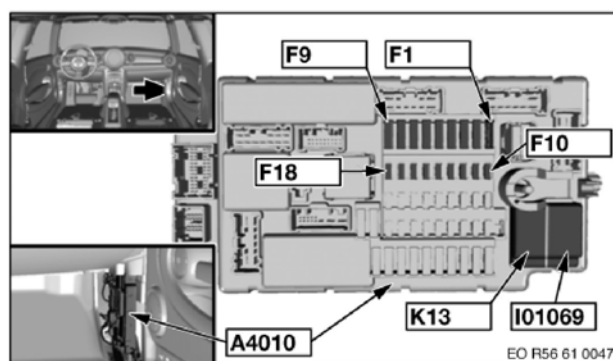


F2

F2

A4010, F1, F9, F10, F18, K13, I01069

A4010, F1, F9, F10, F18, K13, I01069

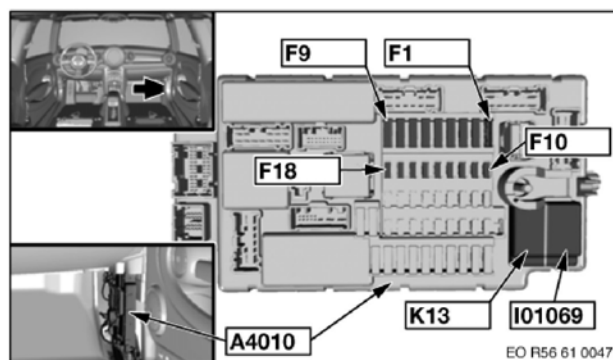


F3

F3

A4010, F1, F9, F10, F18, K13, I01069

A4010, F1, F9, F10, F18, K13, I01069

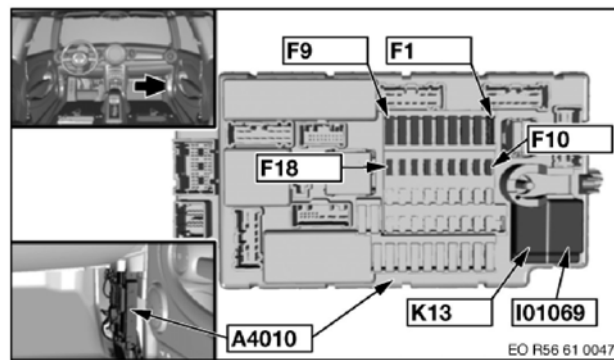


F4

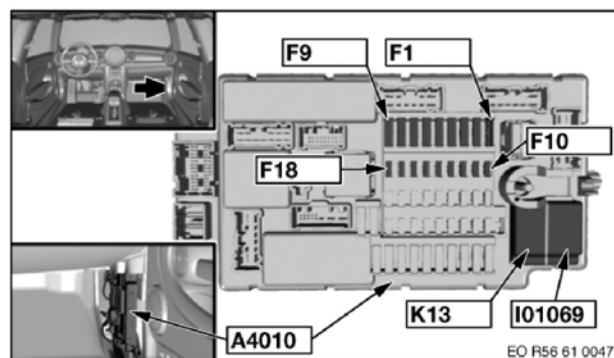
F4

Fuse F4

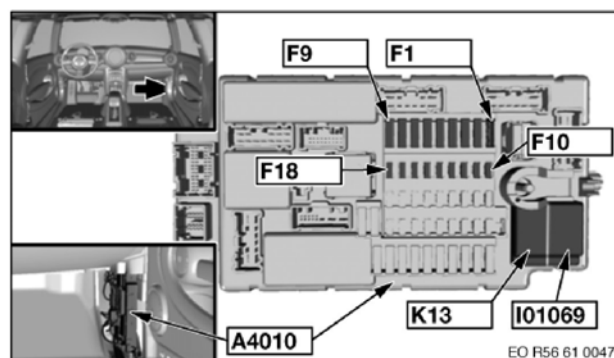
A4010, F1, F9, F10, F18, K13, I01069

**F5****F5****A4010, F1, F9, F10, F18, K13, I01069**

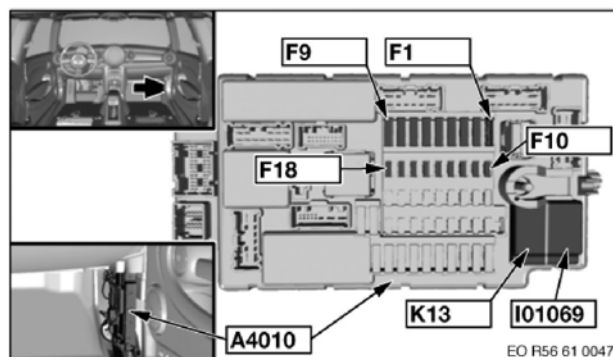
A4010, F1, F9, F10, F18, K13, I01069

**F6****F6****A4010, F1, F9, F10, F18, K13, I01069**

A4010, F1, F9, F10, F18, K13, I01069

**F7****F7****A4010, F1, F9, F10, F18, K13, I01069**

A4010, F1, F9, F10, F18, K13, I01069

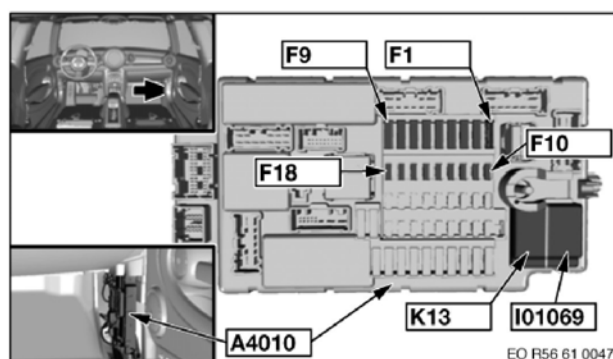


**F8**

F8

A4010, F1, F9, F10, F18, K13, I01069

A4010, F1, F9, F10, F18, K13, I01069

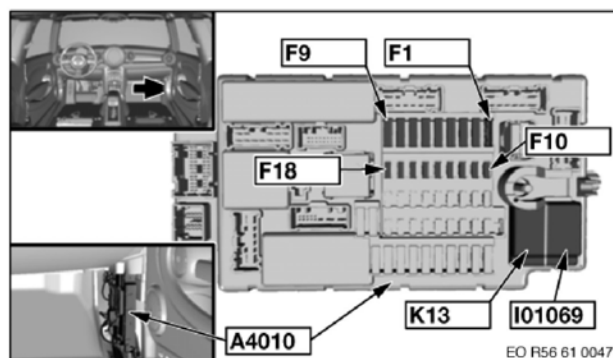


**F9**

F9

A4010, F1, F9, F10, F18, K13, I01069

A4010, F1, F9, F10, F18, K13, I01069

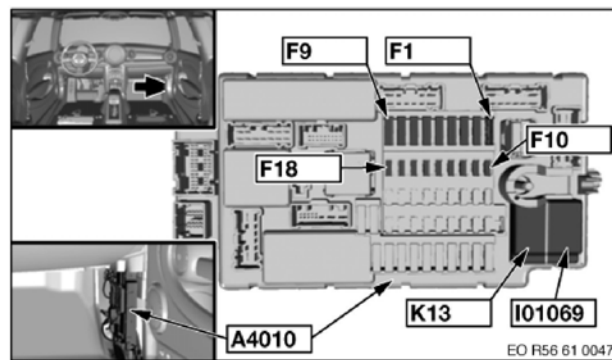


**F10**

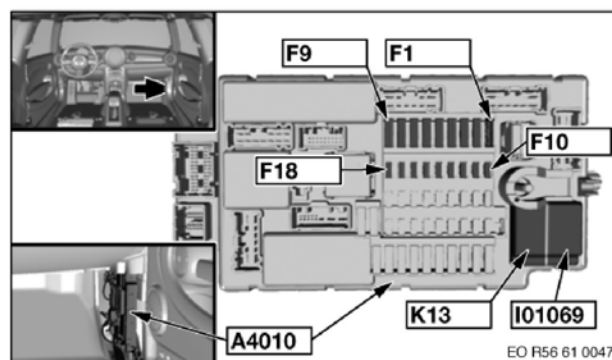
F10

A4010, F1, F9, F10, F18, K13, I01069

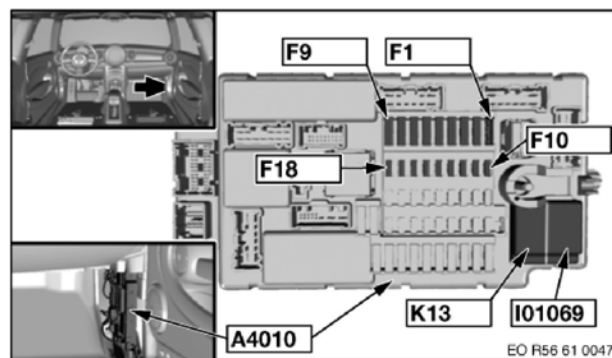
A4010, F1, F9, F10, F18, K13, I01069

**F11****F11****A4010, F1, F9, F10, F18, K13, I01069**

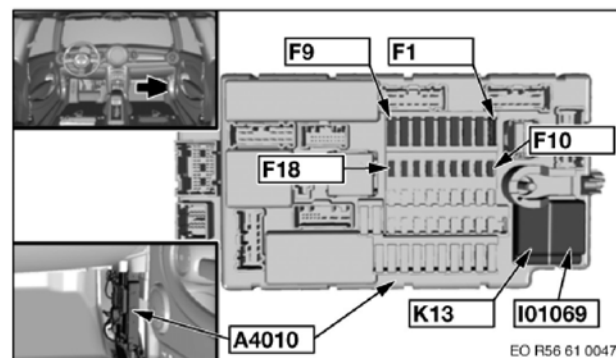
A4010, F1, F9, F10, F18, K13, I01069

**F12****F12****A4010, F1, F9, F10, F18, K13, I01069**

A4010, F1, F9, F10, F18, K13, I01069

**F13****F13****A4010, F1, F9, F10, F18, K13, I01069**

A4010, F1, F9, F10, F18, K13, I01069

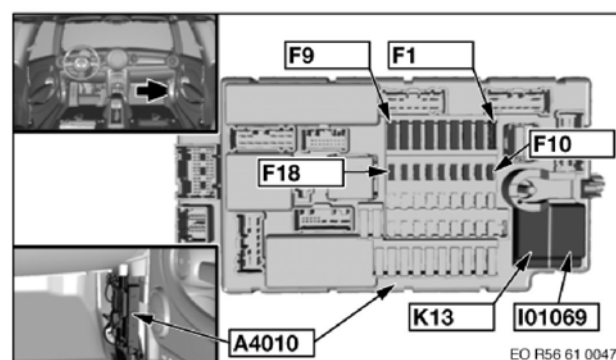


**F14**

F14

A4010, F1, F9, F10, F18, K13, I01069

A4010, F1, F9, F10, F18, K13, I01069

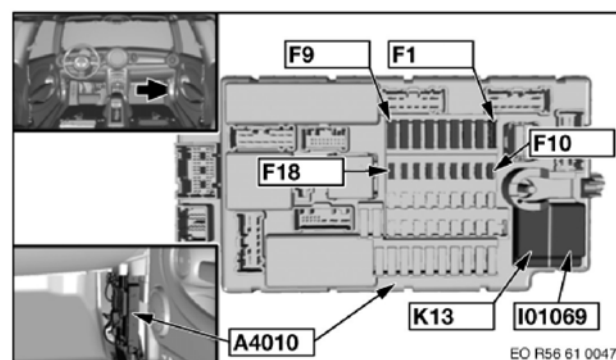


**F15**

F15

A4010, F1, F9, F10, F18, K13, I01069

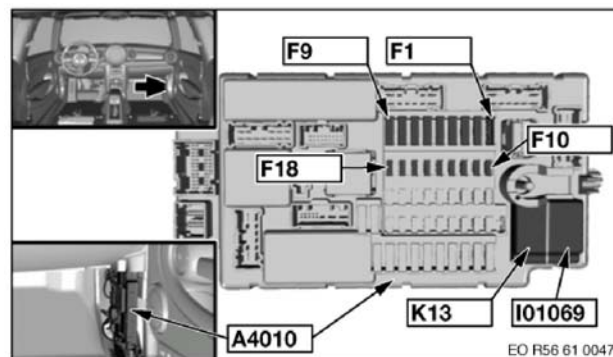
A4010, F1, F9, F10, F18, K13, I01069



**F16**

F16

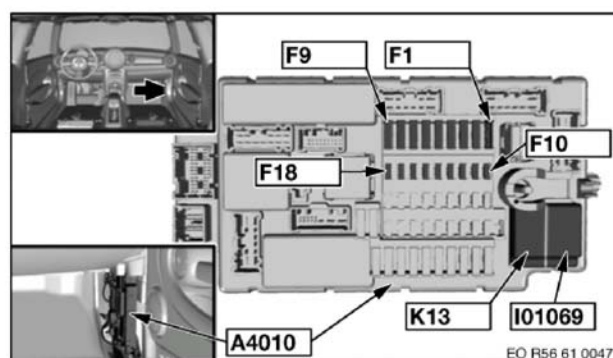
A4010, F1, F9, F10, F18, K13, I01069



## F17

F17

A4010, F1, F9, F10, F18, K13, I01069

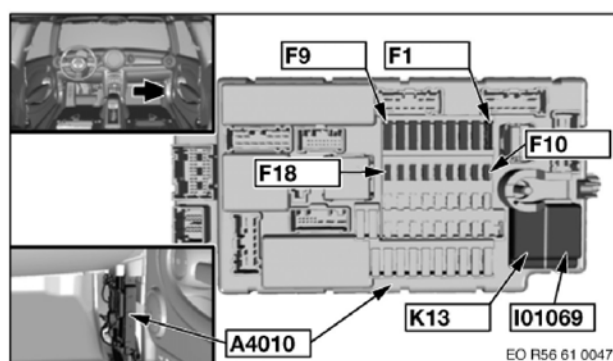


## F18

F18

A4010, F1, F9, F10, F18, K13, I01069

A4010, F1, F9, F10, F18, K13, I01069



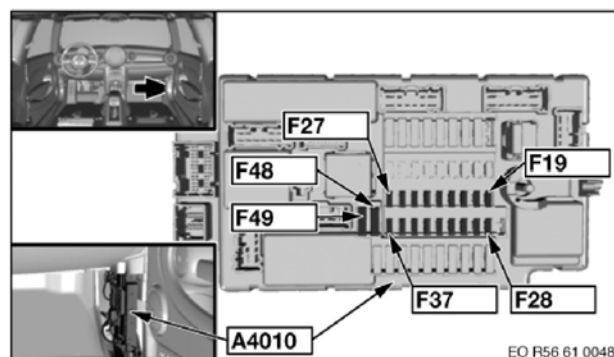
## F19

F19

A4010, F19, F27, F28, F37, F48, F49



A4010, F19, F27, F28, F37, F48, F49

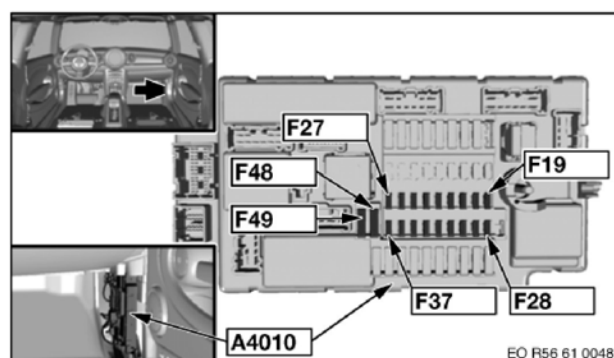


## F20

### F20

A4010, F19, F27, F28, F37, F48, F49

A4010, F19, F27, F28, F37, F48, F49

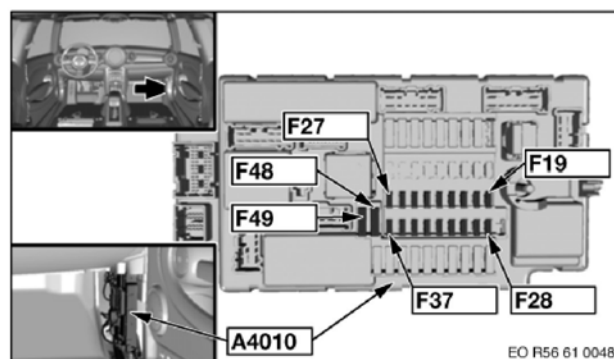


## F21

### F21

A4010, F19, F27, F28, F37, F48, F49

A4010, F19, F27, F28, F37, F48, F49

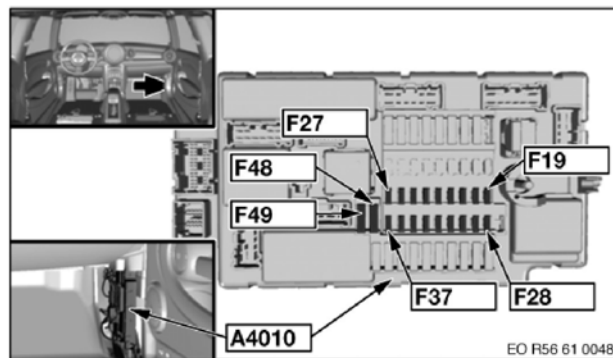


## F22

### F22

A4010, F19, F27, F28, F37, F48, F49

A4010, F19, F27, F28, F37, F48, F49

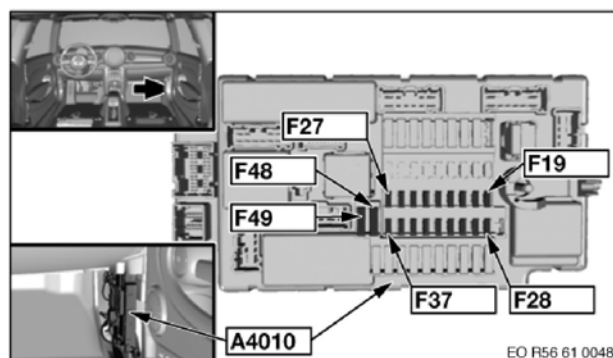


## F23

### F23

A4010, F19, F27, F28, F37, F48, F49

A4010, F19, F27, F28, F37, F48, F49

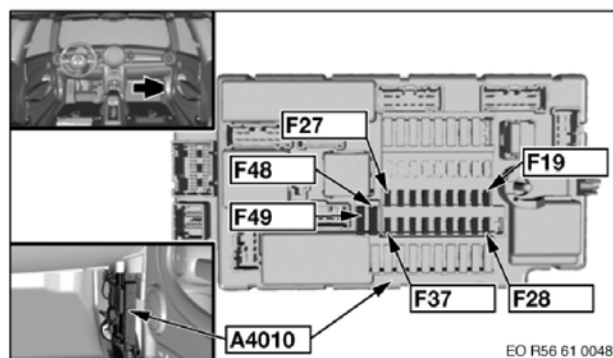


## F24

### F24

A4010, F19, F27, F28, F37, F48, F49

A4010, F19, F27, F28, F37, F48, F49

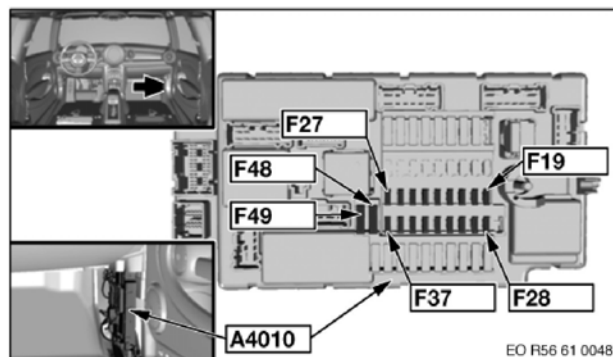


## F25

### F25

A4010, F19, F27, F28, F37, F48, F49

A4010, F19, F27, F28, F37, F48, F49

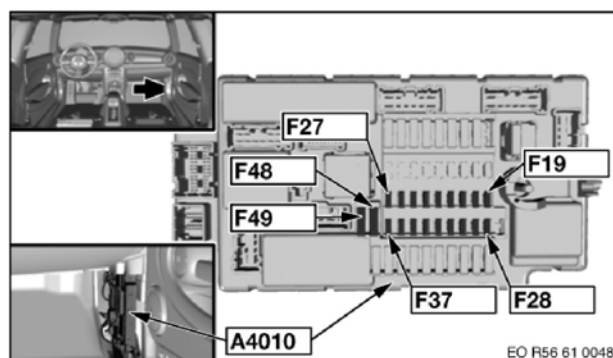


**F26**

**F26**

A4010, F19, F27, F28, F37, F48, F49

A4010, F19, F27, F28, F37, F48, F49

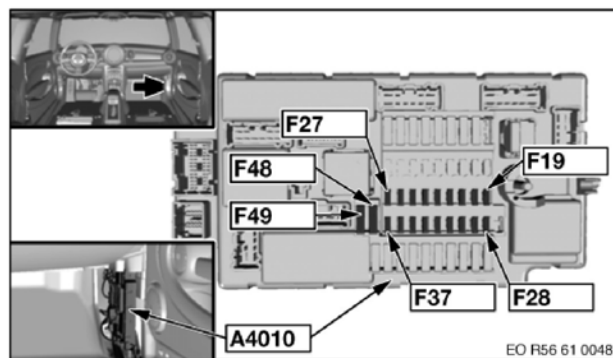


**F27**

**F27**

A4010, F19, F27, F28, F37, F48, F49

A4010, F19, F27, F28, F37, F48, F49

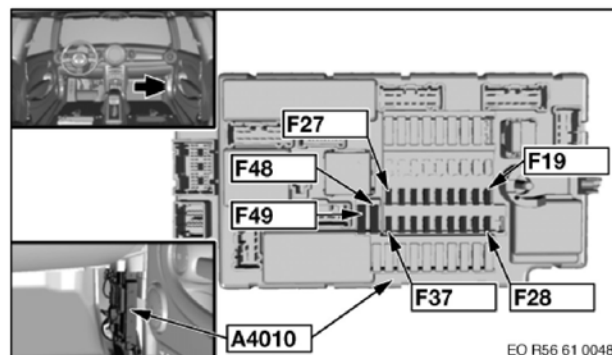


**F28**

**F28**

A4010, F19, F27, F28, F37, F48, F49

A4010, F19, F27, F28, F37, F48, F49

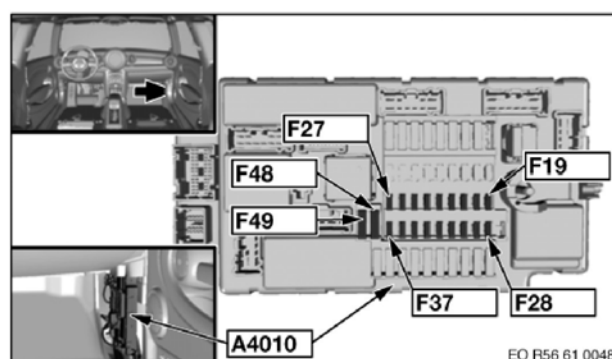


## F29

F29

A4010, F19, F27, F28, F37, F48, F49

A4010, F19, F27, F28, F37, F48, F49

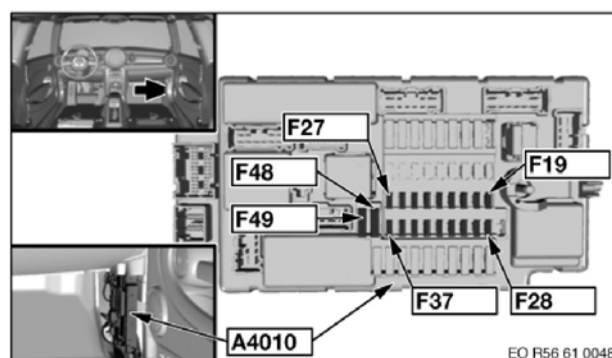


## F30

F30

A4010, F19, F27, F28, F37, F48, F49

A4010, F19, F27, F28, F37, F48, F49

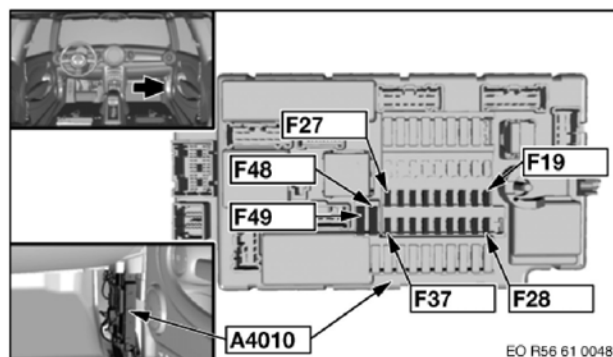


## F31

F31

A4010, F19, F27, F28, F37, F48, F49

A4010, F19, F27, F28, F37, F48, F49

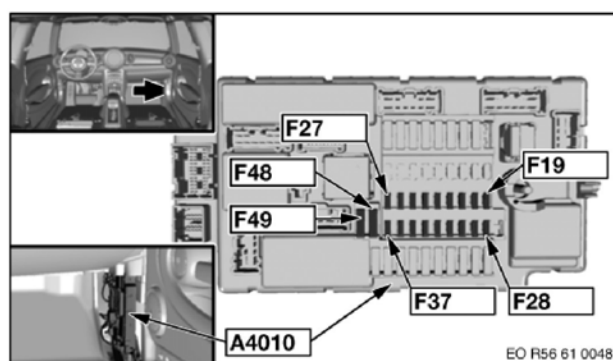


## F32

F32

A4010, F19, F27, F28, F37, F48, F49

A4010, F19, F27, F28, F37, F48, F49

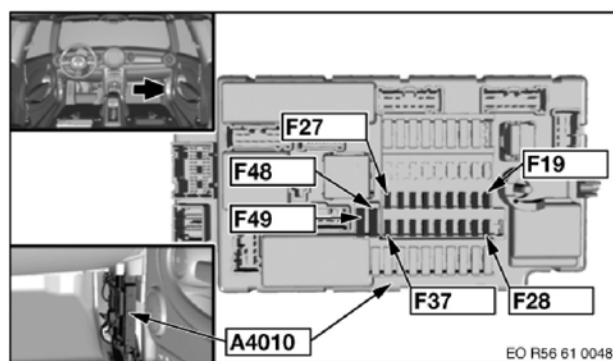


## F33

F33

A4010, F19, F27, F28, F37, F48, F49

A4010, F19, F27, F28, F37, F48, F49

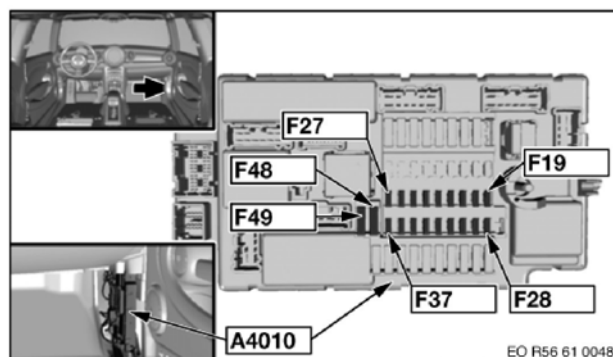


## F34

F34

A4010, F19, F27, F28, F37, F48, F49

A4010, F19, F27, F28, F37, F48, F49

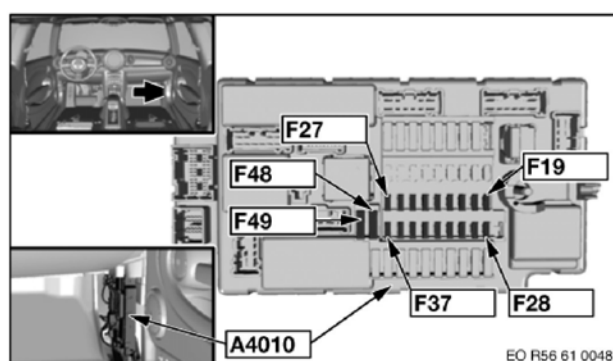


## F35

F35

A4010, F19, F27, F28, F37, F48, F49

A4010, F19, F27, F28, F37, F48, F49

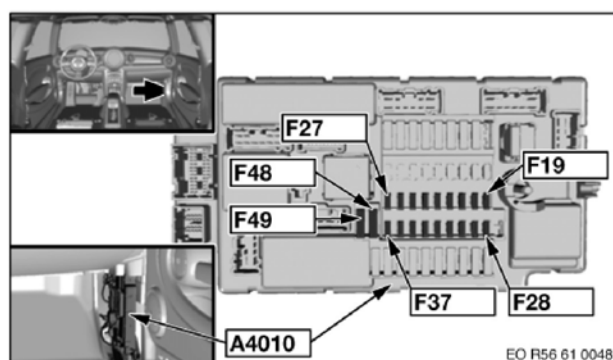


## F36

F36

A4010, F19, F27, F28, F37, F48, F49

A4010, F19, F27, F28, F37, F48, F49

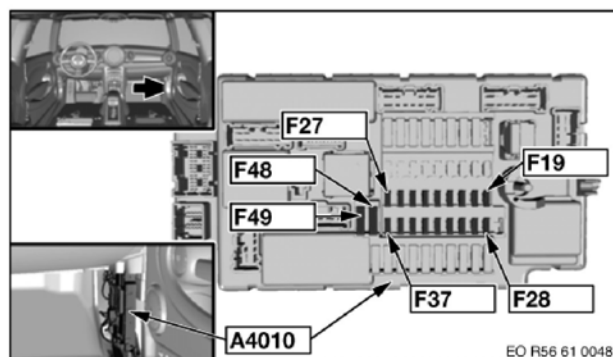


## F37

F37

A4010, F19, F27, F28, F37, F48, F49

A4010, F19, F27, F28, F37, F48, F49

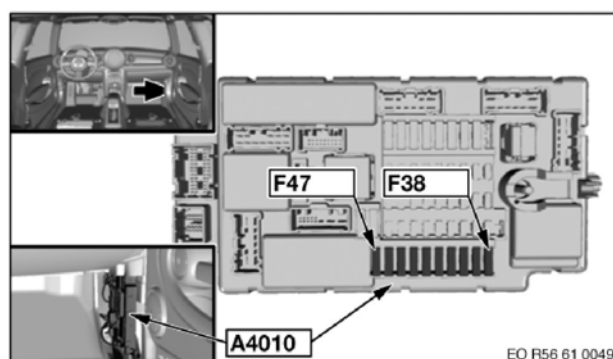


## F38

### F38

A4010, F38, F47

A4010, F38, F47

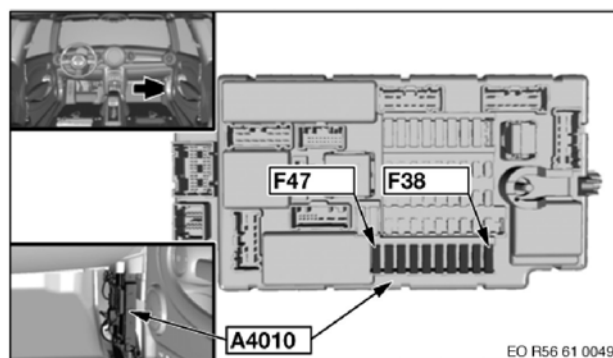


## F39

### F39

A4010, F38, F47

A4010, F38, F47

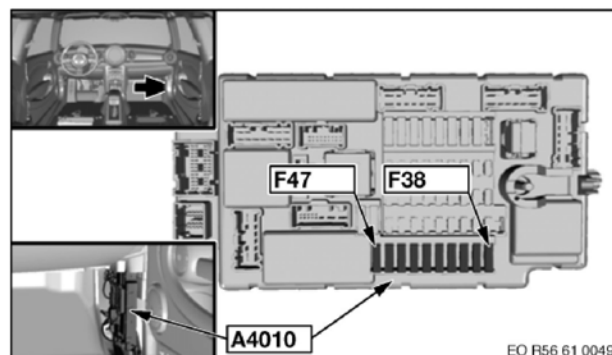


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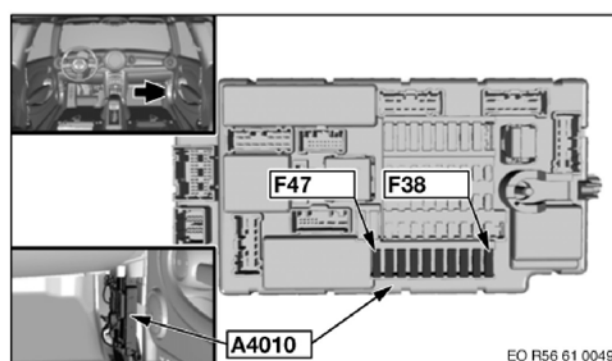
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A4010, F38, F47

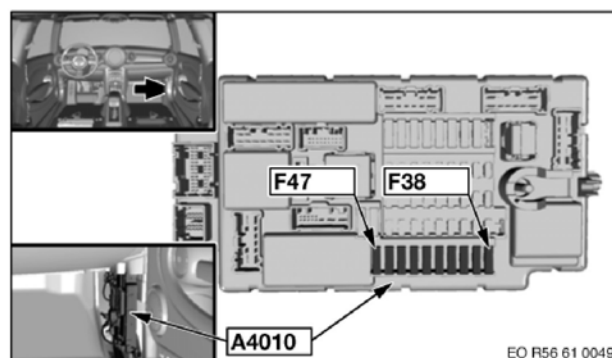
A4010, F38, F47

**F41****F41****A4010, F38, F47**

A4010, F38, F47

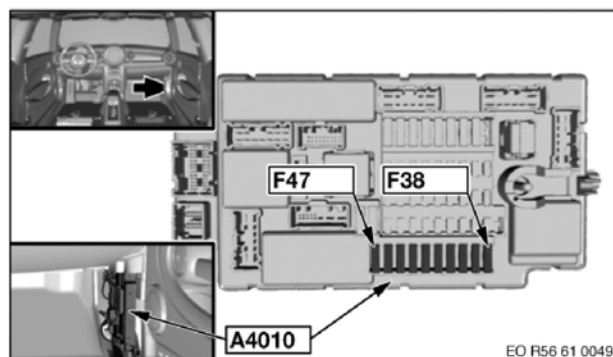
**F42****F42****A4010, F38, F47**

A4010, F38, F47

**F43****F43****A4010, F38, F47**



A4010, F38, F47

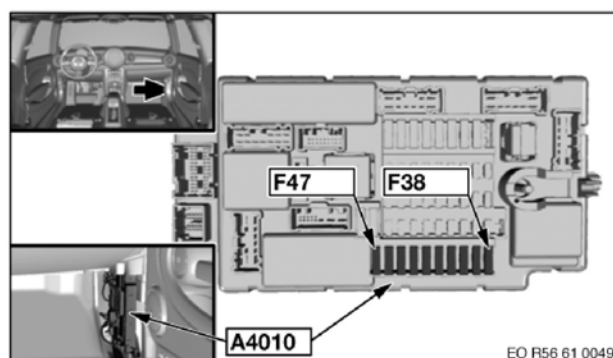


**F44**

**F44**

**A4010, F38, F47**

A4010, F38, F47

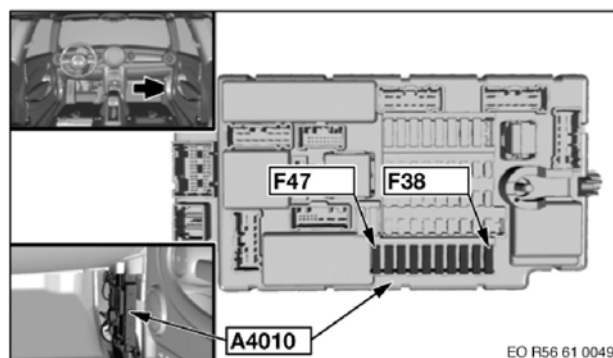


**F45**

**F45**

**A4010, F38, F47**

A4010, F38, F47

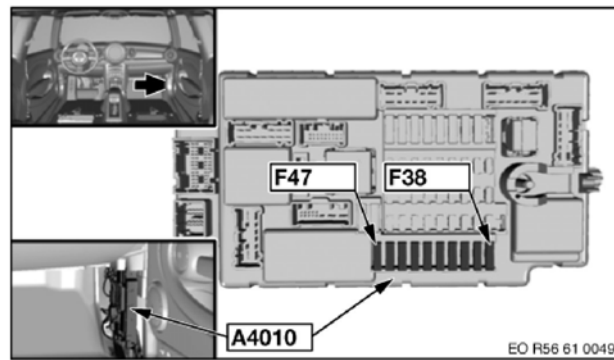


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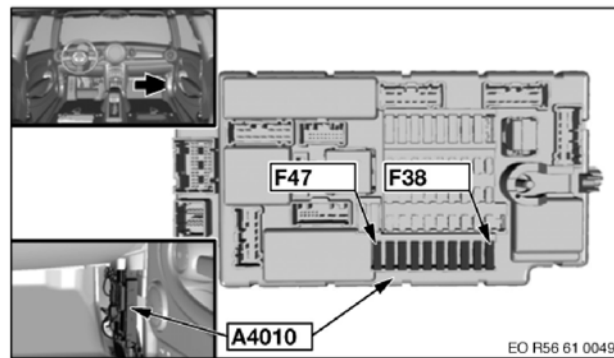
**F46**

**A4010, F38, F47**

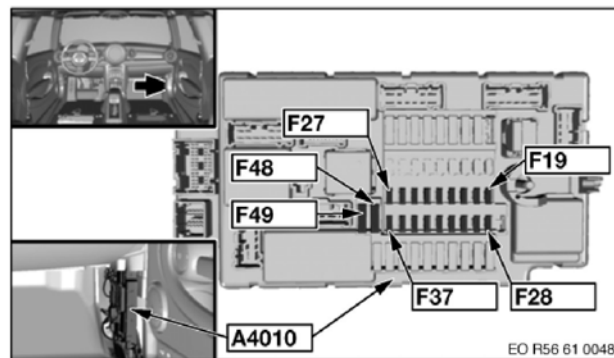
A4010, F38, F47

**F47****F47****A4010, F38, F47**

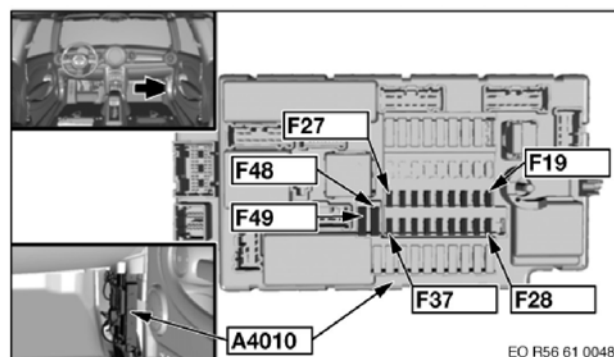
A4010, F38, F47

**F48****F48****A4010, F19, F27, F28, F37, F48, F49**

A4010, F19, F27, F28, F37, F48, F49

**F49****F49****A4010, F19, F27, F28, F37, F48, F49**

A4010, F19, F27, F28, F37, F48, F49

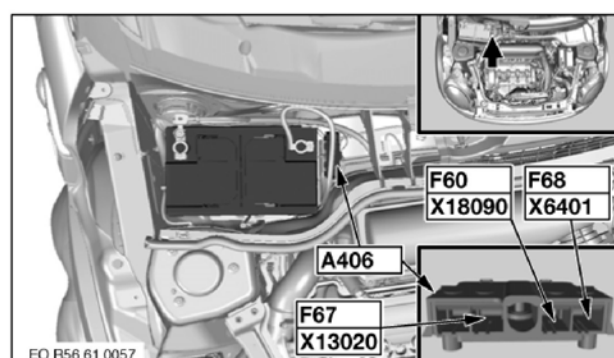


## F60

### F60

A406, F67, X13020, F60, X18090, F68, X6401

A406, F67, X13020, F60, X18090, F68, X6401

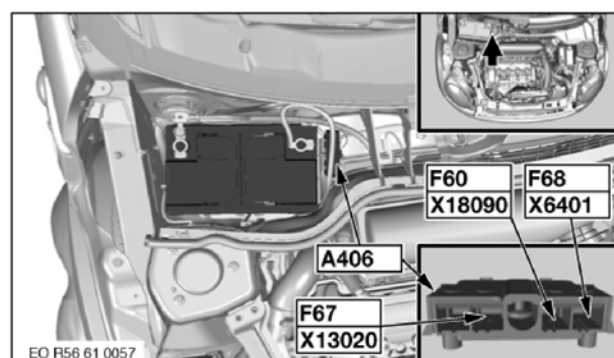


## F67

### F67

A406, F67, X13020, F60, X18090, F68, X6401

A406, F67, X13020, F60, X18090, F68, X6401

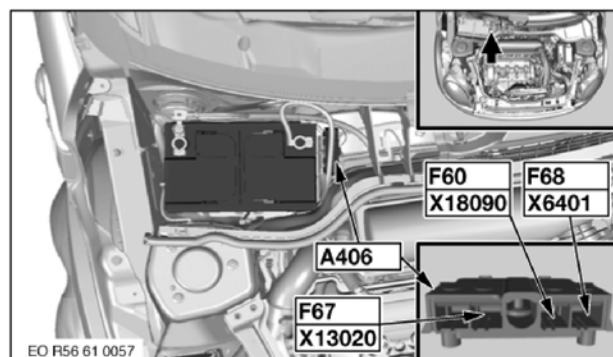


## F68

### F68

A406, F67, X13020, F60, X18090, F68, X6401

A406, F67, X13020, F60, X18090, F68, X6401

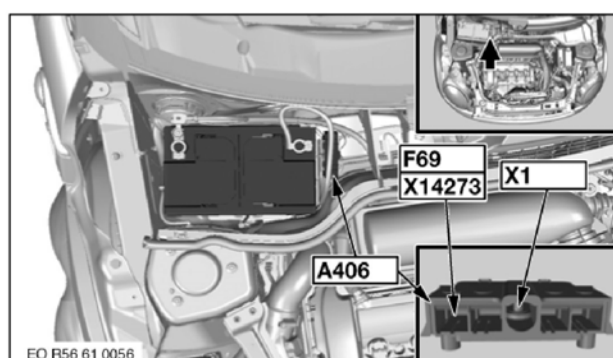


## F69

### F69

A406, F69, X14273, X1

A406, F69, X14273, X1

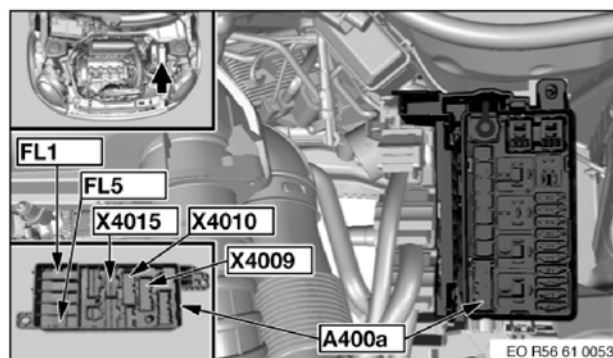


## FL1

### FL1

FL1, X4015, X4010, X4009, FL5, A400a

FL1, X4015, X4010, X4009, FL5, A400a

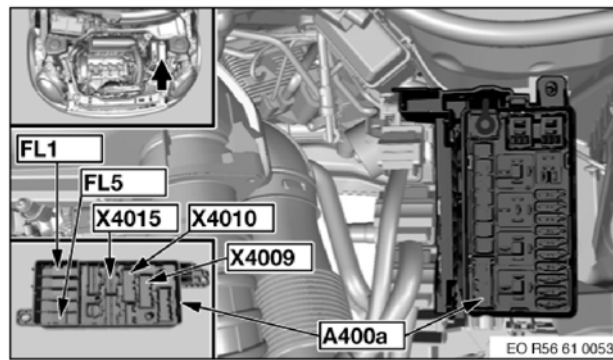


## FL2

### FL2

FL1, X4015, X4010, X4009, FL5, A400a

FL1, X4015, X4010, X4009, FL5, A400a

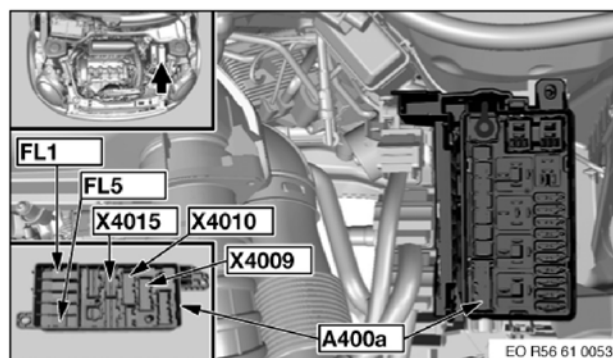


## FL3

### FL3

FL1, X4015, X4010, X4009, FL5, A400a

FL1, X4015, X4010, X4009, FL5, A400a

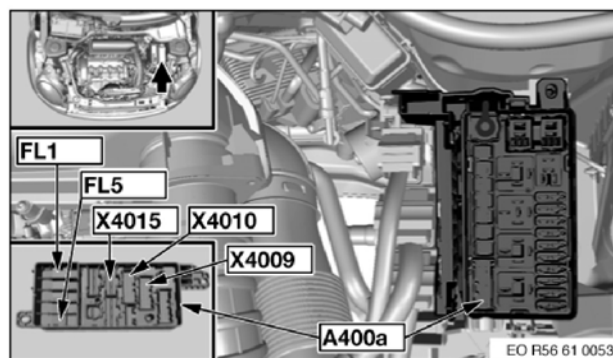


## FL4

### FL4

FL1, X4015, X4010, X4009, FL5, A400a

FL1, X4015, X4010, X4009, FL5, A400a

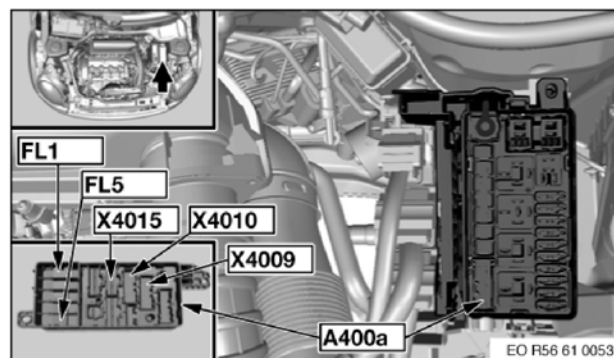


## FL5

### FL5

FL1, X4015, X4010, X4009, FL5, A400a

FL1, X4015, X4010, X4009, FL5, A400a

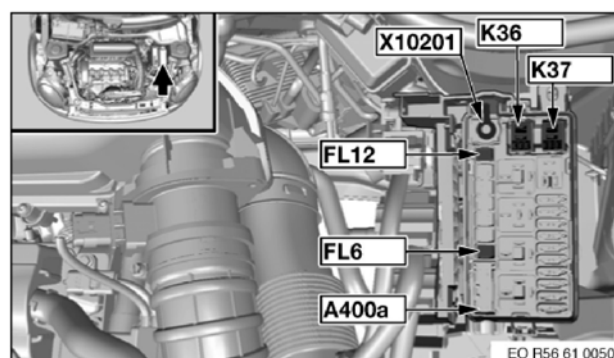


## FL6

### FL6

X10201, K36, K37, FL12, FL6, A400a

X10201, K36, K37, FL12, FL6, A400a

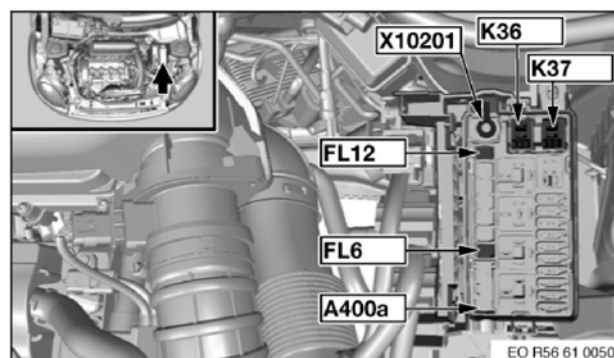


## FL7

### FL7

X10201, K36, K37, FL12, FL6, A400a

X10201, K36, K37, FL12, FL6, A400a

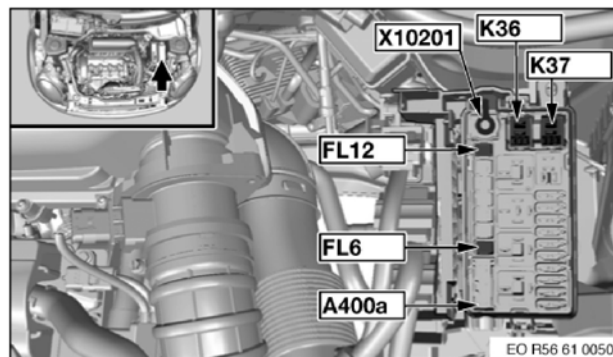


## FL8

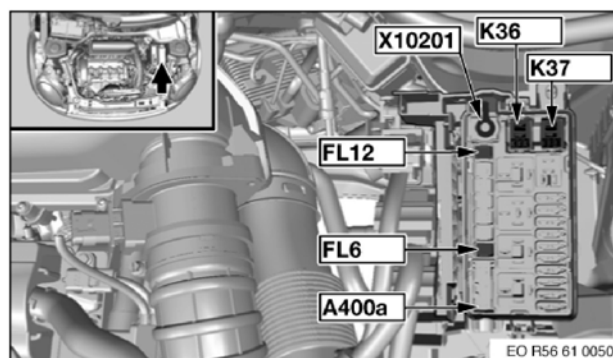
### FL8

X10201, K36, K37, FL12, FL6, A400a

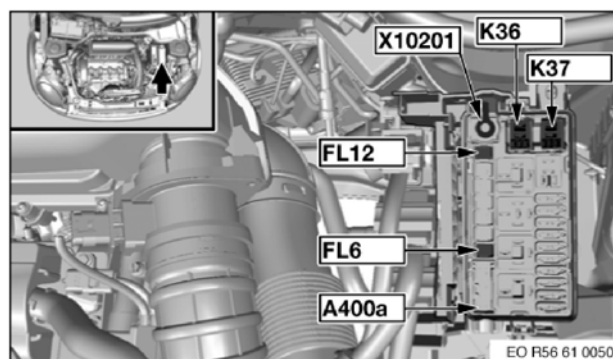
X10201, K36, K37, FL12, FL6, A400a

**FL9****FL9****X10201, K36, K37, FL12, FL6, A400a**

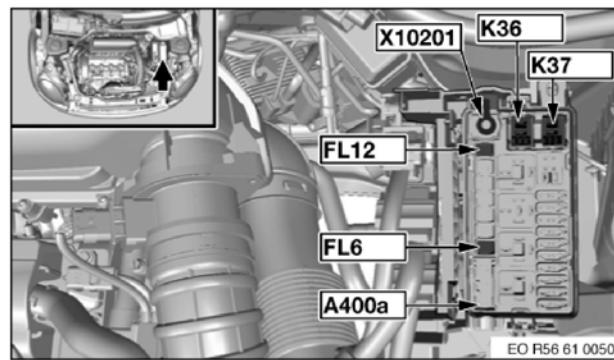
X10201, K36, K37, FL12, FL6, A400a

**FL10****FL10****X10201, K36, K37, FL12, FL6, A400a**

X10201, K36, K37, FL12, FL6, A400a

**FL11****FL11****X10201, K36, K37, FL12, FL6, A400a**

X10201, K36, K37, FL12, FL6, A400a

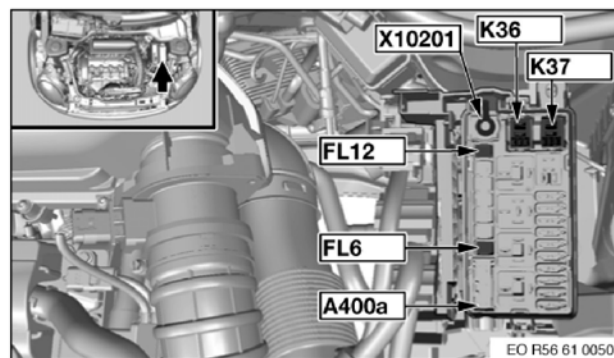


## FL12

### FL12

X10201, K36, K37, FL12, FL6, A400a

X10201, K36, K37, FL12, FL6, A400a



## Ground Locations

For information regarding locations for Grounds, please refer to the vehicle level connector locations. See: Connector Locations

## Splice Locations

For information regarding locations for Splices, please refer to the vehicle level connector locations. See: Connector Locations



## Vehicle: Diagrams

## Wire Color Code Identification

### Wire Colour Code

BL	BLUE
BR	BROWN
GE	YELLOW
GN	GREEN
GR	GRAY
OR	ORANGE
RS	PINK
RT	RED
SW	BLACK
VI	VIOLET
WS	WHITE
TR	TRANSPARENT

## Signal Names For Positive/Ground Connections

### Signal Names For Positive/Ground Connections

15_JB	Terminal 15, Junction Box
15_LSZ	Terminal 15, Light Switch Center
15_OBD	Terminal 15, OBD Socket
15_UHZ	Terminal 15
15WUP	Terminal 15, Wake Up
15_ZRS	Terminal 15
15_ZSP	Terminal 15, Ignition Coil
15<29	Term. 15, ignition on, fuse 29
15<30	Term. 15, ignition on, fuse 30
15<31	Term. 15, ignition on, fuse 31
15<32	Term. 15, ignition on, fuse 32
15<33	Term. 15, ignition on, fuse 33
15<42	Term. 15, ignition on, fuse 42
30<BAT	Terminal 30, battery
30G_DC	Terminal 30 switched, DC/DC converter
30G_F_DC	Term. 30_G Output, bistable relay, DC/DC conv
30G_F<19	Term. 30_G Output, bistable relay, fuse
30G_F<2	Term. 30_G Output, bistable relay, fuse
30G_F<20	Term. 30_G Output, bistable relay, fuse
30G_F<37	Term. 30_G Output, bistable relay, fuse
30G_F<45	Term. 30_G Output, bistable relay, fuse
30G_JB	Terminal 30 switched, fuse JBE
30G_OFF	Terminal 30 switched, Off
30G_ON	Terminal 30 switched, On
30G<10	Terminal 30 switched, fuse 10
30G<11	Terminal 30 switched, fuse 11
30G<12	Terminal 30 switched, fuse 12
30G<13	Terminal 30 switched, fuse 13
30G<14	Terminal 30 switched, fuse 14
30G<15	Terminal 30 switched, fuse 15
30G<16	Terminal 30 switched, fuse 16
30G<17	Terminal 30 switched, fuse 17
30G<18	Terminal 30 switched, fuse 18
30G<21	Terminal 30 switched, fuse 21
30G<41	Terminal 30 switched, fuse 41
30G<6	Terminal 30 switched, fuse 6
30G<7	Terminal 30 switched, fuse 7
30HFS	Terminal 30, heated windscreen
30HHS	Terminal 30, heated windscreen
30<L10	Term. 30, continuous voltage (+), fuse L10
30<L12	Term. 30, continuous voltage (+), fuse L12
30<L2	Term. 30, continuous voltage (+), fuse L2
30<L4	Term. 30, continuous voltage (+), fuse L4
30<L6	Term. 30, continuous voltage (+), fuse L6
30<L8	Term. 30, continuous voltage (+), fuse L8
30<01	Term. 30, continuous voltage (+), fuse 01
30<25	Term. 30, continuous voltage (+), fuse 25

Mini Cooper S (R56) L4-1.6L Turbo (N14)		603
30<26.....	Term. 30, continuous voltage (+), fuse 26	
30<27.....	Term. 30, continuous voltage (+), fuse 27	
30<34.....	Term. 30, continuous voltage (+), fuse 34	
30<39.....	Term. 30, continuous voltage (+), fuse 39	
30<40.....	Term. 30, continuous voltage (+), fuse 40	
30<47.....	Term. 30, continuous voltage (+), fuse 47	
30<48.....	Term. 30, continuous voltage (+), fuse 48	
30<49.....	Term. 30, continuous voltage (+), fuse 49	
30<5.....	Term. 30, continuous voltage (+), fuse 5	
30<60.....	Term. 30, continuous voltage (+), fuse 60	
30<67.....	Term. 30, continuous voltage (+), fuse 67	
30<68.....	Term. 30, continuous voltage (+), fuse 68	
30<69.....	Term. 30, continuous voltage (+), fuse 69	
30<8.....	Term. 30, continuous voltage (+), fuse 8	
31.....	Negative battery terminal	
31E.....	Term. 31, electronic ground	
31EDRS.....	Electr ground, press. sensor, A/C sys	
31E_LED.....	Electronic ground, LED	
31E_12.....	Electronic ground	
31E_34.....	Electronic ground	
31L.....	Term. 31, power ground	
49HL.....	Turn indicator, rear left	
49HR.....	Turn indicator, rear right	
49VL.....	Turn indicator, front left	
49VR.....	Turn indicator, front right	
49ZL.....	Suppl turn indicator, left	
49ZR.....	Suppl turn indicator, right	
5V.....	5 volt supply	
50L_RS.....	Terminal 50, load signal	
54L.....	Brake light, left	
54M.....	Brake light, center	
54R.....	Brake light, right	
55H.....	Rear fog light	
55HL.....	Rear fog light, left	
55HR.....	Rear fog light, right	
55V.....	Front fog lights	
56AL.....	Main beam, left	
56AR.....	Main beam, right	
56BL.....	Low beam, left	
56BR.....	Low beam, right	
58G.....	Instrument and locating lights	
58HL.....	Tail light, left, outer	
58HR.....	Tail light, right, outer	
58K.....	License-plate light	
58VL.....	Sidelight, front left	
58VLHR.....	Side-marker lamp FL, RR	
58VR.....	Sidelight, front right	
58VRHL.....	Side-marker lamp FR, RL	
87.....	Relay, output, terminal 87	

## Signal Names With A

### Signal Names With A

A.....	Signal, gearbox-position switch	
ABBF1+.....	Airbag, passenger, stage 1, positive	
ABBF1-.....	Airbag, passenger, stage 1, negative	
ABBF2+.....	Airbag, passenger, stage 2, positive	
ABBF2-.....	Airbag, passenger, stage 2, negative	
ABF1+.....	Signal, driver airbag, stage 1, plus	
ABF1-.....	Signal, driver airbag, stage 1, minus	
ABF2+.....	Signal, driver airbag, stage 2, plus	
ABF2-.....	Signal, driver airbag, stage 2, minus	
A_DKG1.....	Throttle-valve pot 1, actual value	
A_DKG2.....	Throttle-valve pot 2, actual value	
A_DSB.....	Charge-air pressure sensor	
A_DSK.....	Rail-pressure sensor	
A_FWG1.....	Pedal-sensor 1	
A_FWG2.....	Pedal-sensor 2	
A_HFM.....	Hot-film air-mass sensor	

Mini Cooper S (R56) L4-1.6L Turbo (N14)	604
A_KS1A.....	Knock sensor 1a (differential signal)
A_KS1B.....	Knock sensor 1b (differential signal)
A_LSH1.....	Oxygen sensor after cat conv, bank1
A_LSPV1.....	Oxygen sensor before catalytic converter, bank1
A_LSVR1.....	Oxygen sensor before catalytic converter, bank1
ANT_BT.....	Antenna signal, bluetooth
ANT_EJB.....	Antenna signal, eject box
ANT_FM.....	Antenna signal, frequency modulation
ANT_GPS.....	Antenna/antenna signal, GPS
ANT_SAT.....	Antenna signal, satellite receiver
ANT_TV1.....	Antenna signal, television
ANT_TV2.....	Antenna signal, television
ANT_1A.....	Antenna signal CA, interior antenna
ANT_1B.....	Antenna signal CA, interior antenna
ANT_2A.....	Antenna signal CA, interior antenna
ANT_2B.....	Antenna signal CA, interior antenna
ANT_3A.....	Antenna signal CA, side section
ANT_3B.....	Antenna signal CA, side section
ANT_4A.....	Antenna signal CA, side section
ANT_4B.....	Antenna signal CA, side section
ANT_5A.....	Antenna signal CA, bumper
ANT_5B.....	Antenna signal CA, bumper
A_SDF.....	Intake-manifold pressure sensor
A_S_MSA.....	Signal, automatic engine start-stop
AT+.....	Outside temperature
AT-.....	Ground, outside temperature
A_TANS.....	Temperature, intake air
A_TMOT.....	Coolant temperature
AWP.....	Activation, friction-gear servodrive

## Signal Names With B

### Signal Names With B

B.....	Signal, gearbox-position switch
B+.....	Battery positive
BBHR+.....	Brake pad, rear right, positive
BBHR-.....	Brake pad, rear right, negative
BBVL+.....	Brake pad, front left, positive
BBVL-.....	Brake pad, front left, negative
BIXENON.....	Electromagnet, bi-xenon flap
BL_TBL.....	Light/direction-indicator/headlight-dipping switch
BRFN.....	Brake-fluid level
BR_TBR.....	Light/direction-indicator/headlight-dipping switch
BUS_PA.....	Bus signal, comfort Access

## Signal Names With C

### Signal Names With C

C.....	Signal, gearbox-position switch
CAS_ELV+.....	Electric steering column lock, CAS,
CAS_ELV-.....	Electric steering column lock, CAS,
CLT_ERN.....	Central locking switch
COS.....	Cosine evaluation, steering-torque sensor
CPC.....	Communication, auxiliary instrument, internal
CPS.....	Communication, auxiliary instrument, internal
CRADLE_K.....	Hands-free button, eject box
CRADLE_O.....	Signal, telephone, hands-free function
CS_BL.....	Ambient light, blue
CS_OR.....	Ambient light, orange

## Signal Names With D

### Signal Names With D

D_BSD.....	Bit-serial data interface
D_CAN_H.....	Bus signal D_CAN, high
D_CAN_L.....	Bus signal D_CAN, low
DCERR.....	DC/DC converter, fault signal

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D_EWS.....	Data communication, EWS
DFA_CAS.....	Speed-sensor output simulated
DFAHL.....	Dynamic driving signal, rear left
DFHL.....	Wheel-speed sensor, rear left
DFHL+.....	Power supply, wh-sp. sensor, rear left
DFHR.....	Wheel-speed sensor, rear right
DFHR+.....	Power supply, wh-sp. sensor, rear right
DFVL.....	Wheel-speed sensor, front left
DFVL+.....	Power supply, wh-sp. sensor, front left
DFVR.....	Wheel-speed sensor, front right
DFVR+.....	Power supply, wh-sp. sensor, front right
DRS+.....	Power supply, press. sensor, A/C system
DRS_IN.....	Pressure-sensor signal, A/C system
DSC_PASS.....	Signal, DSC button
D_WHL.....	Data converter, PDC, rear left
D_WHML.....	Data converter, PDC, rear center left
D_WHMR.....	Data converter, PDC, rear center right
D_WHR.....	Data converter, PDC, rear right

## Signal Names With E

### Signal Names With E

EC.....	Electrochromic interior rearview mirror
EKPM.....	Fuel pump via relay
ERFT.....	Unlocking, driver's door
E_15_ZSP.....	Load reduction, terminal 15, ignition coil

## Signal Names With F

### Signal Names With F

FANF.....	Fanfare(horns)
FANF_S.....	Signal, switch, horn
FAST.....	Wiper motor, stage 2
FBD.....	Remote control, independent heating
FBD_CA.....	Remote control, Comfort Access
F_CAN_H.....	Bus signal F_CAN, high
F_CAN_L.....	Bus signal F_CAN, low
F_DFAHL.....	Conditioned wheel-speed,rear left
FRL_UML+.....	Fresh-air/recirculating-air flap, positive
FRL_UML-.....	Fresh-air/recirculating-air flap, negative
FSB LED.....	Footbrake, handbrake
F_TD.....	Engine-speed signal

## Signal Names With G

### Signal Names With G

GKBF.....	Seat-belt contact, passenger
GKF.....	Seat-belt contact, driver
GKHBFS.....	Belt contact, front passenger's side, rear
GKHFS.....	Belt contact, driver's side, rear
GND.....	Ground
GSBF+.....	Belt tensioner, passenger, positive
GSBF-.....	Belt tensioner, passenger, negative
GSF+.....	Belt tensioner, driver, positive
GSF-.....	Belt tensioner, driver, negative

## Signal Names With H

### Signal Names With H

HFSS.....	Activation, heated windscreen
HKK.....	Tailgate contact
HKL.....	Rear-lid light
HSHR.....	Ride-height sensor, rear right
HSHR+.....	Ride-height sensor, rear right, positive
HSHR-.....	Ride-height sensor, rear right, negative
HSVL.....	Ride-height sensor, front left

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HSVL+	Ride-height sensor, front left, positive
HSVL-	Ride-height sensor, front left, negative
HTHL+	Tweeter, rear left, positive
HTHL-	Tweeter, rear left, negative
HTHR+	Tweeter, rear right, positive
HTHR-	Tweeter, rear right, negative

## Signal Names With I

### Signal Names With I

IB	Interior lights
IBF	Interior lights, footwell lights
III_BAND	Antenna signal, III_band
I_LSVP1	Current, oxygen sensor before cat. conv., bank 1
IN_HALL1	Communication, start-stop unit/CAS
IN_HALL2	Communication, start-stop unit/CAS
IN_HALL3	Communication, start-stop unit/CAS
IN_HALL4	Communication, start-stop unit/CAS
INRS	Passenger-compartment sensor
IN1_G	Transmission, picture signals

## Signal Names With K

### Signal Names With K

K_BUS	Bus signal K_bus
K_CAN_H	Bus signal K_CAN, high
K_CAN_L	Bus signal K_CAN, low
KL_R_CAS	Terminal R, Car Access System
KL15	Terminal 15
KSBF+	Head airbag, front passenger, positive
KSBF-	Head airbag, front passenger, negative
KSF+	Head airbag, driver, positive
KSF-	Head airbag, driver, negative
KUPP	Clutch-switch module

## Signal Names With L

### Signal Names With L

L_BAND	Antenna signal, L_band
LDS_1	Light/direction-indicator/headlight-dipping switch
LDS_2	Light/direction-indicator/headlight-dipping switch
LED LED	, rear-window defroster
LED_DWA LED	Burglar-alarm system
LED_HB LED	Heartbeat
LED_SPOR LED	SPORT mode
LH_FL	Light/direction-indicator/headlight-dipping switch
LIN_RLS	Signal, LIN bus
LS_HI+	speaker, rear +
LS_HI-	speaker, rear -
LWBL	Lamp in hazard-warning switch
LWR_SCHA	Switch, headlight beam height control

## Signal Names With M

### Signal Names With M

M	supply, Steptronic
M+	supply, Steptronic upshift
M-	supply, Steptronic downshift
MAG_OUT1	Communication, start-stop unit/CAS
MAG_OUT2	Communication, start-stop unit/CAS
M_DKG	Ground, throttle-valve potentiometer
MER	Unlocking, central-locking units
MERHK	Motor, unlocking, tailgate
MFBA	Motor, power window, passenger, open
MFBZ	Motor, power window, passenger, closed
MFFA	Motor, power window, driver, open
MFFZ	Motor, power window, driver, closed

Mini Cooper S (R56) L4-1.6L Turbo (N14)		607
M_FWG1	Ground, pedal-sensor1	
M_FWG2	Ground, pedal-sensor2	
M_HFM	Ground, air-mass flow sensor	
MHK	Hood contact	
MIC+	Microphone, voice input, positive	
MIC-	Microphone, voice input, negative	
M_KWG	Ground, crankshaft sensor	
M_LSH1	Ground, oxygen sensor after cat conv, bank1	
M_LSV1	Ground, oxygen sensor before cat conv, bank1	
M_NWGA1	Ground, exhaust-camshaft sensor1	
M_NWGE1	Ground, intake-camshaft sensor1	
MOST	Most bus signal	
MOT-	Ground, heater blower	
M_SDF	Ground, intake-manifold pressure sensor	
MSLV	Microswitch, air distribution	
MS_ON	Microswitch	
MSRA	Motor, headlight-washer pump	
M_TC	Turbocharger-coolant pump, negative	
M_TMOT	Ground, coolant-temperature sensor	
MTVL+	Mid-range speaker, front left, positive	
MTVL-	Mid-range speaker, front left, negative	
MTVR+	Mid-range speaker, front right, positive	
MTVR-	Mid-range speaker, front right, negative	
MVR	Locking central-locking units	
MVRFT	Motor, central-l unit, lock, driv. door	
M_VVTS1	Ground, sensor VVT	
M_WHL	Ground, converter, PDC, rear left	
M_WHML	Ground, converter, PDC, rear center left	
M_WHMR	Ground, converter, PDC, rear center right	
M_WHR	Ground, converter, PDC, rear right	
MWI_HS	Wiper driver, rear window	
M_ZS	Ground, ignition coils	
MZS	Central-l units, central double-locking	

## Signal Names With N

### Signal Names With N

NF_HL+	Audio signal, rear left, positive
NF_HL-	Audio signal, rear left, negative
NF_HR+	Audio signal, rear right, positive
NF_HR-	Audio signal, rear right, negative
NF_VL+	Audio signal, front left, positive
NF_VL-	Audio signal, front left, negative
NF_VR+	Audio signal, front right, positive
NF_VR-	Audio signal, front right, negative
NG	Pitch sensor
NIN+	positive signal, speed sensor, turbocharger
NIN-	negative signal, speed sensor, turbocharger
NOUT+	positive signal, speed sensor, output
NOUT-	negative signal, speed sensor, output
NTC	temperature sensor

## Signal Names With O

### Signal Names With O

OC_K_BUS	Seat occupancy detector K_BUS
O_ST	Passenger-compartment sensor
OT	Signal, oil temperature
OTG	Mass, oil temperature
O_USIS	Supply, interior movement detector

## Signal Names With P

### Signal Names With P

PA	Signal, gearbox-position switch
P_CLKS1	Clock pulse, guide and reference sensors VVT
P_CS1S1	Enable, guide sensor VVT

Mini Cooper S (R56) L4-1.6L Turbo (N14)	608
P_CS2S.....	Signal, eccentric-shaft sensor
P_EVZ1.....	Fuel injector, cylinder 1
P_EVZ2.....	Fuel injector, cylinder 2
P_EVZ3.....	Fuel injector, cylinder 3
P_EVZ4.....	Fuel injector, cylinder 4
P_KWG.....	Signal, crankshaft sensor
P_LOCK.....	Signal, interlock sensor, selector lever
P/N.....	Signal, selector lever position Park/Neutral
P_NWGA1.....	Exhaust-camshaft sensor 1
P_NWGE1.....	Intake-camshaft sensor 1
POL.....	lamp, passenger-airbag deactivation
POS+.....	lamp, passenger-airbag deactivation+
POS-.....	lamp, passenger-airbag deactivation-
POS_D.....	Switch center, position D
POS_N.....	Switch center, position N
POS_P.....	Switch center, position P
POS_R.....	Switch center, position R
P_SUP.....	0
PT_CAN_H.....	Power train, CAN High bus signal
PT_CAN_L.....	Power train, CAN Low bus signal
PTC_BF.....	Heated washer nozzle, front passenger's side
PTC_FA.....	Heated washer nozzle, driver's side
PWM_AUC.....	Signal pulse-width-modulated, AUC sensor
PWM_GEBL.....	Signal pulse-width-modulated, fan
P_ZSZ1.....	Ignition coil, cylinder 1
P_ZSZ2.....	Ignition coil, cylinder 2
P_ZSZ3.....	Ignition coil, cylinder 3
P_ZSZ4.....	Ignition coil, cylinder 4

## Signal Names With Q

### Signal Names With Q

Q11L.....	Headl.vert aim control, Q11 motor, left
Q11R.....	Headl.vert aim control, Q11 motor, right
Q12L.....	Headl.vert aim control, Q12 motor, left
Q12R.....	Headl.vert aim control, Q12 motor, right
Q21L.....	Headl.vert aim control, Q21 motor, left
Q21R.....	Headl.vert aim control, Q21 motor, right
Q22L.....	Headl.vert aim control, Q22 motor, left
Q22R.....	Headl.vert aim control, Q22 motor, right

## Signal Names With R

### Signal Names With R

RAD_ON.....	Signal, radio on
R_BLS.....	Supply, brake-light switch
R_DSB.....	Charge-air pressure sensor
R_DSK.....	Rail-pressure sensor
RFS_L.....	Reversing light, left
RFS_R.....	Reversing light, right
R<KUPPL.....	Supply, clutch switch
RPS.....	Communication, auxiliary instrument, internal
R_SBE.....	Terminal R, seat-occupancy detector
RSK.....	Return contact, wiper rest position
RSK_HI.....	Return contact, wiper rest position, rear

## Signal Names With S

### Signal Names With S

SAVBFS+.....	Side airbag, front passenger, positive
SAVBFS-.....	Side airbag, front passenger, negative
SAVFS+.....	Side airbag, driver, positive
SAVFS-.....	Side airbag, driver, negative
S_BBHR.....	Engine-venting heating
SBE.....	Seat occupancy detector
S_BLS.....	Brake-light switch
S_BLTS.....	Brake-light test switch

Mini Cooper S (R56) L4-1.6L Turbo (N14)	609
SC.....	Communication, auxiliary instrument, internal
S_CS.....	Switch, ambient-light changeover
S_DMTLH.....	Signal, tank leak diagnosis module, heating
S_DMTLP.....	Signal, diagnostic module, tank leak, pump
S_DMTLV.....	Signal, diagnostic module, tank leak, valve
S_DUMP.....	Bypass blow-off valve
S_EKP.....	Relay, electric fuel pump
SENS-.....	Sensor negative
SFL.....	Signal, selector-lever interlock
SFT.....	0
SHBF_PWM.....	Seat-heating module, front passenger, pulse-width-modulated
SHFA_PWM.....	Seat-heating module, driver, pulse-width-modulated
SHK-BF.....	Signal, rapid heating area
SHK-FA.....	Signal, rapid heating area
SHKNT1BF.....	Signal, sensor, heating area
SHKNT1FA.....	Signal, sensor, heating area
SHK+1BF.....	Signal, rapid heating area
SHK+1FA.....	Signal, rapid heating area
SHL-BF.....	Signal, seat back heating
SHL-FA.....	Signal, seat back heating
SHL+1BF.....	Signal, rapid heating area
SHL+1FA.....	Signal, rapid heating area
S_HR.....	Tripping, main relay
SIB.....	Switch, interior lights, continuous op.
SIN.....	Sine evaluation, steering-torque sensor
SIRENE.....	Control signal, DWA siren alarm
S_KFK.....	Map cooling
S_KOMP.....	Compressor activation
S_KUP.....	Signal, clutch switch
SLB1.....	Signal, electronic pressure-control valve
SLB1G.....	Ground, electronic pressure-control valve
SLC1.....	Signal, electronic pressure-control valve
SLC1G.....	Ground, electronic pressure-control valve
SLC2.....	Signal, electronic pressure-control valve
SLC2G.....	Ground, electronic pressure-control valve
SLC3.....	Signal, electronic pressure-control valve
SLC3G.....	Ground, electronic pressure-control valve
SLOCK.....	Signal, clutch switch
SLOW.....	Wiper motor, 1st stage
SLT.....	Signal, electronic pressure-control valve
SLTG.....	Ground, electronic pressure-control valve
SLU.....	Signal, electronic pressure-control valve
SLUG.....	Ground, electronic pressure-control valve
S_OLD.....	Signal, oil-pressure switch
SOLS.....	Solar sensor
SPKBF1.....	Mirror folding up, front passenger 1
SPKBF2.....	Mirror folding up, front passenger 2
SPKFA1.....	Mirror folding up, driver 1
SPKFA2.....	Mirror folding up, driver 2
SPKS.....	Activation, mirror folding up
SPS.....	Seat-position sensor, driver
SPVBFH.....	Mirror Adjustment, Passenger, Horizontal
SPVBFM.....	Mirror Adjustment, Passenger, Ground
SPVBFV.....	Mirror Adjustment, Passenger, Vertical
SPVFAH.....	Mirror Adjustment, Driver, Horizontal
SPVFAM.....	Mirror Adjustment, Driver, Ground
SPVFAV.....	Mirror Adjustment, Driver, Vertical
S_RFL.....	Back-up signal
SSBBSFX+.....	Airbag sensor, B-pillar, driver's side, positive
SSBBSFX-.....	Airbag sensor, B-pillar, driver's side, negative
SSBBSFY+.....	Airbag sensor, B-pillar, driver's side, positive
SSBBSFY-.....	Airbag sensor, B-pillar, driver's side, negative
SSBFSX+.....	Airbag sensor, B-pillar, front passenger's side, positive
SSBFSX-.....	Airbag sensor, B-pillar, front passenger's side, negative
SSBFSY+.....	Airbag sensor, B-pillar, front passenger's side, positive
SSBFSY-.....	Airbag sensor, B-pillar, front passenger's side, negative
SSHDA.....	Switch, slide/tilt sunroof, open
SSHDH.....	Switch, slide/tilt sunroof, raise
SSHDZ.....	Switch, slide/tilt sunroof, closed
S_START.....	Relay, comfort start/start enable



Mini Cooper S (R56) L4-1.6L Turbo (N14)	610
SSTBF+	Airbag sensor, door, front passenger's side, positive
SSTBF-	Airbag sensor, door, front passenger's side, negative
SSTF+	Airbag sensor, door, driver's side, positive
SSTF-	Airbag sensor, door, driver's side, negative
S_TC	Turbocharger-coolant pump
STDWA	Car immobilization system
STEP1	Flap motor activation
STEP1_LK	Activation, air-distribution-flap motor
STEP1_MK	Activation, mixing-flap motor
STEP2	Activation, flap motors
STEP2_LK	Activation, air-distribution-flap motor
STEP2_MK	Activation, mixing-flap motor
STEP3	Activation, flap motors
STEP3_LK	Activation, air-distribution-flap motor
STEP3_MK	Activation, mixing-flap motor
STEP4	Activation, flap motors
STEP4_LK	Activation, air-distribution-flap motor
STEP4_MK	Activation, mixing-flap motor
ST1	Heater blower, speed 1
ST2	Heater blower, speed 2
ST3	Heater blower, speed 3
ST4	Heater blower, speed 4
SUB_BUS	Internal bus, instrument cluster
S_VVTR1	Unloading relay VVT
S49W	Switch, hazard-warning lights
S_50	Term.50, ignition lock

## Signal Names With T

### Signal Names With T

TANKLI+	Fuel supply sensor, tank, left, plus
TANKLI-	Fuel supply sensor, tank, left, minus
TANKRE+	Fuel supply sensor, tank, right, plus
TANKRE-	Fuel supply sensor, tank, right, minus
T_ANT_1	Communication, start-stop unit/CAS
T_ANT1	Communication, start-stop unit/CAS
T_ANT_2	Communication, start-stop unit/CAS
T_ANT2	Communication, start-stop unit/CAS
T_DAT1S	Signal, eccentric-shaft sensor
T_DAT2S1	Signal, reference sensor VVT
T_ELUE	Activation, electric fan, stage 1
T_ELUE_2	Activation, electric fan, stage 2
T_ELUE2	Activation, electric fan, stage 2
TKBT	Door contact, passenger's door
TKFT	Door contact, driver's door
T_LHH1	Oxygen-sensor heater after cat.conv, bank 1
T_LHV1	Oxygen-sensor heater before cat.conv, bank 1
T_MDK1	Activation, electric gas actuator 1
T_MDK2	Activation, electric gas actuator 2
T_MSV	Activation, fuel-quantity control valve
T_NWA1	VANOS valve, exhaust camshaft 1
T_NWE1	VANOS valve, intake camshaft 1
TOEHK	Button, open tailgate
TP+	Tiptronic up
TP-	Tiptronic down
T_SPORT	SPORT button
T_TAGBFA	Button, outside door handle, front passenger
T_TAGFA	Button, outside door handle, driver
T_TEV	Tank-ventilation valve
TTHL+	Woofers, rear left, positive
TTHL-	Woofers, rear left, negative
TTHR+	Woofers, rear right, positive
TTHR-	Woofers, rear right, negative
TTVL+	Woofers, front left, positive
TTVL-	Woofers, front left, negative
TTVR+	Woofers, front right, positive
TTVR-	Woofers, front right, negative
T_VVT1M1	Activation 1, motor VVT
T_VVT2M1	Activation 2, motor VVT

Mini Cooper S (R56) L4-1.6L Turbo (N14)	
T_WG.....	Activation, Wastegate valve
TXCK+.....	Clock signal plus
TXCK-.....	Clock signal minus
TXOUT0+.....	Data transmission 0, positive
TXOUT0-.....	Data transmission 0, negative
TXOUT1+.....	Data transmission 1, positive
TXOUT1-.....	Data transmission 1, negative
TXOUT2+.....	Data transmission 2, positive
TXOUT2-.....	Data transmission 2, negative
TZV.....	Button, central locking

## Signal Names With U

### Signal Names With U

U_BBHR.....	Supply, engine-ventilation heating
U_DKG.....	Pwr supply, throttle-valve pot
U_DSB.....	Supply, boost-pressure sensor
U_DSK.....	Supply, rail-pressure sensor
U_ELUE.....	Supply, electric fan, stage 1
U_ELUE2.....	Supply, electric fan, stage 2
U_EVZ1.....	Pwr supply, fuel injector, cylinder 1
U_EVZ2.....	Pwr supply, fuel injector, cylinder 2
U_EVZ3.....	Pwr supply, fuel injector, cylinder 3
U_EVZ4.....	Pwr supply, fuel injector, cylinder 4
UFBFX+.....	Airbag front sensor, front passenger's side, positive
UFBFX-.....	Airbag front sensor, front passenger's side, negative
UFFSX+.....	Airbag front sensor, driver's side, positive
UFFSX-.....	Airbag front sensor, driver's side, negative
U_FWG1.....	Pwr supply, pedal-sensor 1
U_FWG2.....	Pwr supply, pedal-sensor 2
U_GEBL.....	Blower control voltage
U_HR<2.....	Pwr supply, engine electr., fuse 2
U_HR<3.....	Pwr supply, engine electr., fuse 3
U_HR<4.....	Pwr supply, engine electr., fuse 4
U_HR<5.....	Pwr supply, engine electr., fuse 5
U_KWG.....	Pwr supply, crankshaft sensor
U_NWGA1.....	Supply, camshaft sensor, exhaust
U_NWGE1.....	Supply, camshaft sensor, inlet
U_SDF.....	Supply, intake-manifold pressure sensor
U_STEP.....	Supply, falp motors
U_VVTR1.....	Switched supply, variable valve gear
U_VVTS1.....	Supply sensor VVT
U_WHL.....	Pwr supply, converter, PDC, rear left
U_WHML.....	Pwr supply, conv., PDC, rear center left
U_WHMR.....	Pwr supply, conv., PDC, rear center right
U_WHR.....	Pwr supply, converter, PDC, rear right

## Signal Names With V

### Signal Names With V

VCC_HALL.....	Communication, start-stop unit/CAS
VEDF.....	Sensor, evaporator temperature
VRFT.....	Locking, driver's door
VVT1M1.....	Valvetronic actuator motor
VVT2M1.....	Valvetronic actuator motor

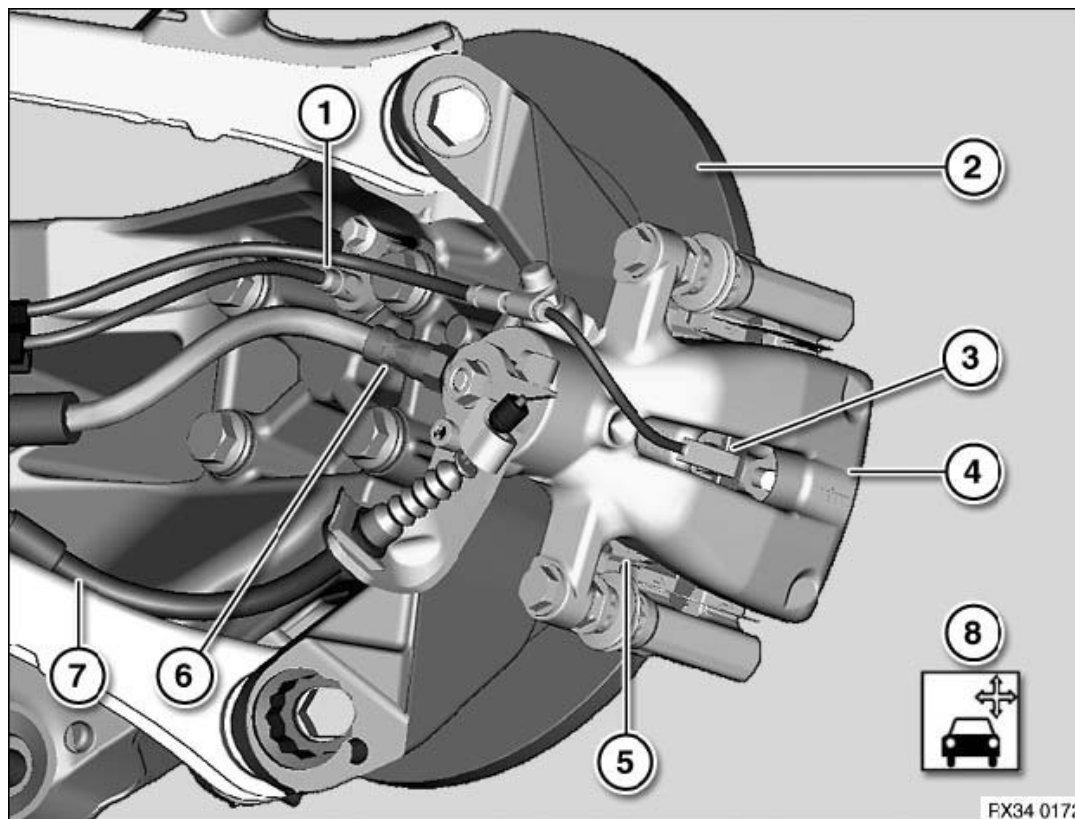
## Signal Names With W

### Signal Names With W

WIPER1.....	Wiper stage 1
WIPER2.....	Wiper stage 2
WP_HI.....	Window washer pump, rear
WP_VO.....	Windscreen washer pump, front
WTL.....	Sensor, heat-exchanger temperature, left
WWN.....	Washer-fluid level low

## Brake Caliper

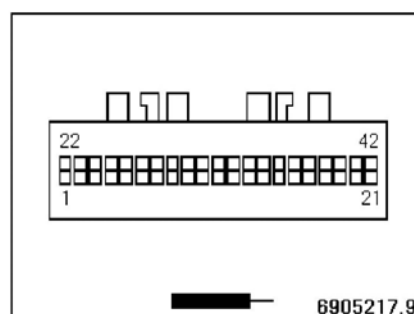
### 34 21 ... Overview of rear brakes



- 1 Pulse generator, rear
- 2 Brake discs
- 3 Brake-pad wear sensor
- 4 Brake caliper
- 5 Brake pads
- 6 Brake hose
- 7 Handbrake Bowden cables
- 8 Testing

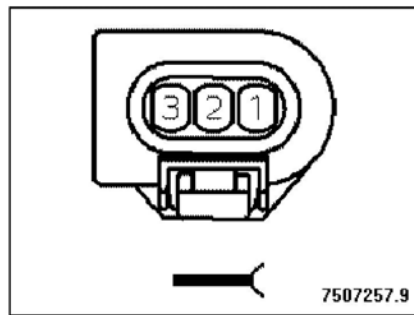
## X15

### X15



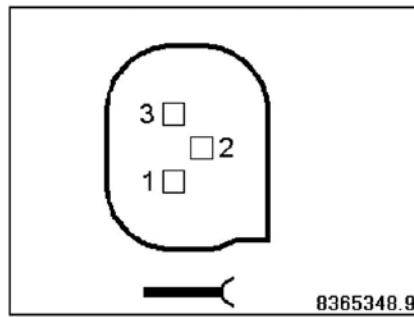
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### X126



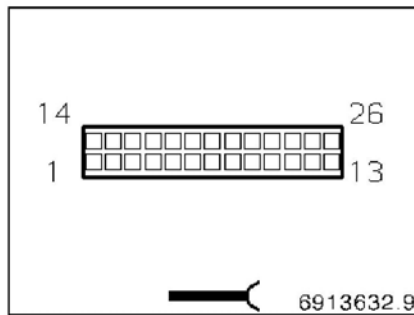
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**X161**



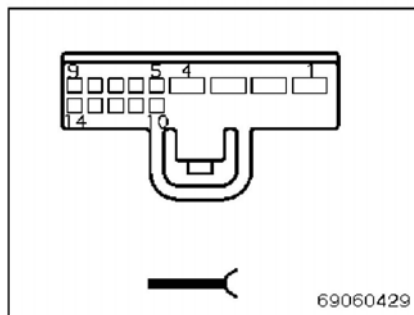
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**X1081**



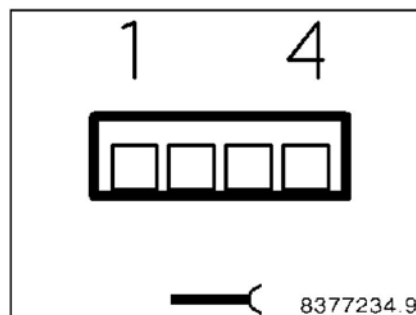
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**X1312**



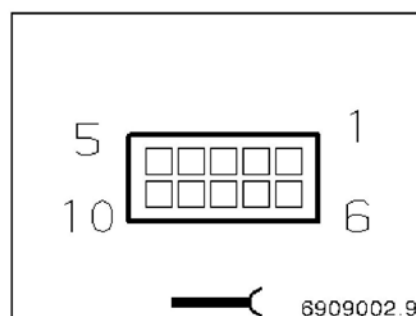
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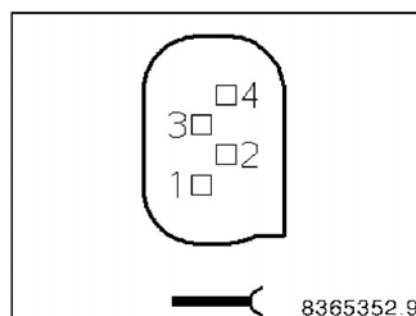
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**X1708**



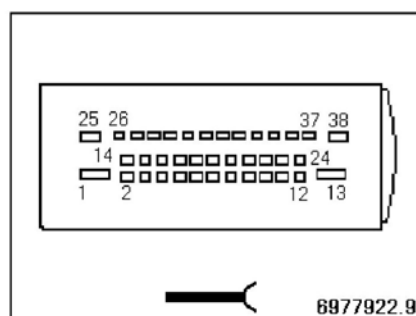
**X1714**

**X1714**



**X1746**

**X1746**



**Pin assignments at plug connector X1746**

**Pin assignments at plug connector X1746**

Pin	Type	Description / Signal type	Connection / Measuring notes
1	E	Supply, terminal 30	Fuse FL6
2		Not occupied	
3	A	Supply Signal, front right wheel speed	Front right wheel speed sensor
4	A/E	Signal, front right wheel speed	Front right wheel speed sensor
5	A/E	Signal PT-CAN high	CAN-bus connector
6	A/E	Signal PT-CAN low	CAN-bus connector
7	E	Signal, terminal 30G	Fuse F16
8	A/E	Signal F-CAN low	CAN-bus connector
9	A/E	Signal F-CAN high	CAN-bus connector
10	A/E	Signal, rear right wheel speed	Rear right wheel speed sensor
11	A	Supply Signal, rear right wheel speed	Rear right wheel speed sensor
12		Not occupied	
13	M	Ground	Ground point
14		Not occupied	
15		Not occupied	

**Pin 1 To Pin 15**

16		Not occupied	
17		Not occupied	
18		Not occupied	
19		Not occupied	
20		Not occupied	
21		Not occupied	
22		Not occupied	
23		Not occupied	
24		Not occupied	
25	E	Supply, terminal 30	Fuse F06
26		Not occupied	
27	A	Supply Signal, front left wheel speed	Front left wheel speed sensor
28	A/E	Signal, front left wheel speed	Front left wheel speed sensor
29	A	Conditioned wheel speed signal	Car access system
30	E	Wake-up signal, terminal 15	Connector, terminal 15 wake-up
31		Not occupied	
32	E	Brake light switch signal	Brake light switch

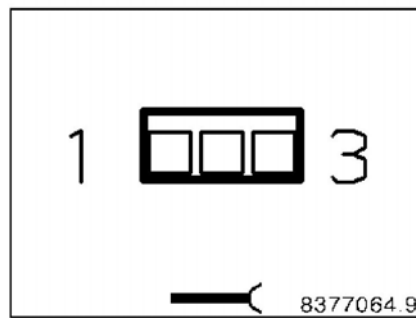
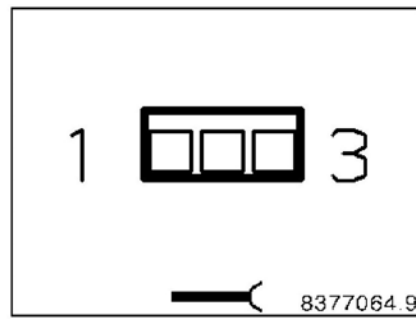
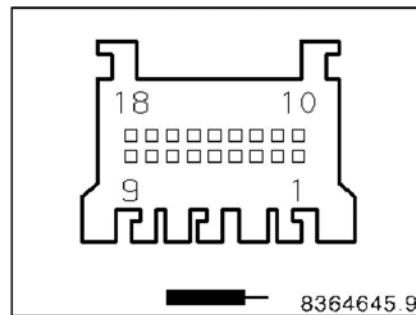
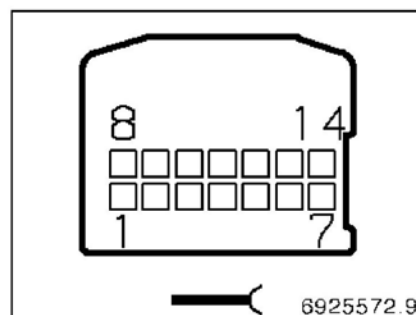
### Pin 16 To Pin 32

33	E	Signal, brake fluid level	Brake fluid level switch
34		Not occupied	
35	A	Signal, rear left wheel speed	Rear left wheel speed sensor
36	A/E	Supply Signal, rear left wheel speed	Rear left wheel speed sensor
37	A	Signal, rear left wheel speed	Outside mirror fold-in
38	M	Ground	Ground point

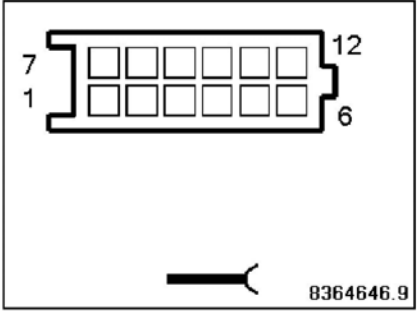
### Pin 33 To Pin 38

X1776

X1776

**X1804****X1804****X1848****X1848****X1848 Adapter 614470, Storage Location C110 (As of 03/08)****X1869****X1869****A11A Heating/Air Conditioning System (IHKA Integrated Automatic Heating/Air Conditioning)****X1879**





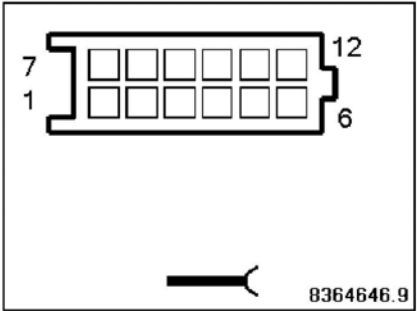
Pin assignments at plug connector X1879

Pin assignments at plug connector X1879

Pin	Type	Description / Signal type	Connection / Measuring notes
1	A/E	Signal, CAN-bus	Junction box, electronics
2	A/E	Signal, CAN-bus	Junction box, electronics
3	M	Ground	Ground point
4	E	Signal, terminal 58G	Footwell module
5	E	Supply, terminal 30G	Fuse F18
6		Not occupied	
7		Not occupied	
8		Not occupied	
9		Not occupied	
10		Not occupied	
11	A	Signal, lock central locking	Car access system
12		Not occupied	

A11A Heating/Air Conditioning System (Without IHKA Integrated Automatic Heating/Air Conditioning)

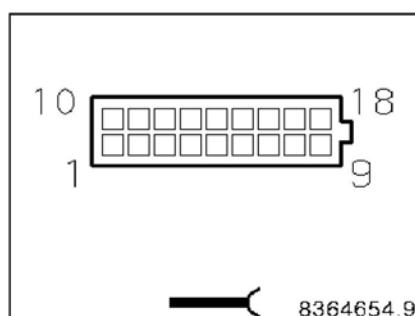
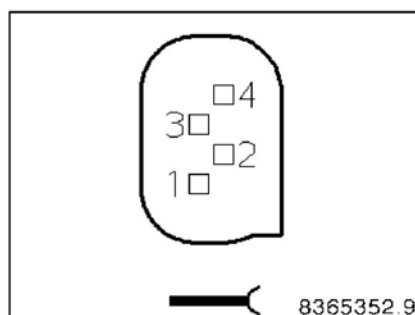
X1879

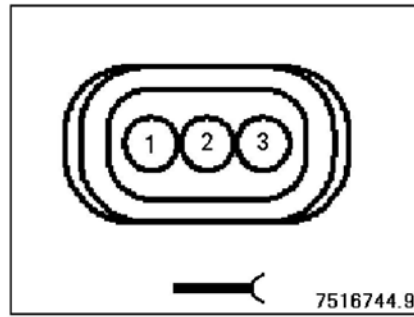


Pin Assignments At Plug Connector X1879

**Pin assignments at plug connector X1879**

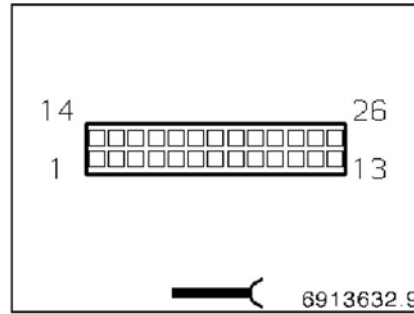
Pin	Type	Description / Signal type	Connection / Measuring notes
1	A/E	Signal, CAN-bus	Junction box, electronics
2	A/E	Signal, CAN-bus	Junction box, electronics
3	M	Ground	Ground point
4	E	Signal, terminal 58G	Footwell module
5	E	Supply, terminal 30G	Fuse F18
6		Not occupied	
7		Not occupied	
8		Not occupied	
9		Not occupied	
10		Not occupied	
11	A	Signal, lock central locking	Car access system
12		Not occupied	

**X1880****X1880****X10107****X10107****X10172****X10172**



## X10179

### X10179



### Pin assignments at plug connector X10179

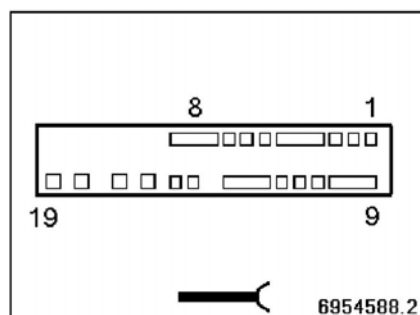
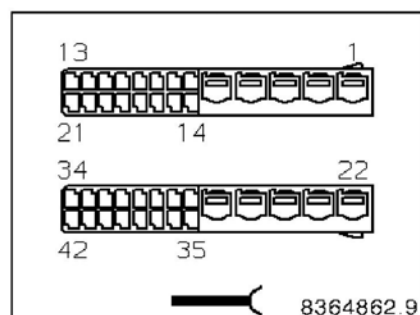
***Pin assignments at plug connector X10179***

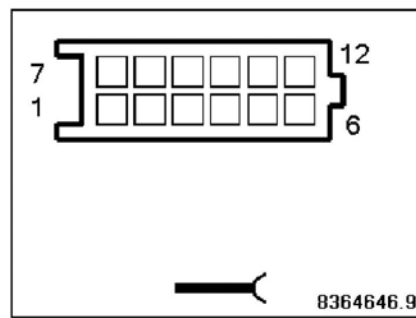
Pin	Type	Description / Signal type	Connection / Measuring notes
1	A	Negative activation, airbag	Steering column switch cluster
2	A	Positive activation, airbag	Steering column switch cluster
3	A	Positive activation, airbag	Inflator assemblies, passenger's airbag
4	A	Negative activation, airbag	Inflator assemblies, passenger's airbag
5	A	USA: Negative activation, airbag	Steering column switch cluster
6	A	USA: Positive activation, airbag	Steering column switch cluster
7	A	USA: Positive activation, airbag	Inflator assemblies, passenger's airbag
8	A	USA: Negative activation, airbag	Inflator assemblies, passenger's airbag
9		Not occupied	
10		Not occupied	
11		Not occupied	
12		Not occupied	
13		Not occupied	
14		Not occupied	
15		Not occupied	

**Pin 1 To Pin 15**

16	E	Signal, airbag deactivation -	Switch, passenger airbag deactivation
17	E	Signal, airbag deactivation +	Switch, passenger airbag deactivation
18	A/E	CAN bus high	Junction box, electronics
19	A/E	CAN bus low	Junction box, electronics
20		Not occupied	
21		Not occupied	
22		Not occupied	
23		Not occupied	
24		Not occupied	
25		Not occupied	
26		Not occupied	

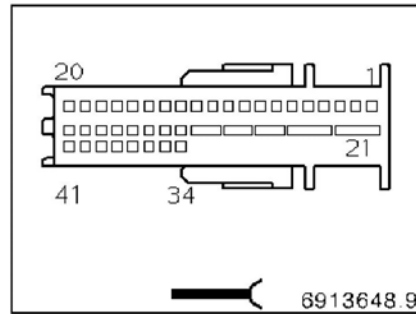
Pin 16 To Pin 26

**X10214****X10214****X10266****X10266****X10313****X10313**



**X10318**

**X10318**



**Pin assignments at plug connector X10318**

**Pin assignments at plug connector X10318**

Pin	Type	Description / Signal type	Connection / Measuring notes
1	A	Signal, terminal 30G	Junction box Relay, terminal 30G
2	A	Signal, terminal R	Brake light switch
3	A	Signal, terminal R	Clutch module
4	A	Power supply, seat occupancy detection	with seat occupancy detection system Passenger's seat occupancy detection
4	A	Power supply, seat occupancy detection	without seat occupancy detection system Roof operating unit
5	A	Signal, terminal R	Multiple restraint system control module
6	A	Signal, terminal 50	DC/DC converter
7	A	Signal, terminal 15	diesel engine Hot-film air mass meter
8	A	Signal, terminal 15	Junction box Relay, terminal 15
9		Not occupied	
10		Not occupied	
11	A	Signal, selector lever interlock sensor	Switch, selector lever position
12	M	Ground	Ground point
13	A	Signal, terminal 15	OBDII socket
14	A	Signal, terminal 15	Footwell module

**Pin 1 To Pin 14**

15		Not occupied	
16		Not occupied	
17		Not occupied	
18		Not occupied	
19	A	Wake-up signal, terminal 15	Junction box
20	A	Signal, electronic vehicle immobilizer	Digital diesel electronics control module
21	E	Terminal 30	Fuse F49
22	A	Signal, starter terminal 50	Starter
23	A	Voltage supply Electric steering lock	Electric steering lock
24	A	Ground Electric steering lock	Electric steering lock
25	M	Ground	Electric steering lock
26	A/E	Signal, CAN-bus	CAN-bus connector
27		Not occupied	
28	A	Signal, engine start	DME control module Digital diesel electronics control module
29	E	Signal, center lock	Heating/air conditioning system
30	A/E	PA bus signal	PA bus connector
31	E	Conditioned wheel speed signal	Dynamic stability control (DSC)

### Pin 15 To Pin 31

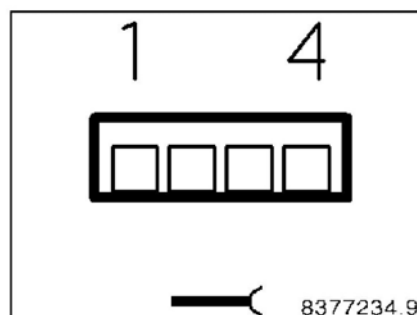


32	E	Brake light test signal	Brake light switch
33	E	Signal, remote control services	Electrochromic interior rear view mirror
34	E	Terminal 30	Fuse F34
35	A/E	Signal, CAN-bus	CAN-bus connector
36	A	Wake-up signal, terminal 15	Digital diesel electronics control module DME control module
37		Not occupied	
38	E	Signal, front lid contact	Hood contact switch
39		Not occupied	
40		Not occupied	
41	E	automatic transmission Signal, parked position	Transmission control
41	E	manual transmission Signal, start lock switch	Clutch module

### Pin 32 To Pin 41

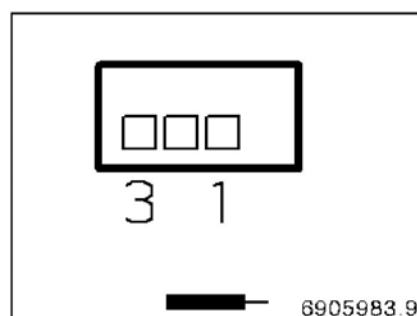
**X10320**

**X10320**



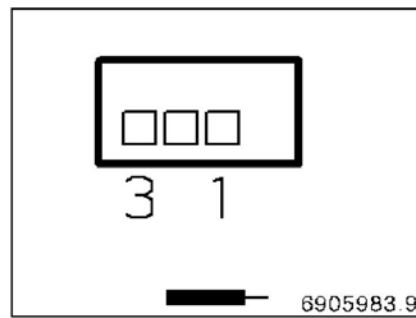
**X10357**

**X10357**



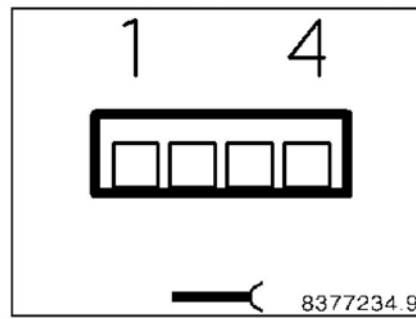
**X10358**

**X10358**



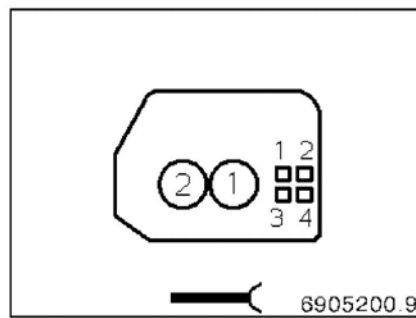
**X10387**

**X10387**



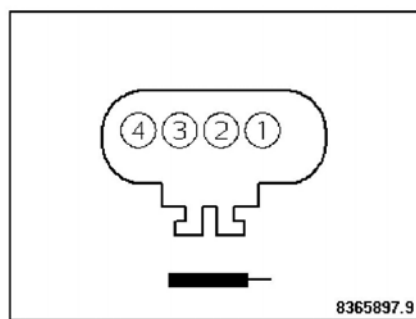
**X10610**

**X10610**



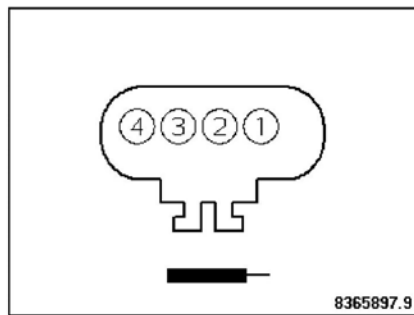
**X10665**

**X10665**



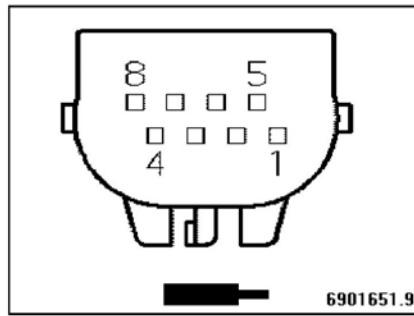
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**X10666**



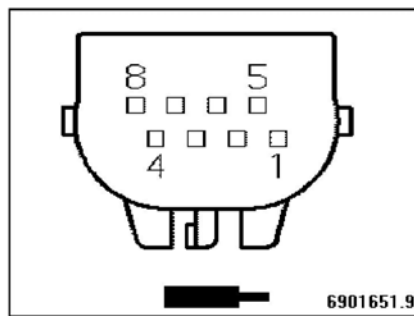
**X10669**

**X10669**



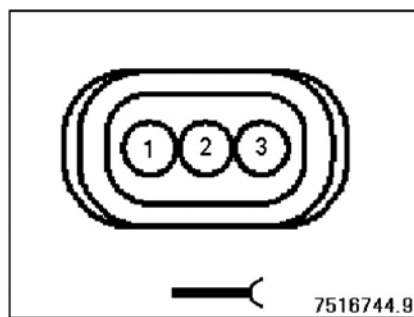
**X10670**

**X10670**



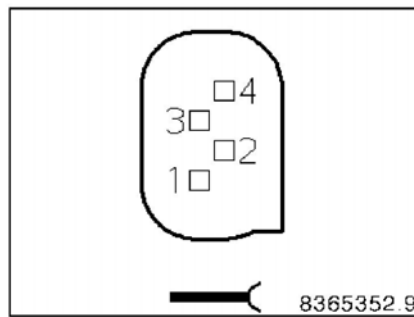
**X10713**

**X10713**



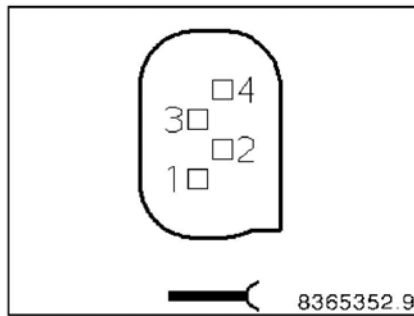
**X10806**

**X10806**



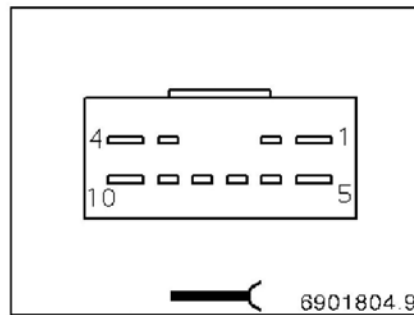
**X10807**

**X10807**



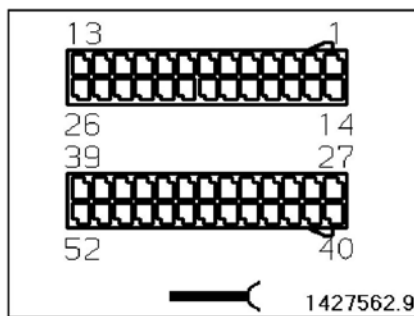
**X11001**

**X11001**



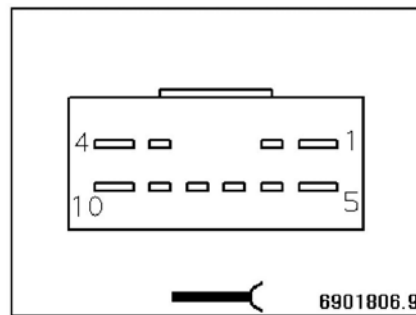
**X11002**

**X11002**



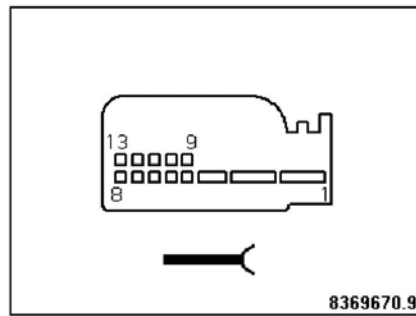
**X11003**

**X11003**



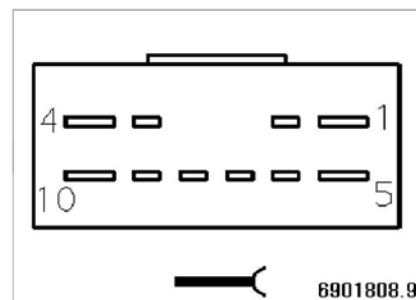
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**X11006**



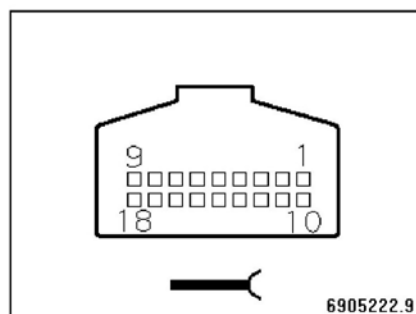
**X11007**

**X11007**



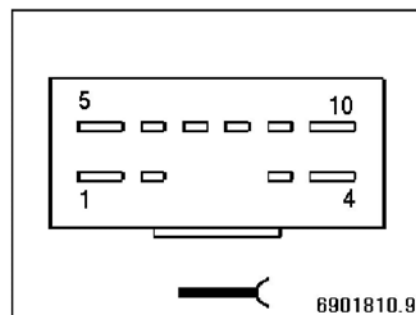
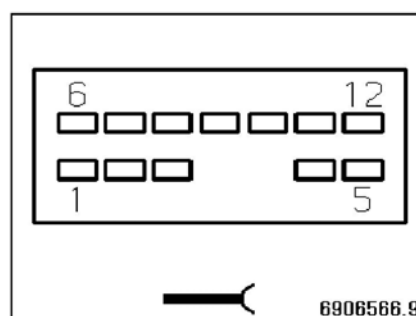
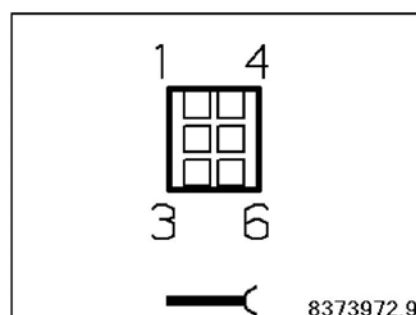
**X11008**

**X11008**



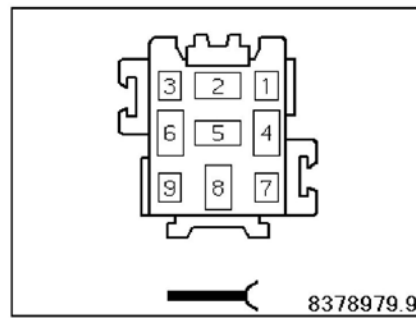
**X11009**

**X11009**

**X11010****X11010****X11175****X11175****Pin assignments at plug connector X11175*****Pin assignments at plug connector X11175***

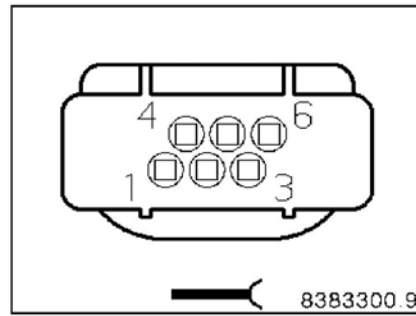
Pin	Type	Description / Signal type	Connection / Measuring notes
1	E	Terminal R	Additional instrument
2	E	Ground	Ground point
3	A	Telephone on LED display DWA	Additional instrument
4	A/E	Bus signal	Additional instrument
5	E	Supply, central information display	Additional instrument
6	E	Terminal R	Additional instrument

**X11255****X11255**



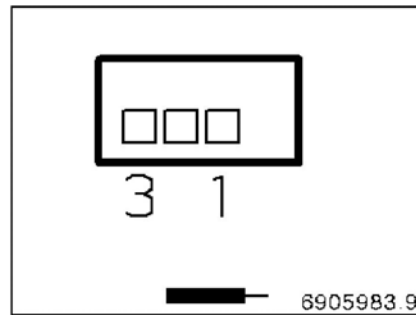
**X11400**

**X11400**



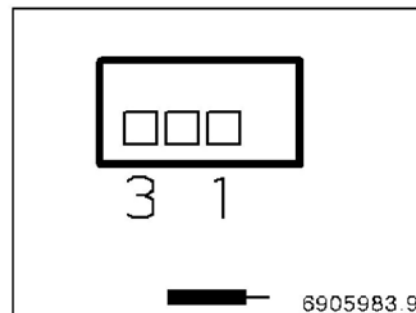
**X11609**

**X11609**



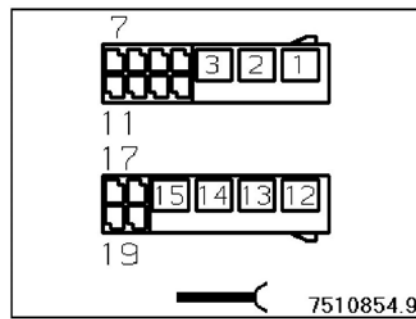
**X11619**

**X11619**



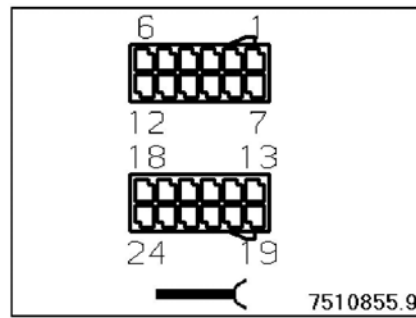
**X11633**

**X11633**



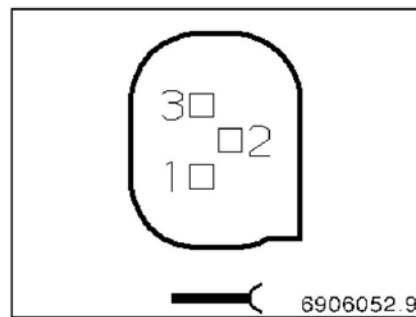
**X11634**

**X11634**



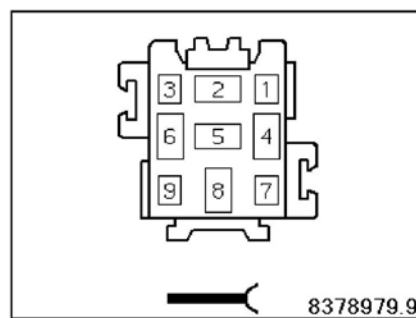
**X12600**

**X12600**



**X13056**

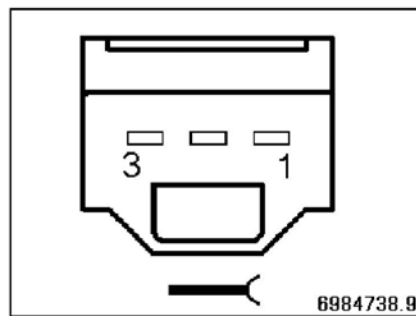
**X13056**



**X13057**

**X13057**

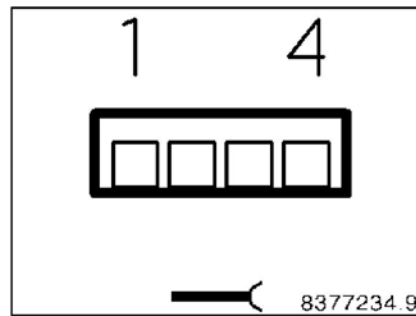




6984738.9

**X13084**

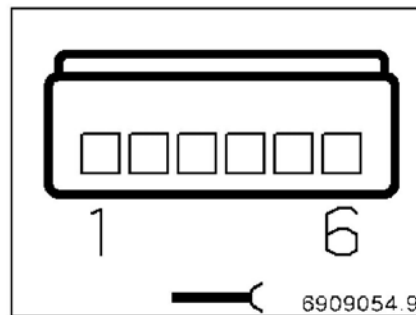
X13084



8377234.9

**X13174**

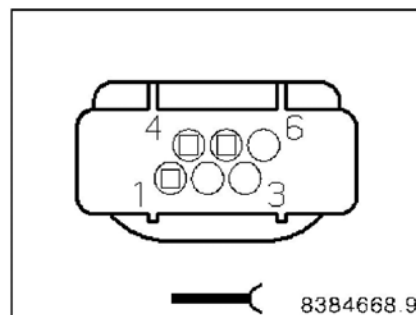
X13174



6909054.9

**X13251**

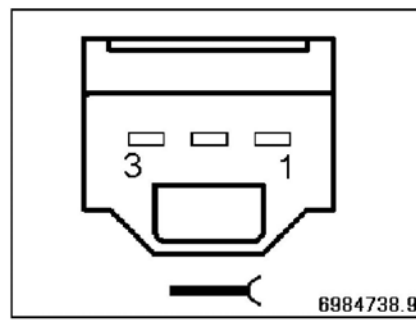
X13251



8384668.9

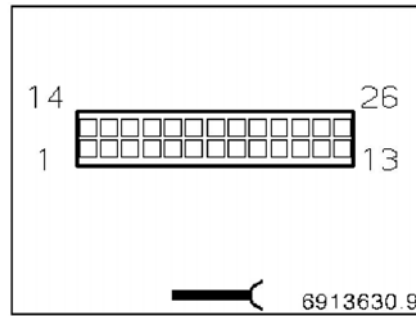
**X13268**

X13268



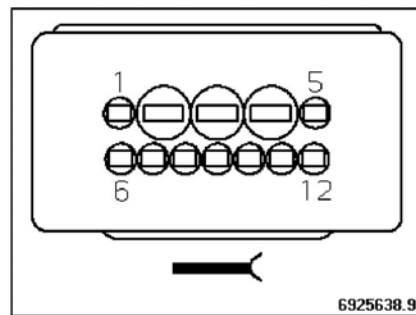
**X13354**

X13354



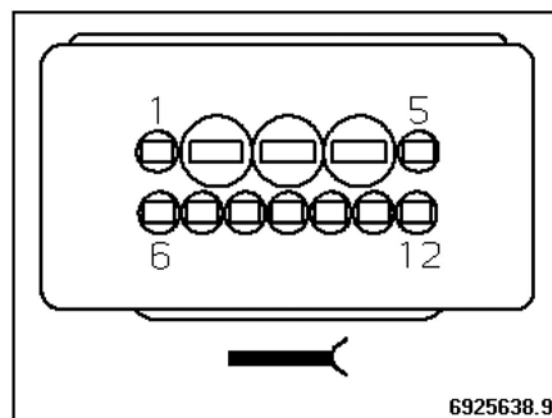
**X13420**

X13420



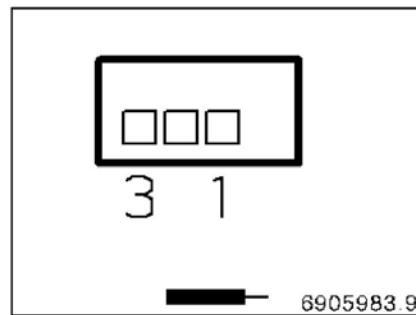
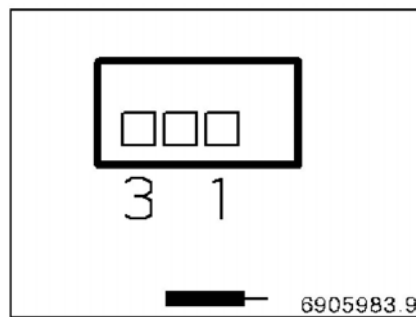
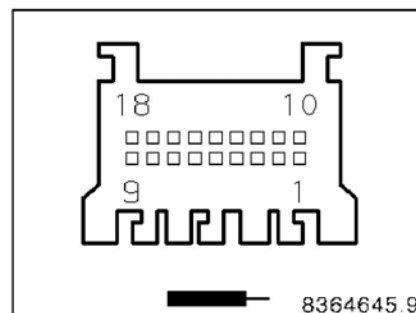
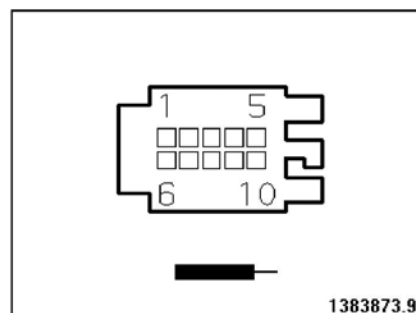
**X13421**

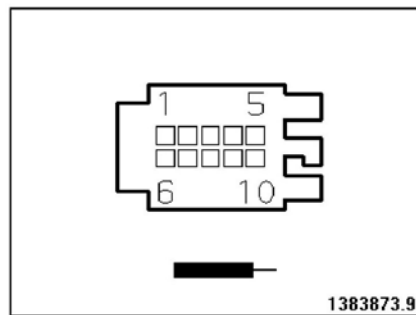
X13421



**X13424**

X13424

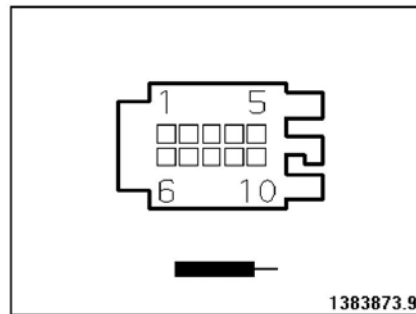
**X13425****X13425****X13566 Adapter 614470, Storage Location C110****X13566****X13566 Adapter 616035, Storage Location D111****X13566****X13566 Adapter 616035, Storage Location D111****X13567 Adapter 611465/-66, Storage Location B112/-13****X13567****X13567 Adapter 611465/-66, Storage Location B112/-13**



## **X13567 Adapter 616035, Storage Location D111**

**X13567**

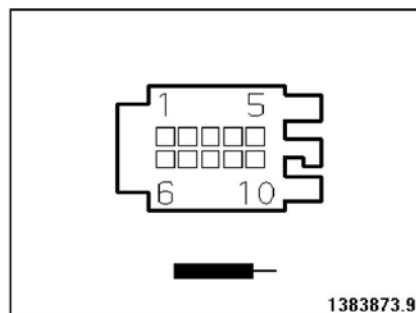
**X13567 Adapter 616035, Storage Location D111**



## **X13567 Adapter 611465, Storage Location B112**

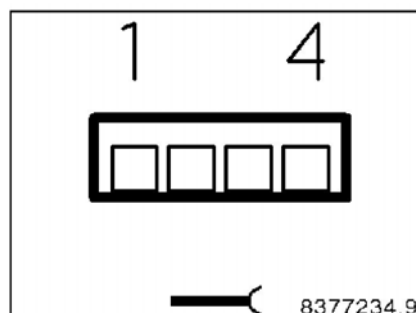
**X13567**

**X13567 Adapter 611465, Storage Location B112**



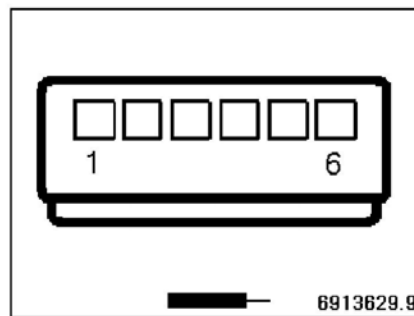
## **X13635**

**X13635**



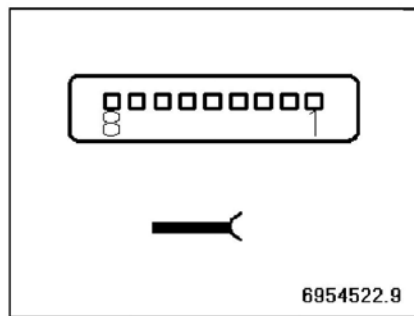
## **X13653**

**X13653**



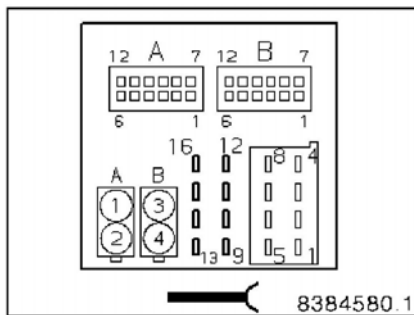
**X13778**

**X13778**



**N9 Radio**

**X13812**



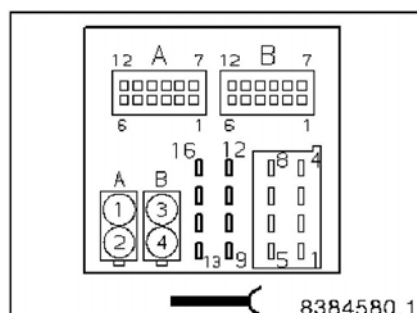
**Pin assignments at plug connector X13812**

### Pin assignments at plug connector X13812

Pin	Type	Description / Signal type	Connection / Measuring notes
1	A	Positive activation Woofer, rear right	Woofer, rear right
2	A	Positive activation Woofer, front right	Woofer, front right
2	A	Signal, front right mid-range speaker +	Mid-range speaker, front right
3	A	Positive activation Woofer, front left	Woofer, front left
3	A	Signal, front left mid-range speaker +	Mid-range speaker, front left
4	A	Positive activation Woofer, rear left	Woofer, rear left
5	M	Negative activation Woofer, rear right	Woofer, rear right
6	A	Signal, front right mid-range speaker -	Mid-range speaker, front right
6	M	Negative activation Woofer, front right	Woofer, front right
7	M	Negative activation Woofer, front left	Woofer, front left
7	M	Signal, front left mid-range speaker -	Mid-range speaker, front left
8	M	Negative activation Woofer, rear left	Woofer, rear left
9	A/E	CAN bus low	CAN-bus connector
10	E	Signal, SIM card	Telephone transceiver
11	A/E	CAN bus high	CAN-bus connector
12	M	Ground	Ground point
13	A	Antenna switching signal	Connector X13887
14	E	Signal, locator lighting	Connector, dimmed instrument lighting
15	E	Signal, terminal 30G	Fuse F21
16		Not occupied	

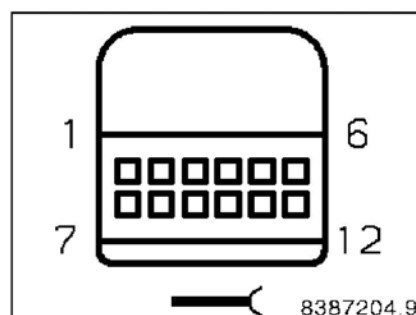
## N38A CCC/M-ASK

**X13812**



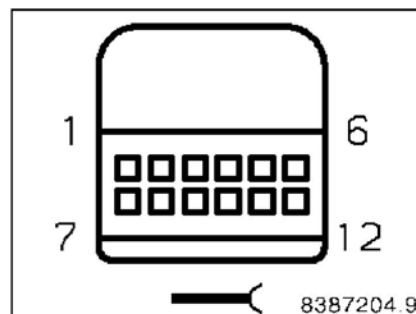
**Pin assignments at plug connector X13812*****Pin assignments at plug connector X13812***

Pin	Type	Description / Signal type	Connection / Measuring notes
1	A	Signal, AF radio, rear right +	Amplifier
2	A	Signal, AF radio, front right +	Amplifier
3	A	Signal, AF radio, front left +	Amplifier
4	A	Signal, AF radio, rear left +	Amplifier
6	M	Signal, AF radio, rear right -	Amplifier
6	M	Signal, AF radio, front right -	Amplifier
7	M	Signal, AF radio, front left -	Amplifier
8	M	Signal, AF radio, rear left -	Amplifier
9	A/E	CAN bus low	CAN-bus connector
10		Not occupied	
11	A/E	CAN bus high	CAN-bus connector
12	M	Ground	Ground point
13	A	Antenna switching signal	Connector X13887
14	E	Signal, locator lighting	Connector, dimmed instrument lighting
15	E	Supply, terminal 30G	Fuse F45
16		Not occupied	

**N9 Radio****X13813****Pin assignments at plug connector X13813**

**Pin assignments at plug connector X13813**

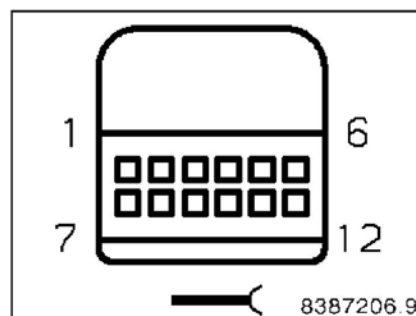
Pin	Type	Description / Signal type	Connection / Measuring notes
1		Not occupied	
2	E	AF signal	AV socket
3		Not occupied	
4		Not occupied	
5		Not occupied	
6		Not occupied	
7	E	AF signal	AV socket
8	M	Shielding	AV socket
9		Not occupied	
10		Not occupied	
11		Not occupied	
12		Not occupied	

**N38A CCC/M-ASK****X13813****Pin assignments at plug connector X13813**



**Pin assignments at plug connector X13813**

Pin	Type	Description / Signal type	Connection / Measuring notes
1	A	Fan CCC/M-ASK Positive supply	Fan M-ASK/CCC
2	A	AF signal, left	AV socket
3		Not occupied	
4		Not occupied	
5	M	Fan CCC/M-ASK Negative supply	Fan M-ASK/CCC
6		Not occupied	
7	A	AF signal, right	AV socket
8	M	Ground	AV socket
9		Not occupied	
10		Not occupied	
11	E/A	Diagnosis signal	Fan M-ASK/CCC
12		Not occupied	

**X13814****X13814****Pin assignments at plug connector X13814**

**Pin assignments at plug connector X13814**

Pin	Type	Description / Signal type	Connection / Measuring notes
1		Not occupied	
2	M	Ground	Video module
3		Not occupied	
4	E	Video signal	Video module
5		Not occupied	
6		Not occupied	
7		Not occupied	
8		Not occupied	
9		Not occupied	
10		Not occupied	
11	M	Shielding	Video module
12		Not occupied	

**N9 Radio****Pin assignments at plug connector X13815****Pin assignments at plug connector X13815**

Pin	Type	Description / Signal type	Connection / Measuring notes
1	A/E	Signal, MOST bus	Component(s) according to vehicle equipment level
2	A/E	Signal, MOST bus	Component(s) according to vehicle equipment level

**N38A CCC/M-ASK****Pin assignments at plug connector X13815****Pin assignments at plug connector X13815**

Pin	Type	Description / Signal type	Connection / Measuring notes
1	A/E	Signal, MOST bus	Component(s) according to vehicle equipment level
2	A/E	Signal, MOST bus	Component(s) according to vehicle equipment level

**N9 Radio****Pin assignments at plug connector X13816**

**Pin assignments at plug connector X13816**

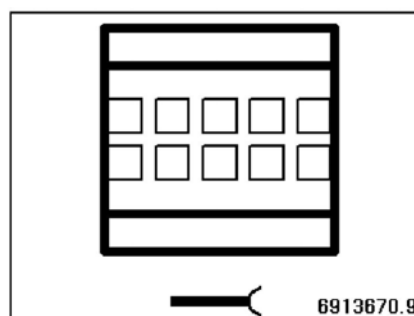
Pin	Type	Description / Signal type	Connection / Measuring notes
1	E	Signal, antenna reception	Roof antenna or Antenna diversity
2	M	Shielding	Roof antenna or Antenna diversity

**N38A CCC/M-ASK****N38A CCC/M-ASK****Pin assignments at plug connector X13816**

Pin	Type	Description / Signal type	Connection / Measuring notes
1	E	Signal, antenna reception	Antenna diversity
2	M	Shielding	Antenna diversity

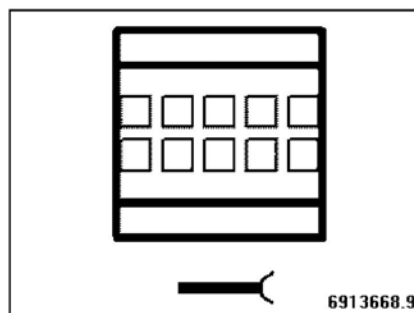
**X13817****Pin assignments at plug connector X13817****Pin assignments at plug connector X13817**

Pin	Type	Description / Signal type	Connection / Measuring notes
1	E	connection, GPS antenna	Roof antenna
2	M	Shielding	Roof antenna

**X13820****X13820****Pin assignments at plug connector X13820**

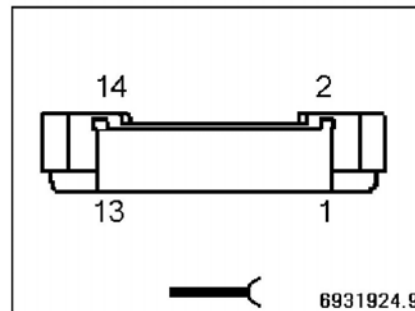
**Pin assignments at plug connector X13820**

Pin	Type	Description / Signal type	Connection / Measuring notes
1	A	Signal TXOUT	Central information display
2	A	Signal TXOUT	Central information display
3		Not occupied	
4	A	Signal TXOUT	Central information display
5	A	Signal TXOUT	Central information display
6	A	Signal TXOUT	Central information display
7	A	Signal TXOUT	Central information display
8		Not occupied	
9	A	Signal TXCK	Central information display
10	A	Signal TXCK	Central information display

**X13823****X13823****Pin assignments at plug connector X13823**

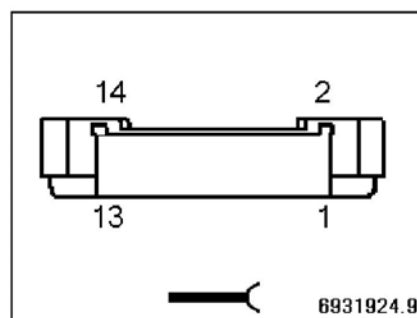
**Pin assignments at plug connector X13823**

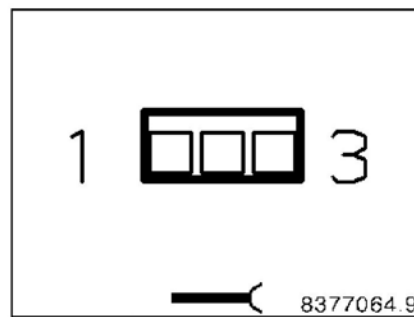
Pin	Type	Description / Signal type	Connection / Measuring notes
1	E	Signal TXOUT	CCC/M-ASK
2	E	Signal TXOUT	CCC/M-ASK
3		Not occupied	
4	E	Signal TXOUT	CCC/M-ASK
5	E	Signal TXOUT	CCC/M-ASK
6	E	Signal TXCK	CCC/M-ASK
7	E	Signal TXCK	CCC/M-ASK
8		Not occupied	
9	E	Signal TXOUT	CCC/M-ASK
10	E	Signal TXOUT	CCC/M-ASK

**X14027****X14027****Pin assignments at plug connector X14027**

**Pin assignments at plug connector X14027**

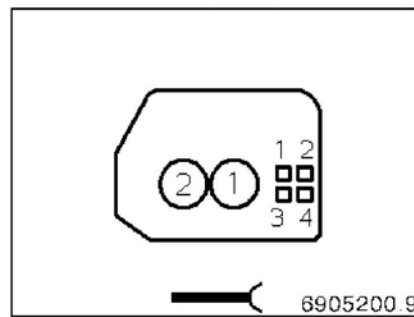
Pin	Type	Description / Signal type	Connection / Measuring notes
1	A	Antenna switching signal	Start-Stop unit
2	A	Antenna switching signal	Start-Stop unit
3	M	Ground LED activation	Start-Stop unit
4	A	LED activation	Start-Stop unit
5	A	Supply, Hall sensor	Start-Stop unit
6	E	Signal, Hall sensor	Start-Stop unit
7	E	Signal, Hall sensor	Start-Stop unit
8	E	Signal, Hall sensor	Start-Stop unit
9	E	Signal, Hall sensor	Start-Stop unit
10	A	Supply, Hall sensor	Start-Stop unit
11	M	Ground, Hall sensor	Start-Stop unit
12	M	Ground, Hall sensor	Start-Stop unit
13	A	Signal TX/RX	Start-Stop unit
14	A	Signal TX/RX	Start-Stop unit

**X14028****X14028****X14055****X14055**



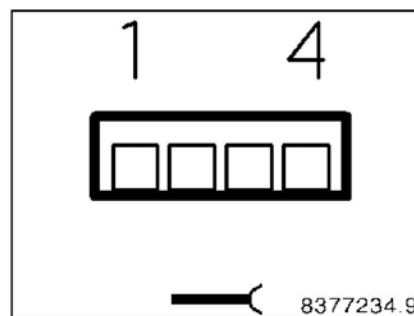
**X14062**

**X14062**



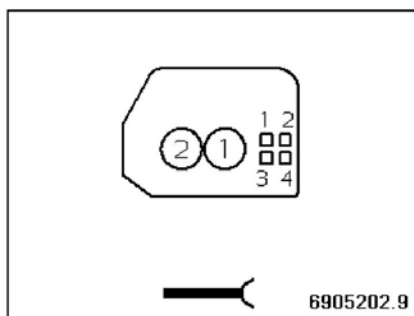
**X14118**

**X14118**



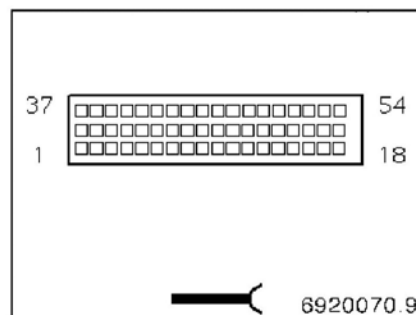
**X14130**

**X14130**



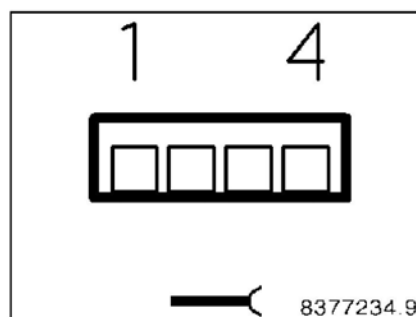
**X14133**

**X14133**



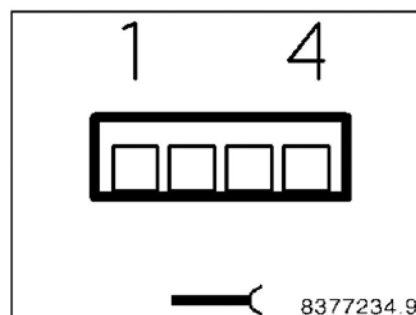
**X14143**

**X14143**



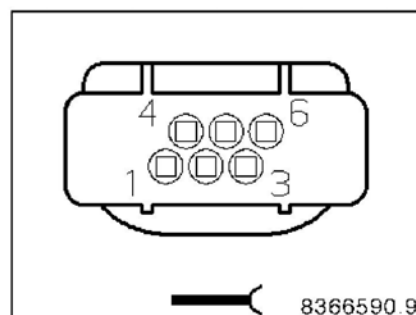
**X14144**

**X14144**



**X14147**

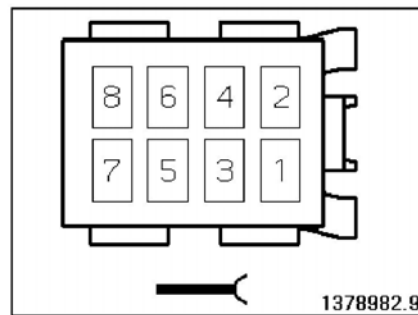
**X14147**



**X14208**

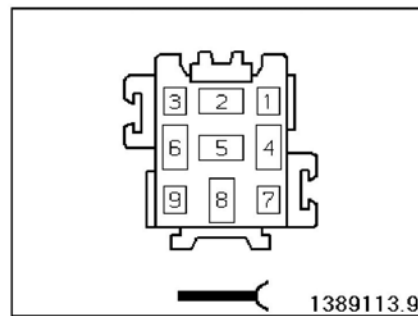
**X14208**





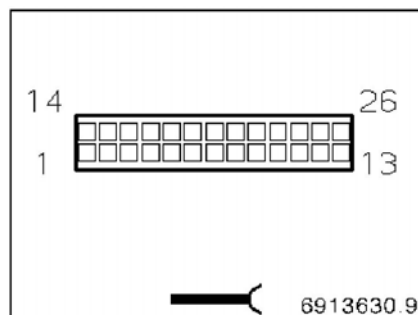
## X14209

### X14209



## X14259

### X14259



## Pin assignments at plug connector X14259

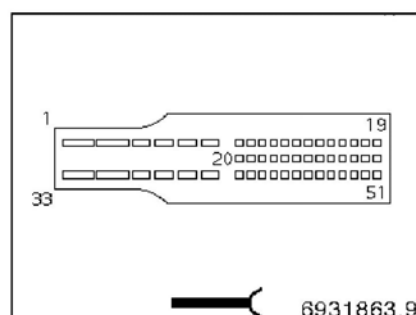
**Pin assignments at plug connector X14259**

Pin	Type	Description / Signal type	Connection / Measuring notes
1	E	Signal, front side marker light	Steering column switch cluster
2	E	Signal, low beam switch	Steering column switch cluster
3	E	Signal, left direction indicator light	Steering column switch cluster
4	E	Signal, right direction indicator light	Steering column switch cluster
5		Not occupied	
6		Not occupied	
7		Not occupied	
8	E	Signal, headlight beam height control	Steering column switch cluster
9		Not occupied	
10		Not occupied	
11		Not occupied	
12	A	Supply, interior lights	Footwell light, front left Footwell light, front right
13		Not occupied	
14		Not occupied	
15		Not occupied	

**Pin 1 To Pin 15**

16	E	Signal, high beam/headlight flasher switch	Steering column switch cluster
17		Not occupied	
18	E	Signal, hazard warning switch	Hazard warning switch
19		Not occupied	
20	A	Signal, LED hazard flasher switch	Hazard warning switch
21	A	Signal, terminal 58G	Connector, instrument and locator lighting
22		Not occupied	
23		Not occupied	
24		Not occupied	
25		Not occupied	
26		Not occupied	

Pin 16 To Pin 26

**X14260****X14260****Pin assignments at plug connector X14260**

**Pin assignments at plug connector X14260**

Pin	Type	Description / Signal type	Connection / Measuring notes
1		Not occupied	
2	E	Terminal 30	Fuse F48
3	A	Signal, fog light	Side marker/fog light, right
4	A	Signal, high beam	Right headlight
5		Not occupied	
6	A	Signal, low beam	Left headlight
7		Not occupied	
8	A	Signal, parking light	Side marker/fog light, right
9	A	Signal, reversing light	Taillight, right
10	A	COOPER S LHD Signal, rear fog light	Rear fog light, right
11	A	Signal, right auxiliary direction indicator light	Direction indicator light repeater, front right
12	A	Rear right direction indicator	Taillight, right
13	A	Signal, front left direction indicator	Left headlight
14	A	Signal, parking light	Taillight, left
15	A	Signal, headlight beam height control	Left headlight

**Pin 1 To Pin 15**

16	A	USA Signal, parking light	Side marker light, front left Side marker light, rear right
17	A	Signal, headlight beam height control	Left headlight
18	A	USA Signal, parking light	Side marker light, front right Side marker light, rear left
19	A	Signal, headlight beam height control	Left headlight
20		Not occupied	
21		Not occupied	
22		Not occupied	
23		Not occupied	
24		Not occupied	
25		Not occupied	
26	M	with dynamic headlight range adjustment Ground Ride height sensor, front	Ride height sensor, front
27	M	with dynamic headlight range adjustment Ground Ride height sensor, rear	Ride height sensor, rear
28	A	Signal, headlight beam height control	Right headlight
29	A	with dynamic headlight range adjustment Supply, level sensor	Ride height sensor, rear
30	A	Signal, headlight beam height control	Right headlight
31	A	with dynamic headlight range adjustment Supply, level	Ride height sensor, front

### Pin 16 To Pin 31

		sensor	
32	A	Signal, headlight beam height control	Right headlight
33		Not occupied	
34		Not occupied	
35	A	Interior lights	without lights package Interior light, rear
35	A	Interior lights	light package Roof operating unit
36		Not occupied	
37		Not occupied	
38		Not occupied	
39		Not occupied	
40	A	Signal, center brake light	Auxiliary brake light
41	A	Activation, bi-xenon shutters	Left headlight Right headlight
42		Not occupied	
43		Not occupied	
44		Not occupied	
45	A/E	CAN bus low	CAN-bus connector
46	A/E	Signal, start lock switch	CAN-bus connector

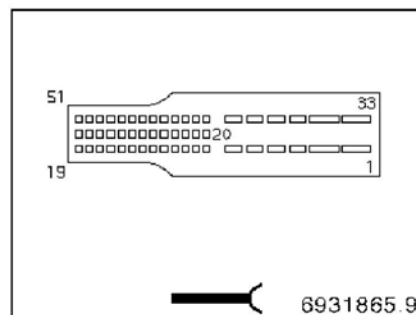
### Pin 32 To Pin 46

47	M	Ground	Ground point
48	E	with dynamic headlight range adjustment Signal, rear level sensor	Ride height sensor, rear
49	E	with dynamic headlight range adjustment Signal, front level sensor	Ride height sensor, front
50	A	Signal, headlight beam height control	Left headlight
51	A	Signal, headlight beam height control	Right headlight

### Pin 47 To Pin 51

**X14261**

**X14261**



## Pin assignments at plug connector X14261

### Pin assignments at plug connector X14261

Pin	Type	Description / Signal type	Connection / Measuring notes
1	E	Terminal 30	Fuse F5
2		Not occupied	
3	E	Terminal 30	Fuse F8
4	A	Signal, driver's power window motor, closed	Driver's window motor
5	A	Signal, driver's power window motor, open	Driver's window motor
6	A	Signal, high beam	Left headlight
7		Not occupied	
8	E	Signal, switch lighting orange	Roof operating unit Ambient lighting, left B-pillar Ambient lighting, right B-pillar
9	A	Right brake light	Taillight, right
10		Not occupied	
11		Not occupied	
12	E	Supply, terminal 15	A149a Car access system
13	E	Door contact signal	System lock, passenger's door
14		Not occupied	
15	E	Door contact signal	Clubdoor lock, top

### Pin 1 To Pin 15

16		Not occupied	
17		Not occupied	
18	M	Ground	Ground point
19	E	Reversing signal	Reversing light switch
20		Not occupied	
21	E	Brake light switch signal	Brake light switch
22		Not occupied	
23		Not occupied	
24	E	Door contact signal	System lock, driver's door
25		Not occupied	
26	E	Door contact signal	Clubdoor lock, bottom
27	E	Signal, interior light switch	Roof operating unit
28	M	Ground	Ground point
29		Not occupied	
30	E	Signal, switch lighting	Roof operating unit
31		Not occupied	
32	E	Signal, switch lighting blue	Roof operating unit Ambient lighting, left B-pillar Ambient

### Pin 16 To Pin 32



			lighting, right B-pillar
33	M	Ground	Ground point
34	E	Terminal 30	Fuse F47
35	A	Signal, front passenger's power window motor, closed	Passenger's window motor
36	A	Signal, front passenger's power window motor, open	Passenger's window motor
37	A	Signal, fog light	Side marker/fog light, left
38	A	Signal, low beam	Right headlight
39		Not occupied	
40	A	Signal, front right direction indicator	Right headlight
41	A	Signal, parking light	Taillight, right
42	E	Signal, lock central locking	System lock, driver's door
43	A	Rear left direction indicator	Taillight, left
44	A	Signal, left auxiliary direction indicator light	Direction indicator light repeater, front left
45	A	Rear left direction indicator	Taillight, left
46	E	Signal, unlock central locking	System lock, driver's door
47	A	Signal, reversing light	Taillight, left
48	A	Signal, terminal 58G	Connector, instrument and locator lighting

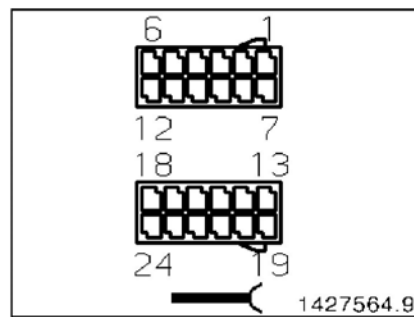
### Pin 33 To Pin 48

49	A	Signal, licence plate light	Trunk lid push-button/license plate lights
50	A	Signal, parking light	Side marker/fog light, left
51	A	not COOPER S LHD Signal, rear fog light	Rear fog light
51	A	COOPER S LHD Signal, rear fog light	Rear fog light, left

### Pin 49 To Pin 51

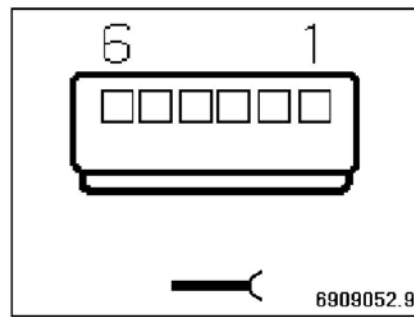
**X14272**

**X14272**



## X14286

### X14286



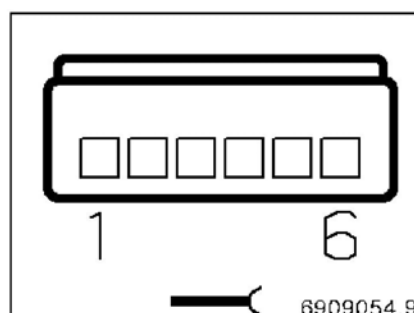
### Pin assignments at plug connector X14286

#### Pin assignments at plug connector X14286

Pin	Type	Description / Signal type	Connection / Measuring notes
1	E	Signal, terminal R	Car access system
2	A	Passenger airbag deactivation lamp	Multiple restraint system control module
3	E	Signal, terminal 58G	Footwell module
4	A	Signal, interior light switch	Footwell module
5	E	light package Signal, terminal 30G	Fuse F14
5	E	without lights package Signal, load cutout	Footwell module
6	M	Ground	Ground point

## X14288

### X14288



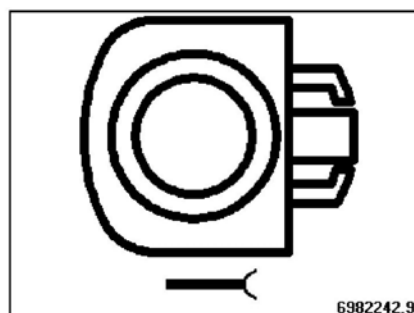
### Pin assignments at plug connector X14288

**Pin assignments at plug connector X14288**

Pin	Type	Description / Signal type	Connection / Measuring notes
1	A	Signal, switch lighting blue	Footwell module
2	A	Signal, switch lighting orange	Footwell module
3	A	Signal, sunroof switch	Sunroof
4	A	Signal, sunroof switch	Sunroof
5	A	Signal, sunroof switch	Sunroof
6	A	Signal, switch lighting	Footwell module

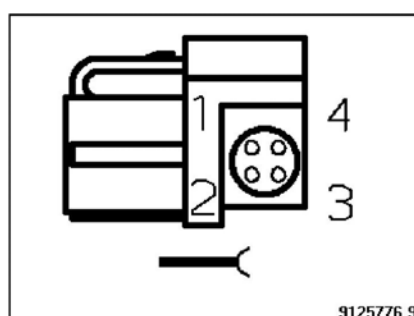
**X15330**

X15330



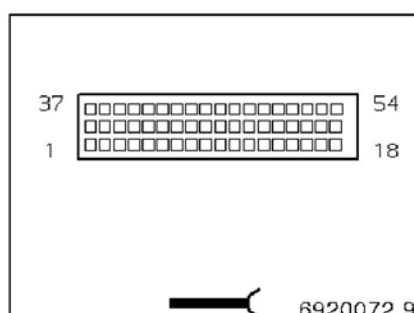
**X17182**

X17182



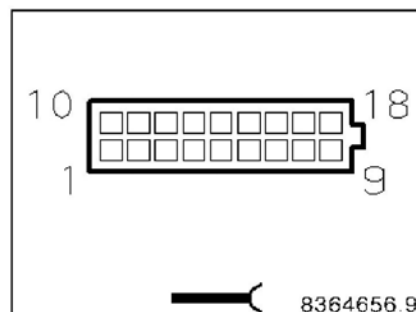
**X17397**

X17397



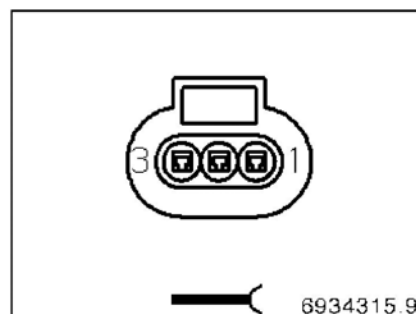
**X18013**

**X18013**



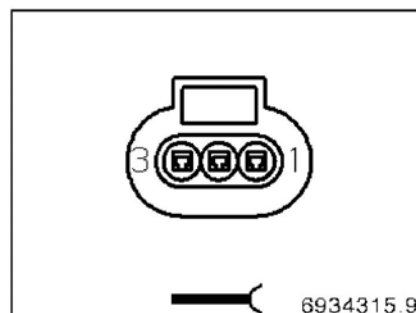
**X18020**

**X18020**



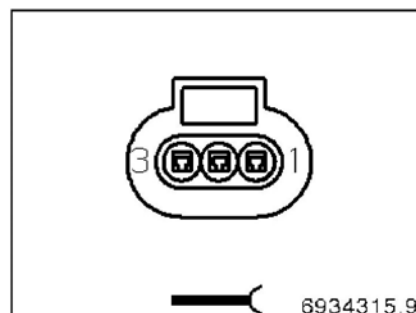
**X18021**

**X18021**



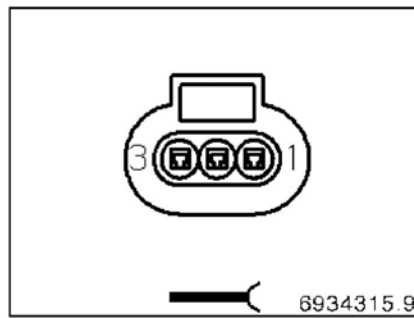
**X18022**

**X18022**



**X18023**

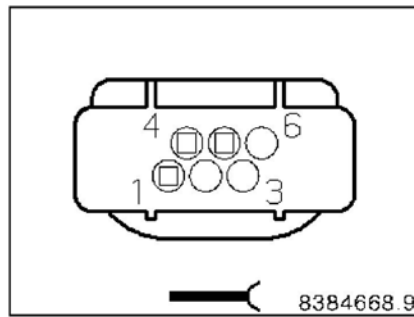
**X18023**



6934315.9

**X18032**

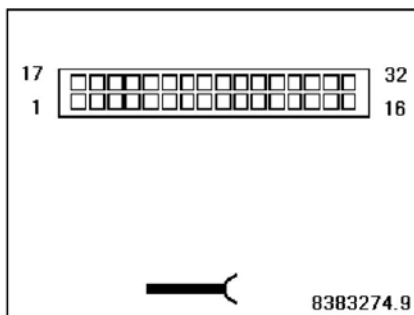
X18032



8384668.9

**X18034**

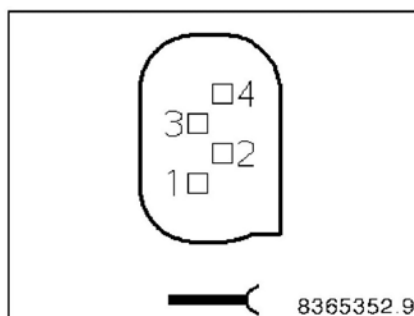
X18034



8383274.9

**X18036**

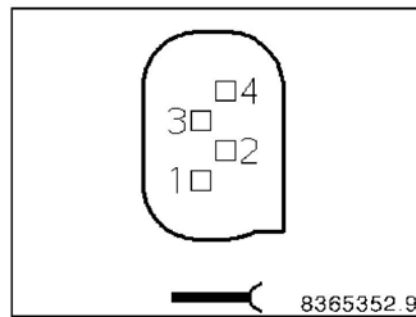
X18036



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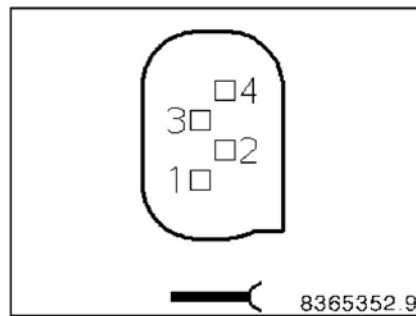
**X18037**

X18037



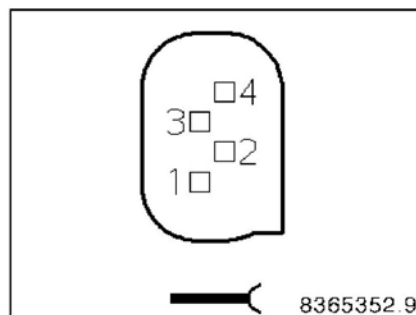
**X18038**

**X18038**



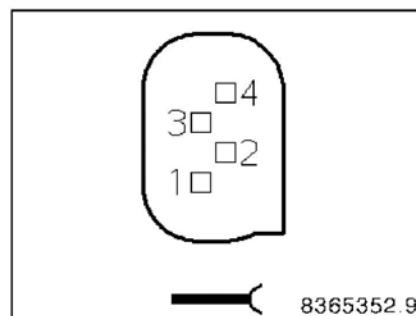
**X18040**

**X18040**



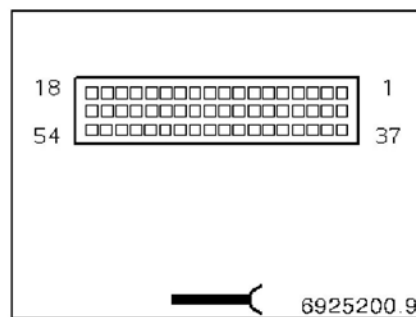
**X18041**

**X18041**



**X18069**

**X18069**



## Pin assignments at plug connector X18069

### Pin assignments at plug connector X18069

Pin	Type	Description / Signal type	Connection / Measuring notes
1	A	Negative activation, seat belt tensioner	Generator, driver's seat belt tensioner
2	A	Positive activation, seat belt tensioner	Generator, driver's seat belt tensioner
3	A	Positive activation, seat belt tensioner	Generator, passenger's seat belt tensioner
4	A	Negative activation, seat belt tensioner	Generator, passenger's seat belt tensioner
5		Not occupied	
6		Not occupied	
7	A	Positive activation, airbag	Inflator assembly, driver's side head airbag
8	A	Negative activation, airbag	Inflator assembly, driver's side head airbag
9	A	Negative activation, airbag	Inflator assembly, passenger's side head airbag
10	A	Positive activation, airbag	Inflator assembly, passenger's side head airbag
11	A	Positive activation, airbag	Side airbag inflator assembly, driver
12	A	Negative activation, airbag	Side airbag inflator assembly, driver
13	A	Negative activation, airbag	Side airbag inflator assembly, passenger
14	A	Positive activation, airbag	Side airbag inflator assembly, passenger
15		Not occupied	

### Pin 1 To Pin 15

16		Not occupied	
17		Not occupied	
18		Not occupied	
19		Not occupied	
20		Not occupied	
21		Not occupied	
22		Not occupied	
23	E	Sensor signal	Airbag sensor, front driver's side door
24	E	Sensor signal	Airbag sensor, front driver's side door
25	E	Sensor signal	Airbag sensor, B-pillar, driver's side
26	E	Sensor signal	Airbag sensor, B-pillar, driver's side
27	E	Sensor signal	Airbag sensor, B-pillar, driver's side
28	E	USA Sensor signal	Front airbag sensor, driver's side
29	E	USA Sensor signal	Front airbag sensor, driver's side
30	E	Sensor signal	Airbag sensor, front passenger's side door
31	E	Sensor signal	Airbag sensor, front passenger's side door
32	E	Sensor signal	Airbag sensor, B-pillar, passenger's side

### Pin 16 To Pin 32



33	E	Sensor signal	Airbag sensor, B-pillar, passenger's side
34	E	Sensor signal	Airbag sensor, B-pillar, passenger's side
35	E	USA Sensor signal	Front airbag sensor, passenger's side
36	E	USA Sensor signal	Front airbag sensor, passenger's side
37	E	Signal, seat belt contact	Driver's seat belt buckle contact
38	E	Signal, seat belt contact	Passenger's seat belt buckle contact
39	E	Signal, seat belt contact	Seat belt buckle contact, rear driver's side
40	E	Signal, seat belt contact	Seat belt buckle contact, rear passenger's side
41		Not occupied	
42	E	Terminal R	Car access system
43	M	Ground	Ground point
44	A	Signal, front passenger airbag deactivated	Roof operating unit
45	E	Sensor signal	Airbag sensor, B-pillar, driver's side
46		Not occupied	
47	E	not USA Signal, seat occupancy	Passenger's seat occupancy detection
48		Not occupied	
49		Not occupied	

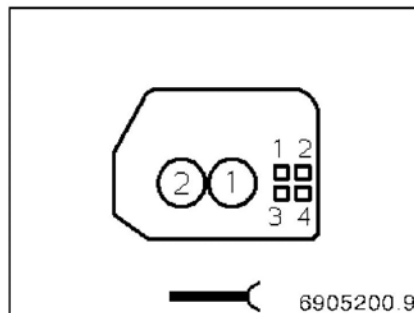
### Pin 33 To Pin 49

50	E	USA Sensor signal	Seat position sensor, driver
51	E	USA Signal, seat occupancy	Passenger's seat occupancy detection
52	E	Sensor signal	Airbag sensor, B-pillar, passenger's side
53		Not occupied	
54		Not occupied	

### Pin 50 To Pin 54

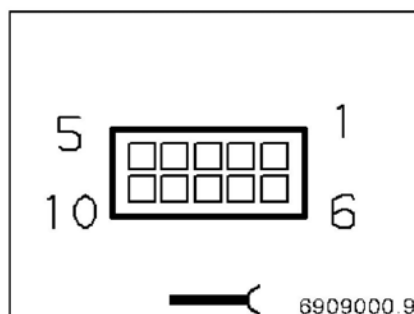
**X18180**

**X18180**



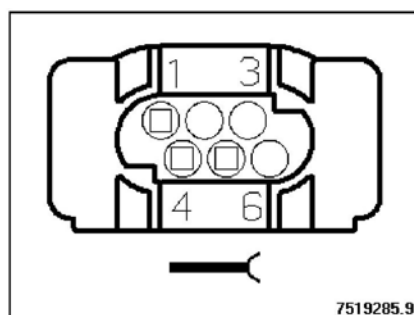
X18246

X18246



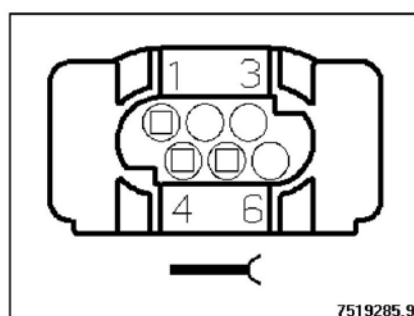
X18313

X18313



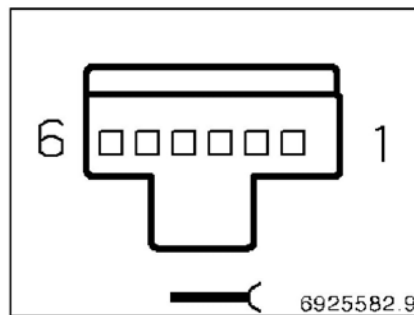
X18314

X18314

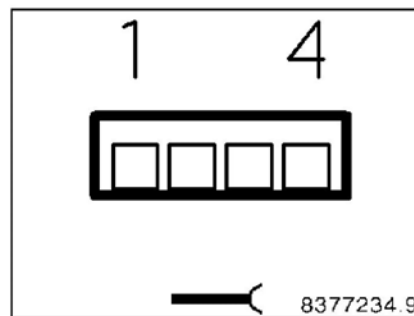


X18325

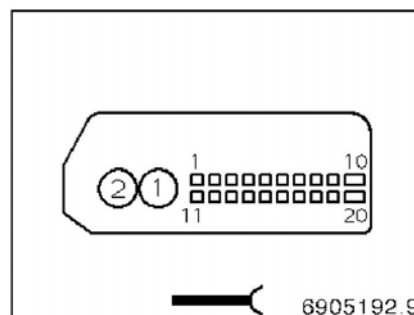
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**X18336**

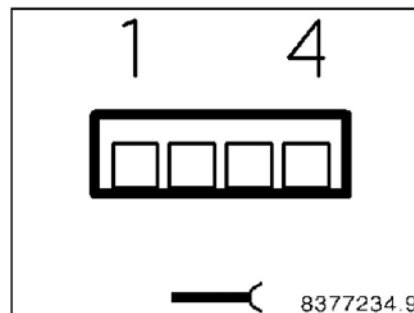
X18336

**X18803**

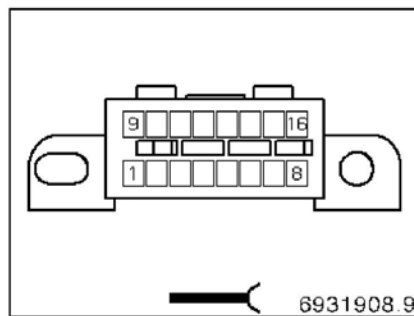
X18803

**X18849**

X18849

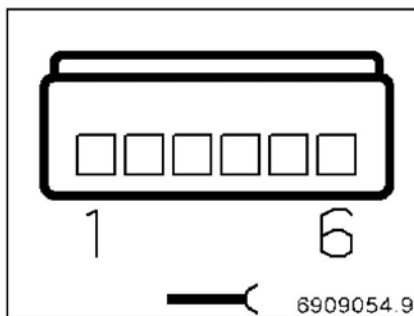
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X19527



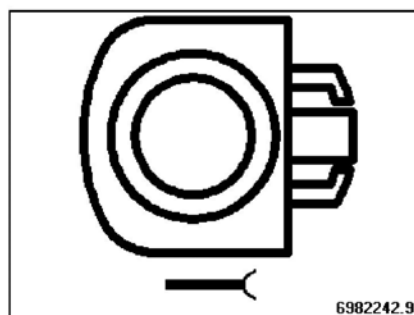
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**X19565**



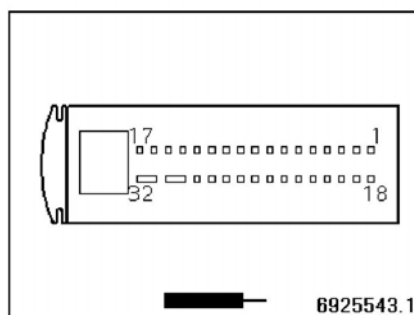
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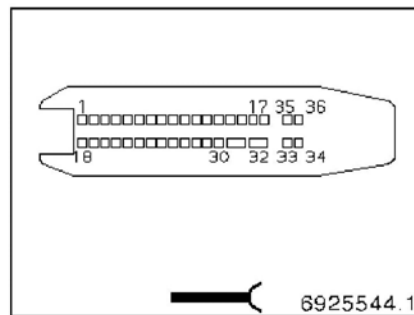
**X138201**



**X256**

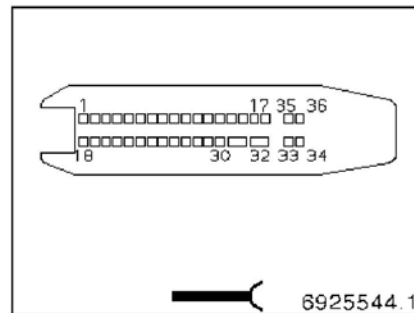
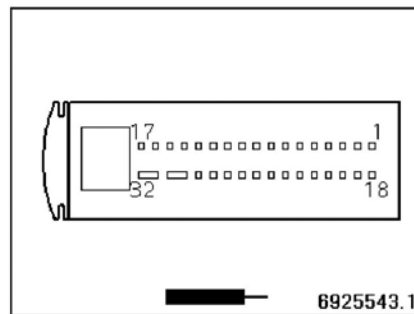
**X256**





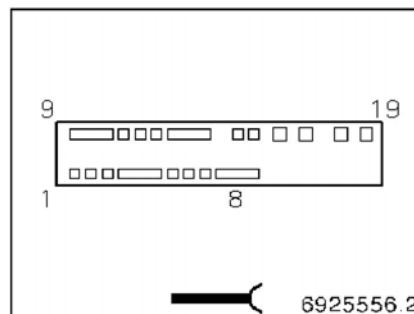
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**X257**



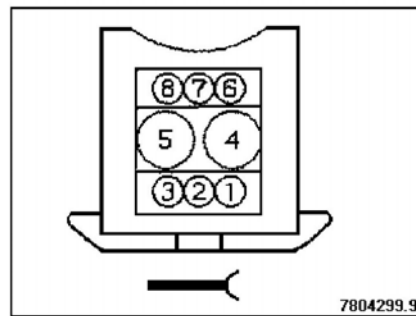
**X279**

**X279**



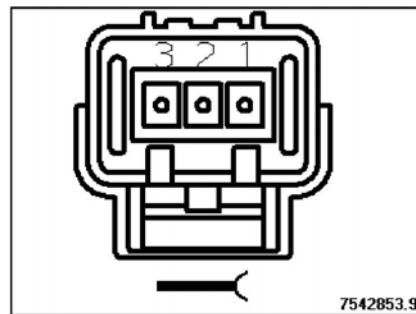
**X2000**

**X2000**



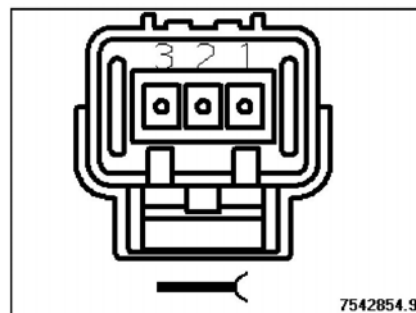
**X2013**

X2013



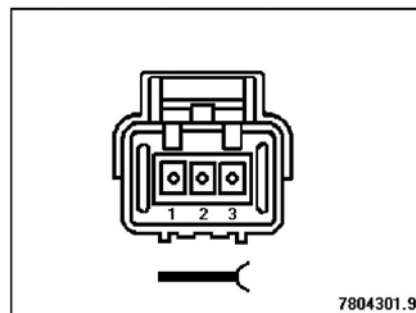
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X2014



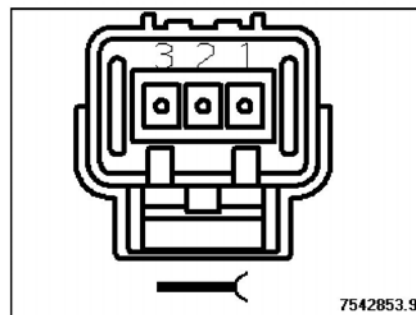
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X2261



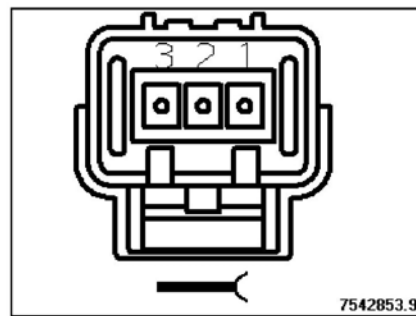
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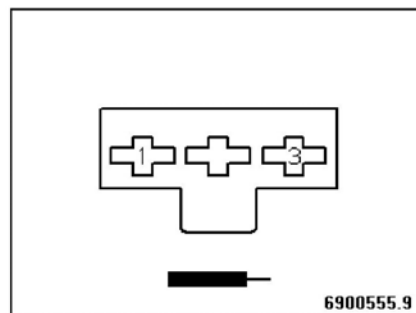
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X2399



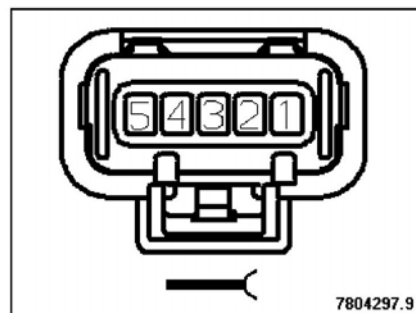
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X2401



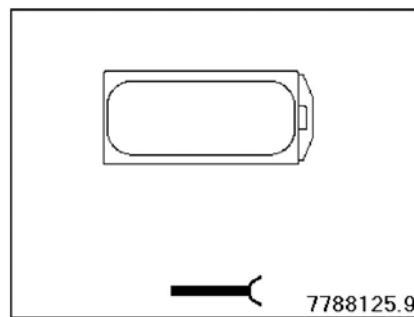
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X2406



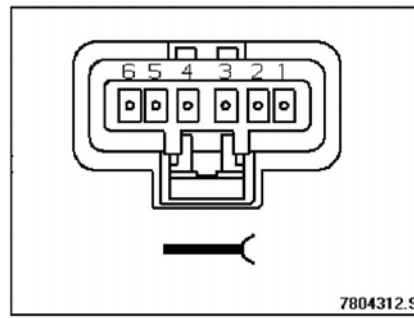
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X2411



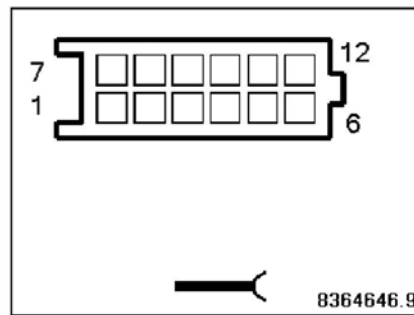
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**X2440**



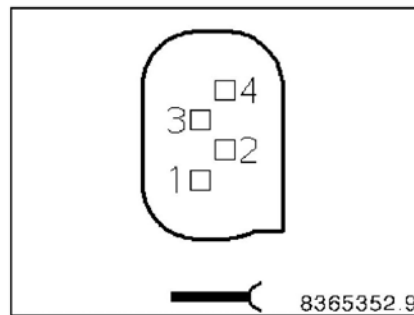
**X300**

**X300**



**X311**

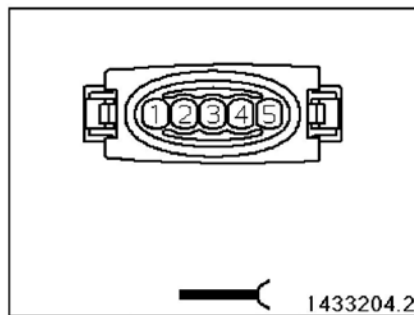
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**X333**

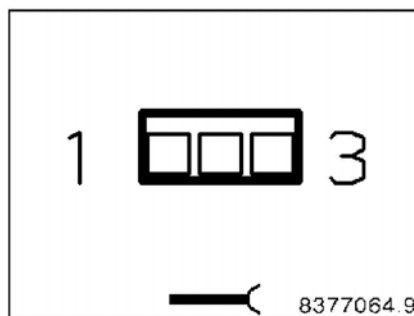
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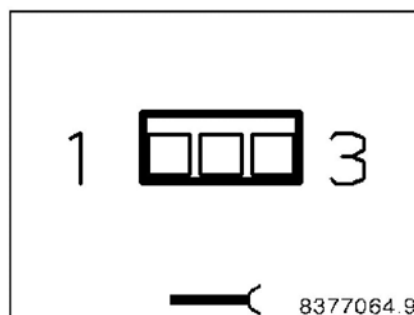
**X336**

**X336**



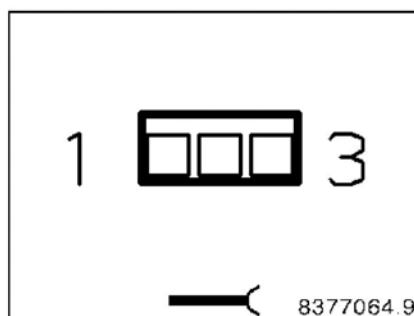
**X381**

**X381**



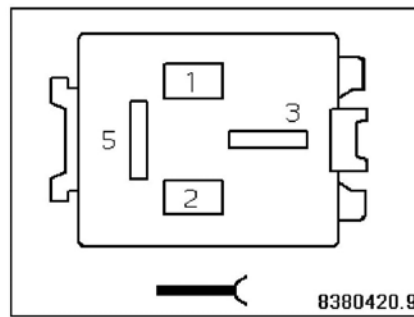
**X382**

**X382**



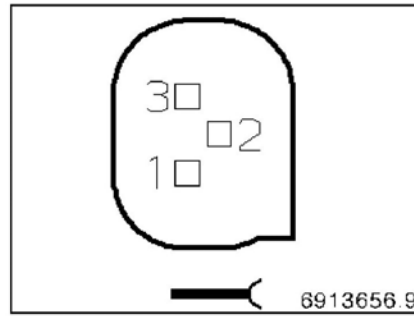
**X3148**

**X3148**



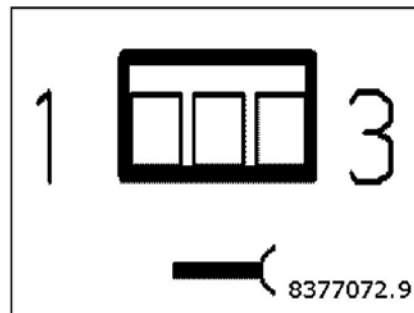
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**X3211**



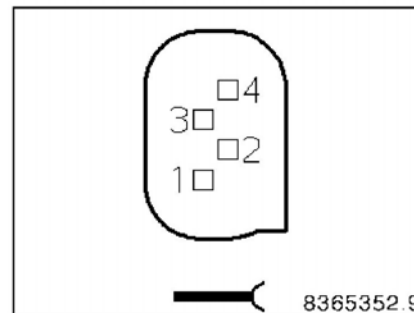
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**X3565**



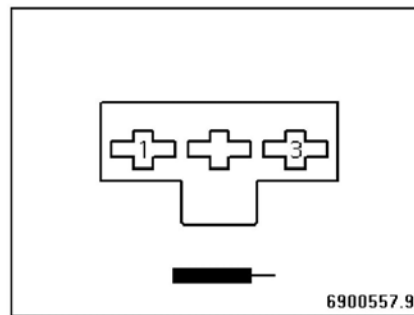
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**X30029**



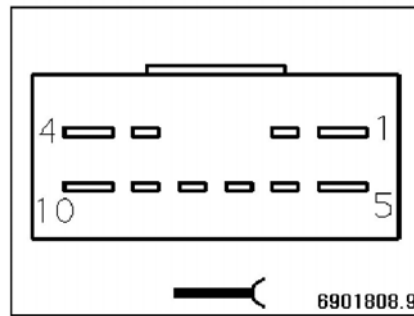
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**X4007**



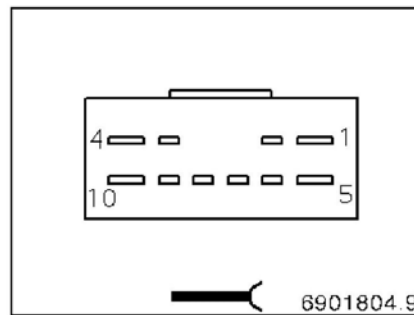
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**X4009**



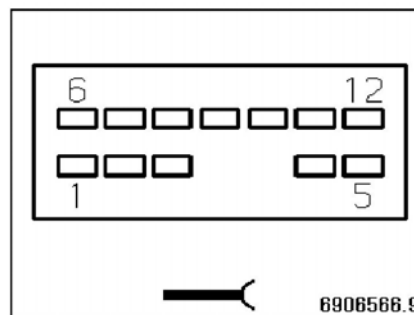
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**X4010**



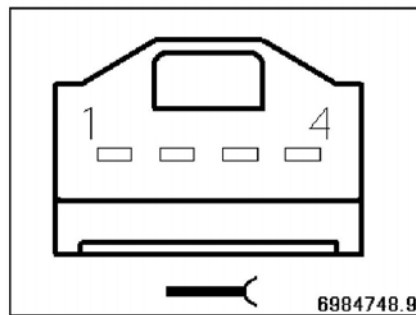
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**X4013**



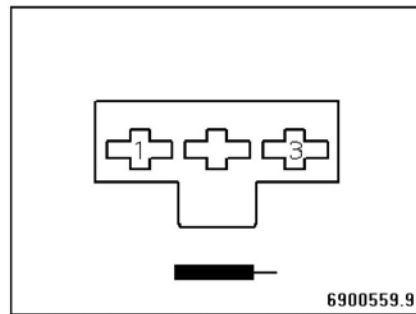
**X4014**

**X4014**



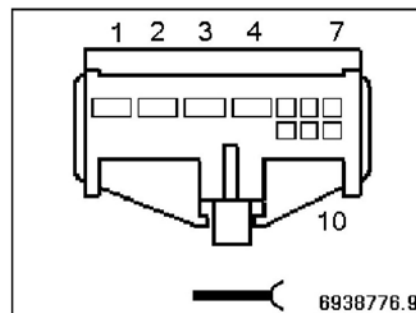
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X4015



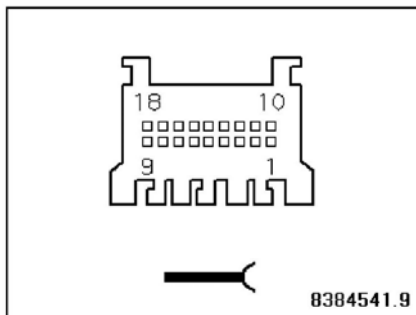
**X4229**

X4229



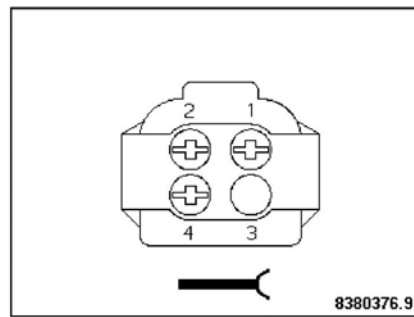
**X4545**

X4545



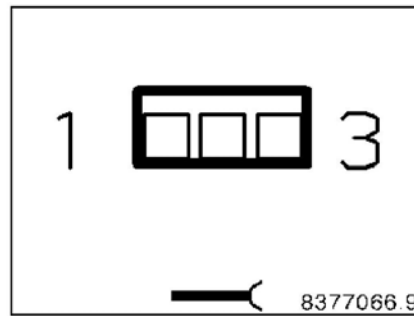
**X53**

X53



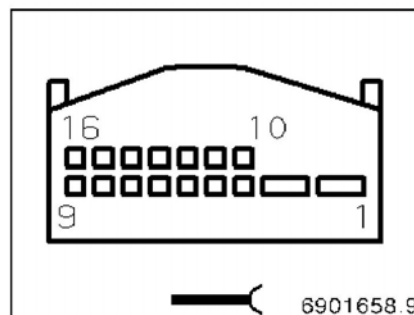
**X516**

**X516**



**X609**

**X609**



**A11A Heating/Air Conditioning System (IHKA Integrated Automatic Heating/Air Conditioning)**

**A11A Heating/Air Conditioning System (IHKA Integrated Automatic Heating/Air Conditioning)**

**Pin assignments at plug connector X610**

**Pin assignments at plug connector X610**

Pin	Type	Description / Signal type	Connection / Measuring notes
1	A	Activation Air distribution flap motor	Air distribution flap motor
2	A	Activation Air distribution flap motor	Air distribution flap motor
3	A	Activation Mixer flap motor	Mixer flap motor
4	A	Activation Mixer flap motor	Mixer flap motor
5	A	Activation Fresh air/recirculating air flap motor	Fresh air/recirculating air flap motor
6	A	Activation Fresh air/recirculating air flap motor	Fresh air/recirculating air flap motor
7	A	Sensor ground	Heating heat exchanger temperature sensor Evaporator temperature sensor Solar sensor
8	E	Signal Microswitch, air distribution	Microswitch, air distribution
9	A	Locator lighting	Air distribution flap motor Mixer flap motor
10	A	Activation Air distribution flap motor	Air distribution flap motor
11	A	Activation Air distribution flap motor	Air distribution flap motor
12	A	Activation Mixer flap motor	Mixer flap motor
13	A	Activation Mixer flap motor	Mixer flap motor
14	E	Signal Evaporator temperature sensor	Solar sensor
15	E	Signal Temperature sensor	Heating heat exchanger temperature sensor
16	E	Signal Temperature sensor	Evaporator temperature sensor
17	A	Pulse width modulation signal, blower	Blower output stage
18	E	Signal Solar sensor	Solar sensor

**A11A Heating/Air Conditioning System (Without IHKA Integrated Automatic Heating/Air Conditioning)****A11A Heating/Air Conditioning System (Without IHKA Integrated Automatic Heating/Air Conditioning)****Pin assignments at plug connector X610**

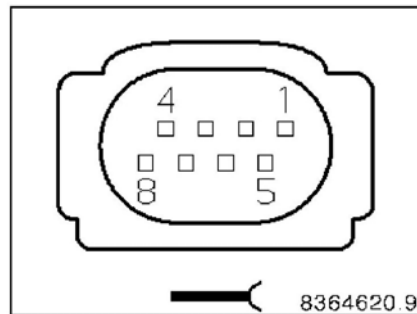
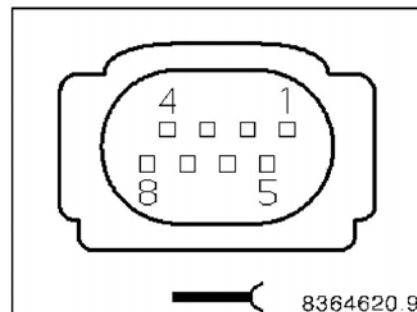
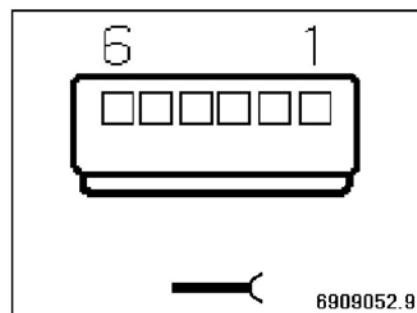
**Pin assignments at plug connector X610**

Pin	Type	Description / Signal type	Connection / Measuring notes
1	A	Activation Air distribution flap motor	Air distribution flap motor
2	A	Activation Air distribution flap motor	Air distribution flap motor
3	A	Activation Mixer flap motor	Mixer flap motor
4	A	Activation Mixer flap motor	Mixer flap motor
5	A	Activation Fresh air/recirculating air flap motor	Fresh air/recirculating air flap motor
6	A	Activation Fresh air/recirculating air flap motor	Fresh air/recirculating air flap motor
7	A	IHK Sensor ground	Evaporator temperature sensor
8	E	Signal Microswitch, air distribution	Microswitch, air distribution
9	A	Locator lighting	Air distribution flap motor Mixer flap motor
10	A	Activation Air distribution flap motor	Air distribution flap motor
11	A	Activation Air distribution flap motor	Air distribution flap motor
12	A	Activation Mixer flap motor	Mixer flap motor
13	A	Activation Mixer flap motor	Mixer flap motor
14		Not occupied	
15		Not occupied	
16	E	IHK Sensor Temperature sensor	Evaporator temperature sensor
17	A	Blower control voltage	Blower ballast resistor Blower motor
18		Not occupied	

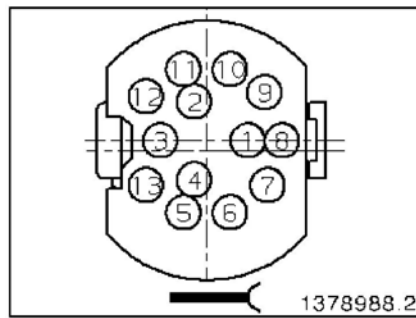
**X611****A11A Heating/Air Conditioning System (Without IHKA Integrated Automatic Heating/Air Conditioning)****Pin assignments at plug connector X611**

**Pin assignments at plug connector X611**

Pin	Type	Description / Signal type	Connection / Measuring notes
1	E	Voltage supply	Heater blower relay
2	A	Blower control voltage	Blower ballast resistor Blower motor
3	A	Blower control voltage	Blower ballast resistor
4	A	Blower control voltage	Blower ballast resistor
5	A	Blower control voltage	Blower ballast resistor

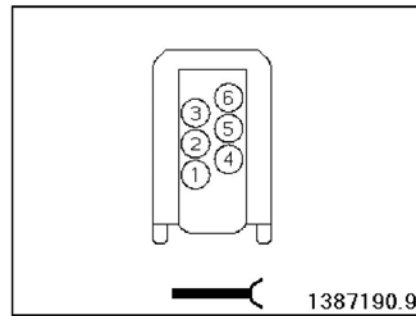
**X623****X623****X624****X624****X625****X625****X630****X630**





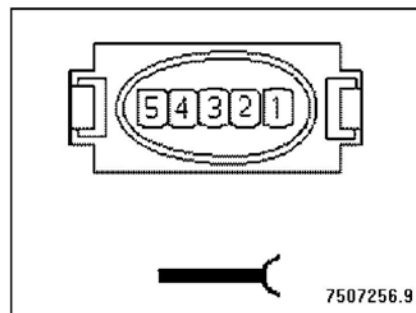
**X691**

**X691**



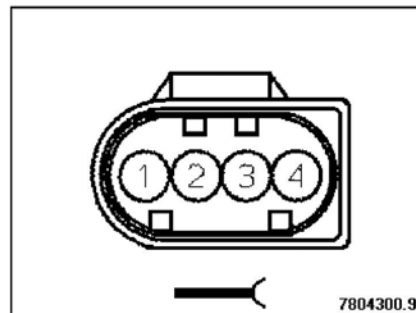
**X6011**

**X6011**



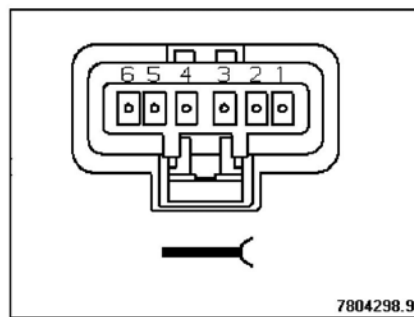
**X6053**

**X6053**



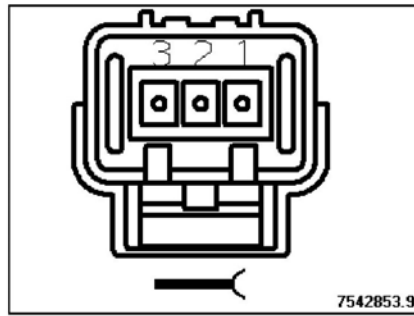
**X6217**

**X6217**



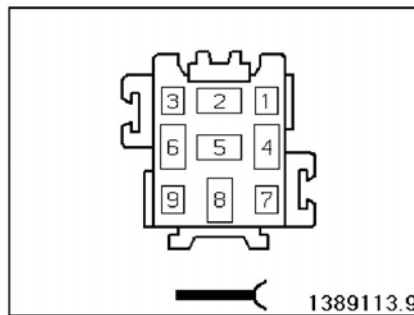
**X6219**

**X6219**



**X6319**

**X6319**



**X60004**

**Pin assignments at plug connector X60004**

**Pin assignments at plug connector X60004**

Pin	Type	Description / Signal type	Connection / Measuring notes
1	E	Supply Ignition coils	Power-saving relay, terminal 15
2	E	Supply Fuel injectors	Relay, fuel injectors
3	M	Ground	Ground point
4	M	Ground	Ground point
5	E	Supply, terminal 87	Fuse F05
6	E	Supply, terminal 87	Fuse F02
7		Not occupied	
8	A	Activation Relay, fuel injectors	Relay, fuel injectors
9	E	Signal Neutral sensor	Neutral sensor
10	E/A	TD signal	OBDII socket
11	A	Activation, fuel pump relay	Fuel pump relay
12	A	Activation Electric fan relay 2	Electric fan relay 2
13	A	Activation Electric fan relay	Electric fan relay
14	A	Signal, fuel tank leak diagnosis valve	Diagnostic module for fuel tank leakage
15	A	Signal, fuel tank leak diagnosis heating	Diagnostic module for fuel tank leakage

**Pin 1 To Pin 15**

16	E	Supply, terminal 30	Fuse F01
17	A	Signal, fuel tank leak diagnosis pump	Diagnostic module for fuel tank leakage
18	E	Supply, terminal 87	Fuse F02
19	E	Wake-up signal, terminal 15	Connector , terminal 15 wake-up signal
20	A	Supply Accelerator pedal module	Accelerator pedal module
21	A	Supply Coolant pressure sensor	Coolant pressure sensor
22	E	Brake light test signal	Brake light switch
23		Not occupied	
24		Not occupied	
25	A	Activation Engine breather heating relay	Engine breather heating relay
26	E	Brake light switch signal	Brake light switch
27	E	Start signal	Car access system
28	A	Activation, DME relay	DME relay
29		Not occupied	
30	E	Supply, terminal 87	Fuse F04
31		Not occupied	
32	E	Signal Brake vacuum sensor	Brake vacuum sensor

### Pin 16 To Pin 32

33	E	Signal Coolant pressure sensor	Coolant pressure sensor
34	A	Signal Accelerator pedal module	Accelerator pedal module
35	A	Signal Accelerator pedal module	Accelerator pedal module
36		Not occupied	
37		Not occupied	
38	E/A	BSD signal	Intelligent battery sensor
39	E	Signal, clutch switch	Clutch module
40	E/A	Signal PT-CAN high	Power train CAN-bus
41		Not occupied	
42		Not occupied	
43		Not occupied	
44	A	Ground Accelerator pedal module	Accelerator pedal module
45	E	Ground Coolant pressure sensor	Coolant pressure sensor
46	A	Supply Accelerator pedal module	Accelerator pedal module
47	A	Ground Accelerator pedal module	Accelerator pedal module
48	M	Ground Brake vacuum sensor	Brake vacuum sensor
49	M	Ground Neutral sensor	Neutral sensor

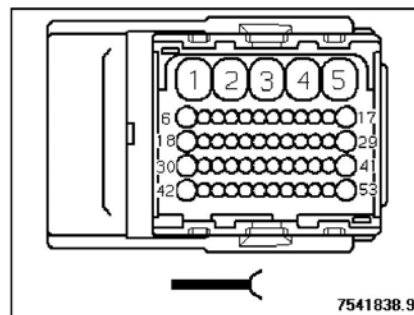
### Pin 33 To Pin 49

50	E	Wake-up signal, terminal 15	Car access system
51	E/A	PA bus signal	PA bus connector
52	E/A	Signal PT-CAN low	Power train CAN-bus
53	M	Ground	Ground point

### Pin 50 To Pin 53

**X60231**

**X60231**



N14 Engine As of 08/07

**Pin assignments at plug connector X60231**

Pin	Type	Description / Signal type	Connection / Measuring notes
1		Not occupied	
2		Not occupied	
3		Not occupied	
4		Not occupied	
5	A	Voltage supply	Connector, terminal 15
6	A	Signal, fuel tank vent valve	Fuel tank vent valve
7	M	Ground Crankshaft sensor	Crankshaft sensor
8	M	Ground Intake camshaft sensor	Intake camshaft sensor
9	M	Ground Hot-film air mass meter	Hot-film air mass meter
10	E	Signal Electric throttle valve actuator	Electric throttle valve actuator
11	E	Signal Electric throttle valve actuator	Electric throttle valve actuator
12		Not occupied	
13	E	Signal Intake temperature - boost pressure sensor	Intake temperature - boost pressure sensor
14	M	Supply Engine temperature sensor	Engine temperature sensor
15	E	Signal, oxygen sensor	Oxygen sensor before catalytic converter

**Pin 1 To Pin 15**

16	E	Signal, oxygen sensor	Oxygen sensor before catalytic converter
17	A	Voltage supply	Connector, terminal 15
18	E	Signal, oxygen sensor heating	Oxygen sensor behind catalytic converter
19		Not occupied	
20		Not occupied	
21	E	Signal Intake pipe pressure sensor	Intake pipe pressure sensor
22		Not occupied	
23	E	Signal Intake temperature - boost pressure sensor	Intake temperature - boost pressure sensor
24	E	Signal, oxygen sensor	Oxygen sensor behind catalytic converter
25	M	Ground Oxygen sensor behind catalytic converter	Oxygen sensor behind catalytic converter
26	M	Ground Electric throttle valve actuator	Electric throttle valve actuator
27	M	Ground Oxygen sensor before catalytic converter	Oxygen sensor before catalytic converter
28	E	Signal, oxygen sensor	Oxygen sensor before catalytic converter
29	A	Voltage supply	Connector, terminal 15
30	E	Signal, oxygen sensor heating	Oxygen sensor before catalytic converter
31		Not occupied	
32	E	Signal Engine temperature sensor	Engine temperature sensor

### Pin 16 To Pin 32

33	E	Signal Knock sensor	Knock sensor
34	E	Signal Knock sensor	Knock sensor
35	A	Supply Crankshaft sensor	Crankshaft sensor
36	A	Supply Electric throttle valve actuator	Electric throttle valve actuator
37	A	Supply Intake pipe pressure sensor	Intake pipe pressure sensor
38	A	Supply Intake temperature - boost pressure sensor	Intake temperature - boost pressure sensor
39	A	Supply Intake camshaft sensor	Intake camshaft sensor
40	E	Signal, intake air temperature	Hot-film air mass meter
41	A	Voltage supply	Connector, terminal 15
42		Not occupied	
43	M	Ground Intake pipe pressure sensor	Intake pipe pressure sensor
44		Not occupied	
45	A	Signal Volume control valve	Volume control valve
46		Not occupied	
47	A	Signal Thrust air control valve	Thrust air control valve
48	A	Signal Turbocharger coolant pump	Turbocharger coolant pump
49	E	Signal Characteristic map thermostat	Characteristic map thermostat

### Pin 33 To Pin 49

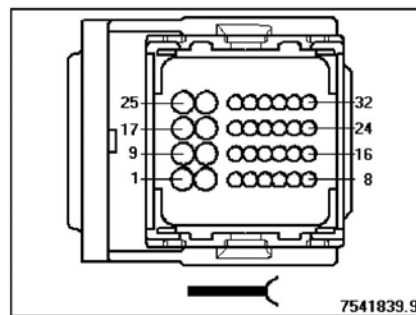
50		Not occupied	
51		Not occupied	
52		Not occupied	
53		Not occupied	

### Pin 50 To Pin 53

**X60232**

**X60232**





## Pin assignments at plug connector X60232

### Pin assignments at plug connector X60232

Pin	Type	Description / Signal type	Connection / Measuring notes
1	A	Activation VANOS solenoid valve, intake	VANOS solenoid valve, intake
2		Not occupied	
3	A	Supply Fuel injector, cylinder 4	Fuel injector, cylinder 4
4	A	Supply Fuel injector, cylinder 1	Fuel injector, cylinder 1
5	A	Supply Fuel injector, cylinder 3	Fuel injector, cylinder 3
6	A	Supply Fuel injector, cylinder 2	Fuel injector, cylinder 2
7	A	Signal Wastegate valve	Wastegate valve
8		Not occupied	
9	A	Signal, ignition coil	Ignition coil, cylinder 2
10	A	Signal, ignition coil	Ignition coil, cylinder 4
11	E	Signal, oil pressure switch	Oil pressure switch
12		Not occupied	
13	E	Signal Crankshaft sensor	Crankshaft sensor
14	E	Signal Hot-film air mass meter	Hot-film air mass meter
15		Not occupied	

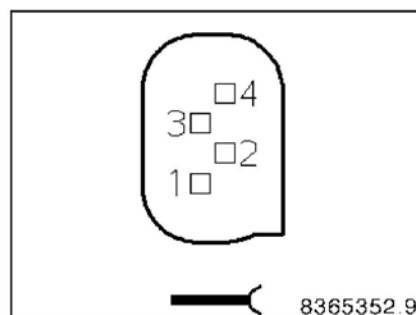
### Pin 1 To Pin 15

16	E	Signal Intake camshaft sensor	Intake camshaft sensor
17	A	Signal, ignition coil	Ignition coil, cylinder 3
18	A	Signal, ignition coil	Ignition coil, cylinder 1
19		Not occupied	
20	E	Signal Rail pressure sensor	Rail pressure sensor
21		Not occupied	
22	E	Supply Rail pressure sensor	Rail pressure sensor
23	A	Signal Turbocharger coolant pump	Turbocharger coolant pump
24	E	Signal Rail pressure sensor	Rail pressure sensor
25	E	Signal Electric throttle valve actuator	Electric throttle valve actuator
26	E	Signal Electric throttle valve actuator	Electric throttle valve actuator
27	A	Signal, fuel injector	Fuel injector, cylinder 2
28	A	Signal, fuel injector	Fuel injector, cylinder 4
29	A	Signal, fuel injector	Fuel injector, cylinder 1
30	A	Signal, fuel injector	Fuel injector, cylinder 3
31	E	Signal Intake temperature - boost pressure sensor	Intake temperature - boost pressure sensor
32		Not occupied	

## Pin 16 To Pin 32

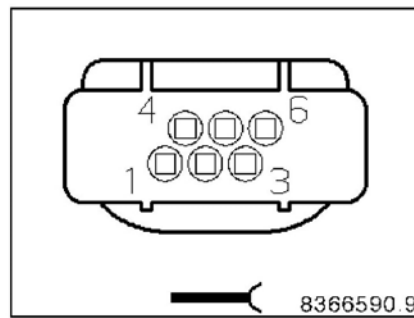
X60234

X60234



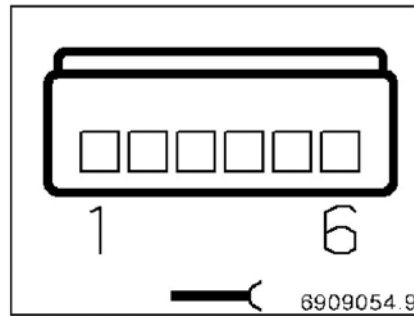
X61035

X61035



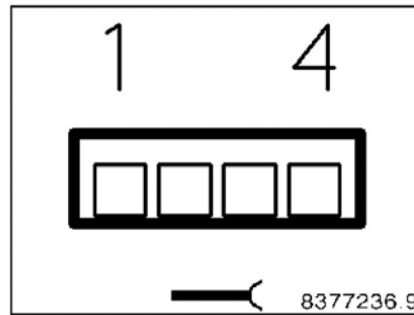
**X62530**

**X62530**



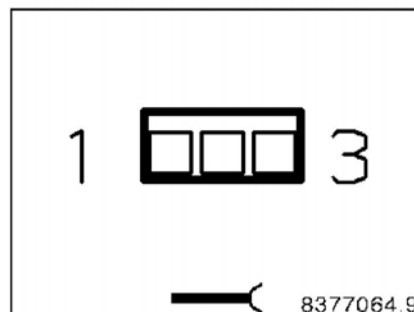
**X78**

**X78**



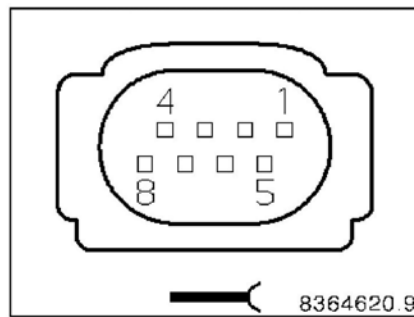
**X710**

**X710**



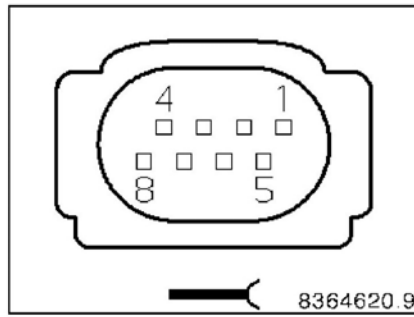
**X742**

**X742**



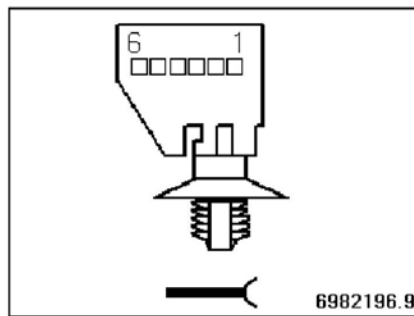
**X747**

X747



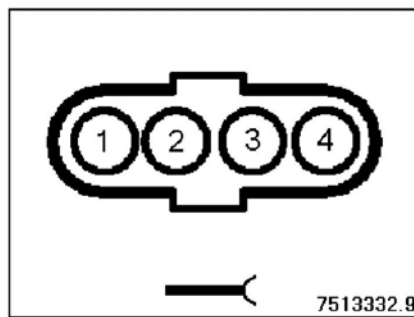
**X782**

X782



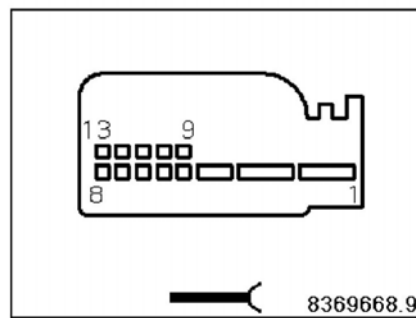
**Connectors From X8...**

X88



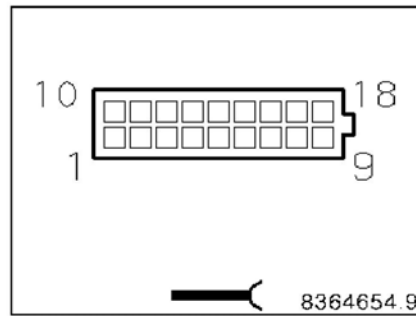
**X916**

X916



**X9002**

**X9002**



**Pin assignments at plug connector X9002**

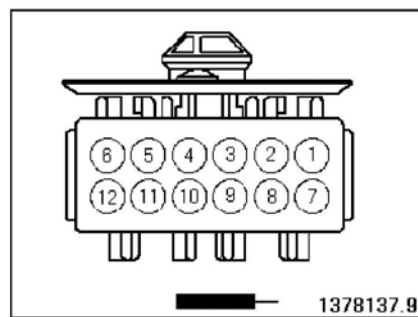
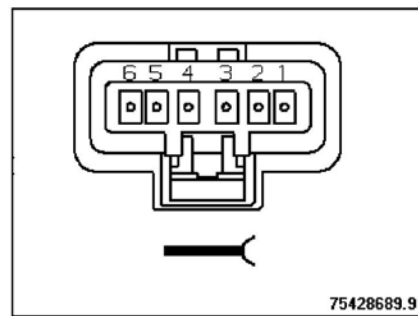
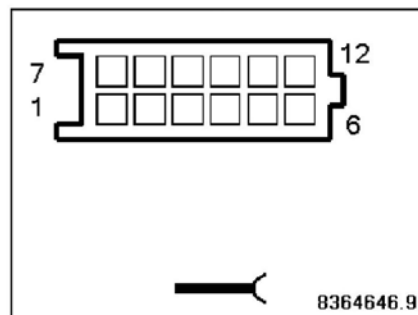
**Pin assignments at plug connector X9002**

Pin	Type	Description / Signal type	Connection / Measuring notes
1	A	Supply, central information display	Instrument cluster control module
2	A	Terminal R	Instrument cluster control module
3		Not occupied	
4	E	Signal, outside temperature	Outside temperature sensor
5	M	Ground, outside temperature	Outside temperature sensor
6	A/E	CAN bus high	Junction box
7	A/E	CAN bus low	Junction box
8	A	Terminal R	Instrument cluster control module
9	E	Supply, terminal 30G	Fuse F37
10		Not occupied	
11	E	Activation, red LED	Junction box, electronics
12	E	Signal, LED for antitheft alarm system	Junction box, electronics
13	A/E	Bus signal	Instrument cluster control module
14		Not occupied	
15		Not occupied	

**Pin 1 To Pin 15**

16		Not occupied	
17	E	Telephone on LED display DWA	Instrument cluster control module
18	M	Ground	Ground point

**Pin 16 To Pin 18****X9331****X9331**

**X9575****X9575****X9997****X9997****Pin assignments at plug connector X9997*****Pin assignments at plug connector X9997***

Pin	Type	Description / Signal type	Connection / Measuring notes
1	E	Supply, central information display	Fuse F21
2		Not occupied	
3	M	Ground	Ground point
4		Not occupied	
5	A/E	CAN bus high	Junction box, electronics
6	A/E	CAN bus low	Junction box, electronics

**System Diagram****N38a CCC/M-ASK (RAD2-BO User Interface or CCC-BO User Interface)**

## Connector Overview

### N38a CCC/M-ASK

#### Connector overview

Number	X-pin, color	Description
X13812	16-pin, black	Component connector CCC/M-ASK
X13815	2-pin, black	Component connector CCC/M-ASK
X13814	12-pin, natural	Component connector CCC/M-ASK
X13820	10-pin, black	Component connector CCC/M-ASK
X13816	2-pin, black	Component connector CCC/M-ASK
X13817	1-pin, blue	Component connector CCC/M-ASK
X13813	12-pin, black	Component connector CCC/M-ASK

### N38a CCC/M-ASK Connector Overview

## Antitheft and Alarm Systems

### A149a Car Access System (As of 08/07)

## Connector Overview

### A149a Car access system

#### Connector overview

Number	X-pin, color	Description
X10318	41-pin, black	Component connector Car access system
X14027	14-pin, black	Component connector Car access system

### A149a Car Access System

## Radio/Stereo

### N9 Radio (RAD Radio)

## Connector overview

### N9 Radio

#### Connector overview

Number	X-pin, color	Description
X13812	16-pin, black	Component connector Radio
X13813	12-pin, black	Component connector Radio
X13815	2-pin, black	Component connector Radio
X13816	1-pin, black	Component connector Radio

### N9 Radio

## Air Bag Control Module

### A12 Multiple Restraint System Control Module

## Connector Overview

### A12 Multiple restraint system control module

#### Connector overview

Number	X-pin, color	Description
X10179	26-pin, black	Component connector Multiple restraint system control module
X18069	54-pin, black	Component connector Multiple restraint system control module



## A12 Multiple Restraint System Control Module

## Body Control Module

## A4011 Footwell Module

## Connector Overview

## A4011 Footwell module

**Connector overview**

Number	X-pin, color	Description
X14259	26-pin, black	Component connector Footwell module
X14260	51-pin, black	Component connector Footwell module
X14261	51-pin, black	Component connector Footwell module

## A4011 Footwell Module

## A11a Heating/Air Conditioning System (IHKA Integrated Automatic Heating/Air Conditioning)

## A11a Heating/Air Conditioning System (IHKA Integrated Automatic Heating/Air Conditioning)

## Connector Overview

## A11a Heating/air conditioning system

**Connector overview**

Number	X-pin, color	Description
X610	18-pin, white	Component connector Heating/air conditioning system
X1879	12-pin, black	Component connector Heating/air conditioning system

## A11a Heating/air Conditioning System

## A11a Heating/Air Conditioning System (without IHKA Integrated Automatic Heating/Air Conditioning)

## A11a Heating/Air Conditioning System (without IHKA Integrated Automatic Heating/Air Conditioning)

## Connector Overview

## A11a Heating/air conditioning system

**Connector overview**

Number	X-pin, color	Description
X610	18-pin, white	Component connector Heating/air conditioning system
X1879	12-pin, black	Component connector Heating/air conditioning system
X611	5-pin, black	Component connector Heating/air conditioning system

## A11a Heating/air Conditioning System

## Driver/Vehicle Information Display

## A165a Central Information Display

## Connector Overview

## A165a Central information display

**Connector overview**

Number	X-pin, color	Description
X13823	10-pin, violet	Component connector Central information display
X9997	6-pin, black	Component connector Central information display

## A165a Central Information Display

## Engine Control Module

A6000 DME Control Module (N14 Engine As of 08/07)

## Connector Overview

A6000 DME control module

**Connector overview**

Number	X-pin, color	Description
X60004	53-pin, black	Plug connector DME control module
X60231	53-pin, brown	Plug connector DME control module
X60232	32-pin, gray	Plug connector DME control module

## A6000 DME Control Module

## System Diagram

A9001 Additional Instrument

## Connector Overview

A9001 Additional instrument

**Connector overview**

Number	X-pin, color	Description
X9002	18-pin, black	Component connector Additional instrument

## A9001 Additional Instrument

## Instrument Panel Control Module

A2a Instrument Cluster Control Module

## Connector overview

A2a Instrument cluster control module

**Connector overview**

Number	X-pin, color	Description
X11175	6-pin, black	Component connector Instrument cluster control module

## A2a Instrument Cluster Control Module

## Sunroof / Moonroof Switch

I14286 Roof Operating Unit

## Connector overview

I14286 Roof operating unit

**Connector overview**

Number	X-pin, color	Description
X14286	6-pin, black	Component connector Roof operating unit
X14288	6-pin, natural	Component connector Roof operating unit

## I14286 Roof Operating Unit

## Traction Control Module

A65a Dynamic Stability Control (DSC)

## Connector Overview

A65a Dynamic stability control (DSC)

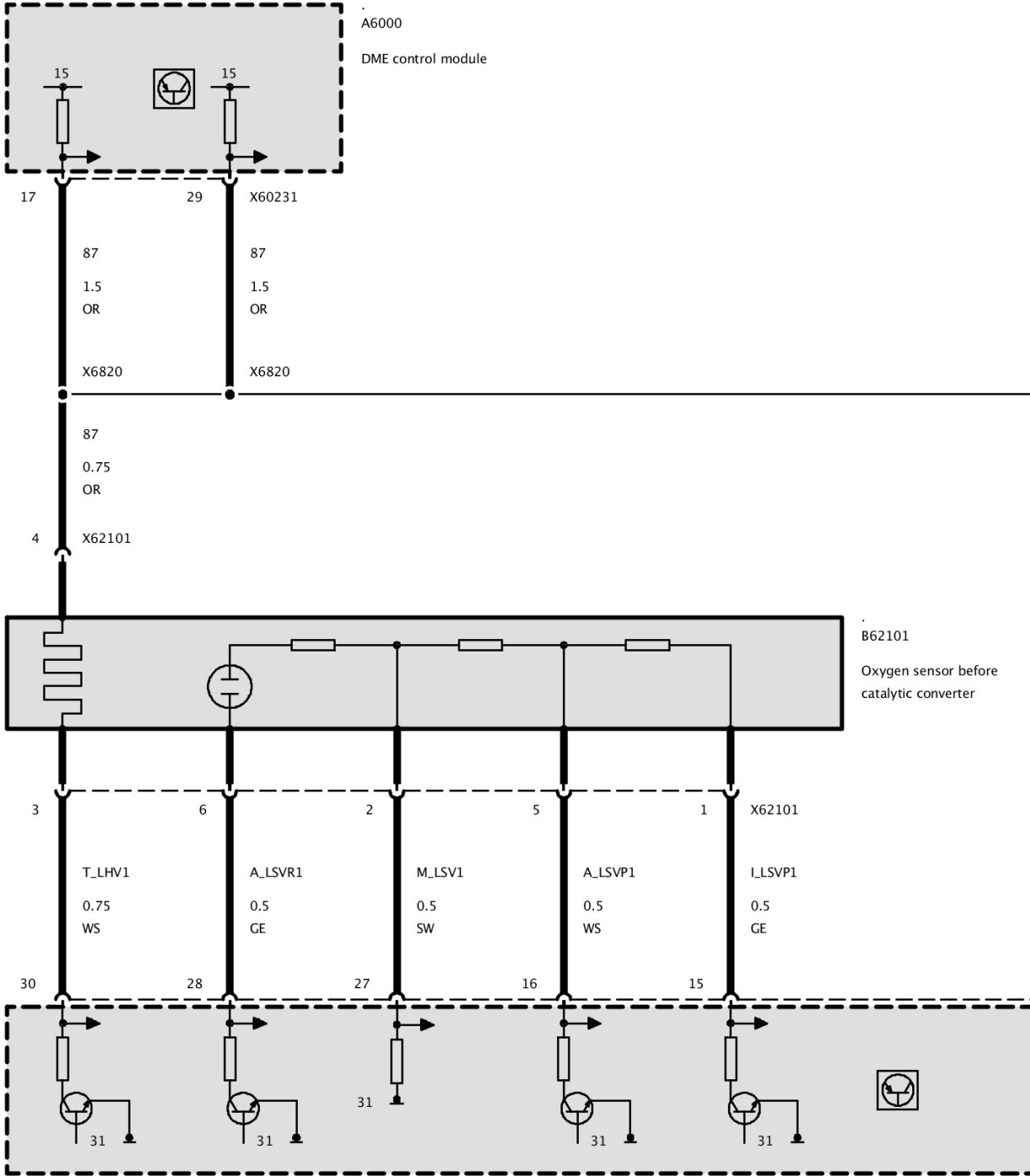
### ***Connector overview***

Number	X-pin, color	Description
X1746	38-pin, black	Component connector Dynamic stability control (DSC)

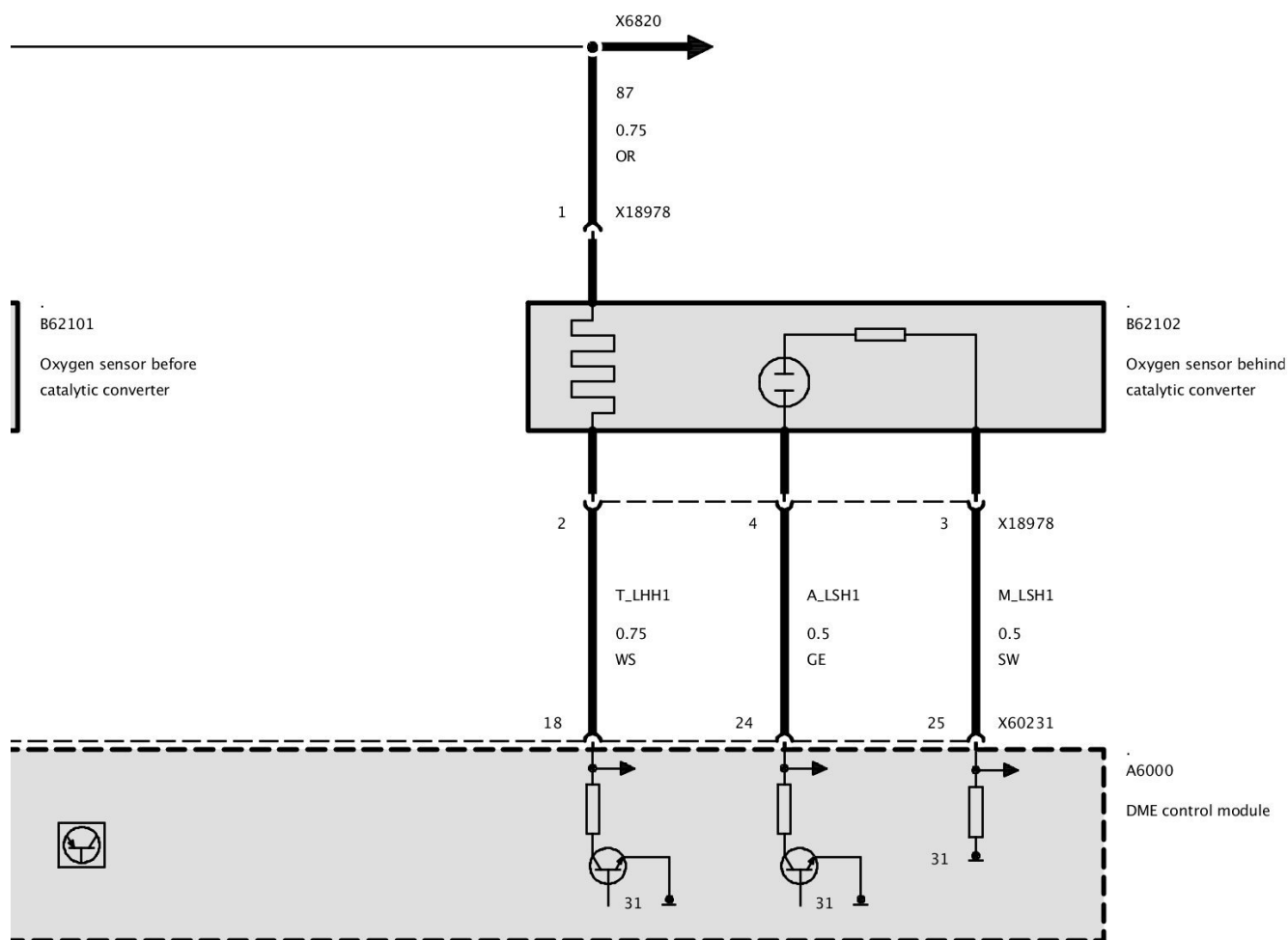
A65a Dynamic Stability Control (DSC)

## Exhaust System

### Lambda Control



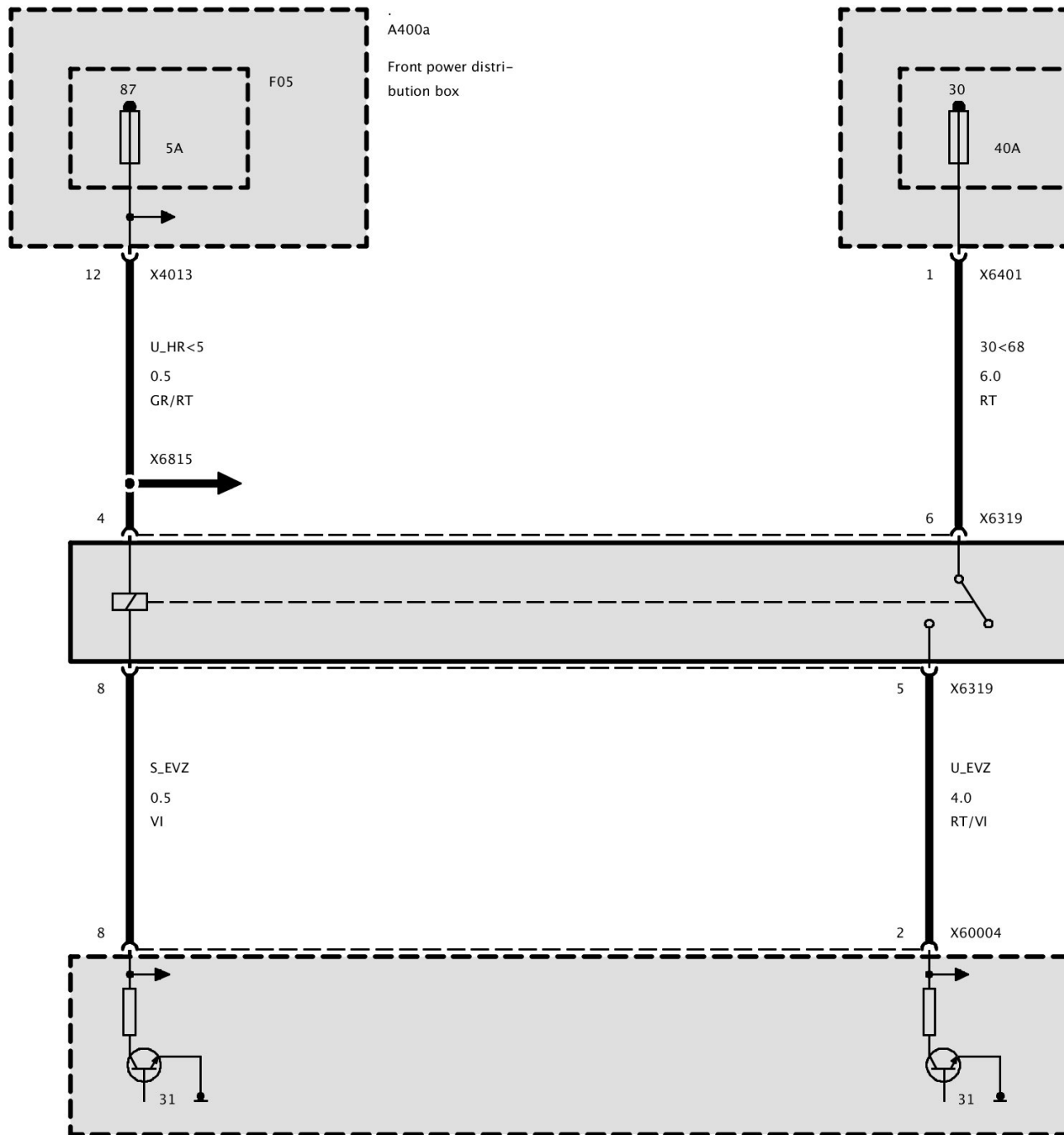
Part 1



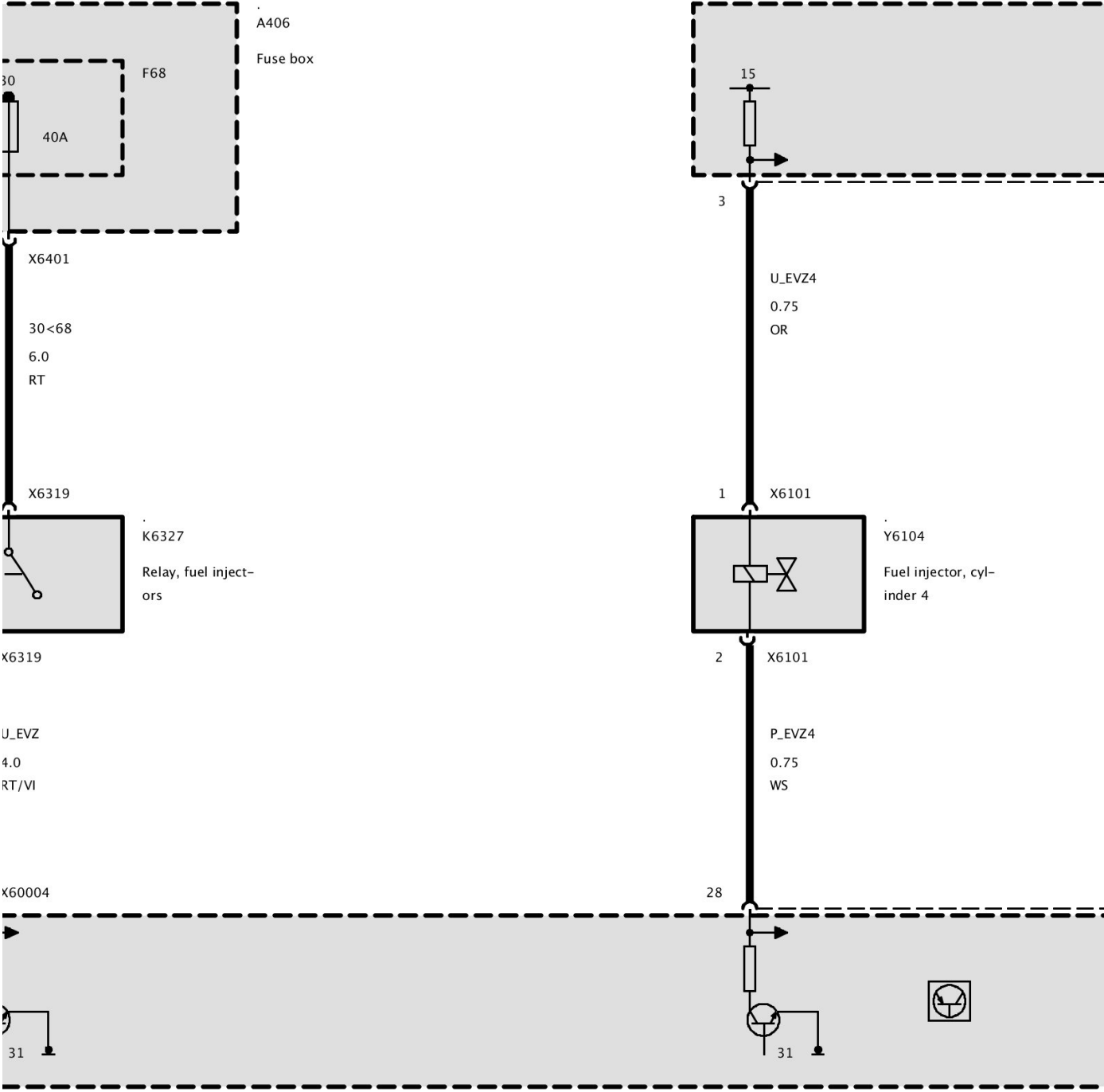
## Part 2

## Fuel Injection

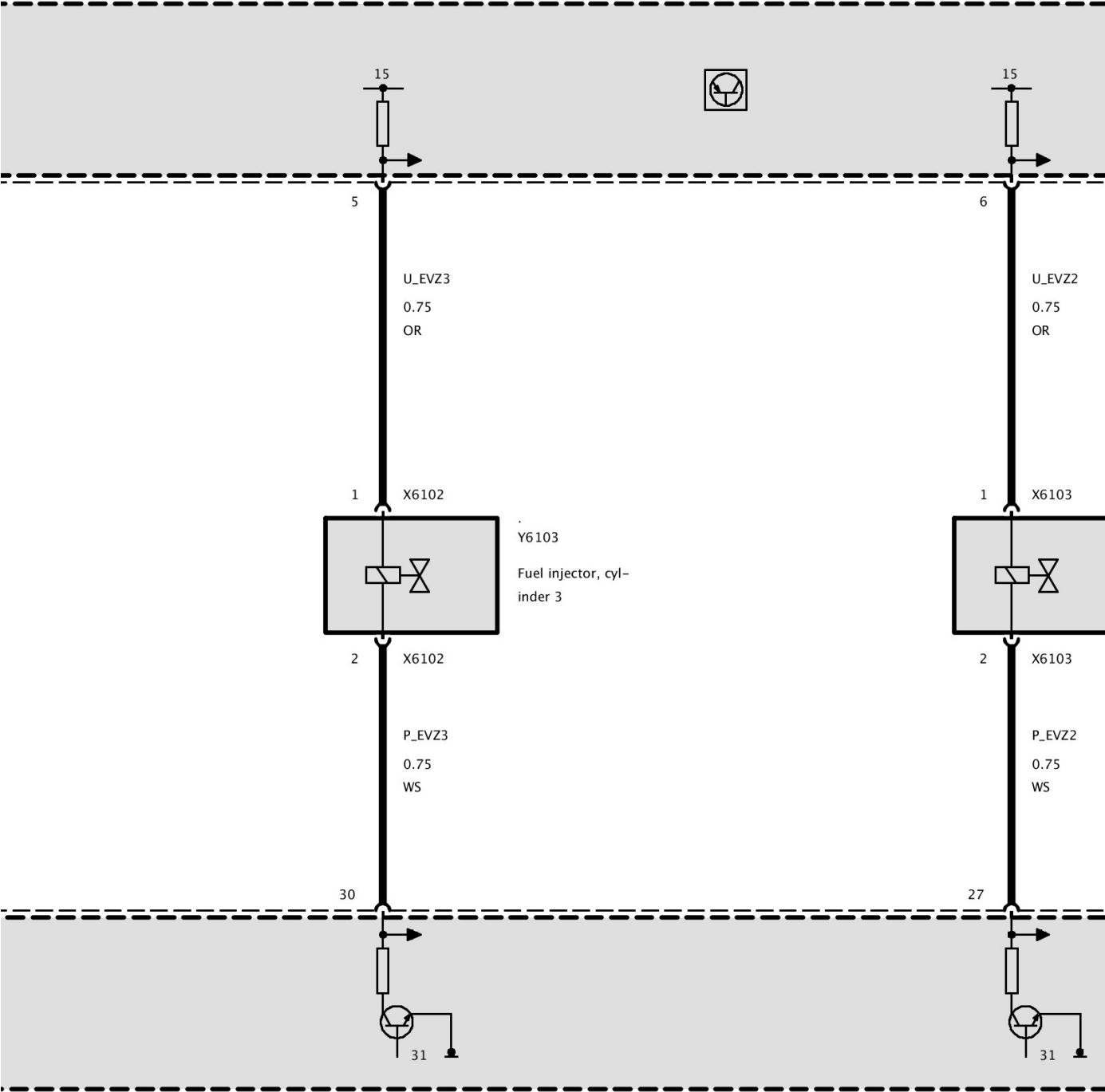
### Fuel Injection Valves



Part 1

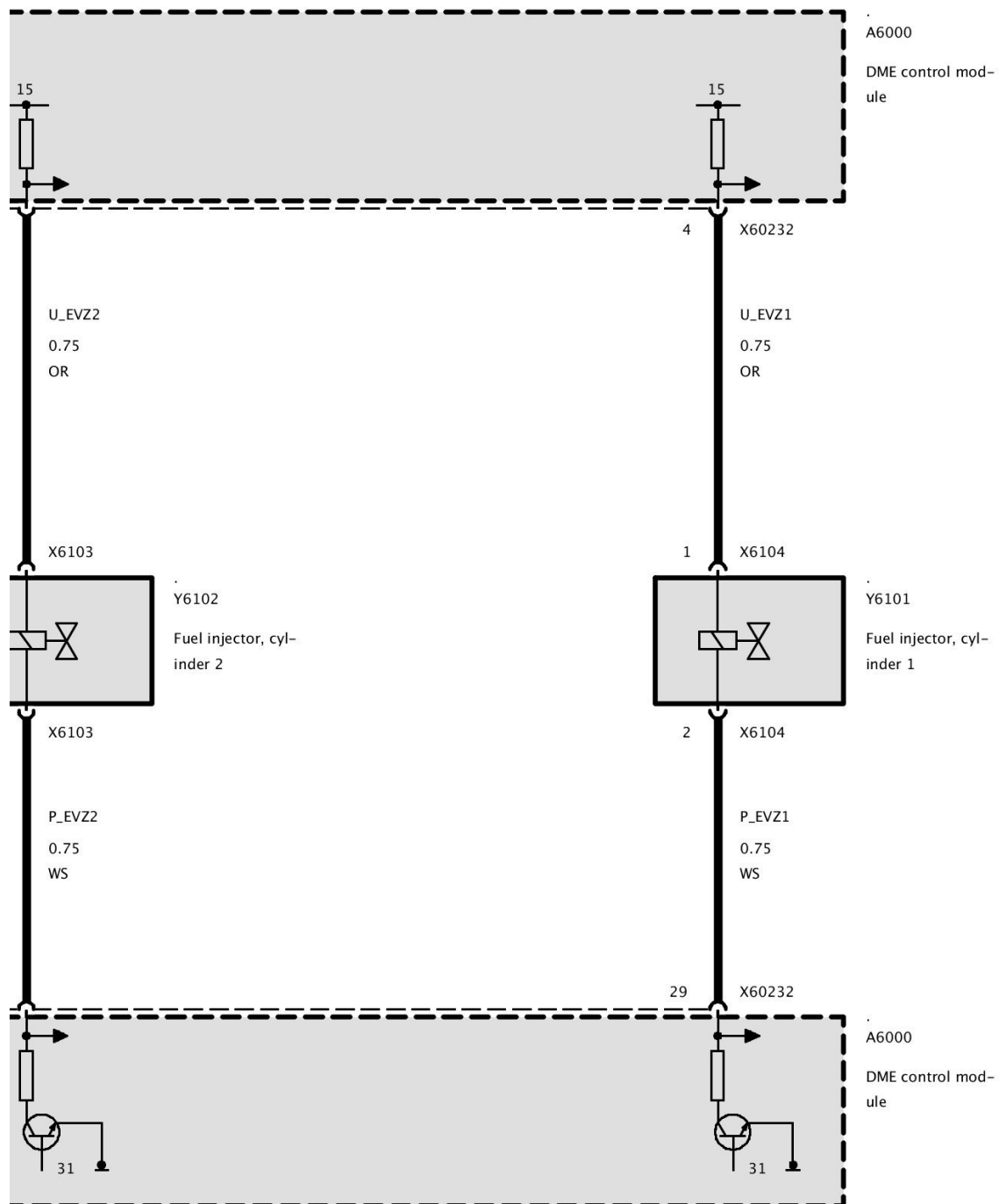


Part 2



Part 3

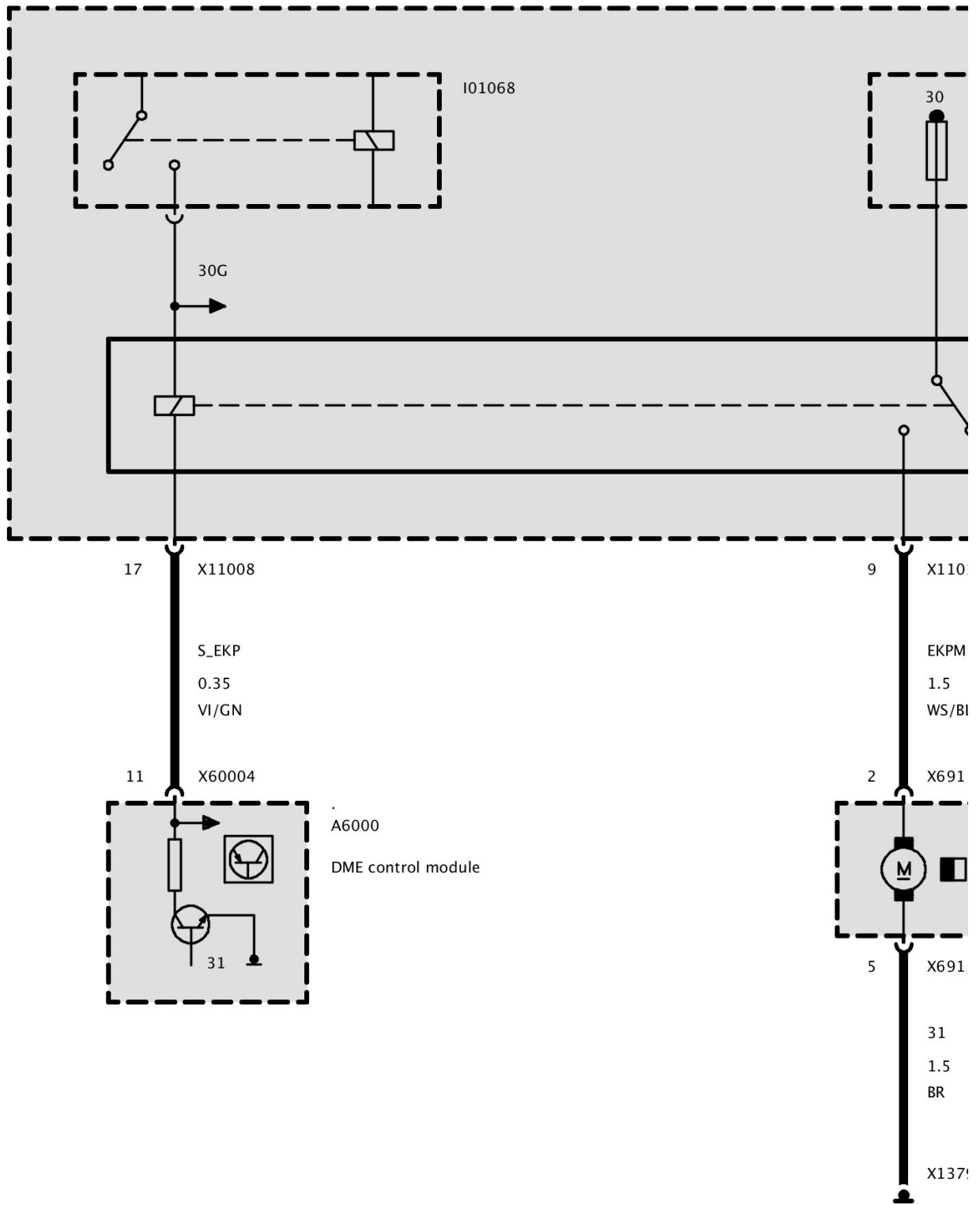




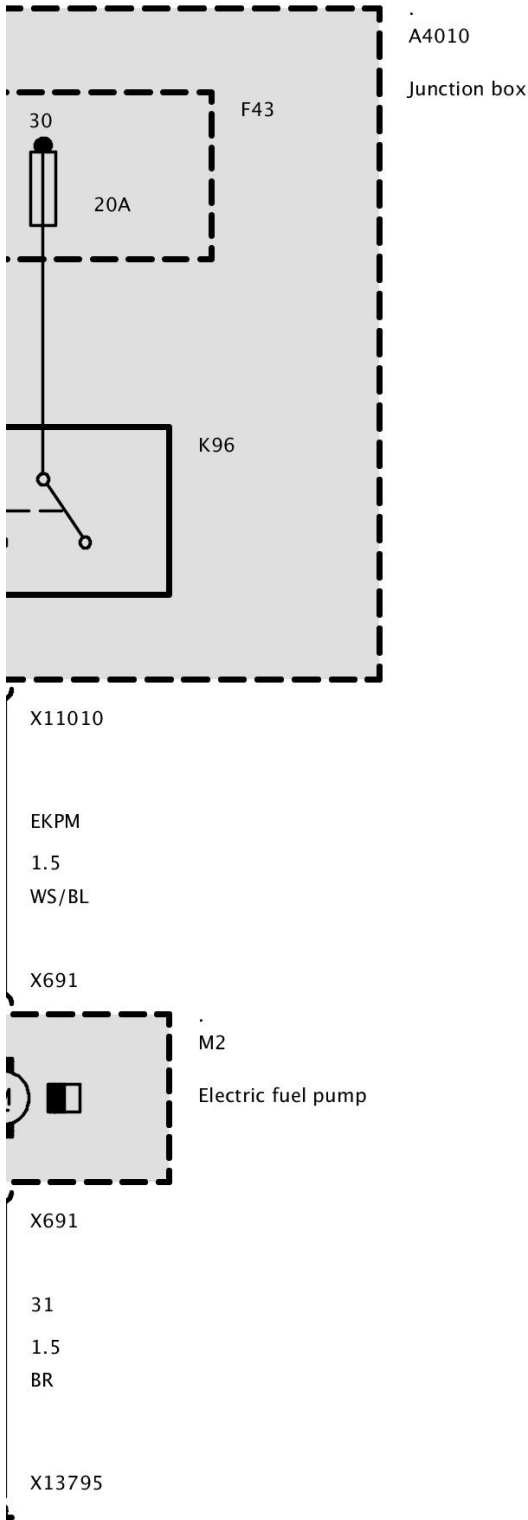
## Part 4

## Low Pressure Fuel System

### Fuel Pump (Without Engine)



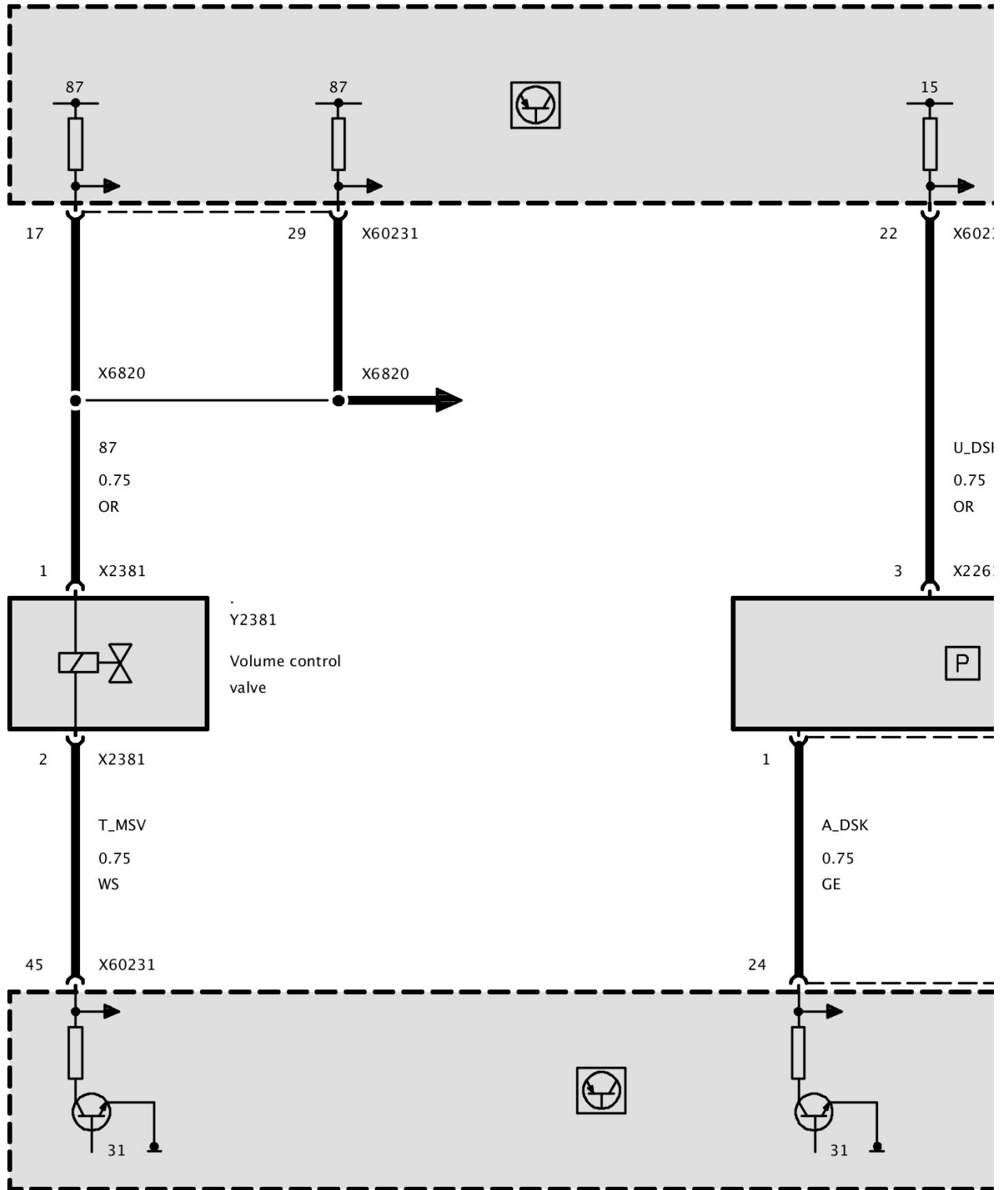
Part 1



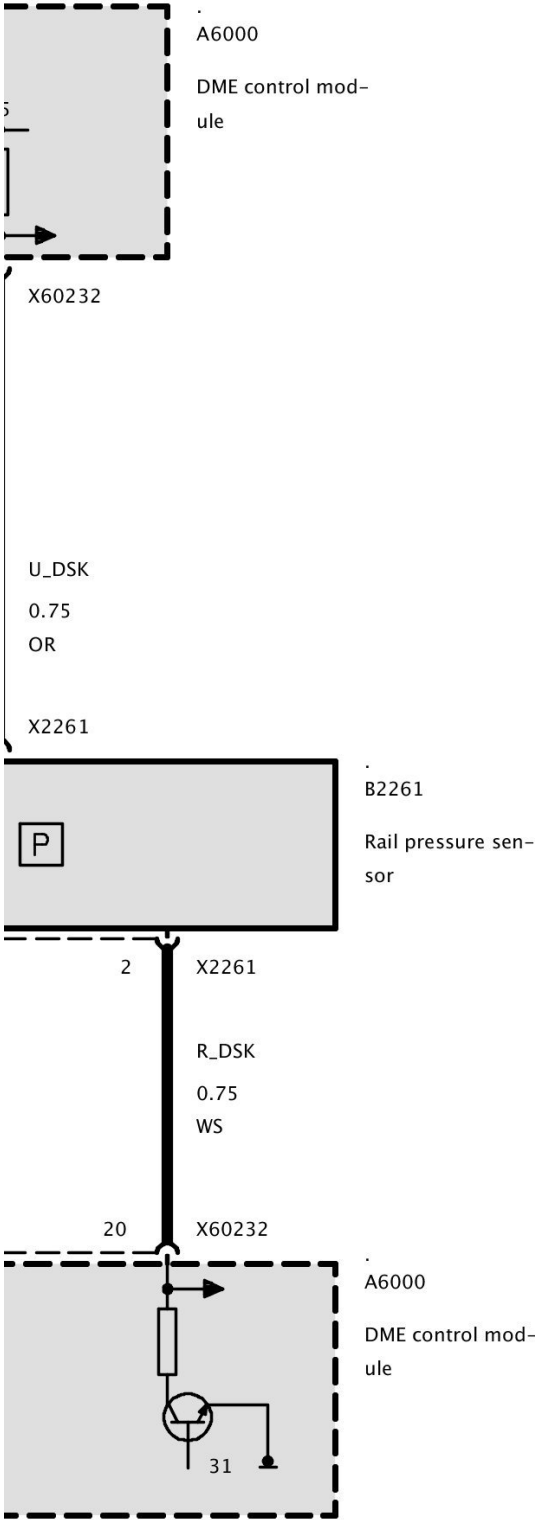
Part 2

High Pressure Fuel System

High Pressure Fuel System



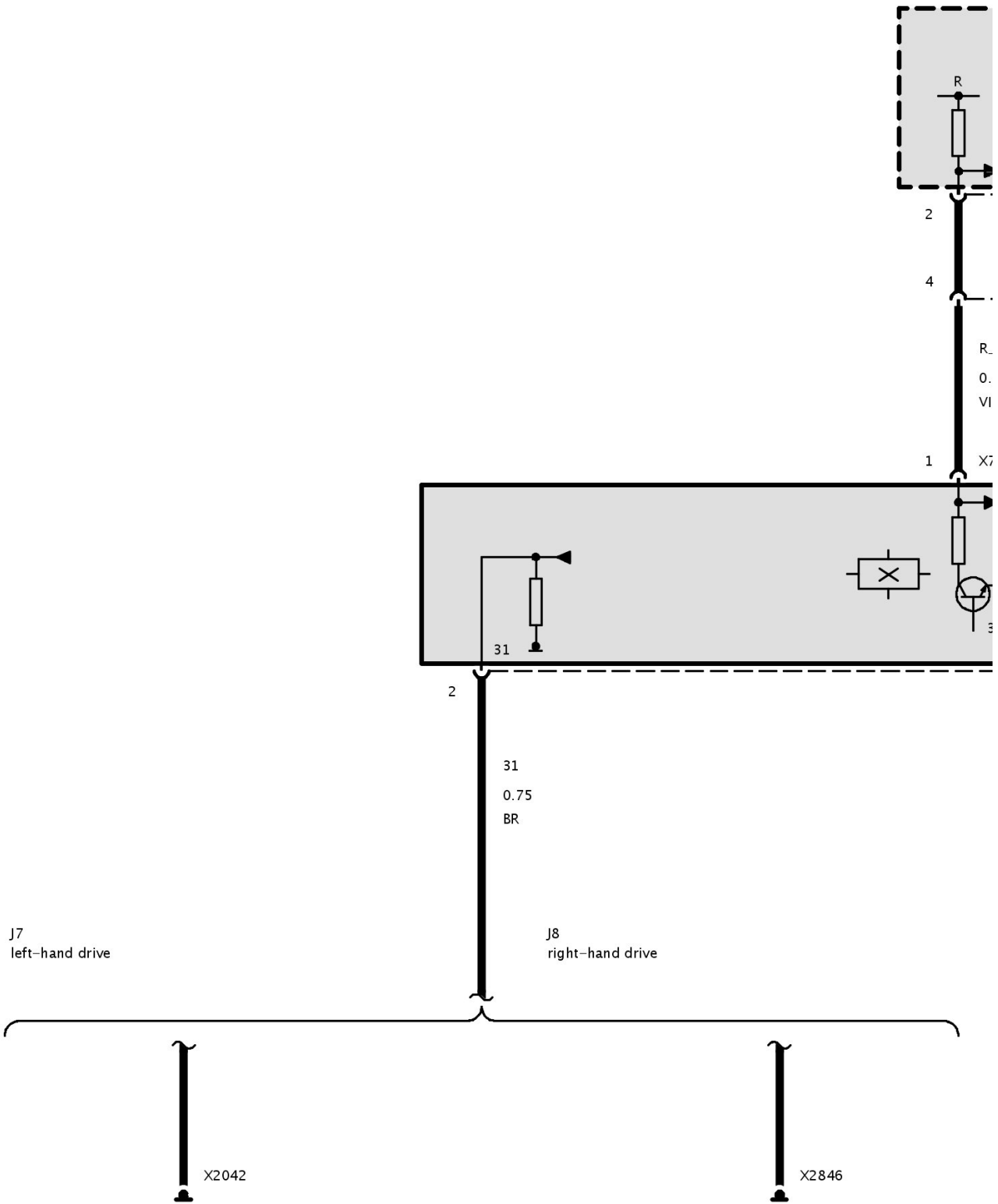
Part 1



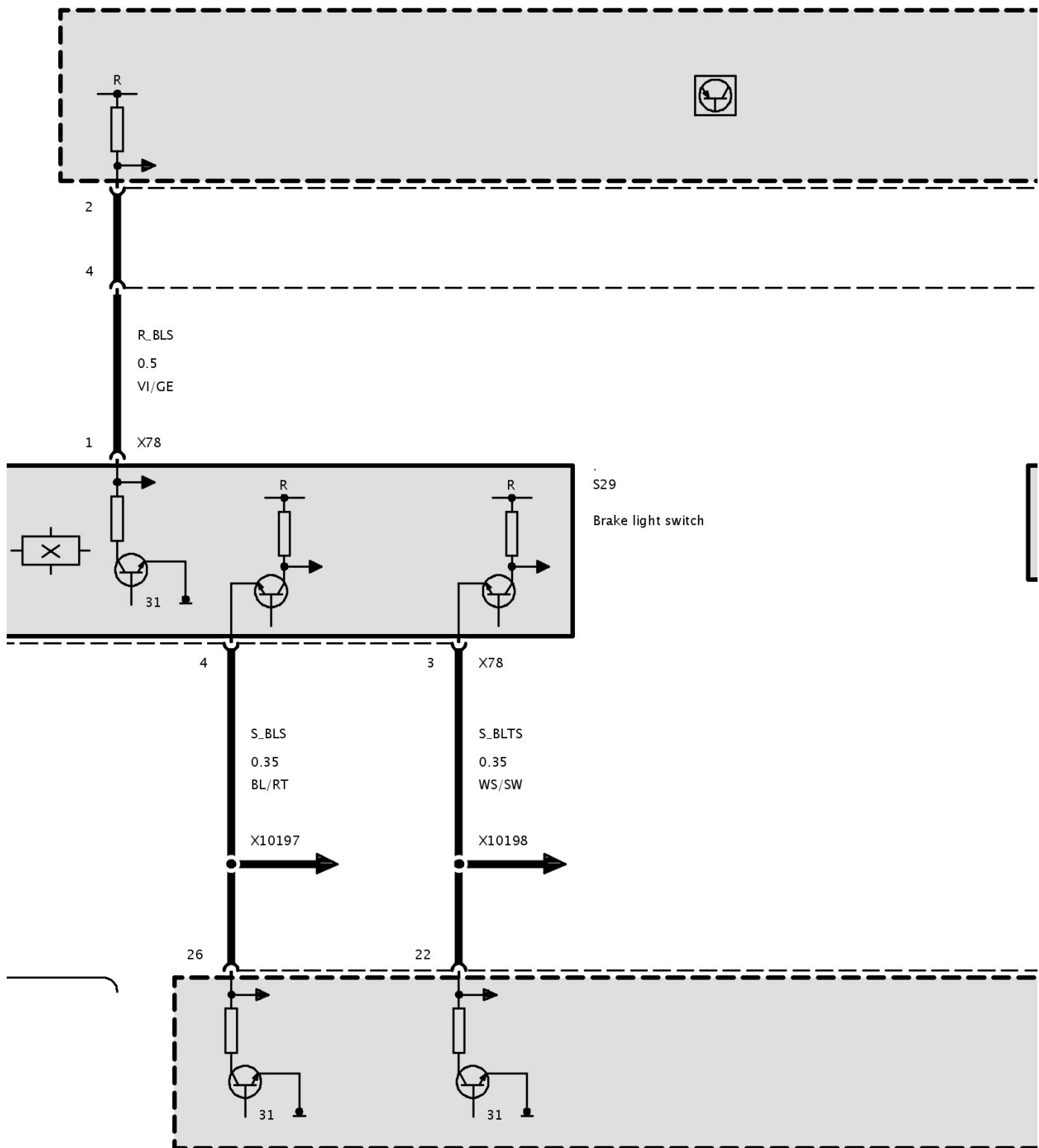
Part 2

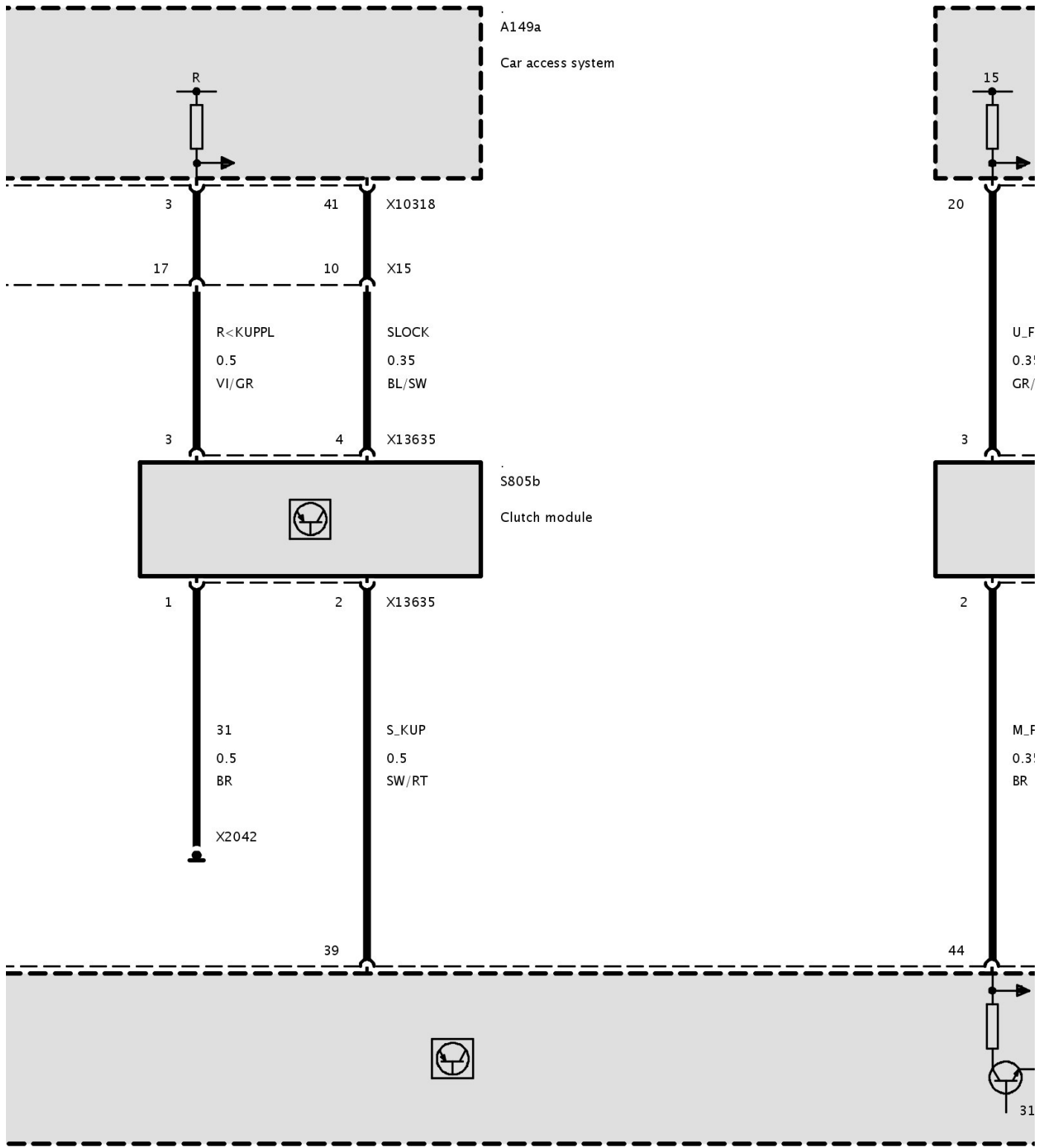
Foot Pedal

Foot Pedal



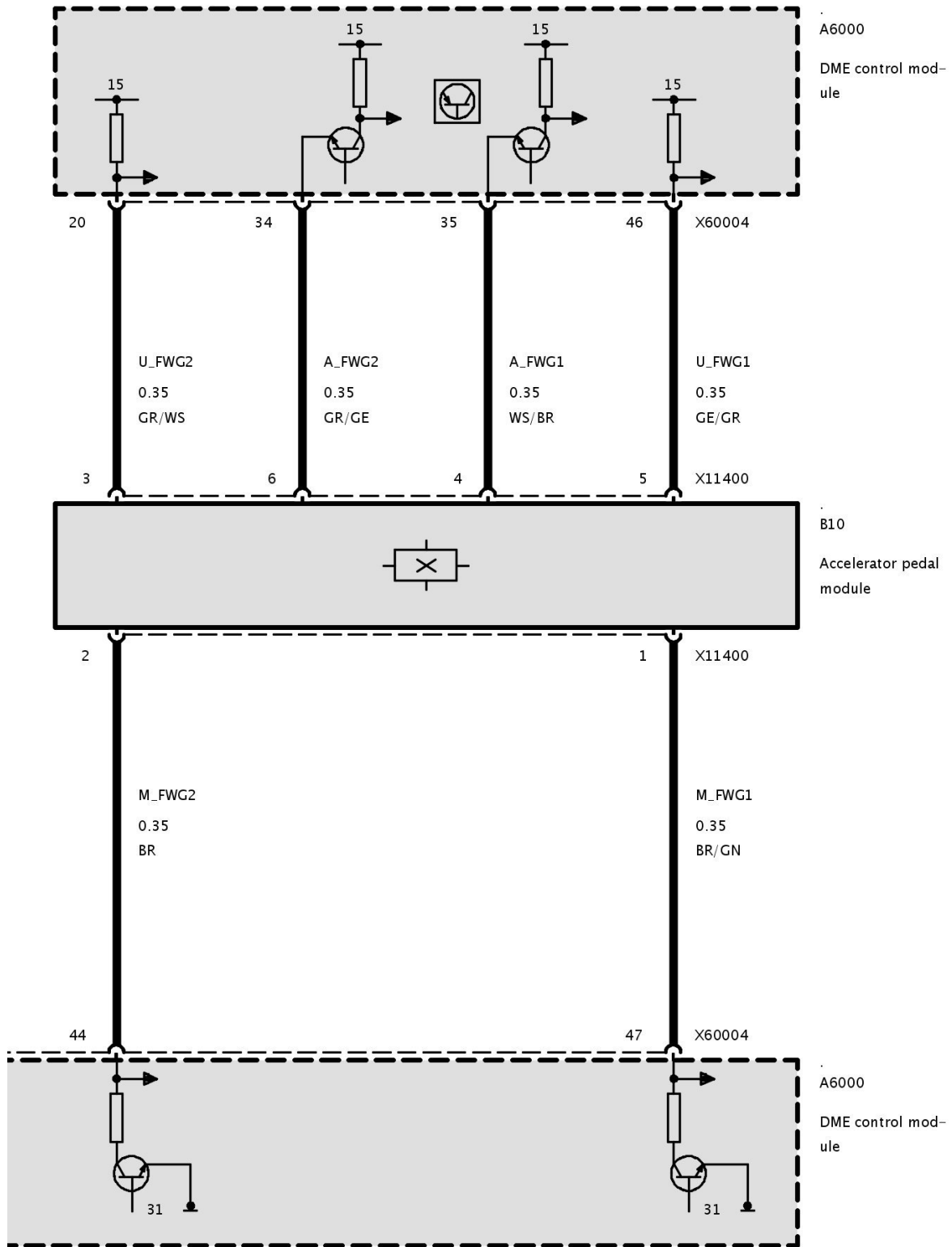
Part 1





Part 3

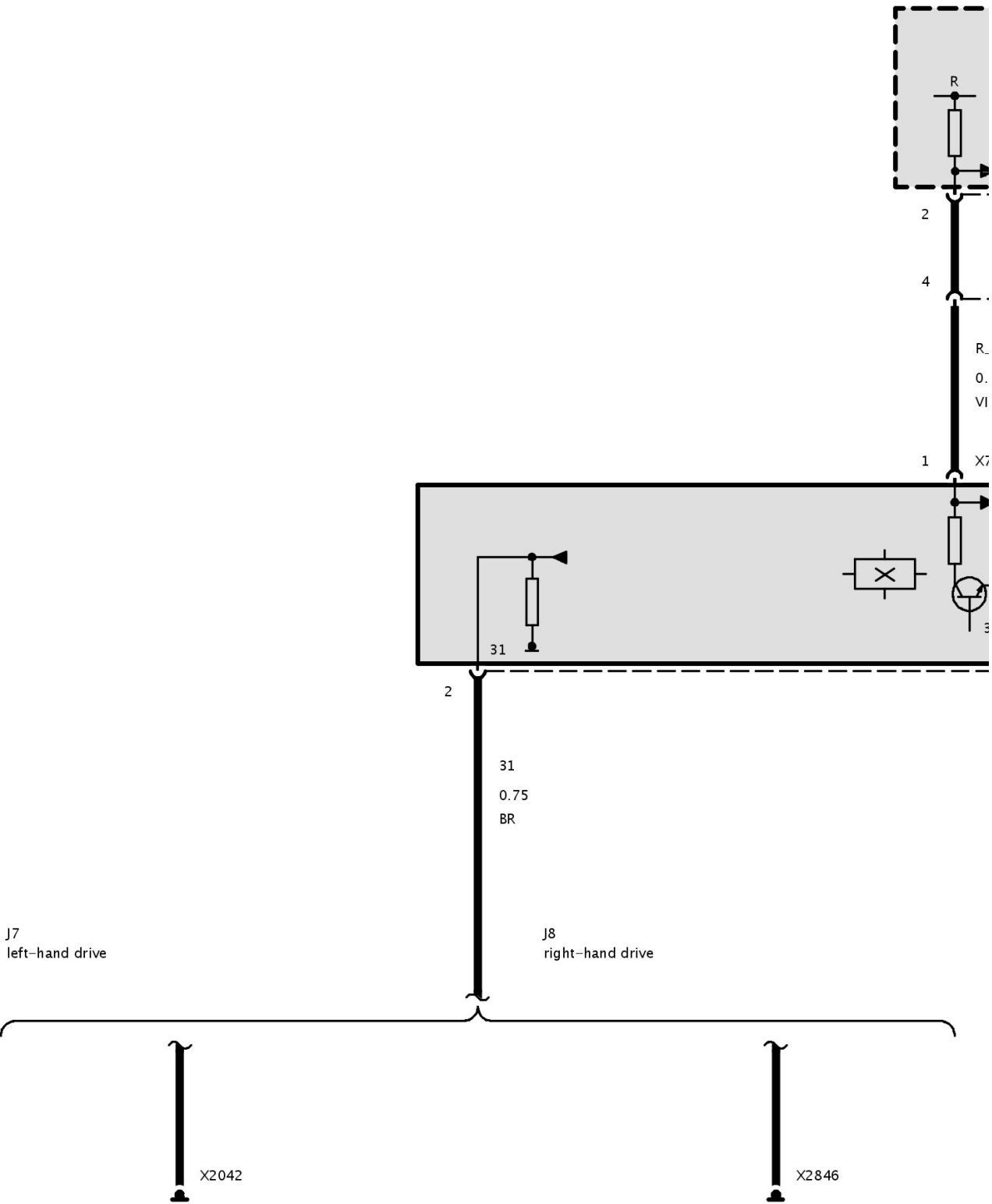




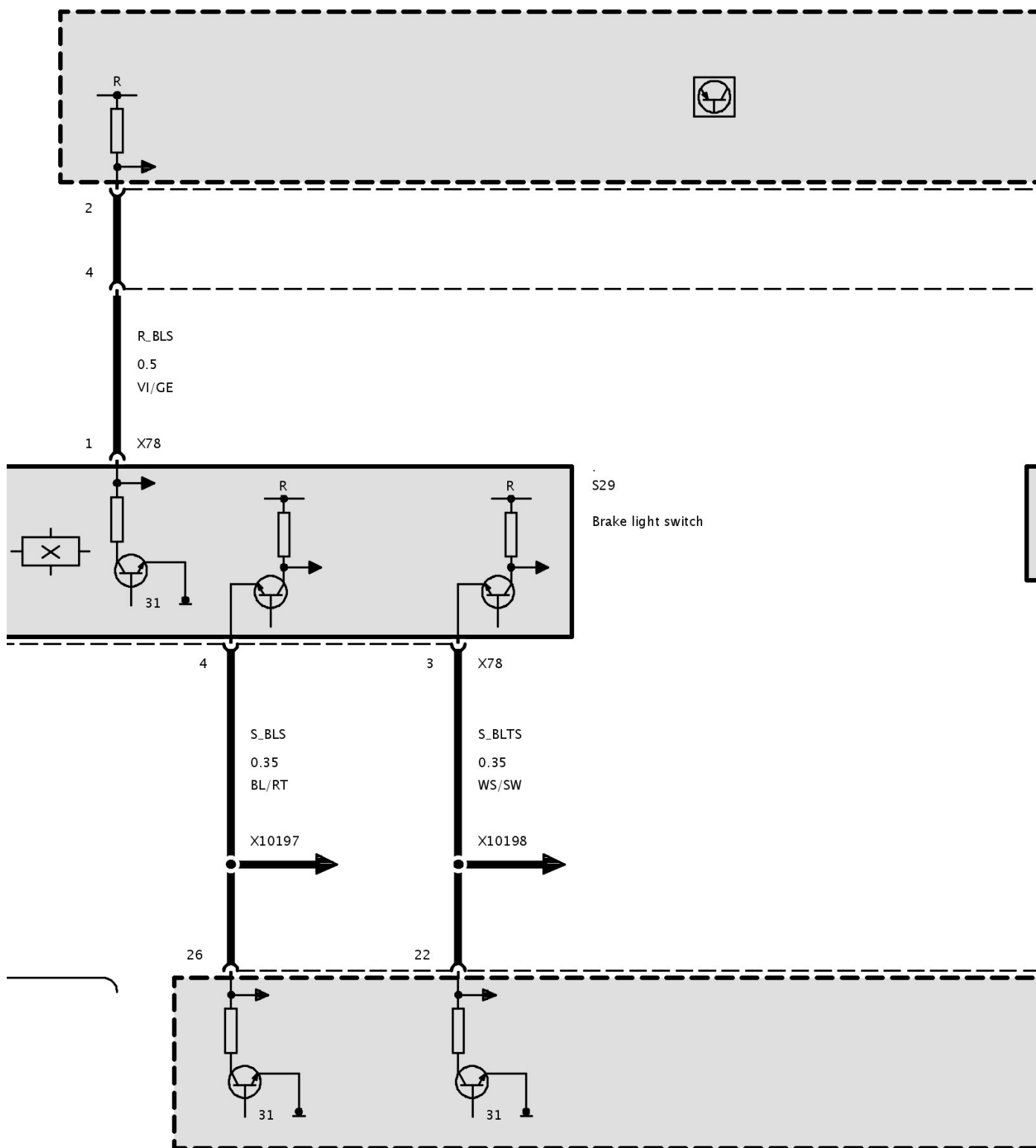
Part 4

Brake Light Switch

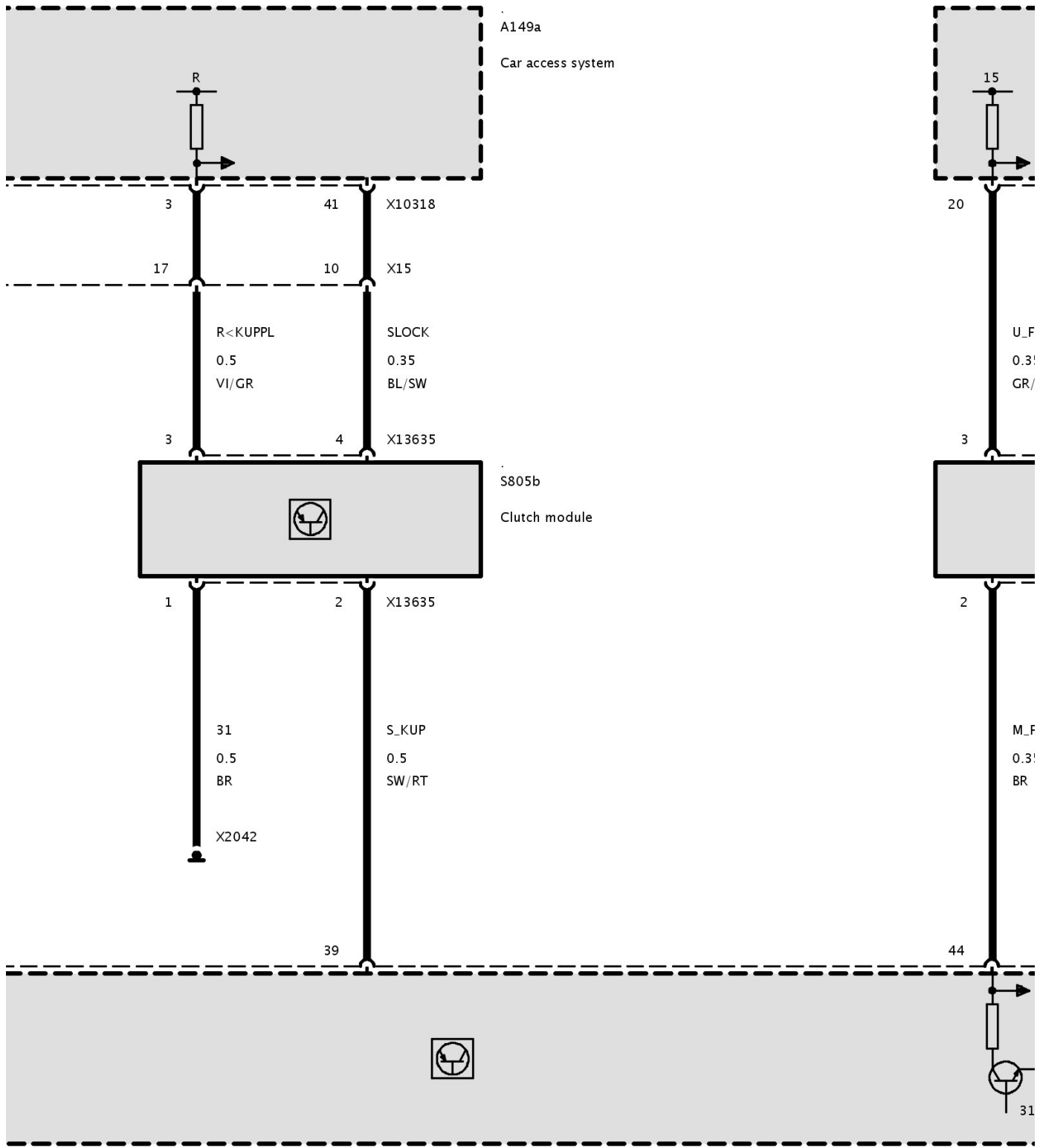
Foot Pedal



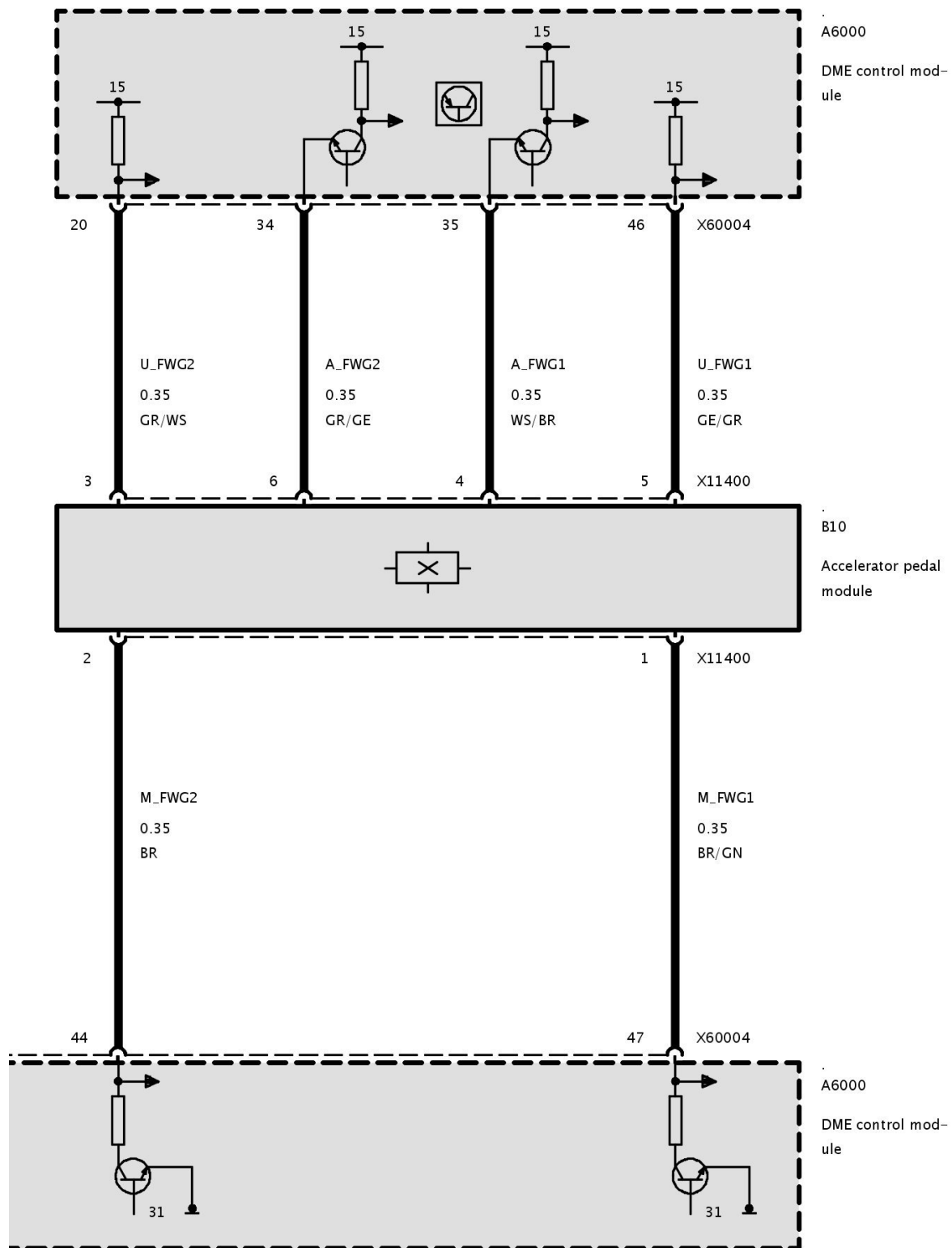
Part 1



Part 2



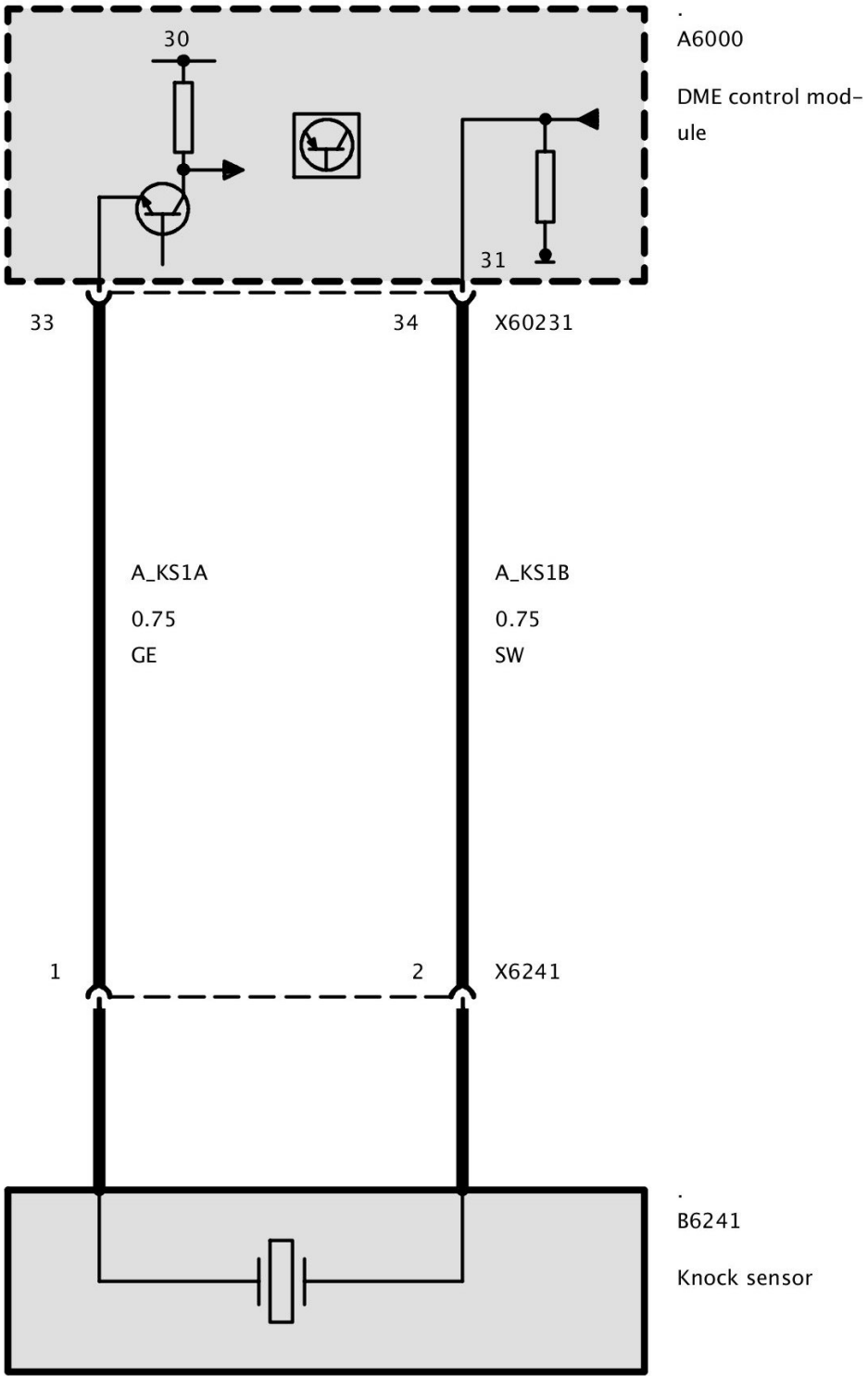
Part 3



#### Part 4

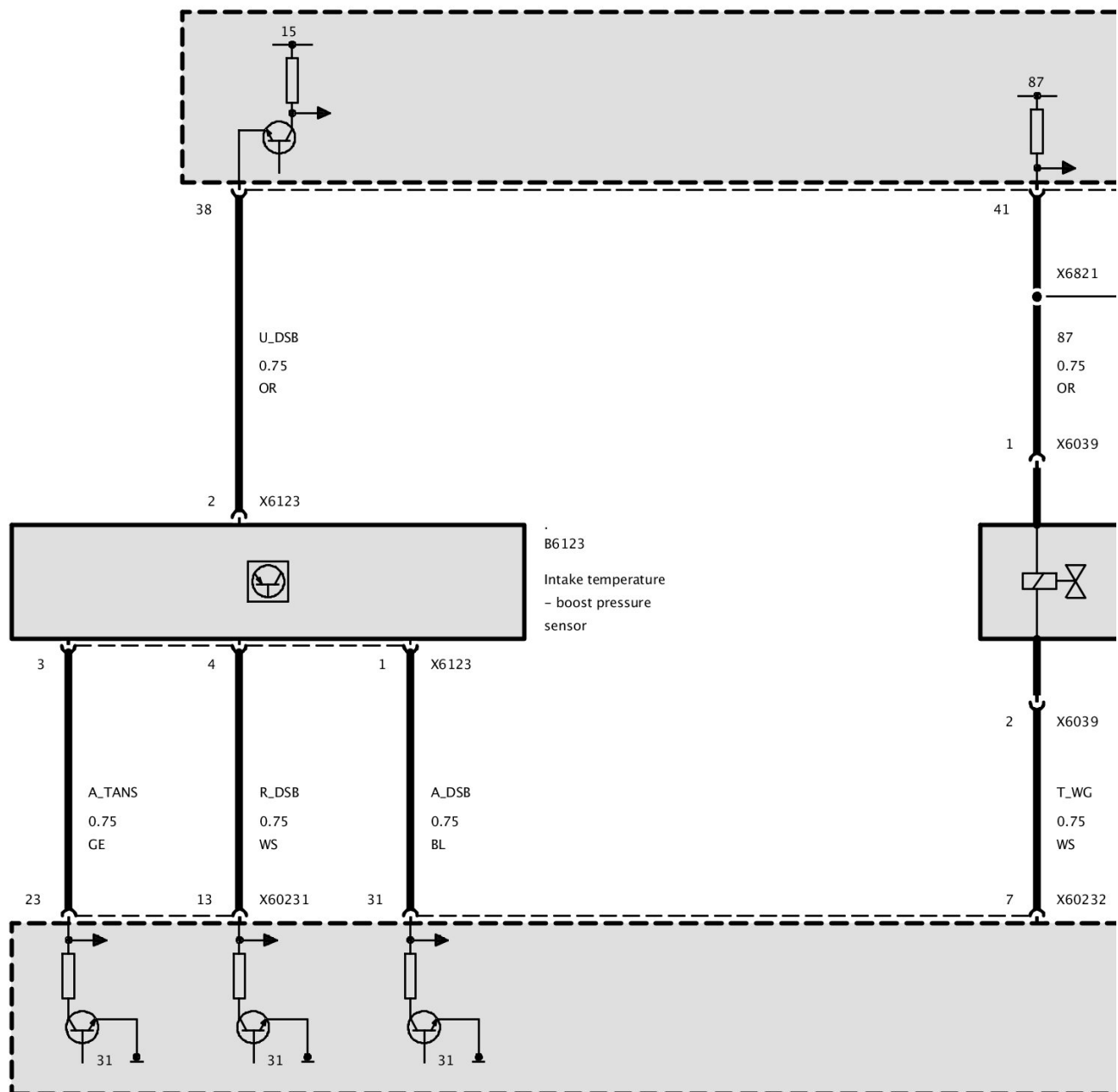
### Knock Control

#### Knock Control

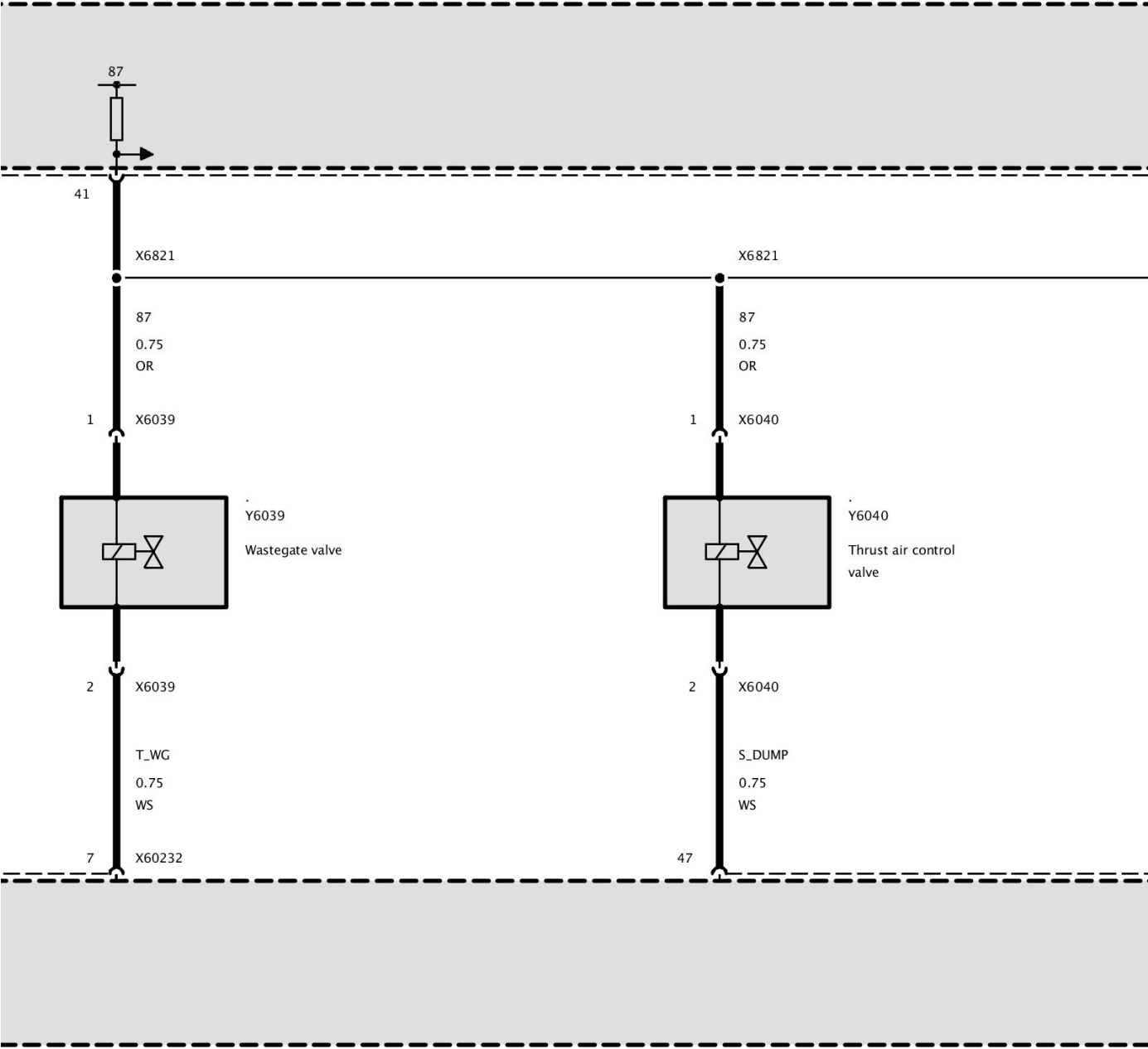


Air Supply

Air Supply



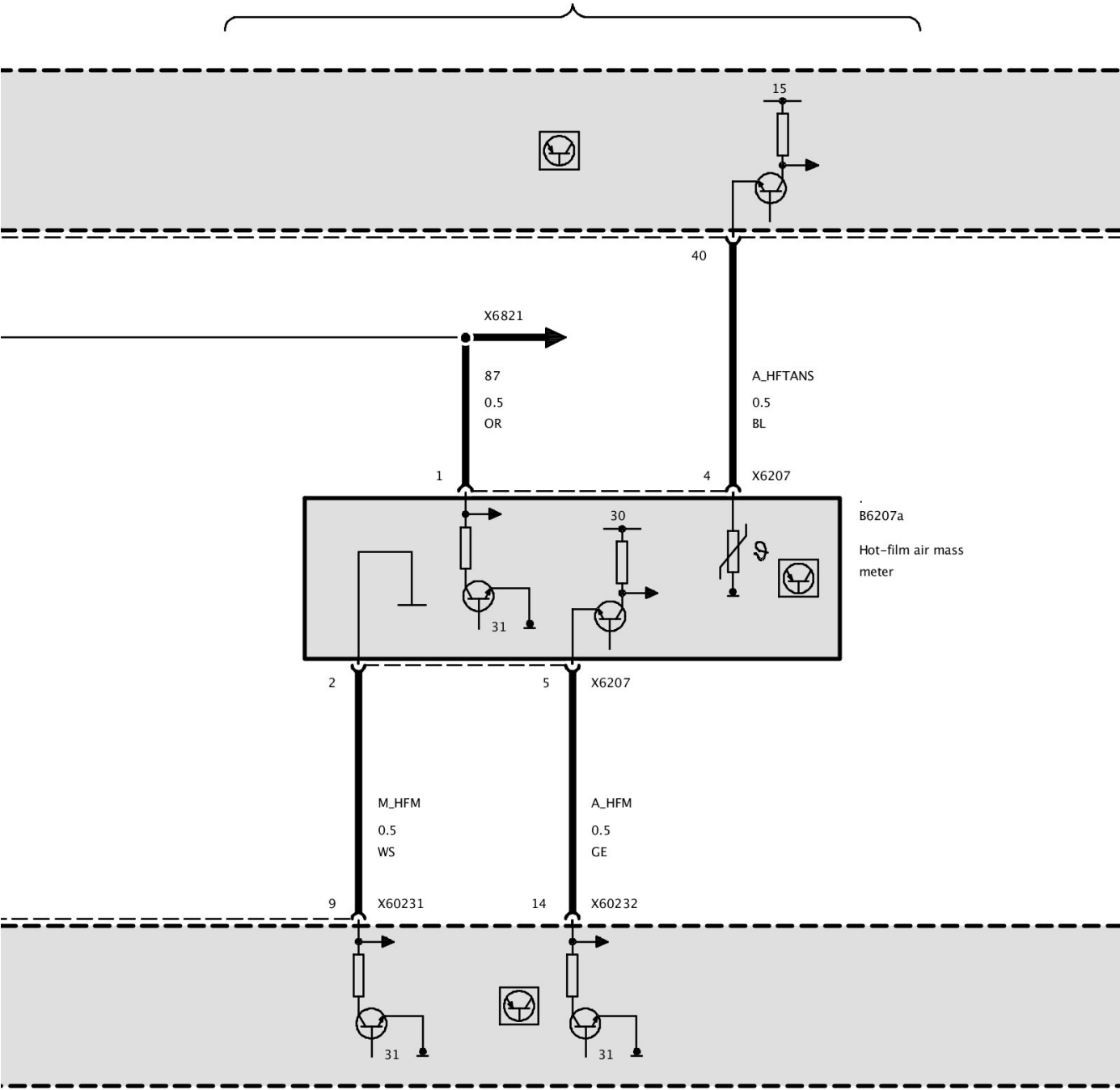
Part 1



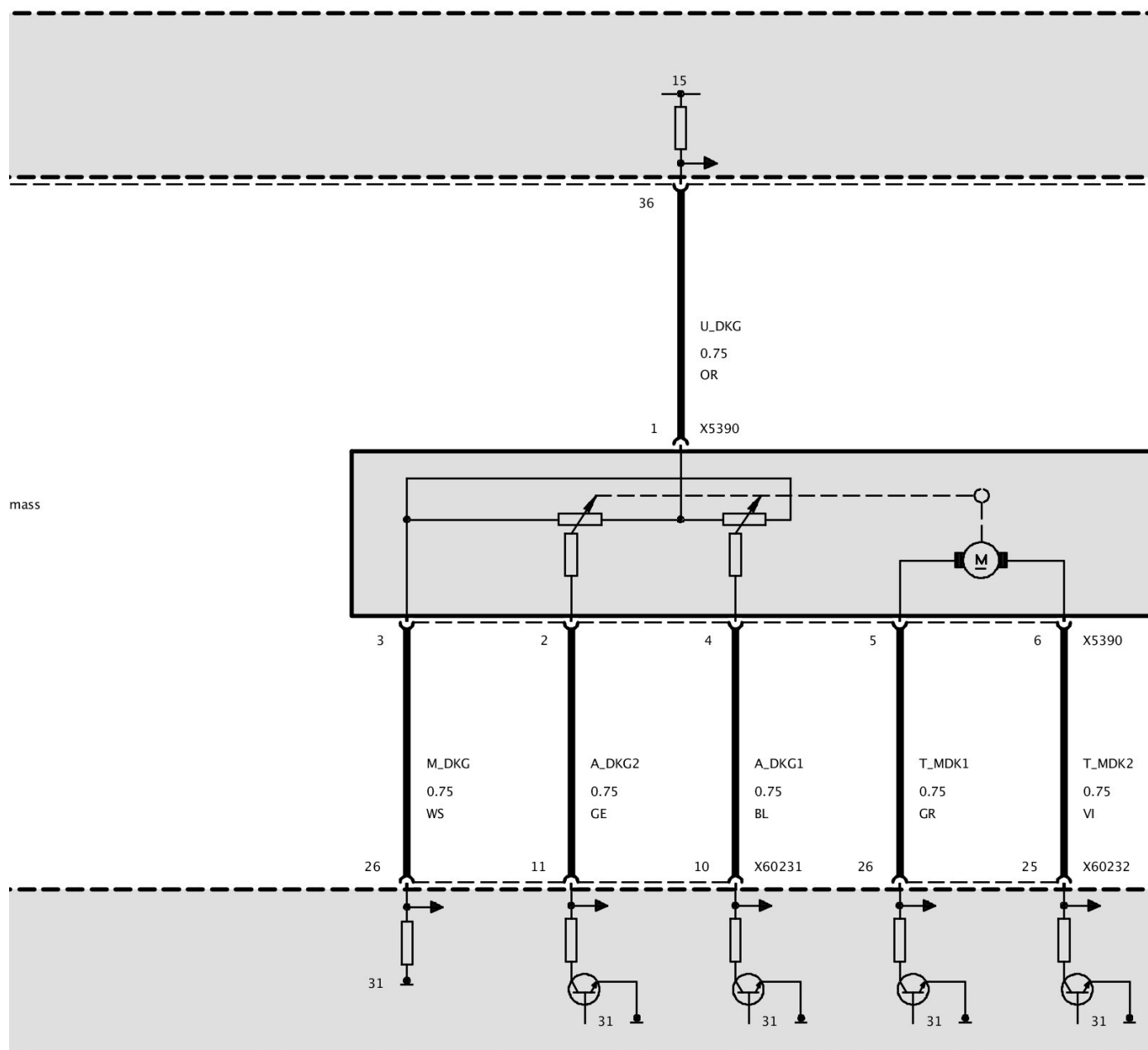
Part 2

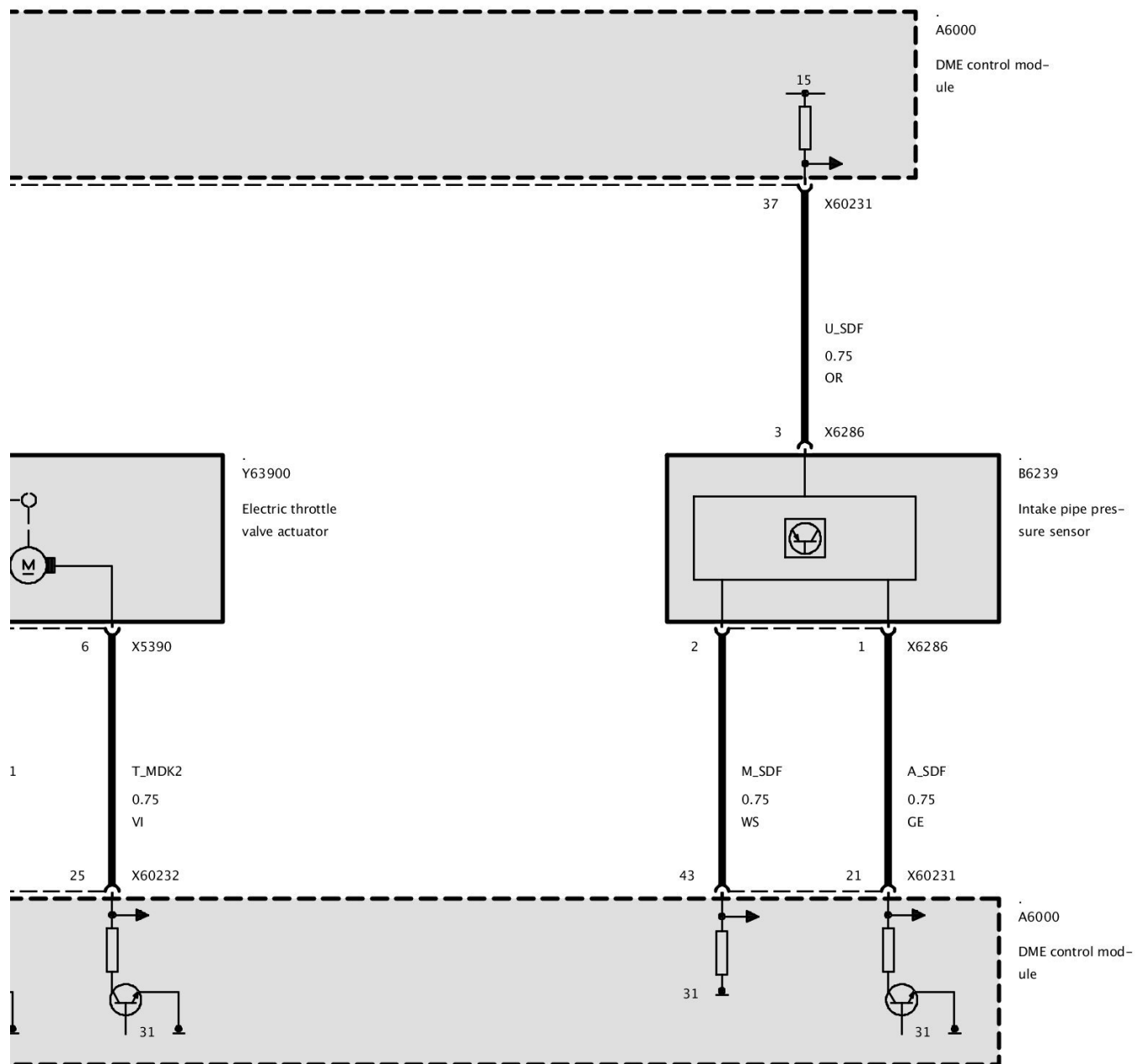


J2  
USA



Part 3

**Part 4**

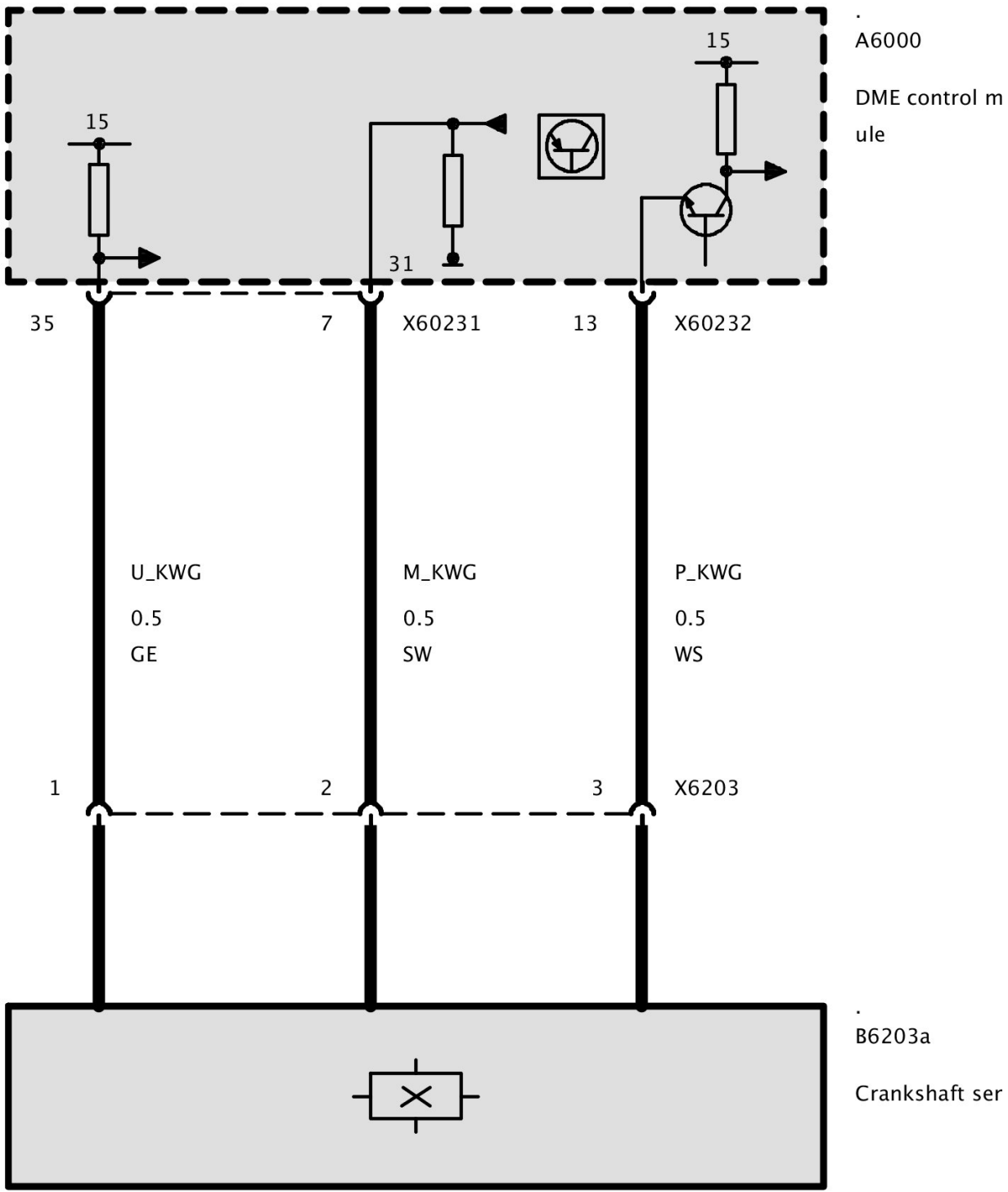


## Part 5

### Engine-Speed Measurement

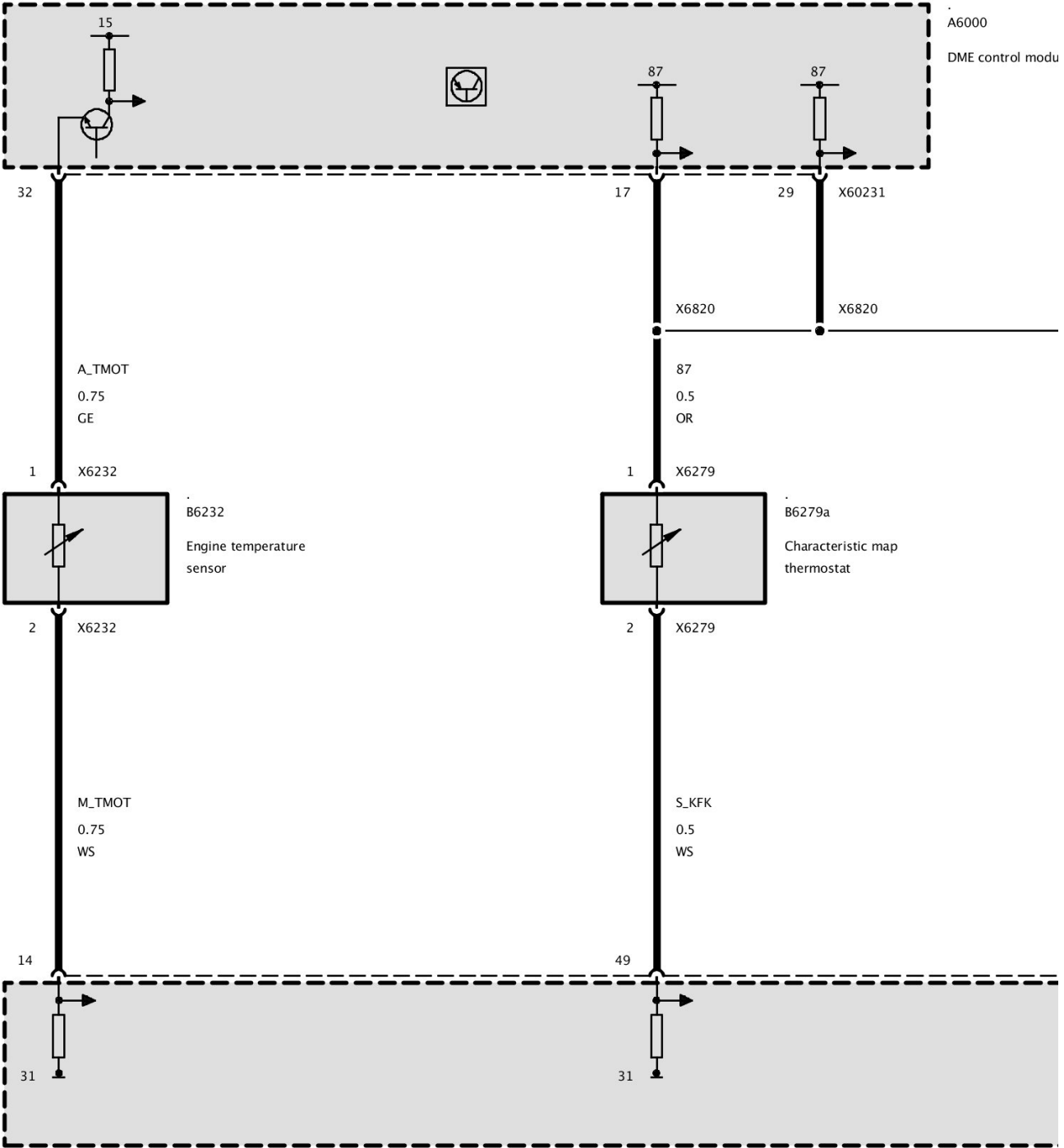
#### Crankshaft Position Sensor

#### Crankshaft Sensor



Engine Cooling

Engine Cooling System (As Of 2007\_03)



Part 1



A6000  
DME control module

31

0

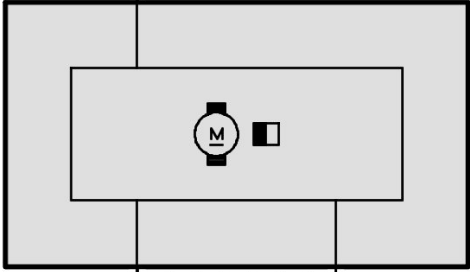
map

X6820

87  
0.75  
OR

2

X14189



M220

Turbocharger coolant  
pump

3

1

S\_TC  
0.75  
WS

M\_TC  
0.75  
VI

X60231

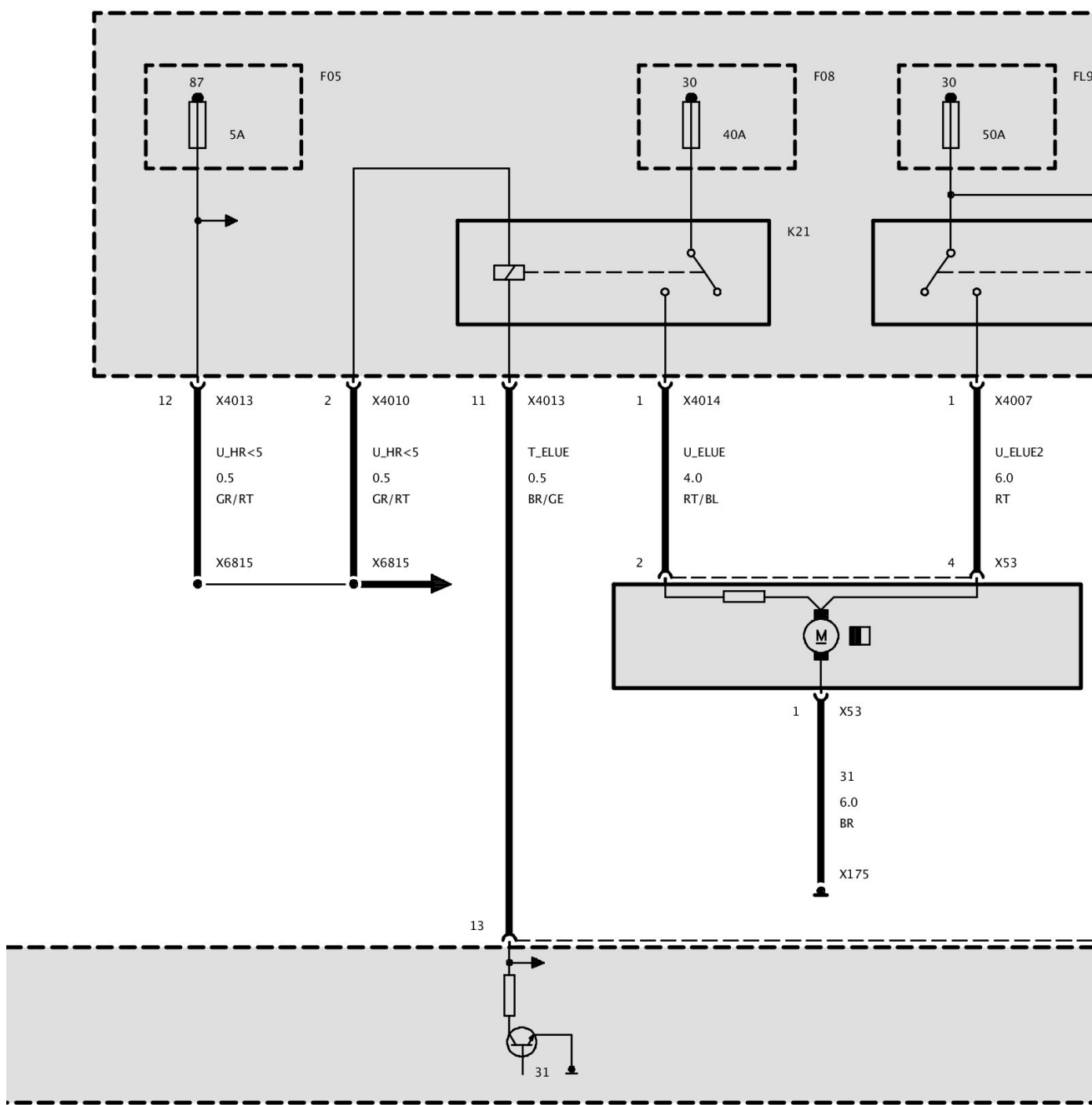
X60232

31

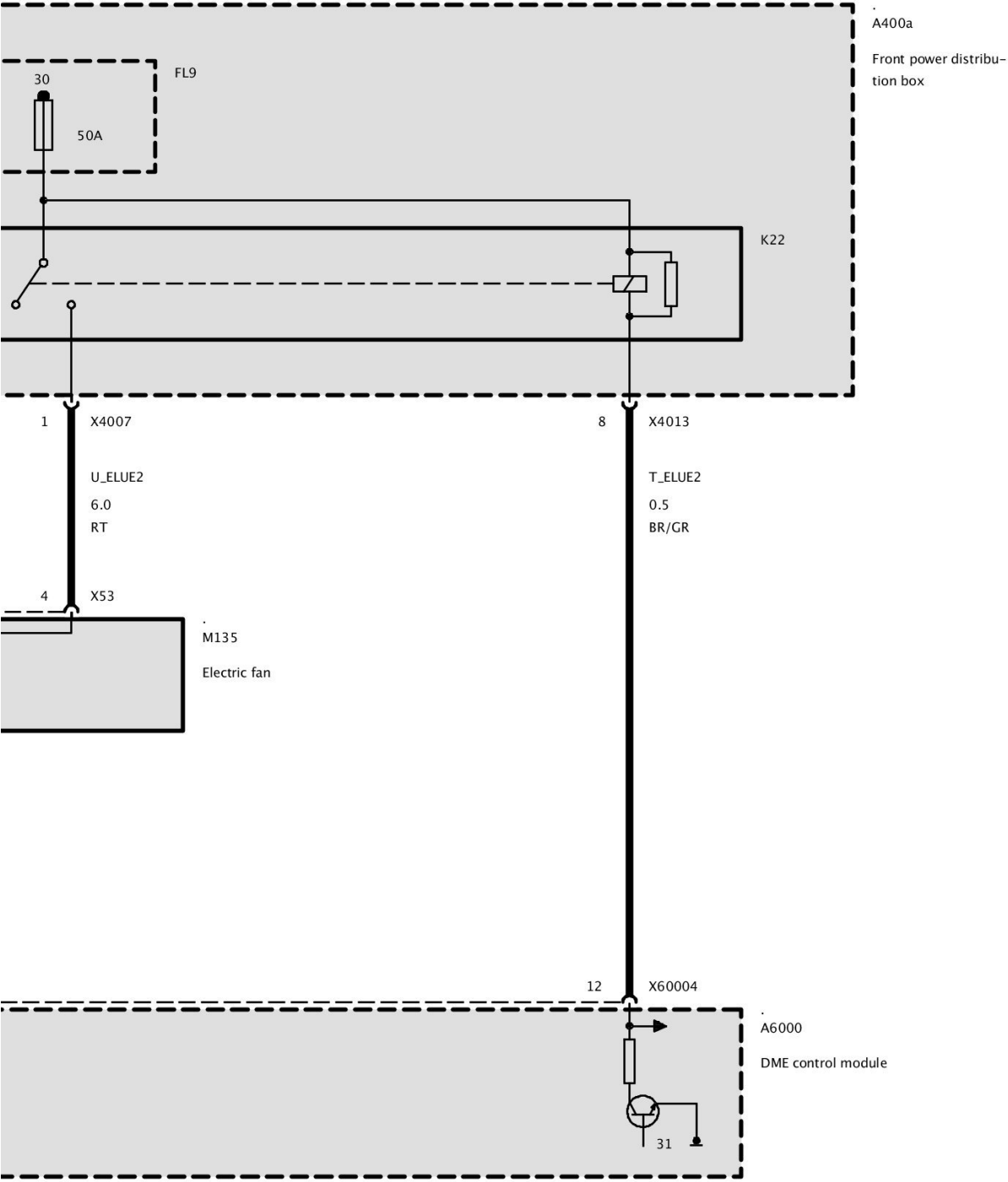


12

Part 2



Part 3



Part 4

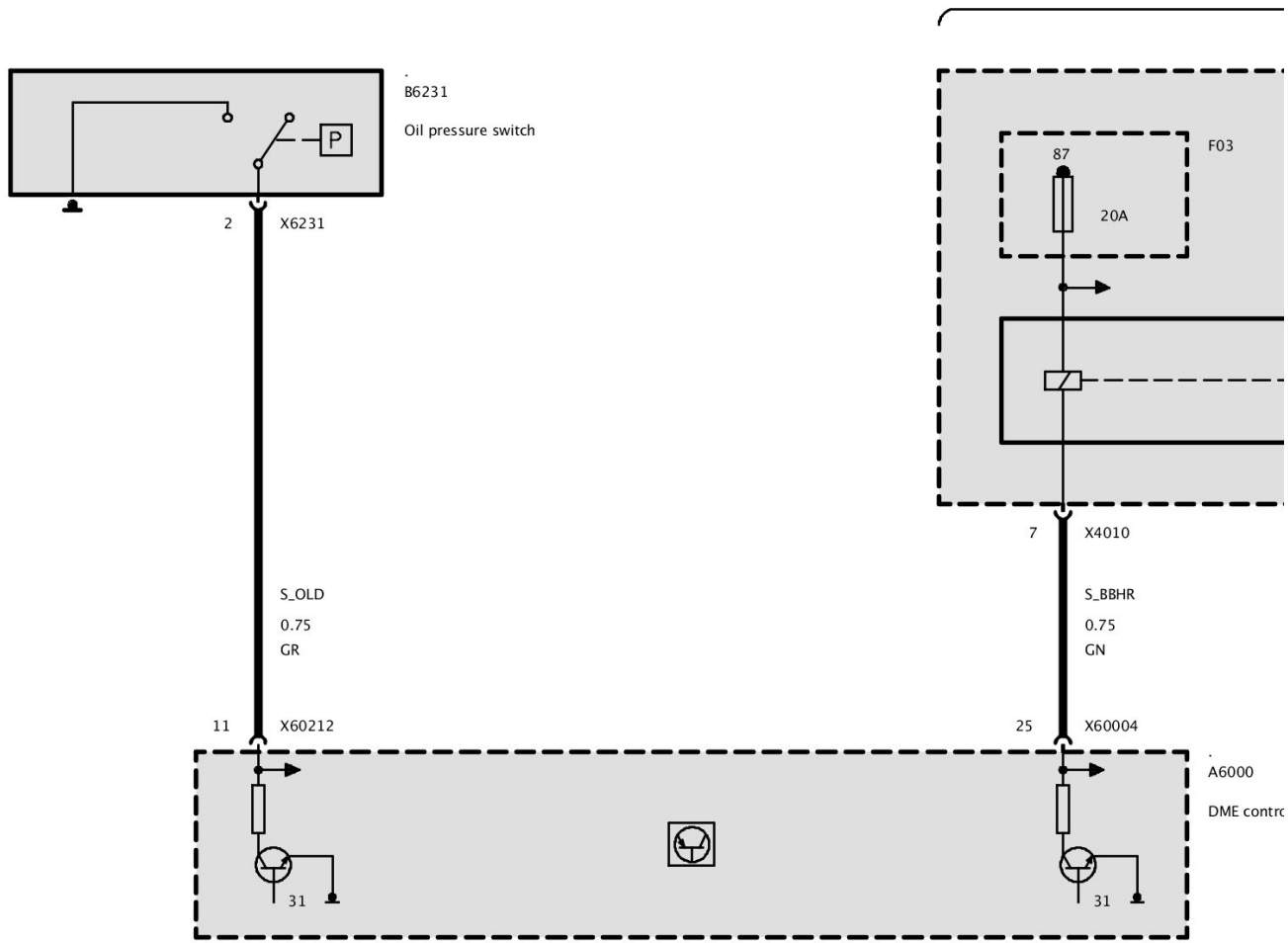


ribu-

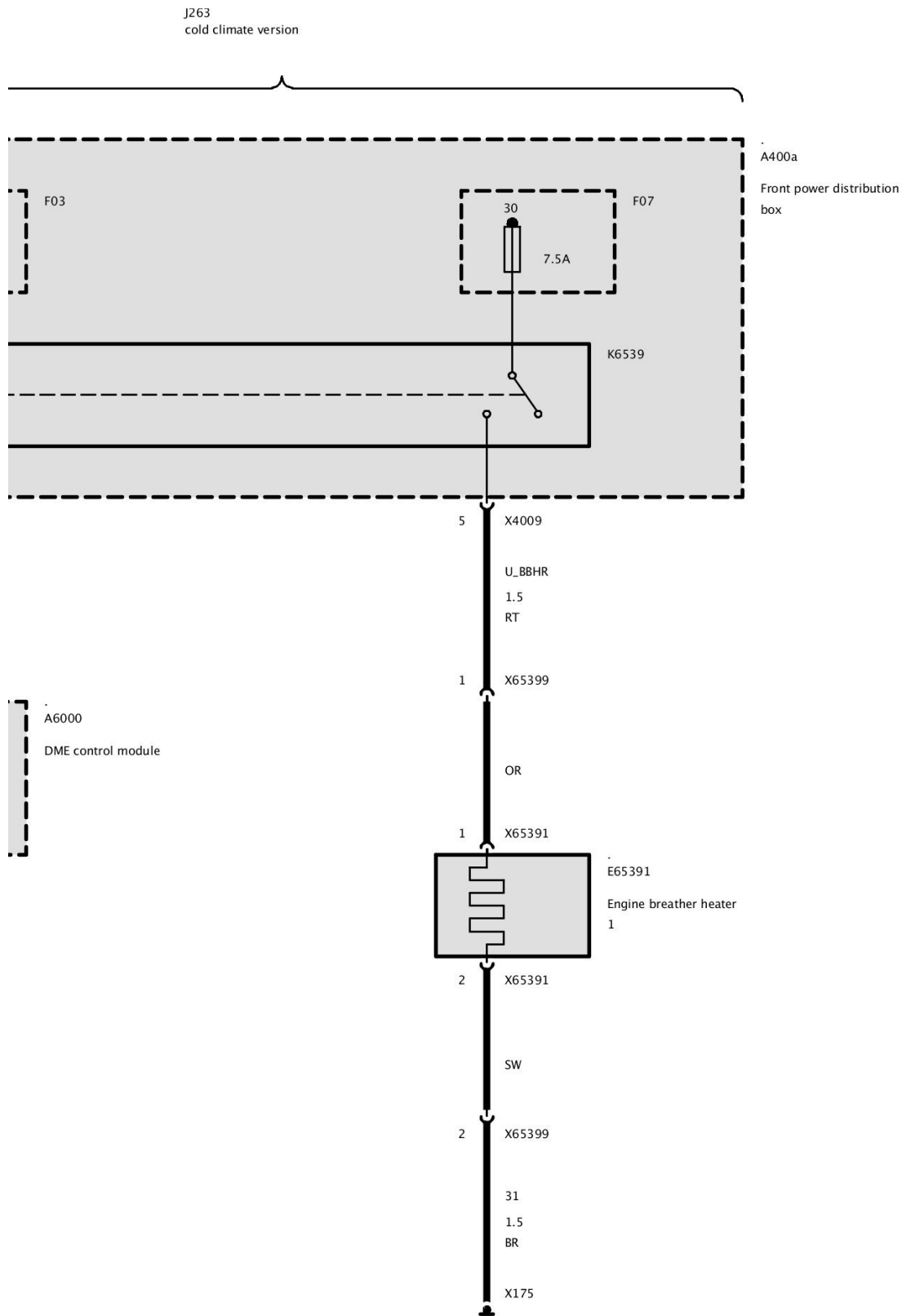
Part 5

**Engine Oil**

Engine Oil Supply



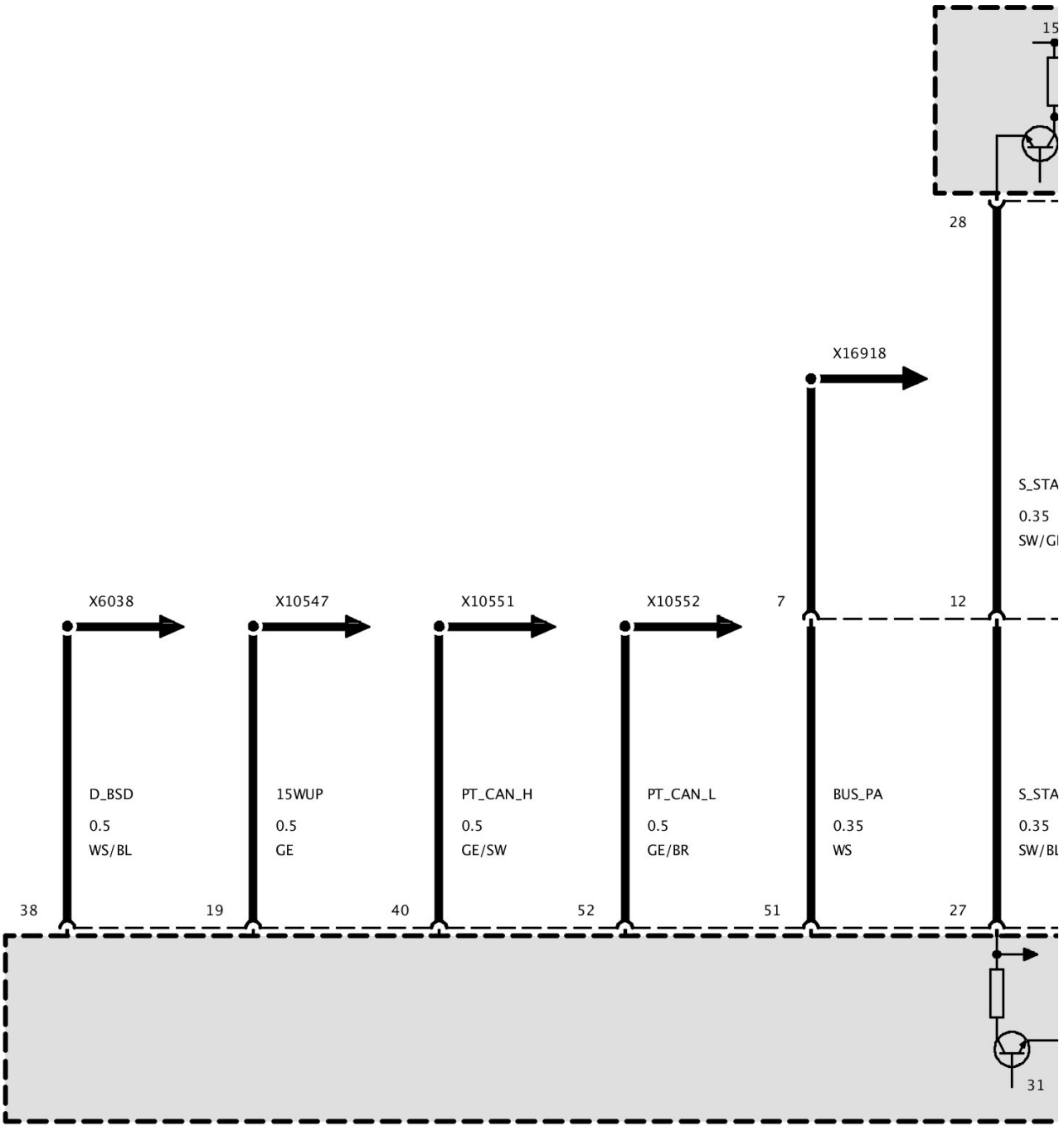
Part 1



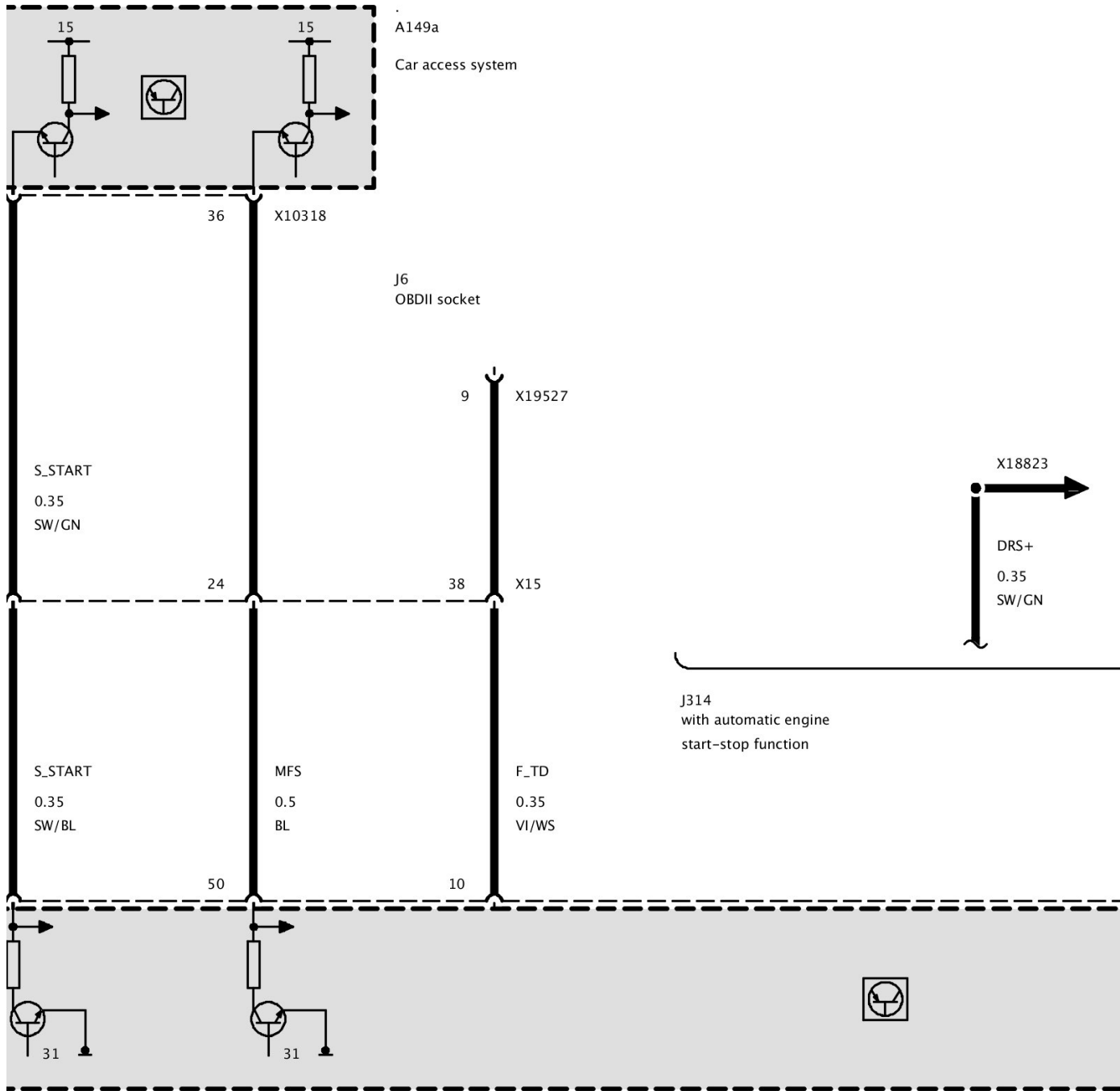
## Part 2

Interface Signals (As Of 2007\_08)

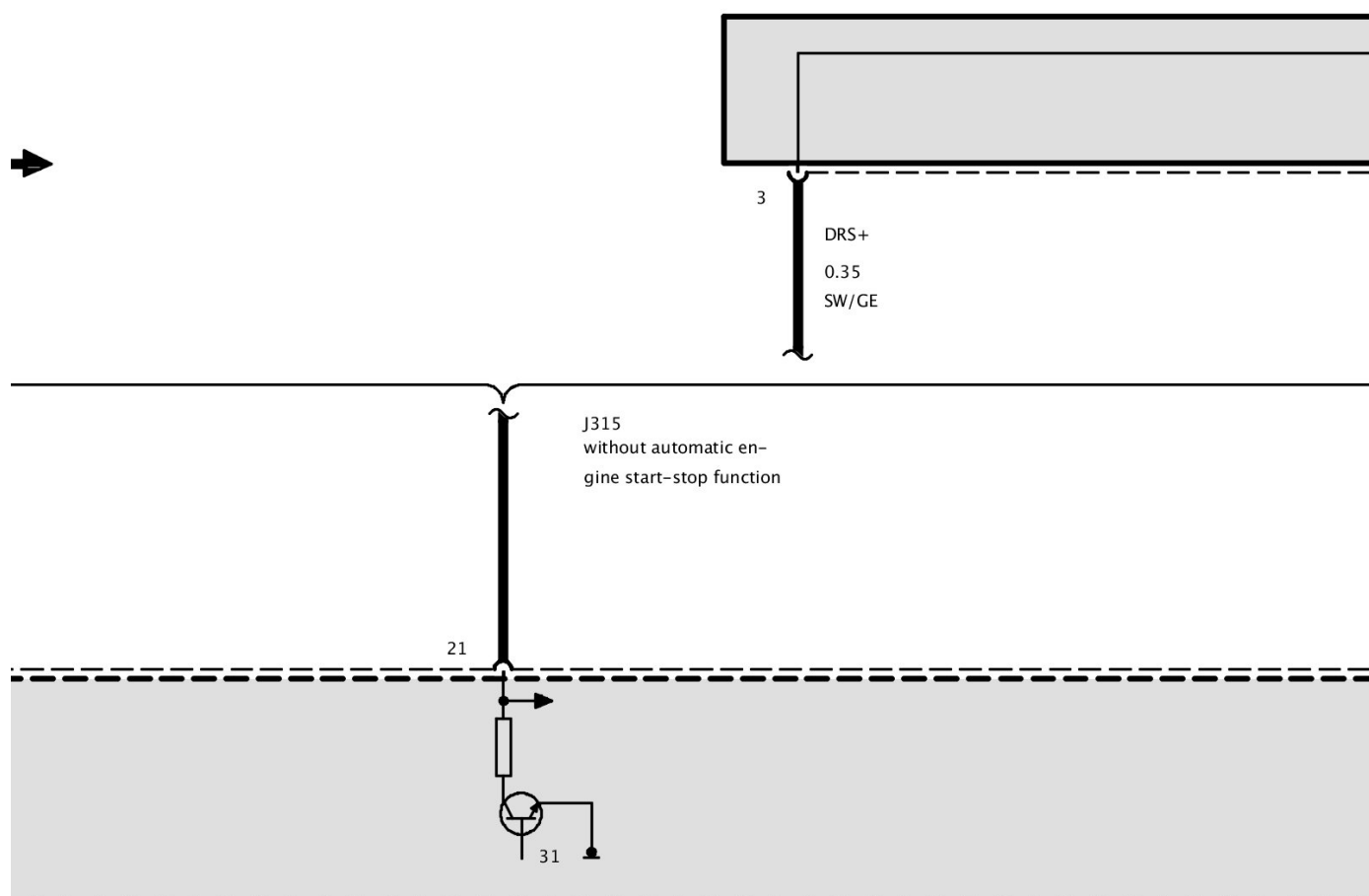
Interface Signals (As Of 2007\_08)



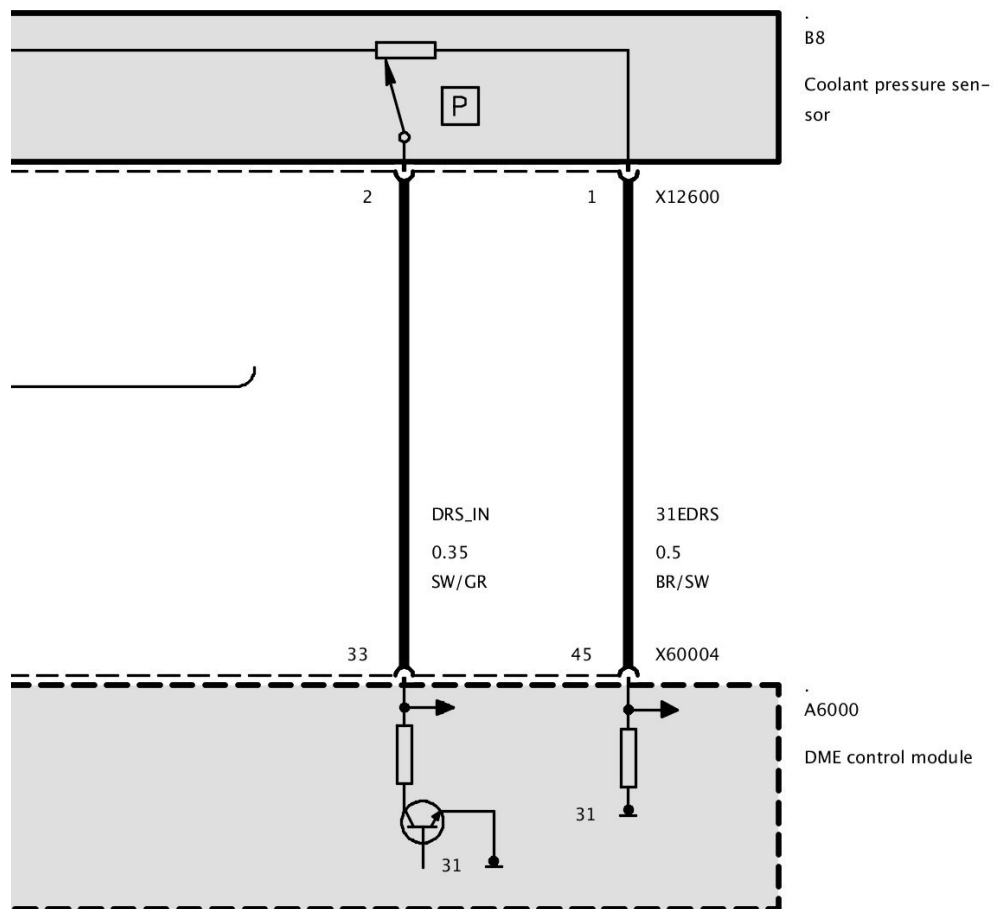
Part 1



Part 2



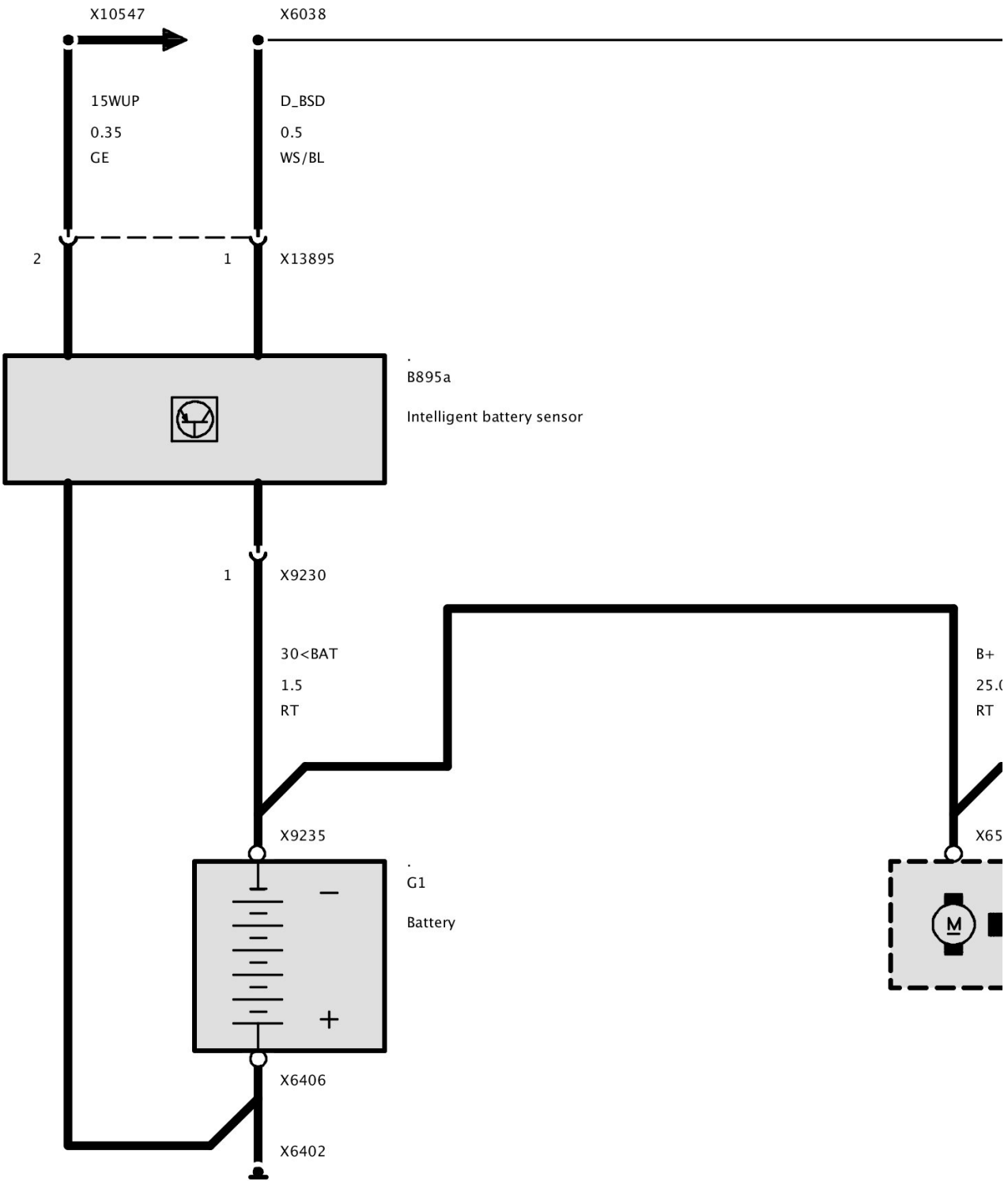
### Part 3



#### Part 4

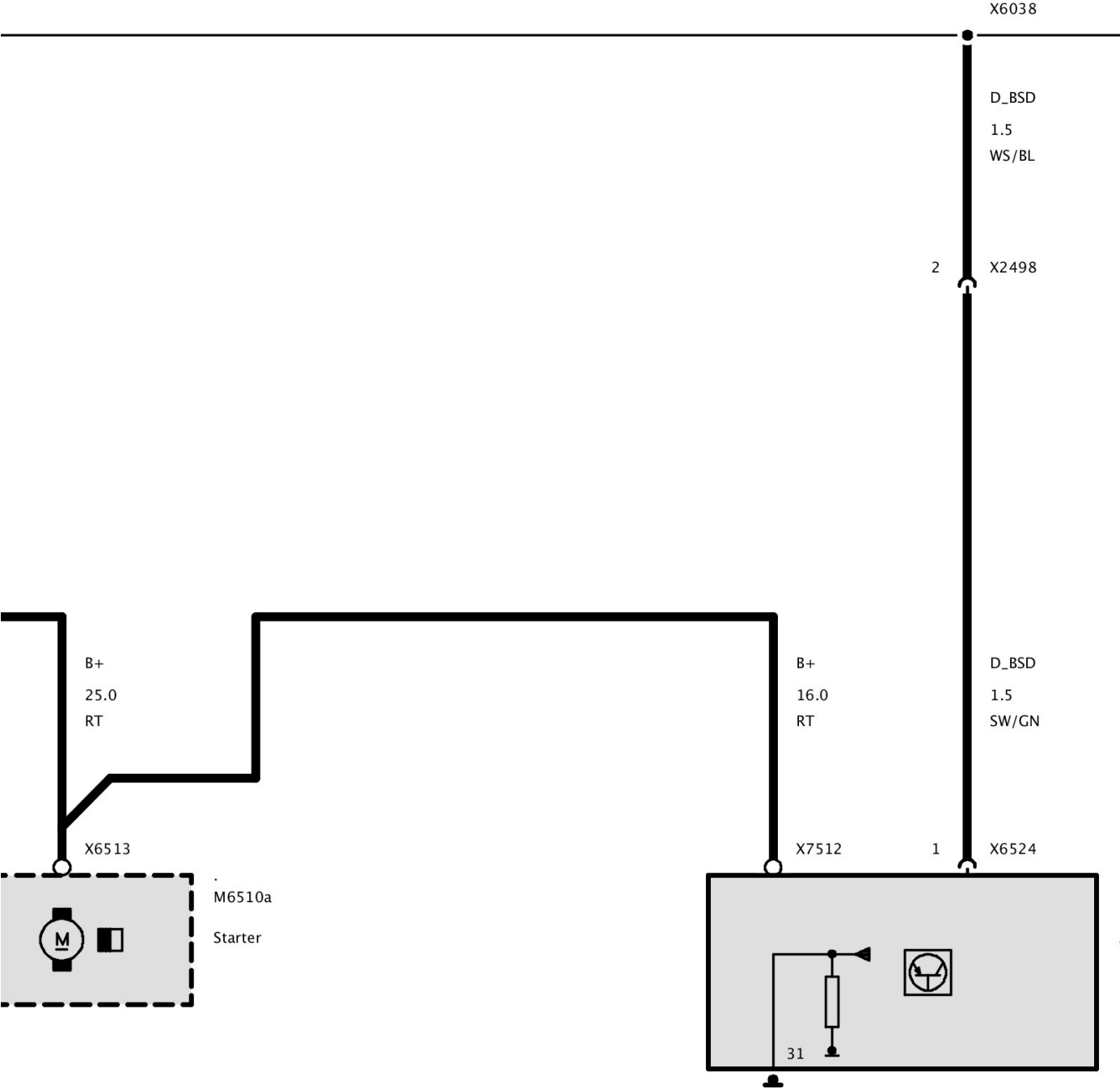
### Bit-Serial Data Interface

#### BSD Alternator

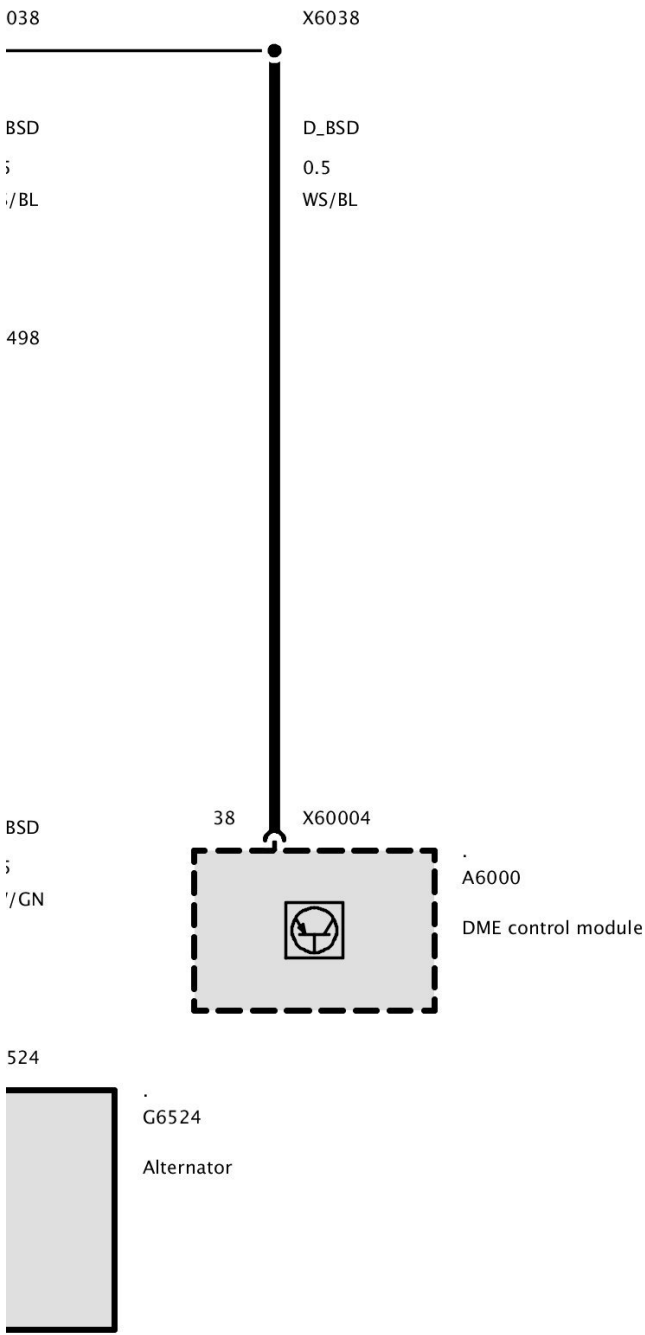


Part 1





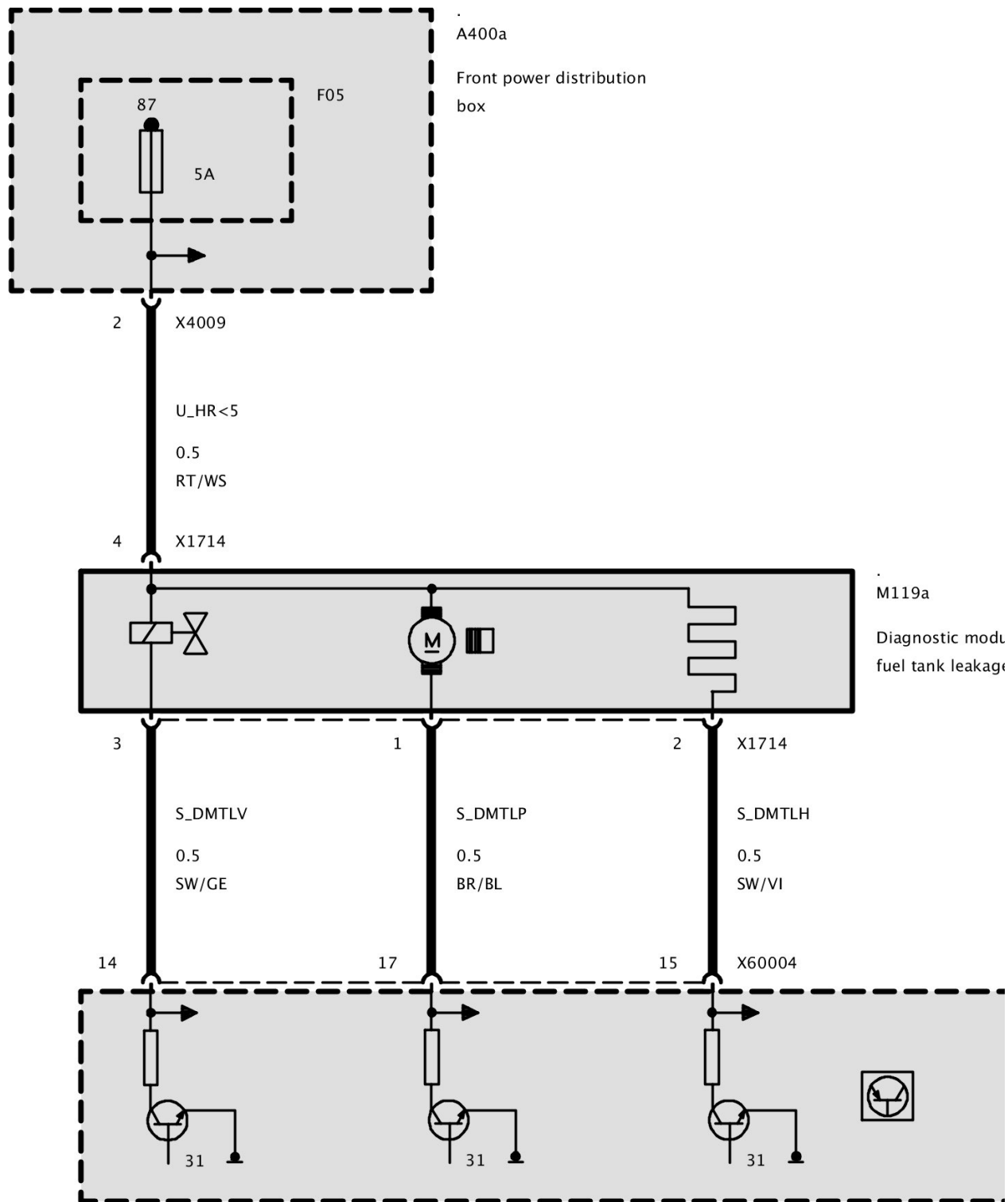
Part 2

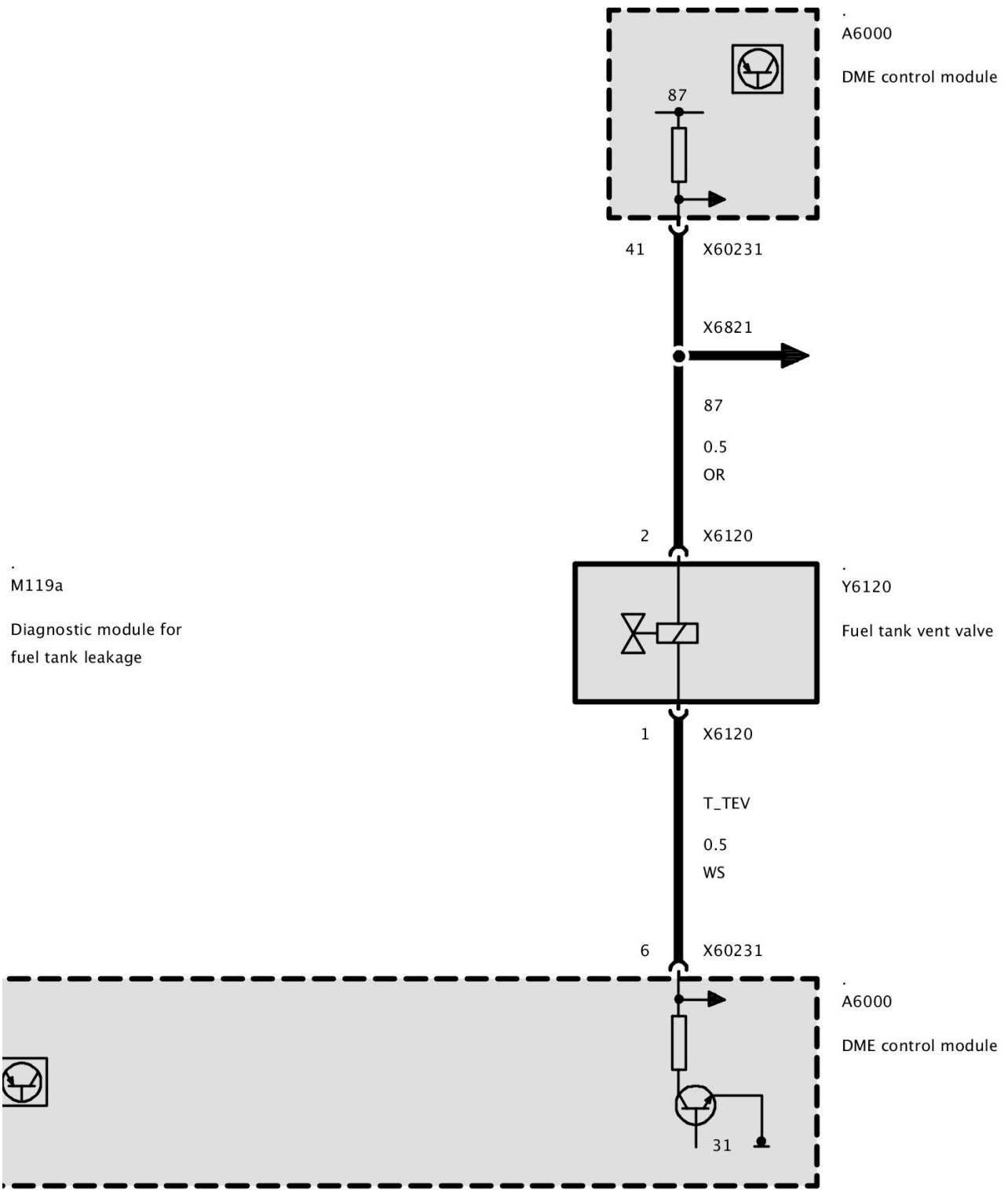


Part 3

System Check, Fuel Tank

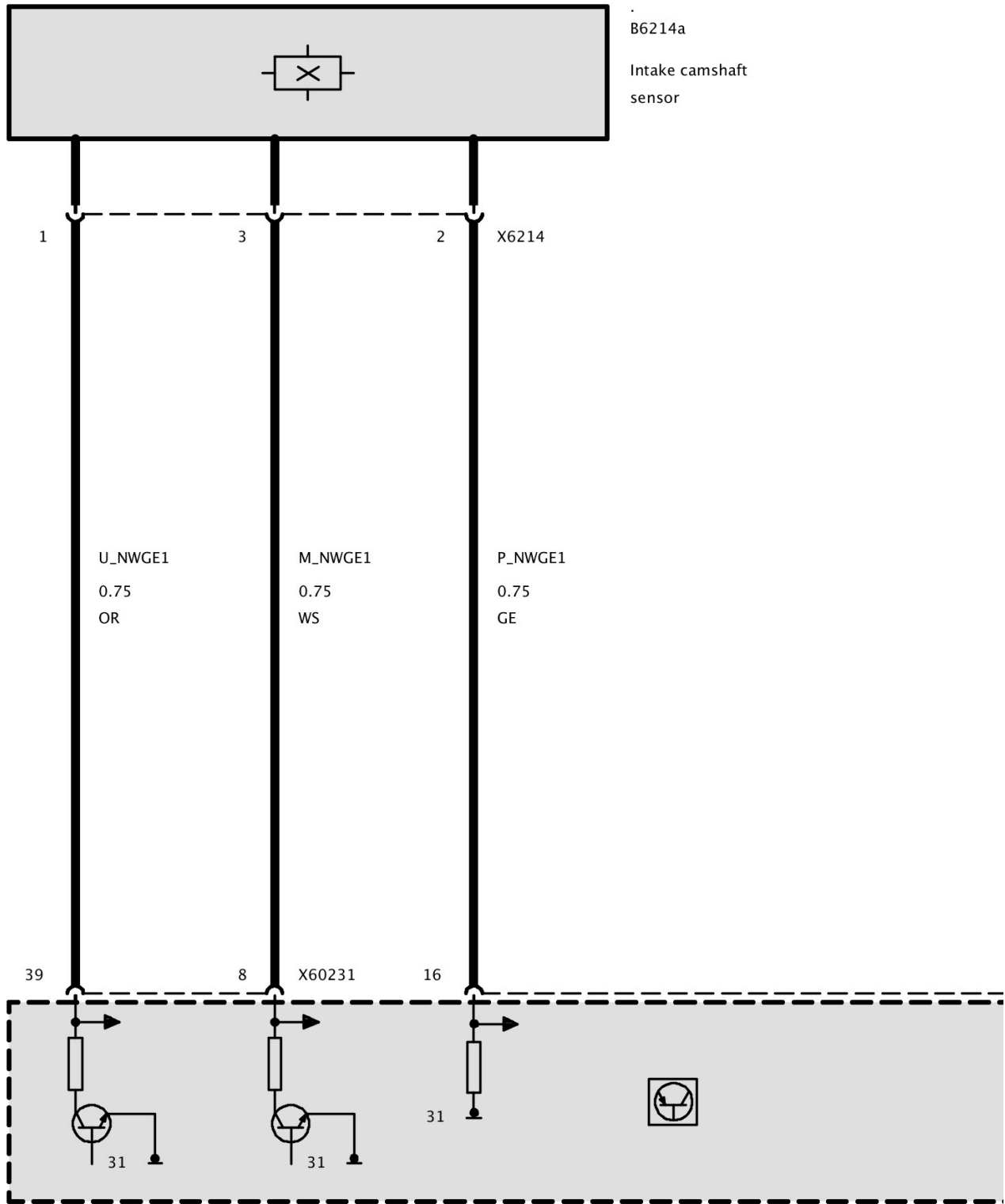
System Check, Fuel Tank (USA\_LHD)

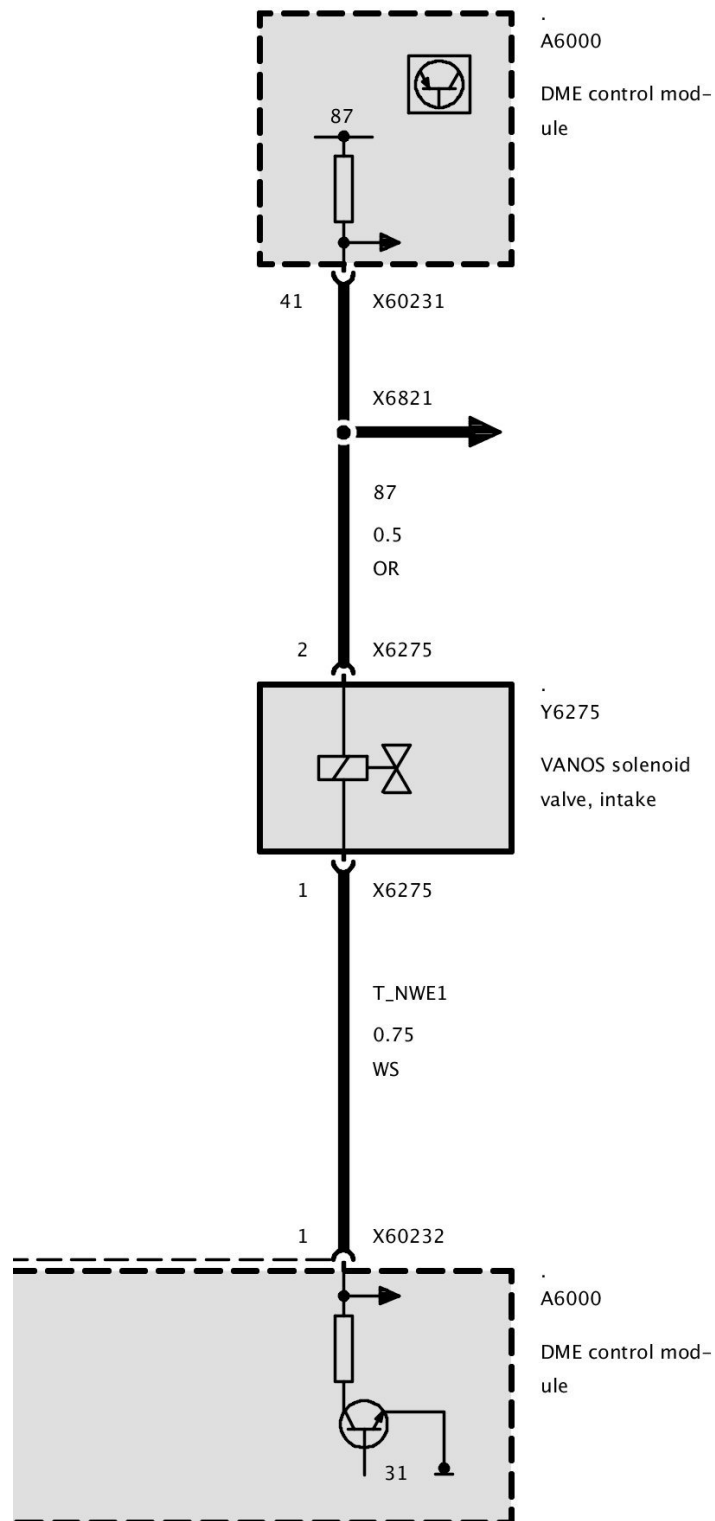




Valve Gear

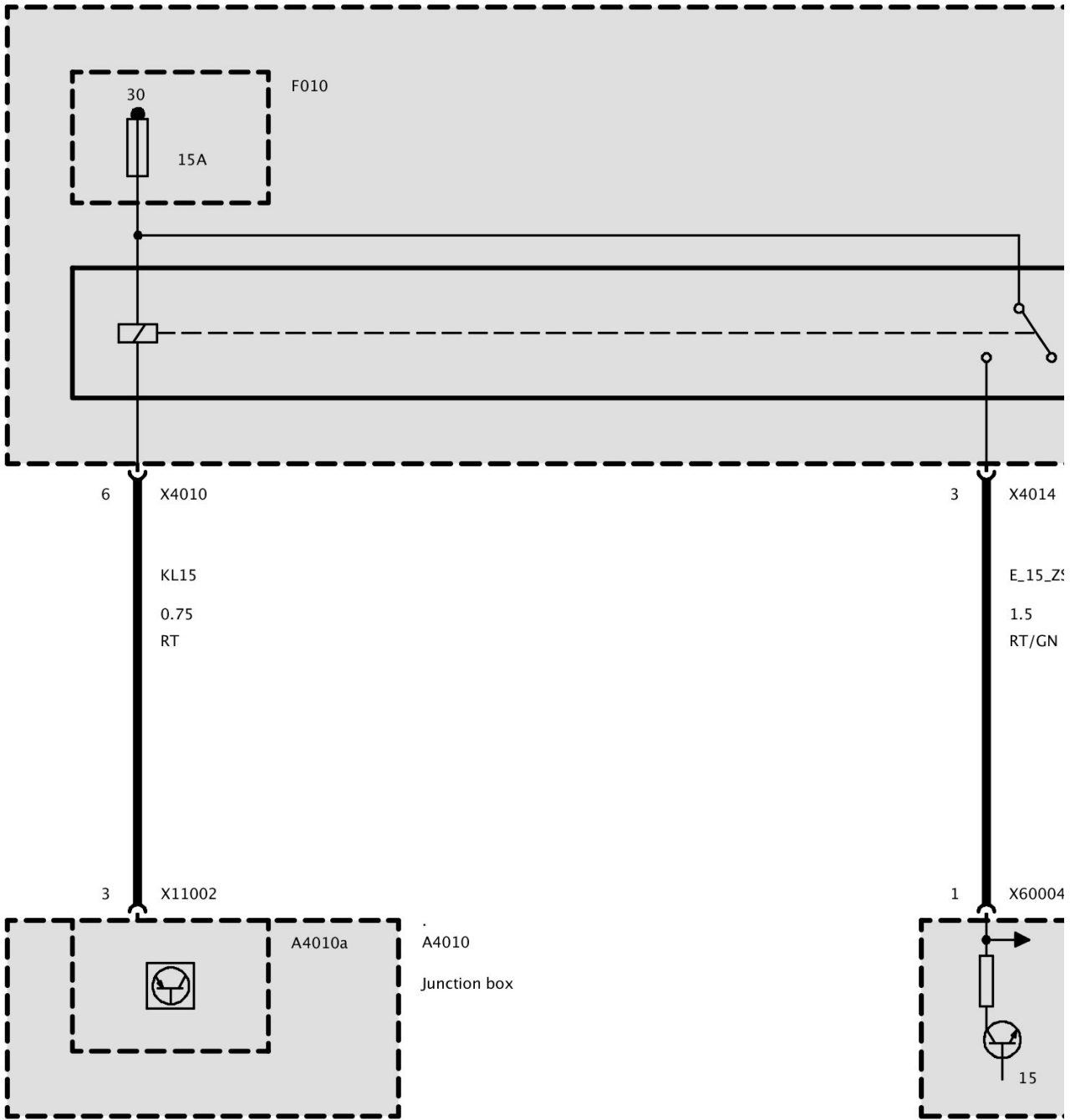
Valve Gear

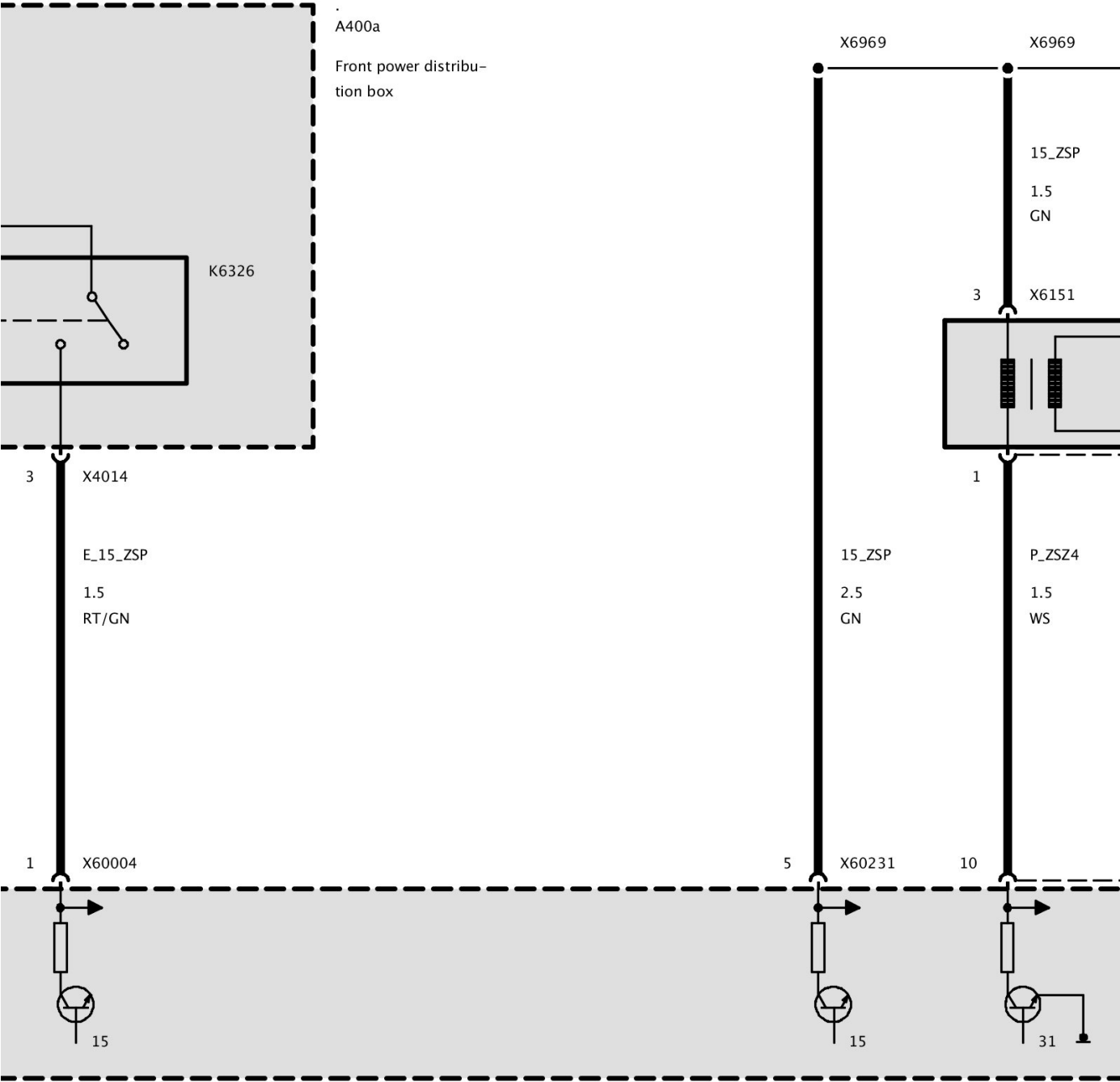




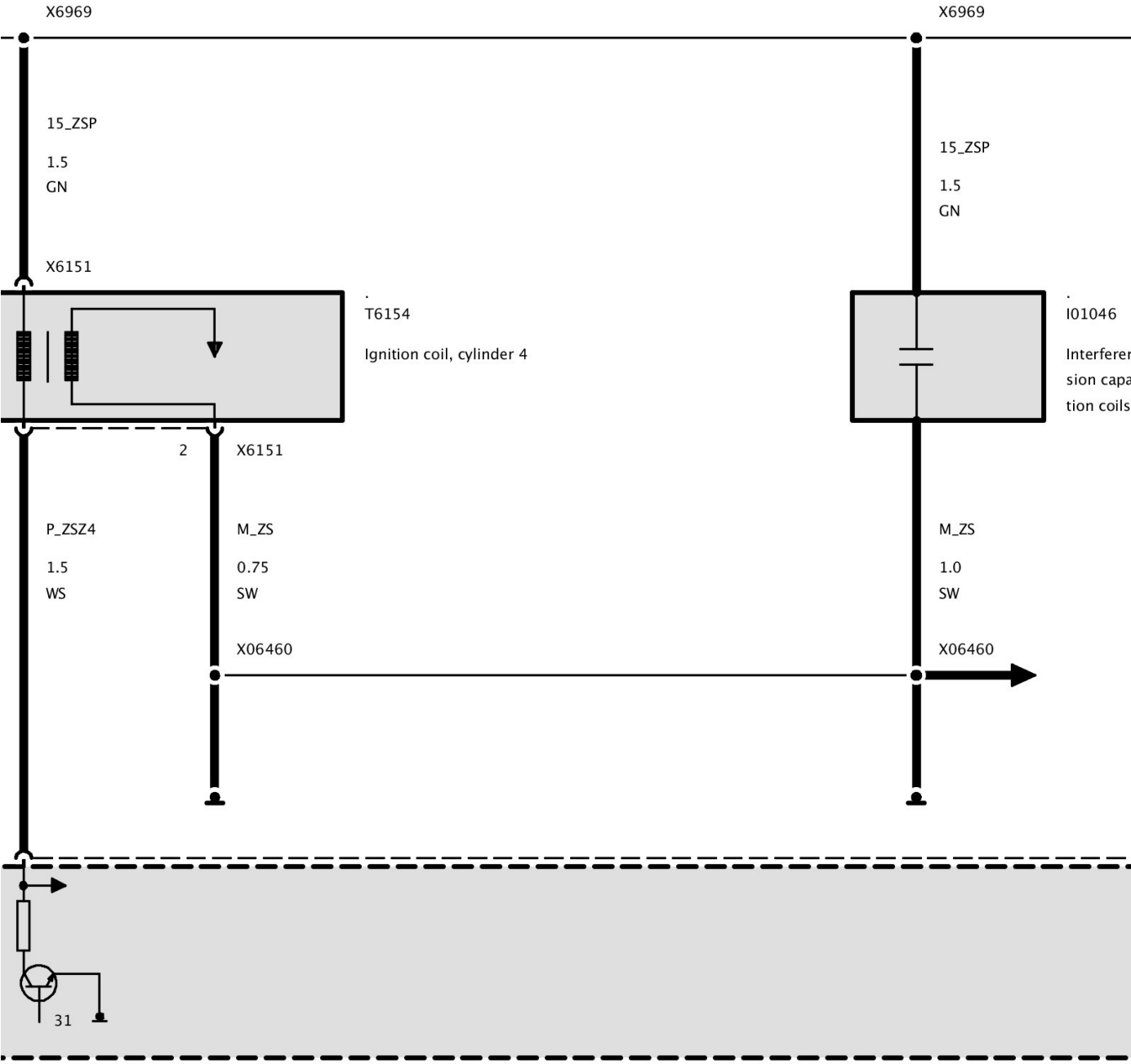
## Ignition

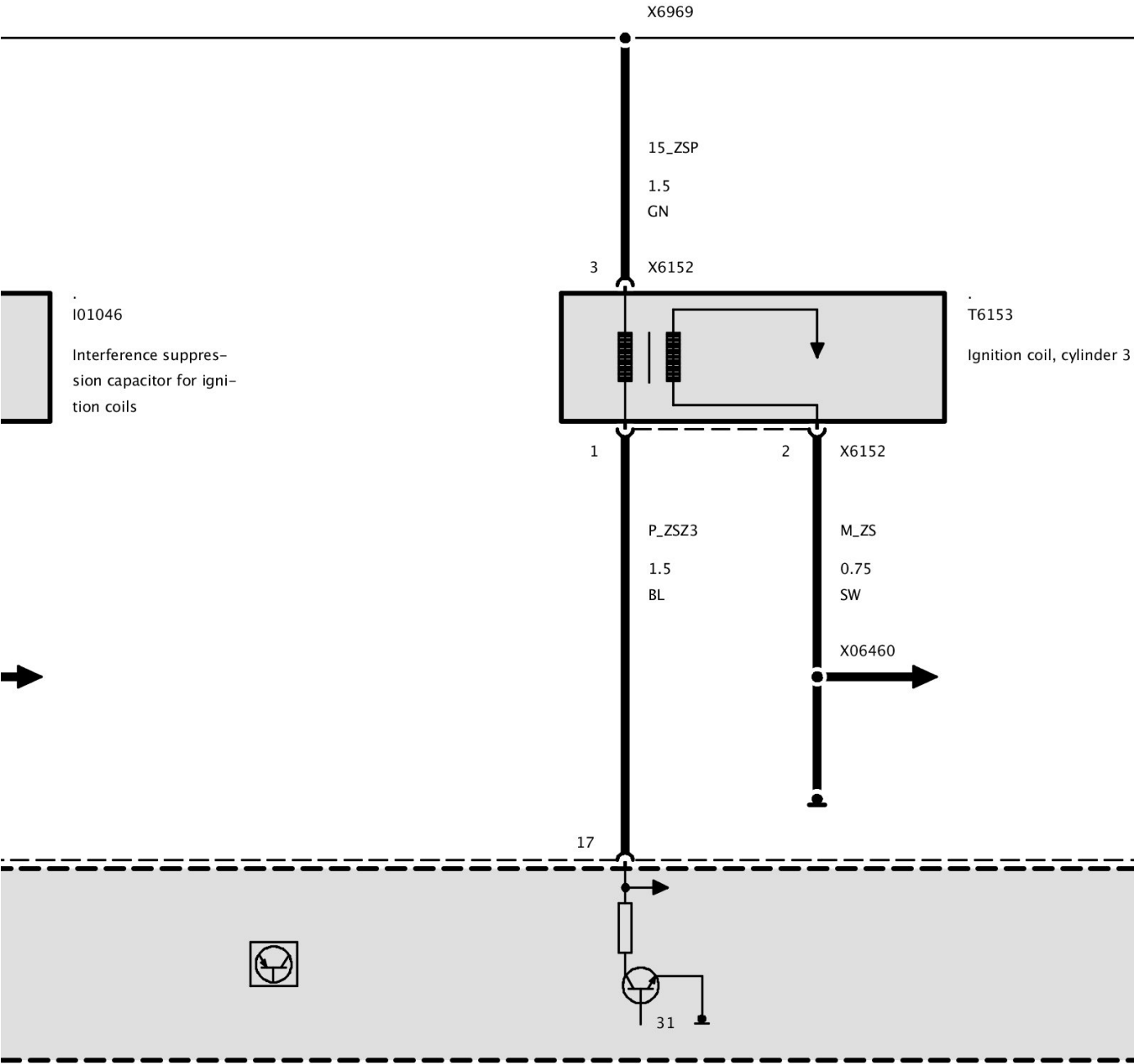
Ignition Coils (As Of 2007\_03)

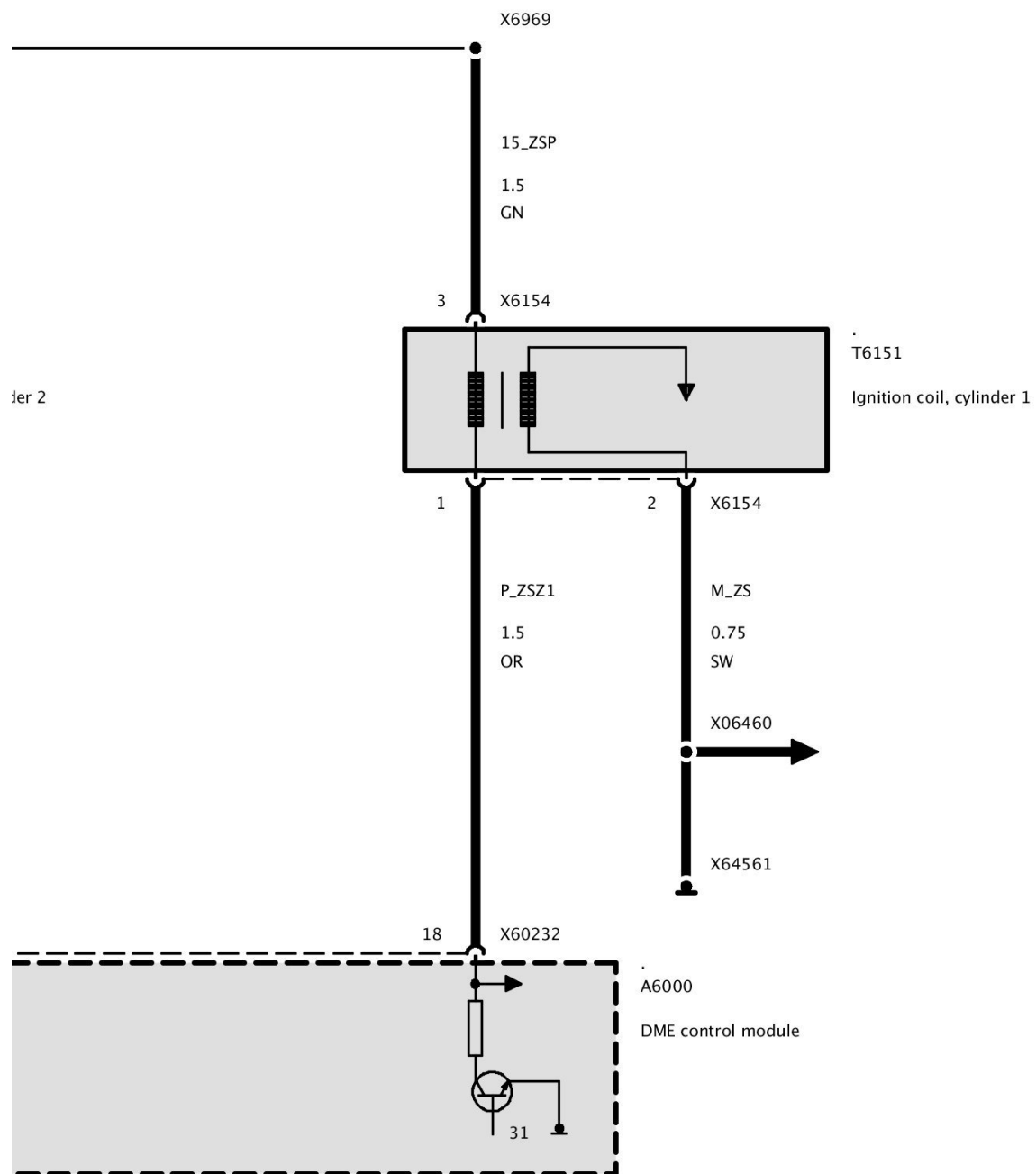






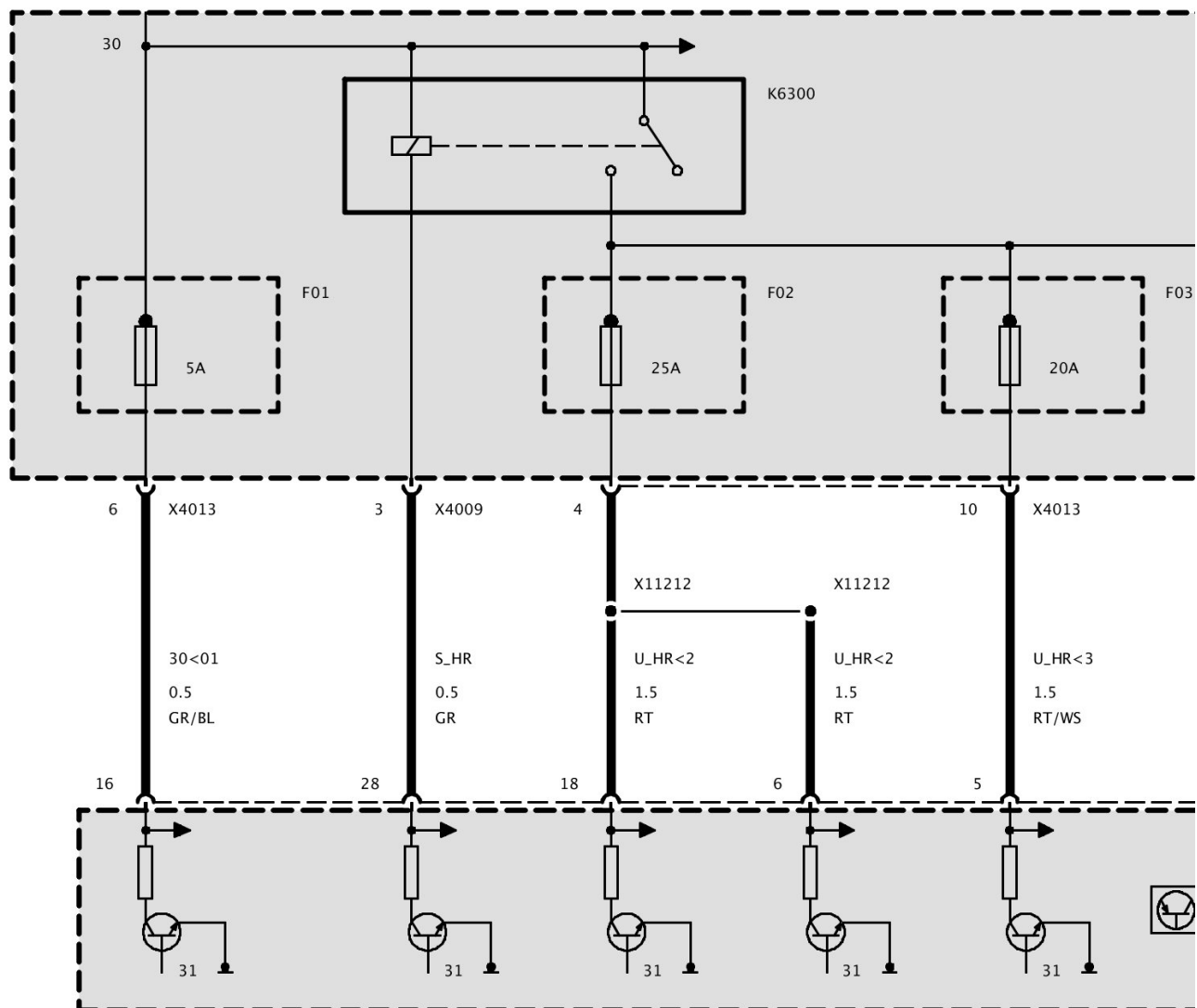




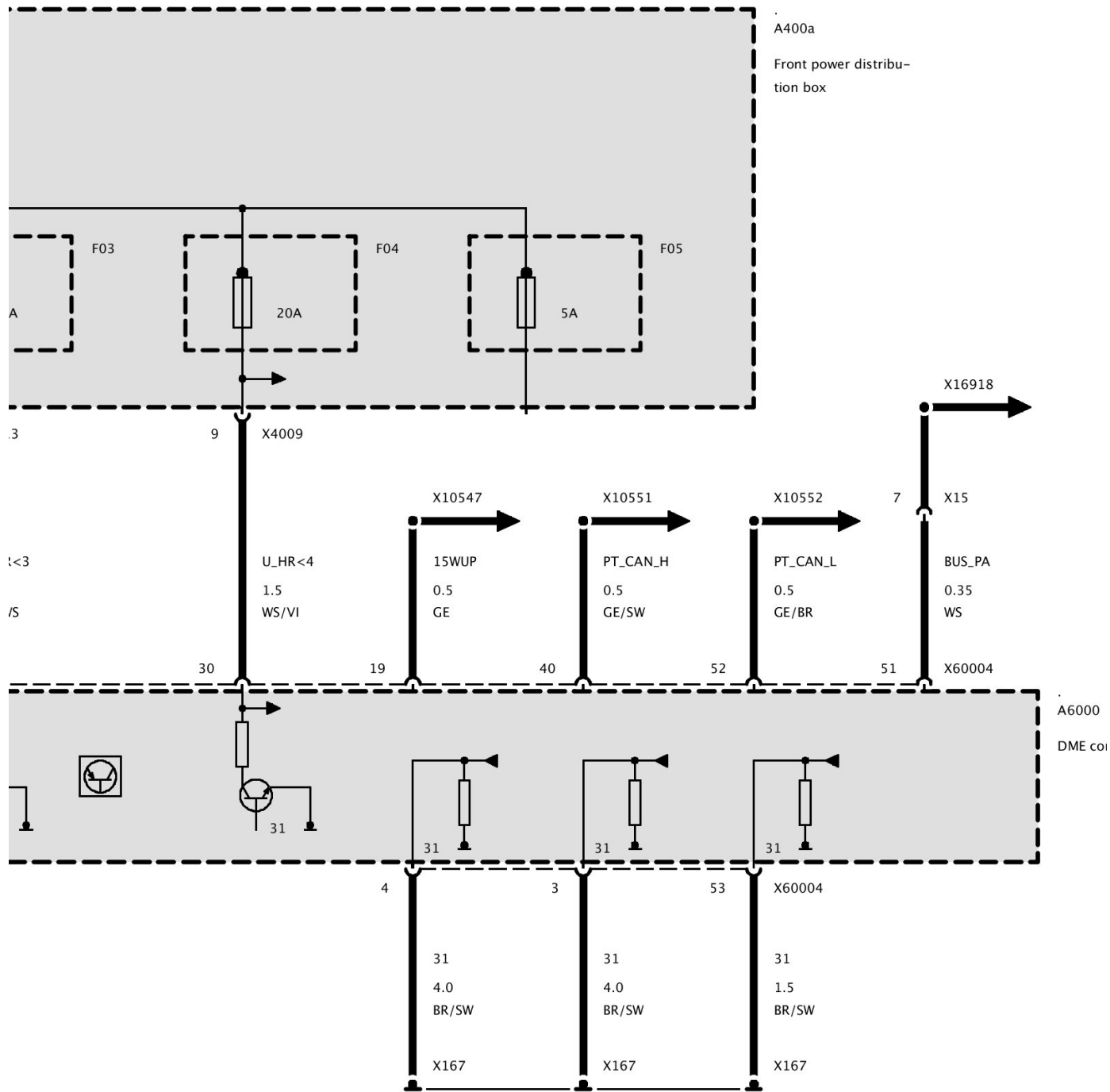


Supply, DME Control Module (As Of 2007\_08)

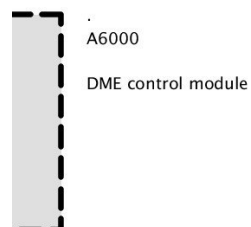
Supply, DME Control Module (As Of 2007\_08)



## Part 1



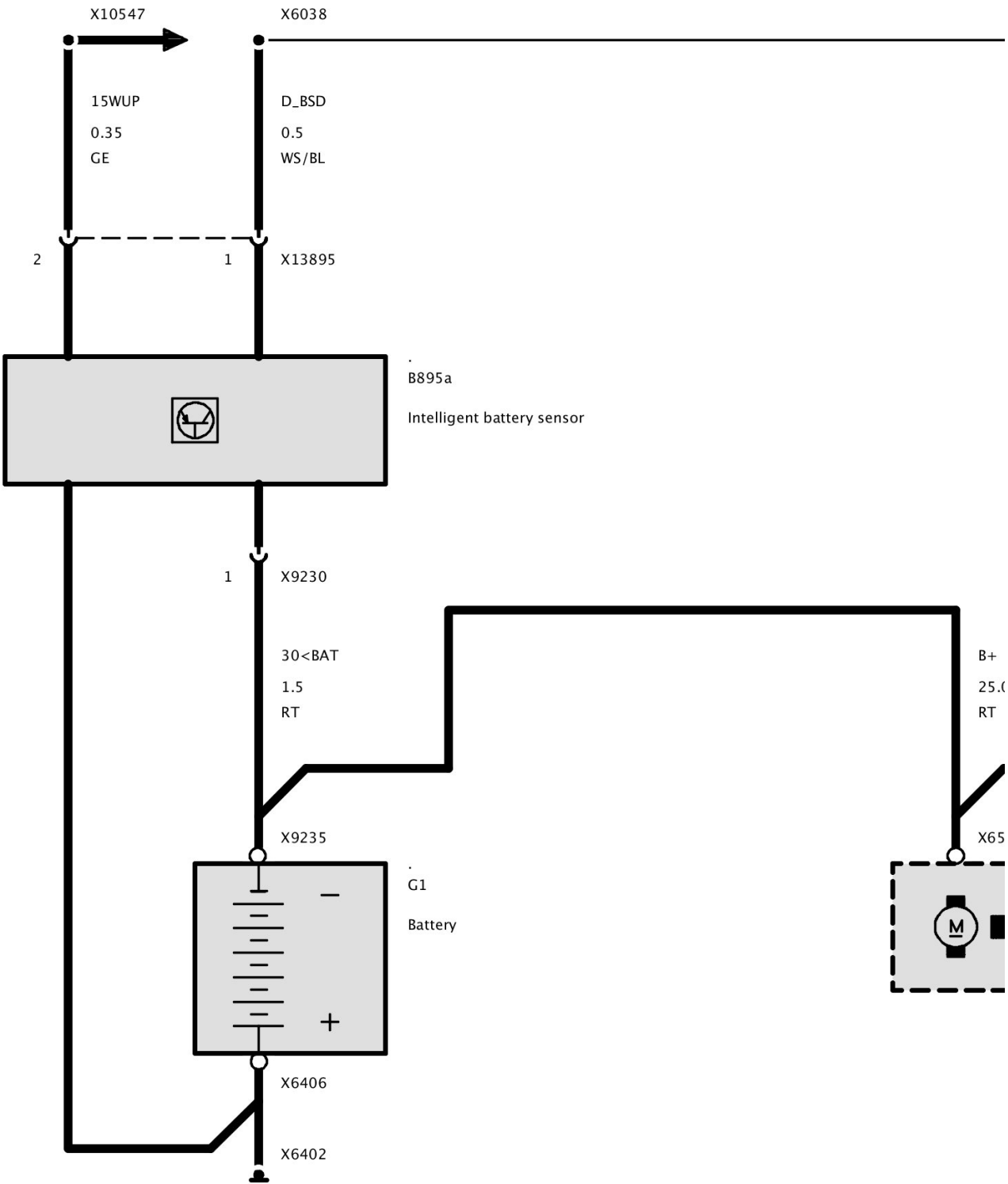
Part 2



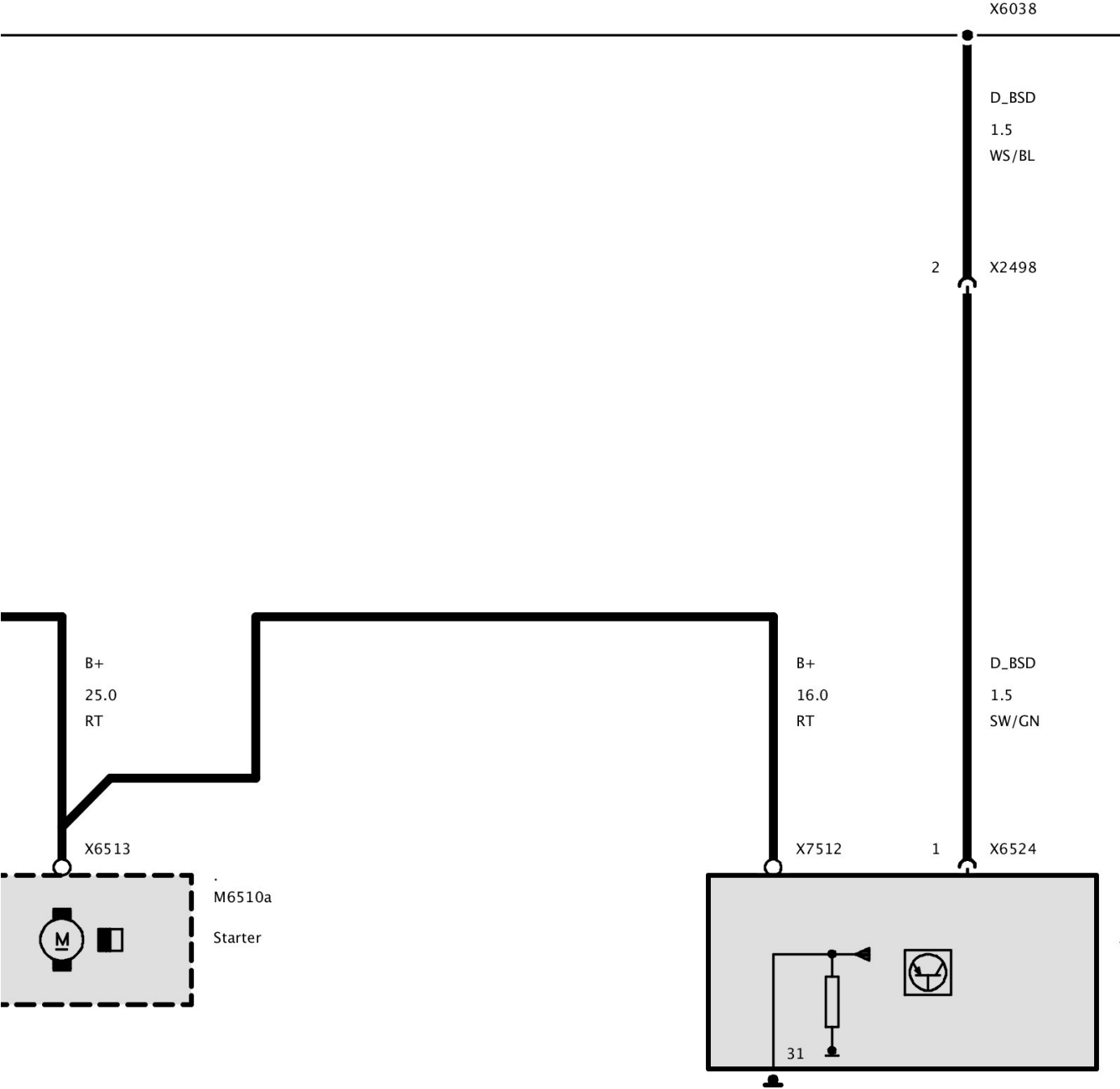
### Part 3

## Intelligent Battery Sensor

BSD Alternator (Petrol Engine)

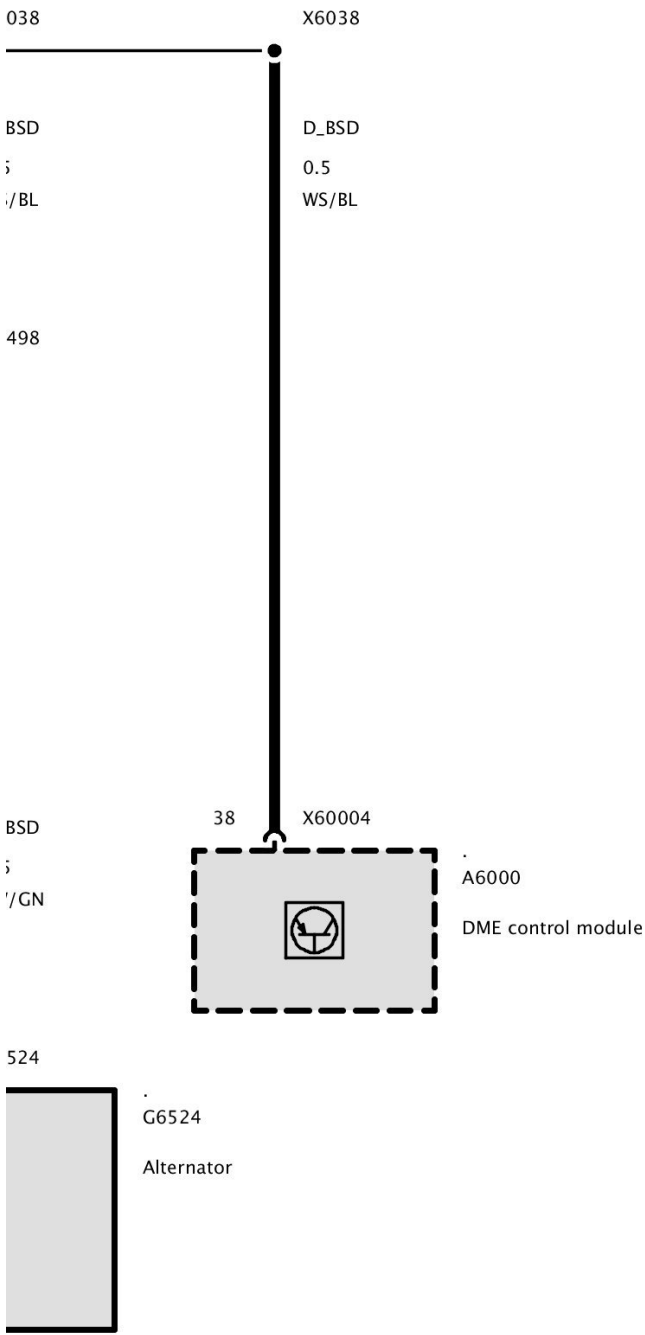


Part 1



Part 2

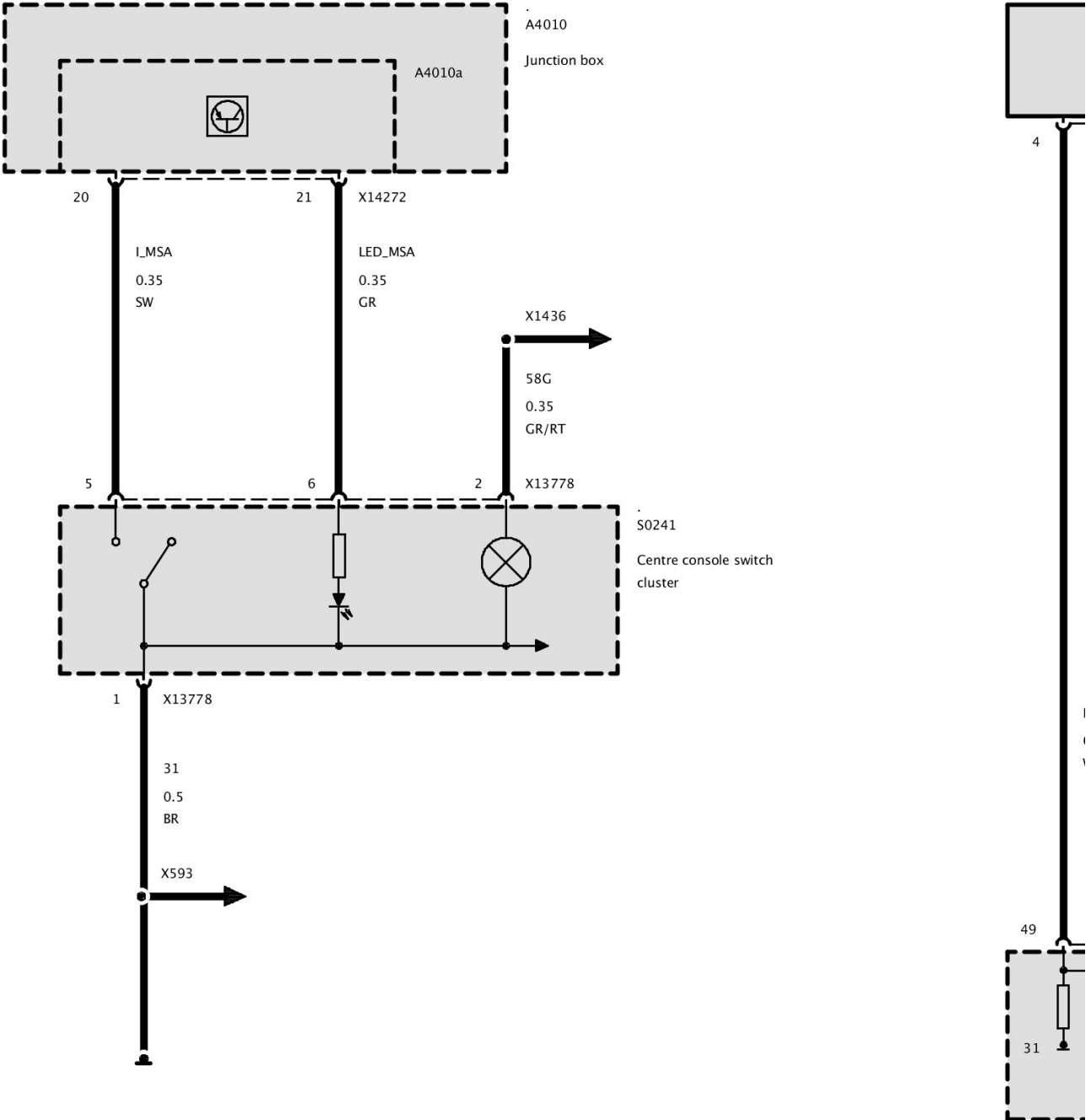




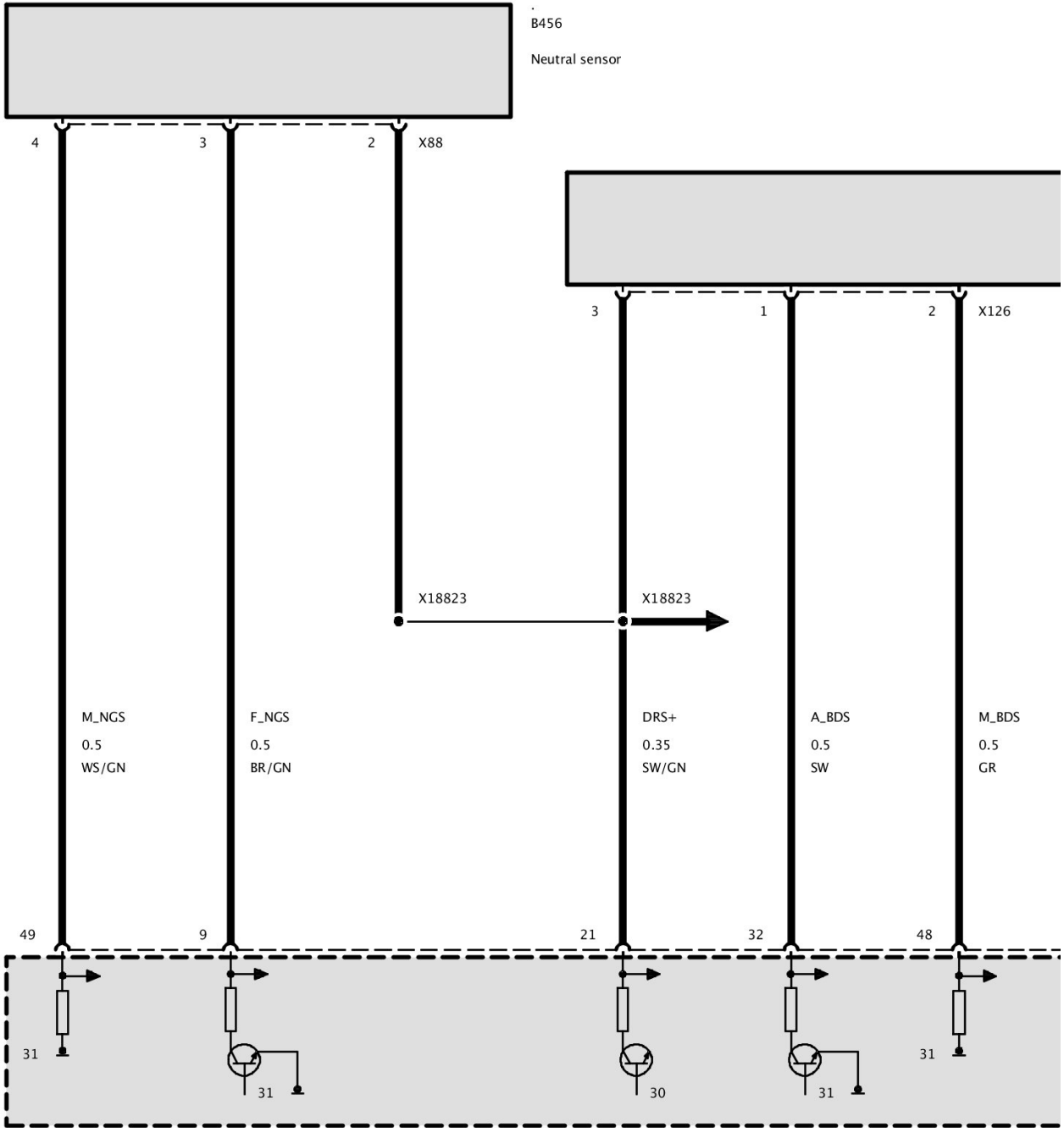
Part 3

Automatic Engine Start-Stop (Automatic Engine Start-Stop)

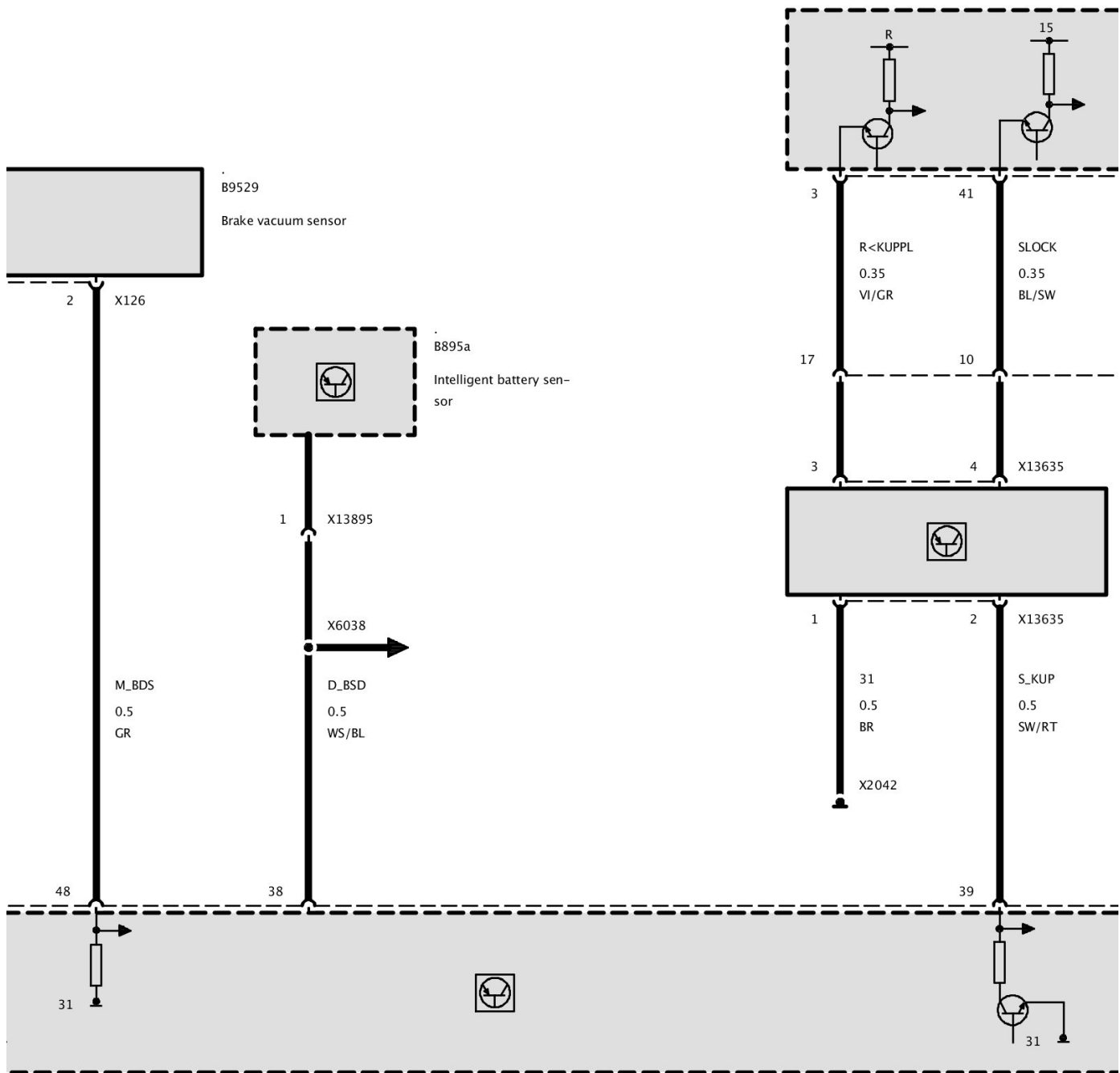
Automatic Engine Start-Stop (Petrol Engine)



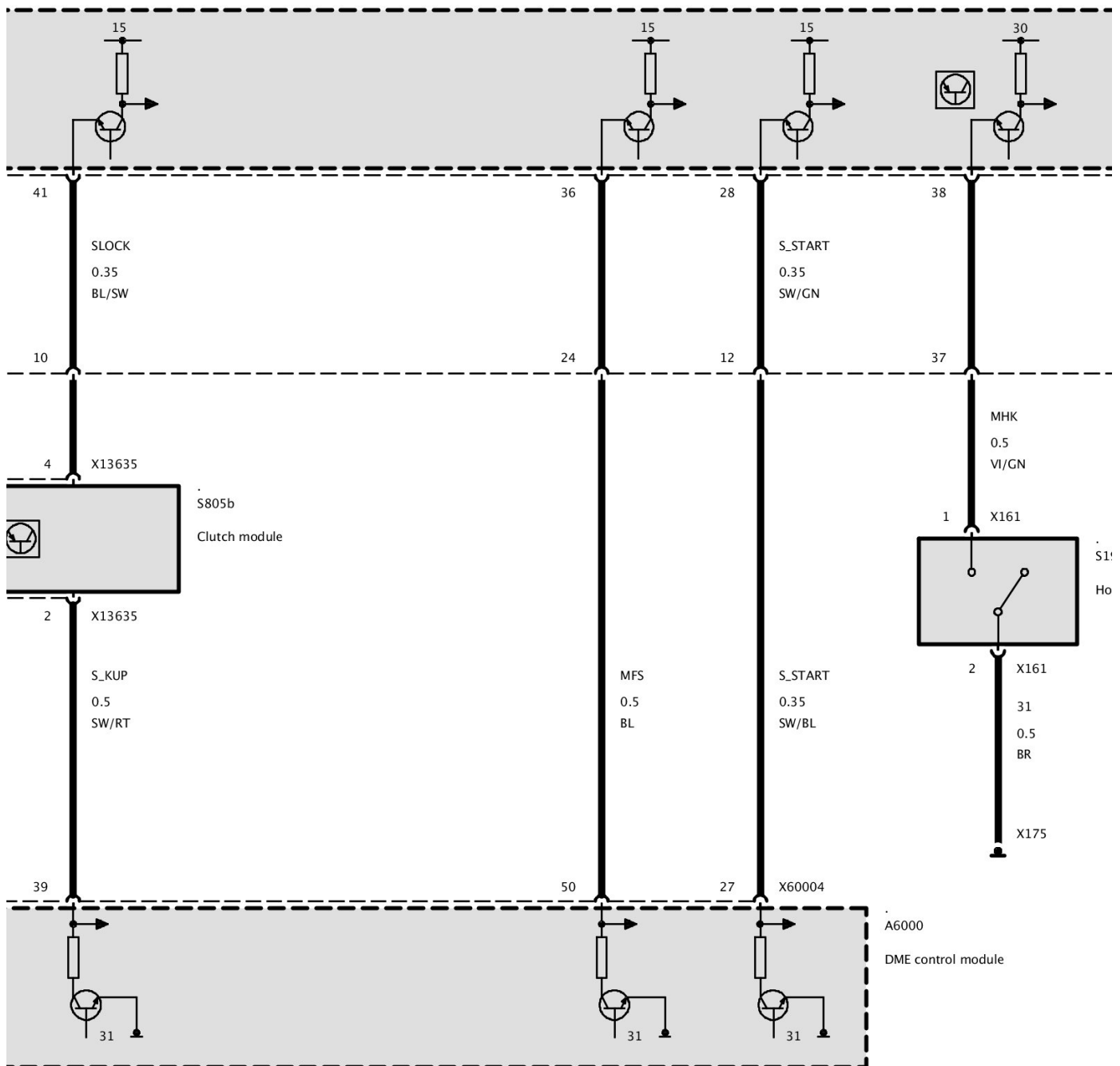
Part 1



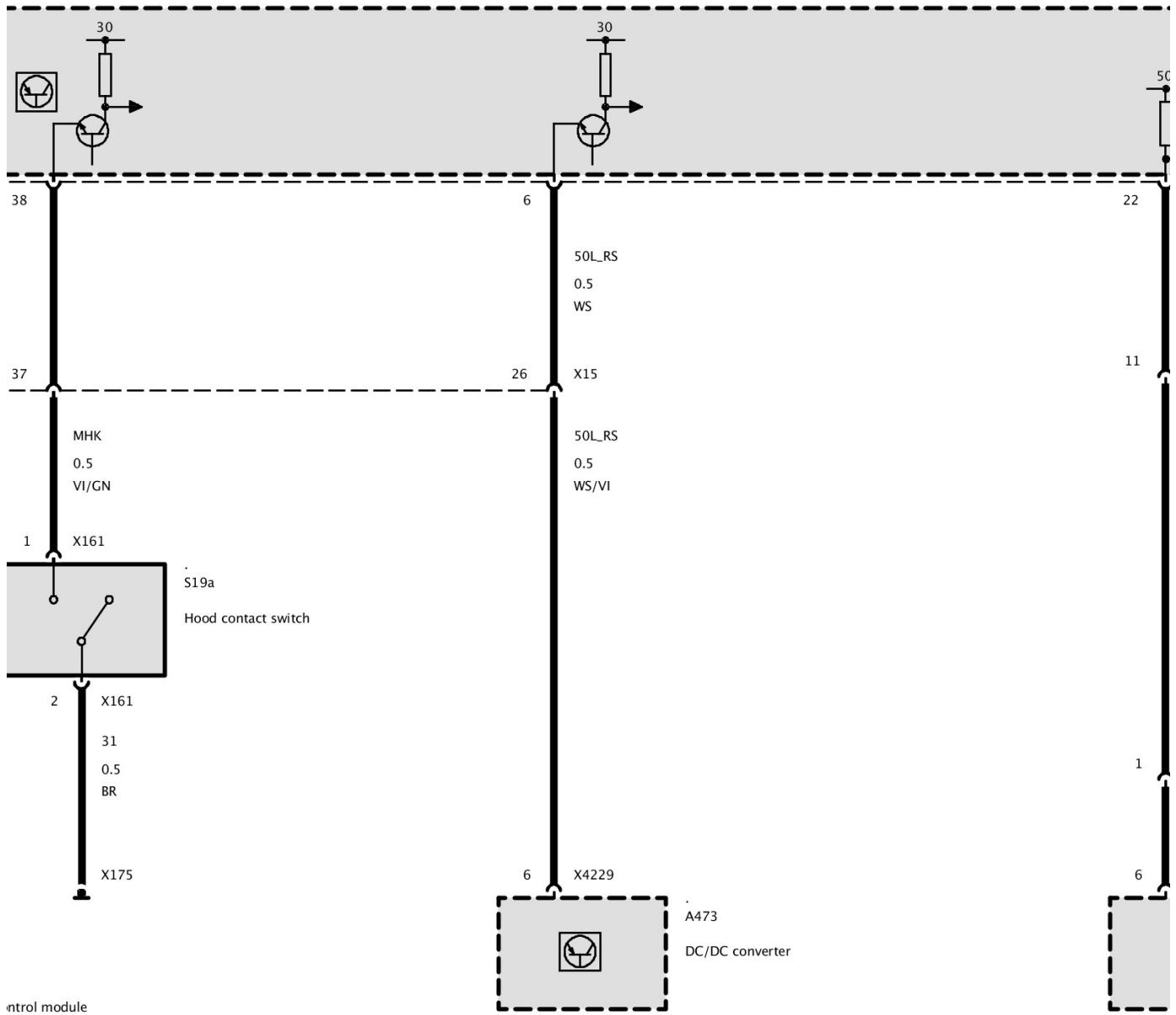
Part 2



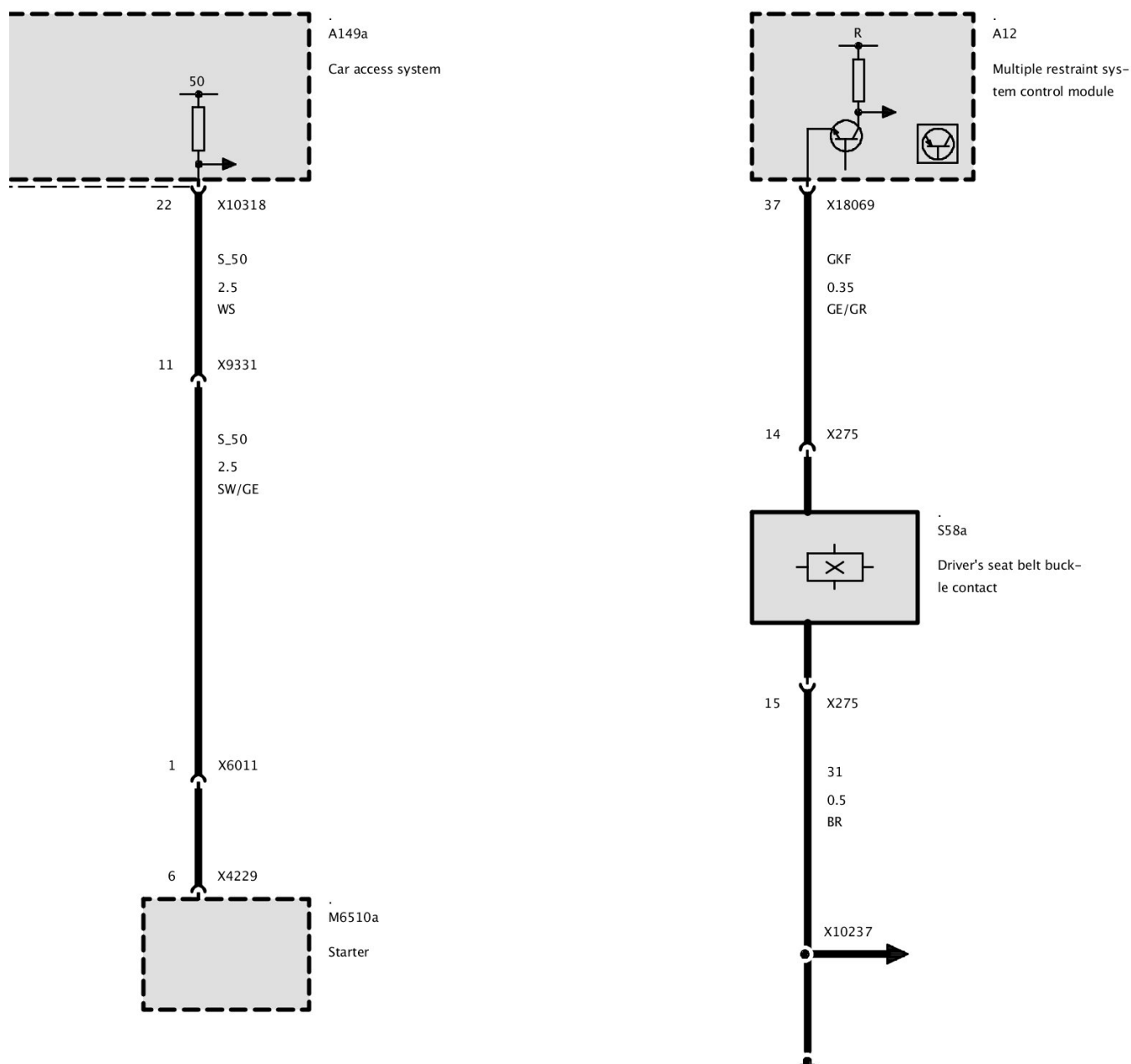
Part 3



#### Part 4



Part 5



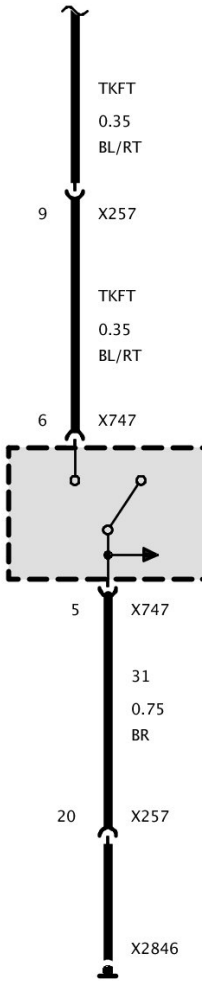
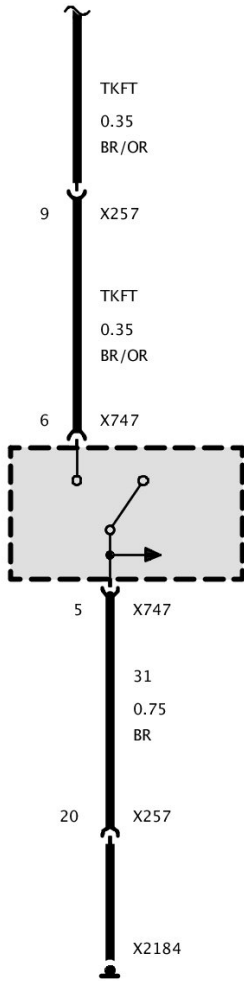
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A12  
Multiple restraint system control module

's seat belt buckle

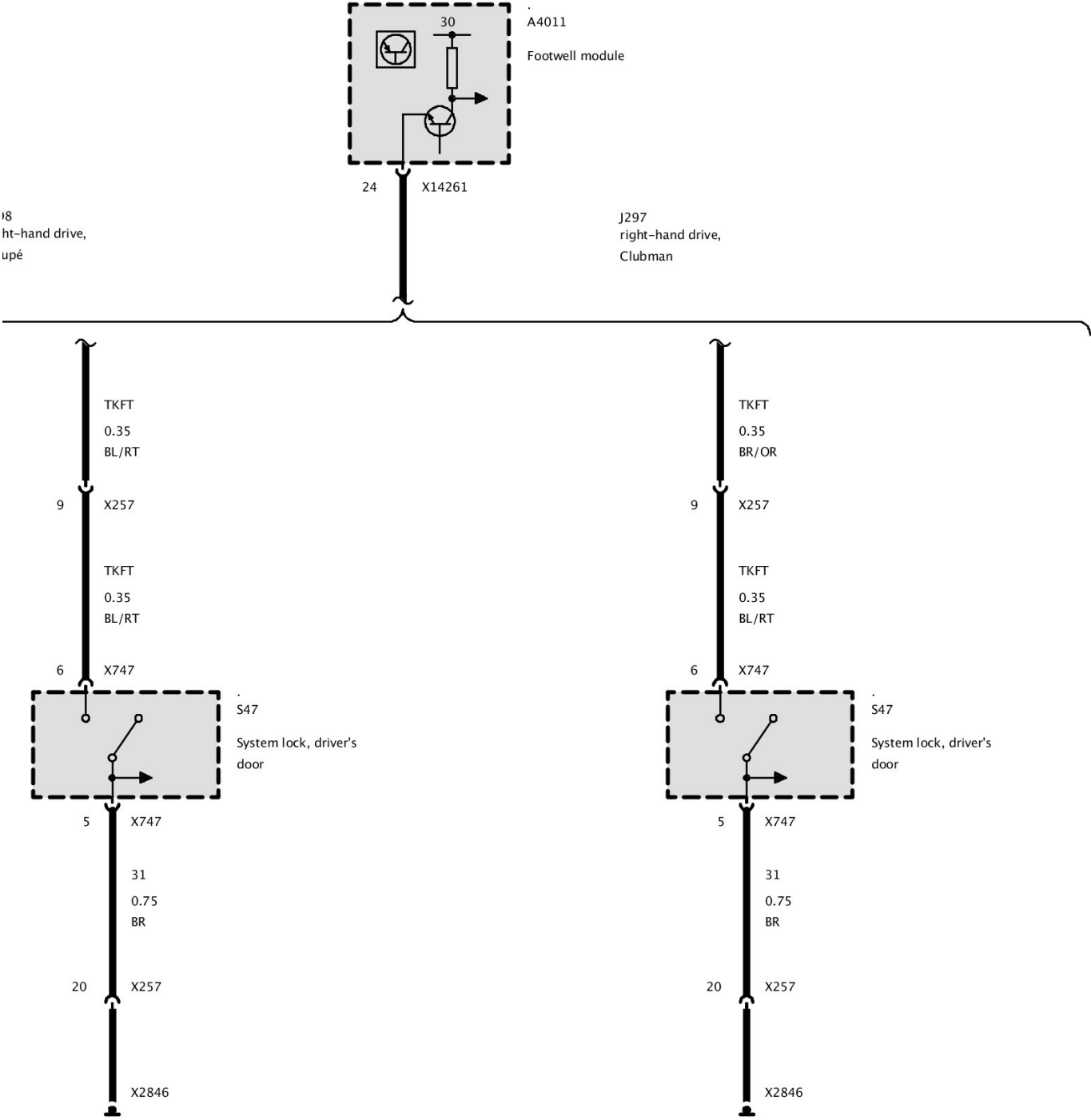
J7  
left-hand drive

J298  
right-hand drive,  
Coupé



Part 7

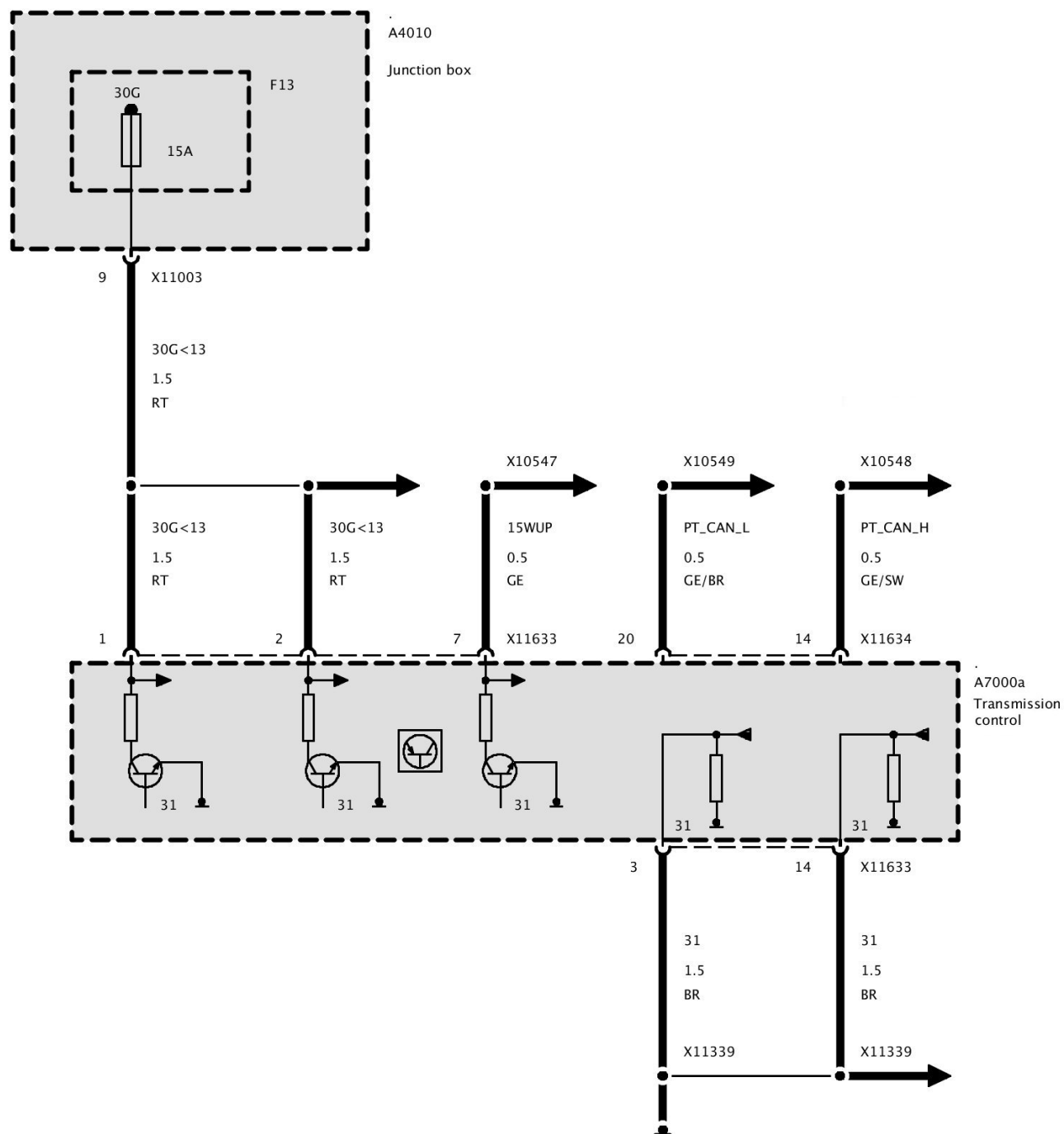




Part 8

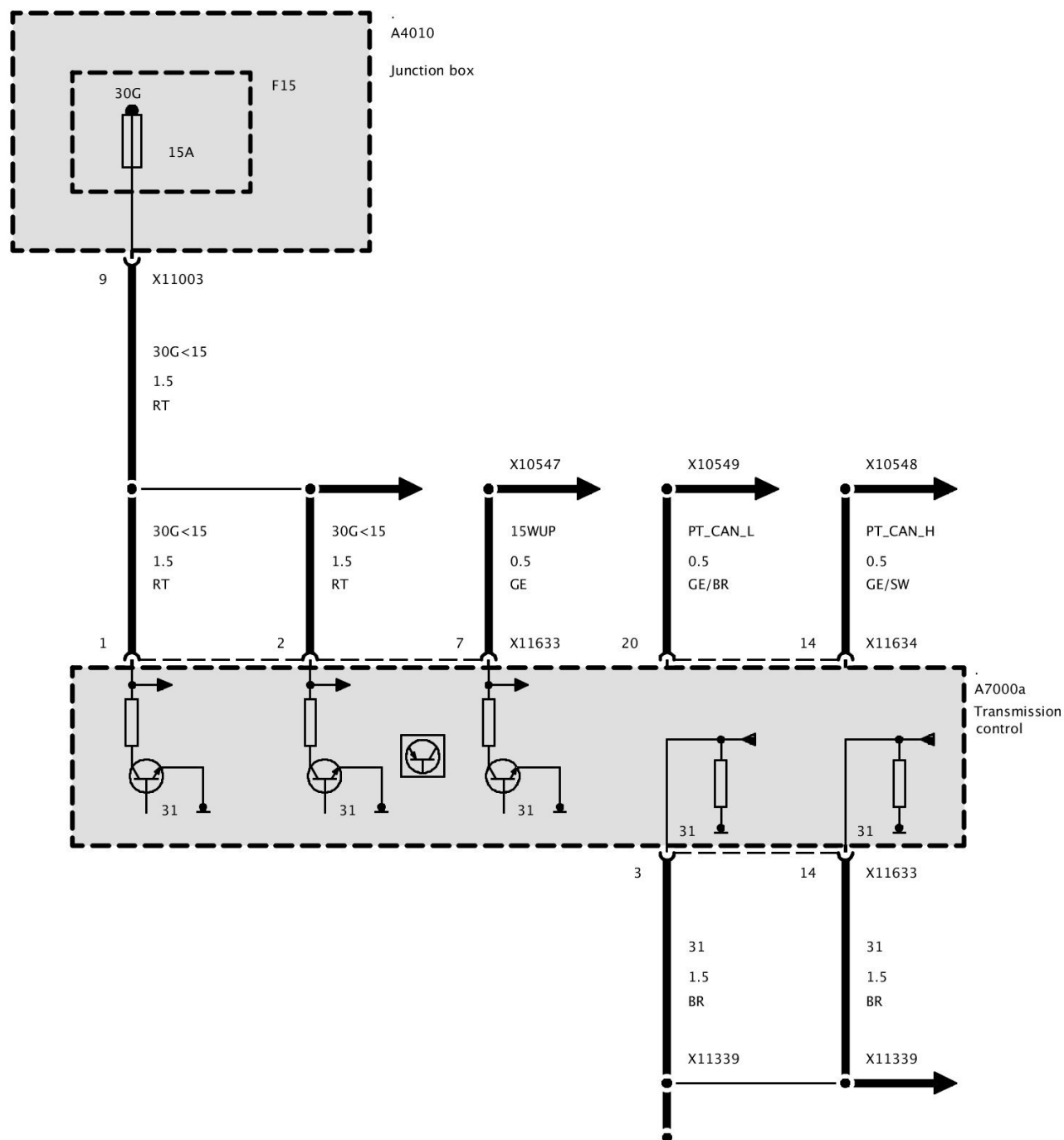
Voltage Supply (Up To 2008\_12)

Voltage Supply (Up To 2008\_12)

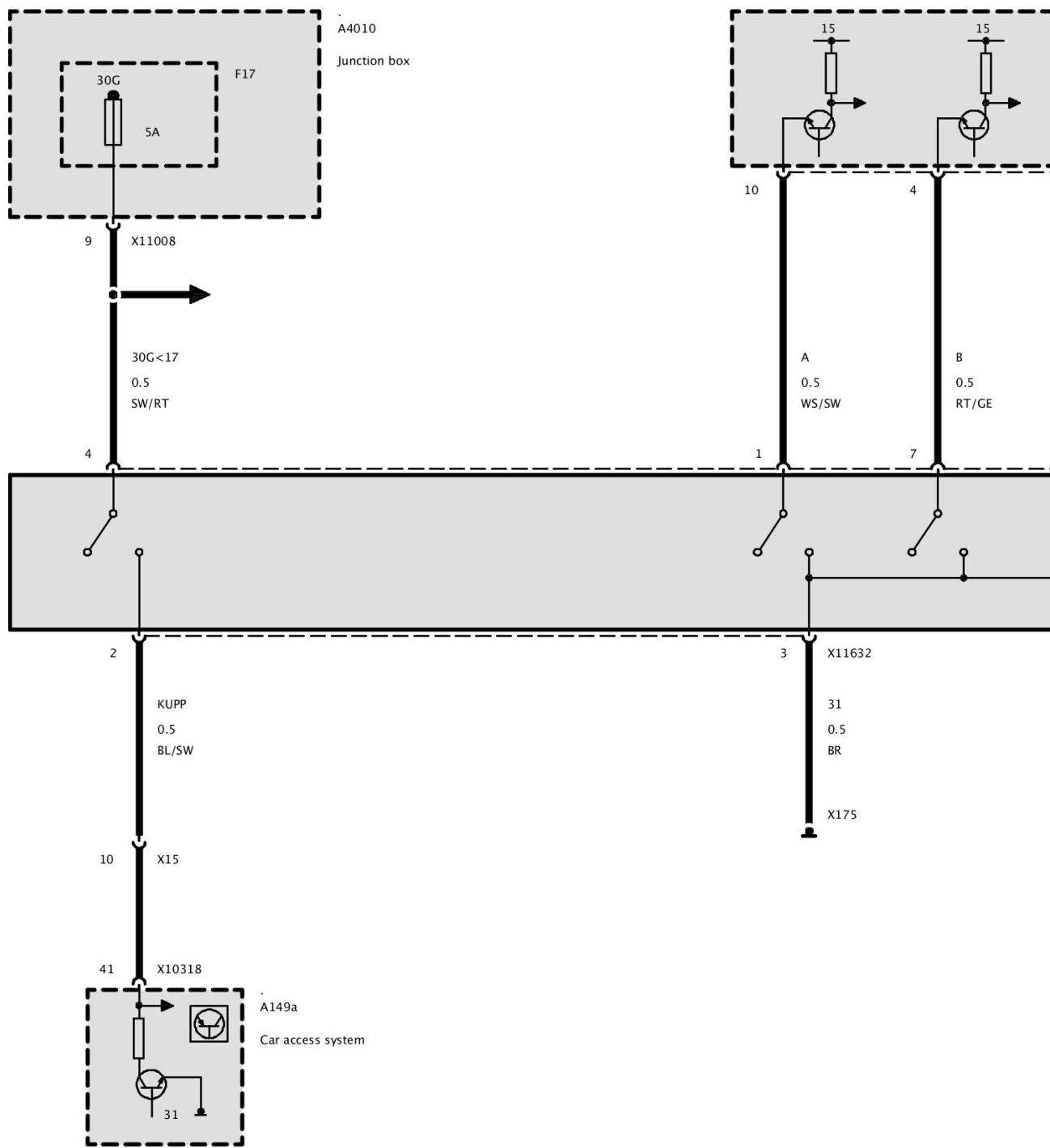


Voltage Supply (As of 2008\_12)

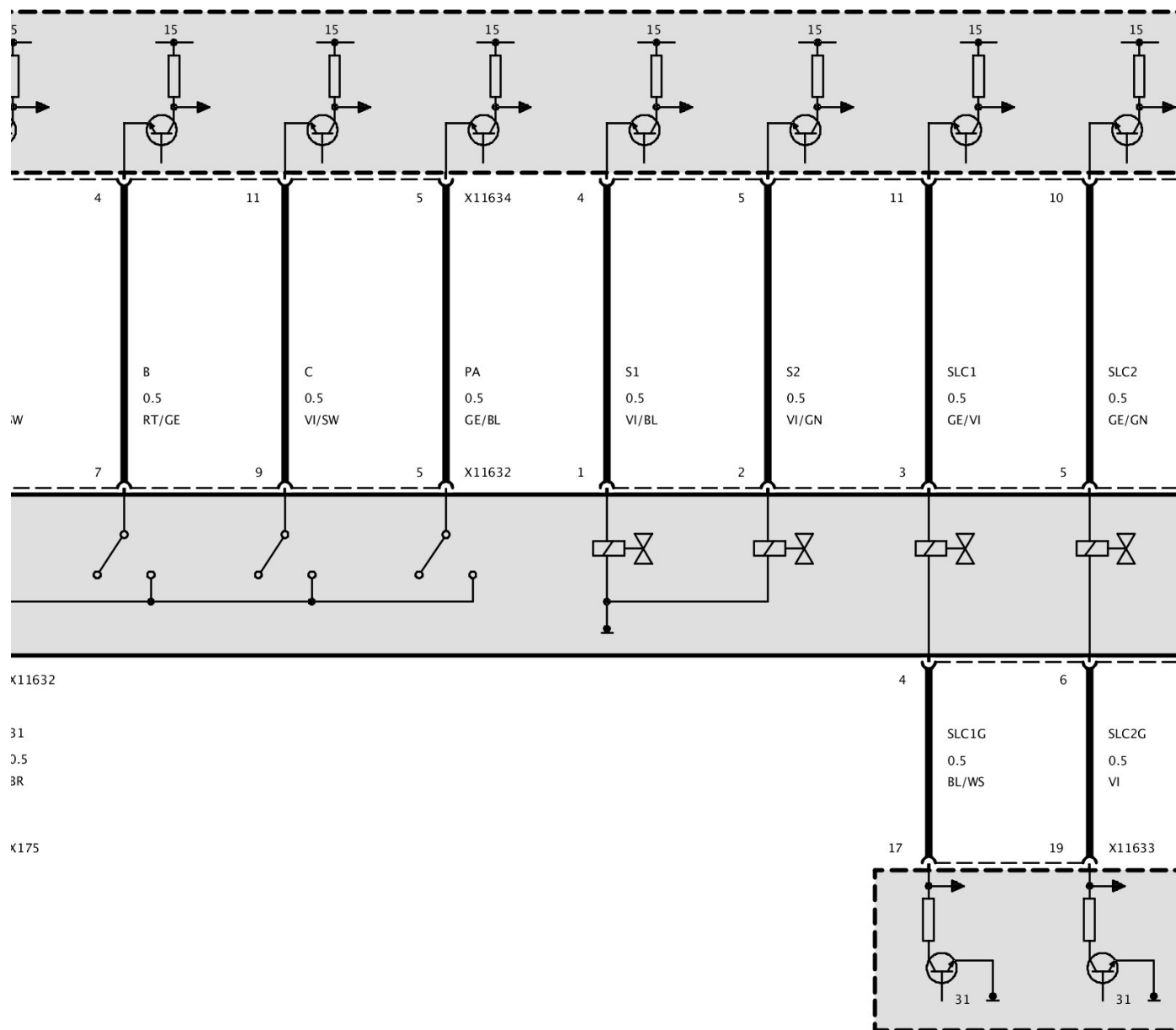
Voltage Supply (as of 2008\_12)



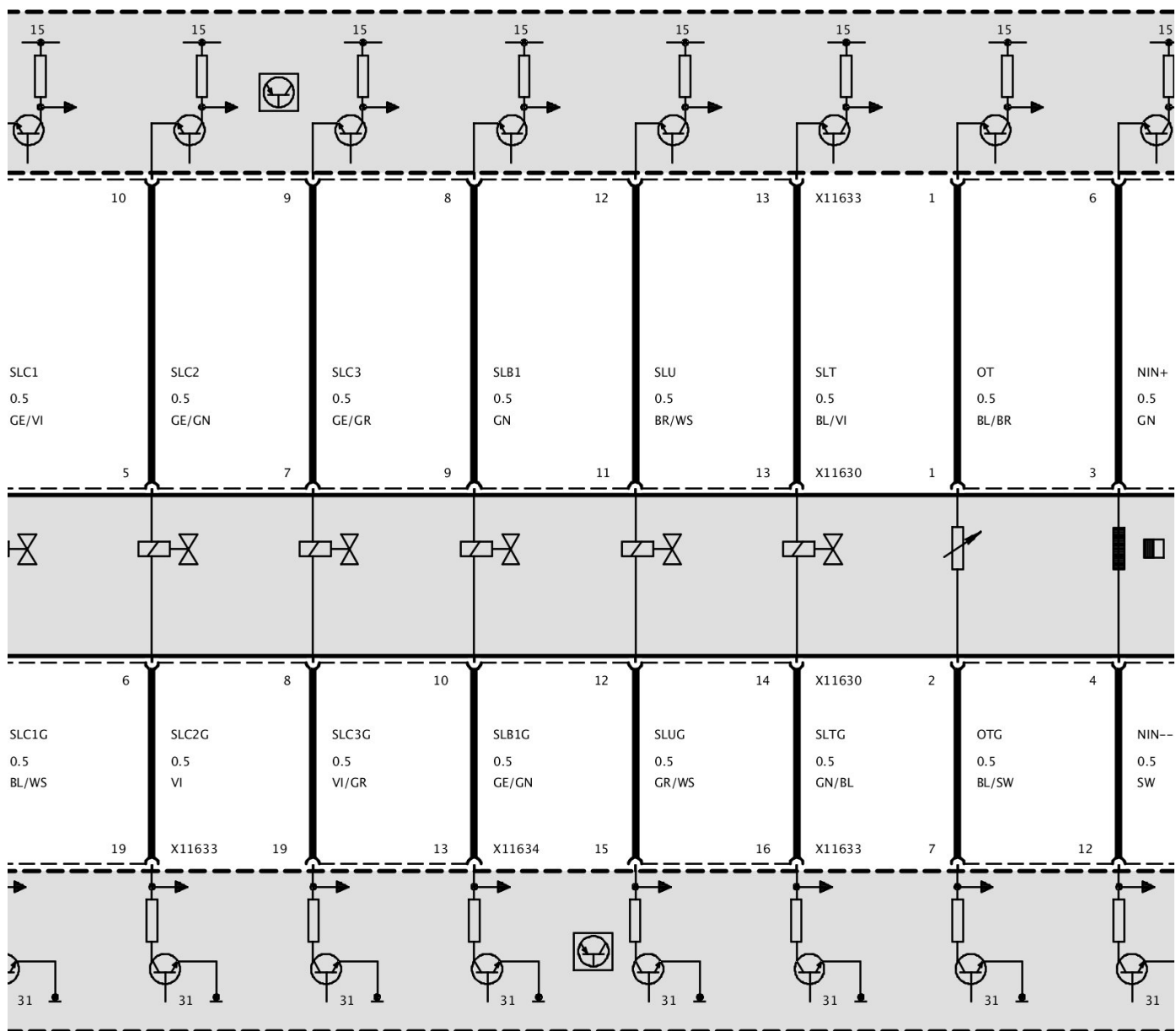
## Transmission Shift Device



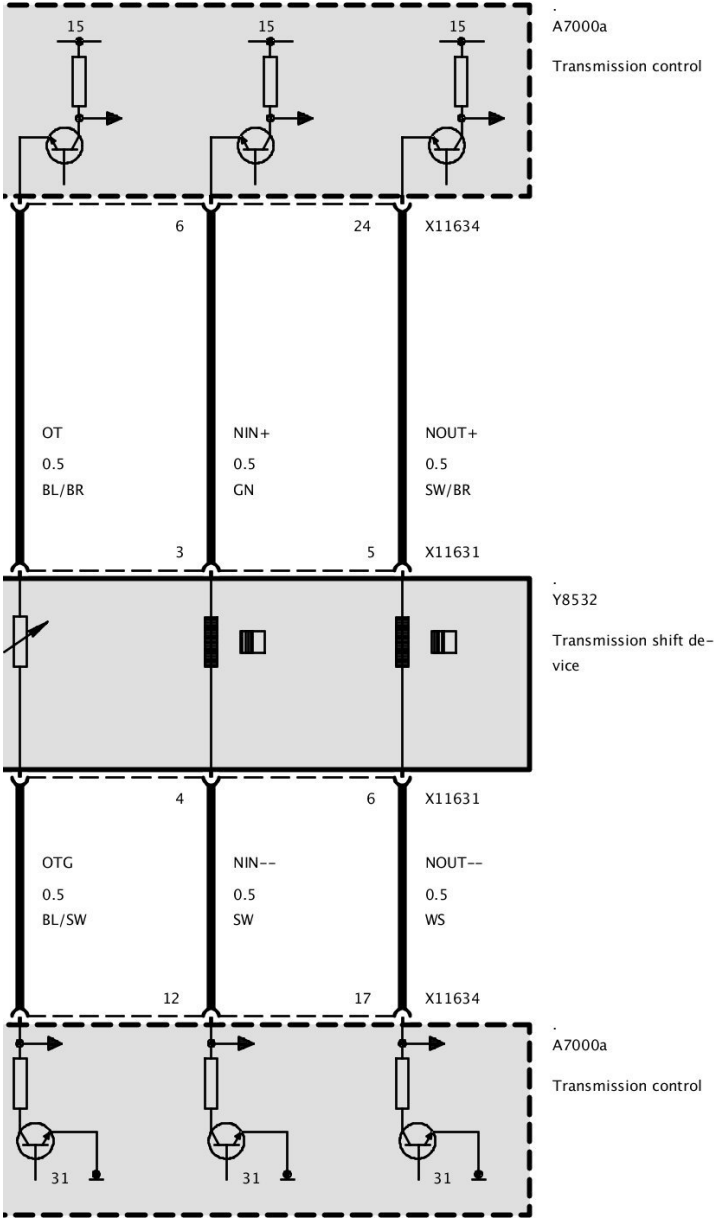
Part 1



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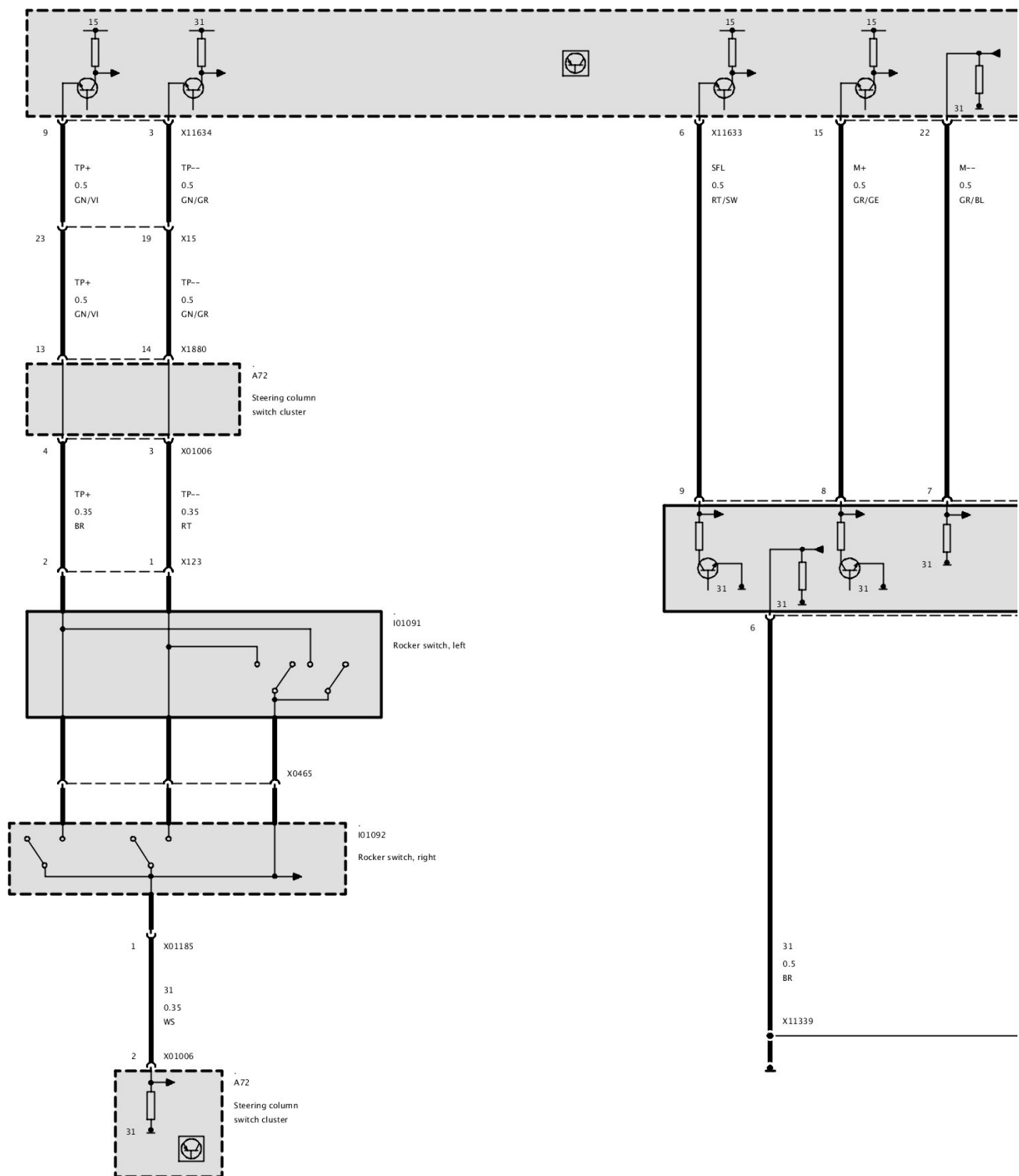
## Part 3



Part 4

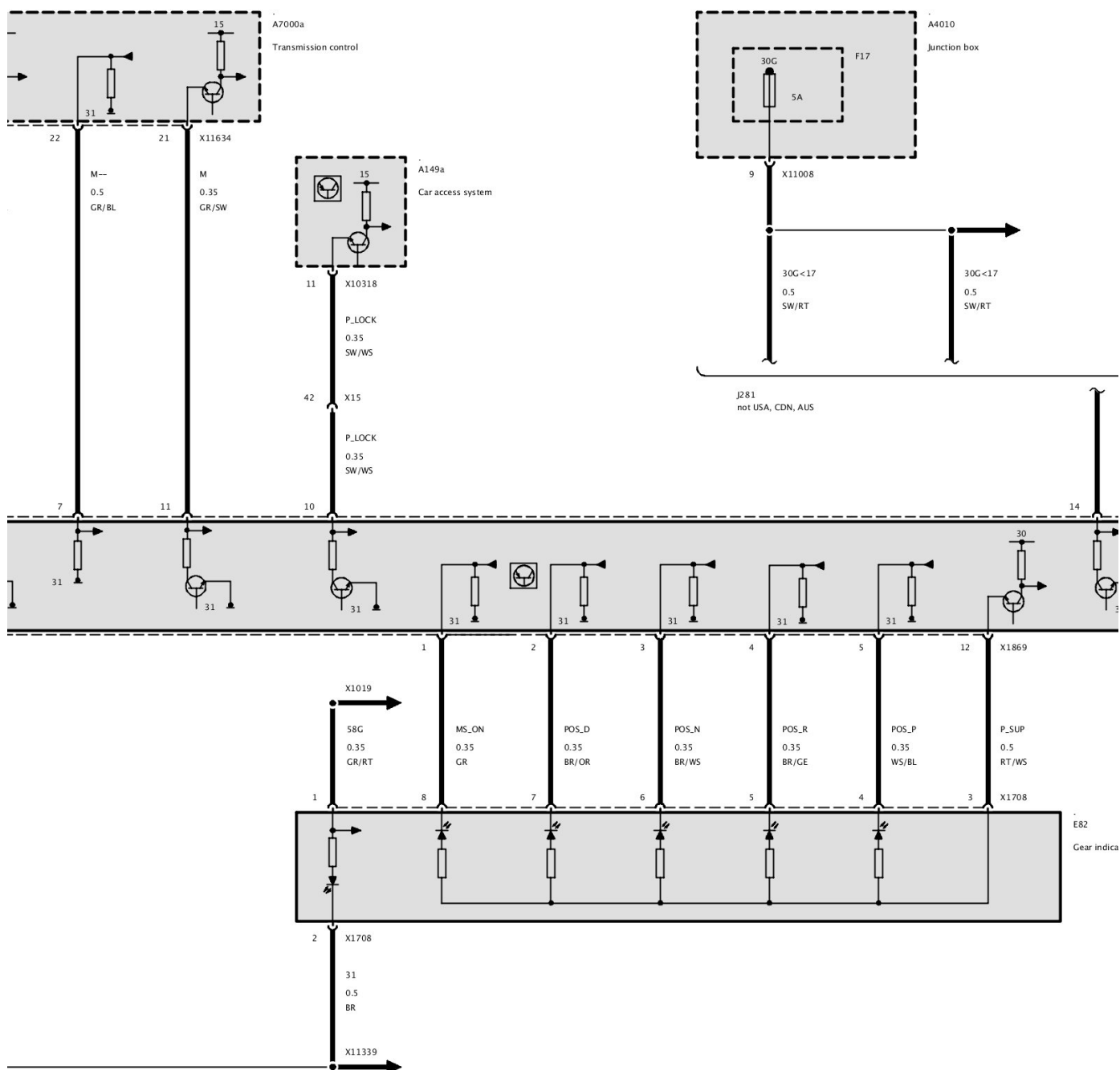
Controls

Controls

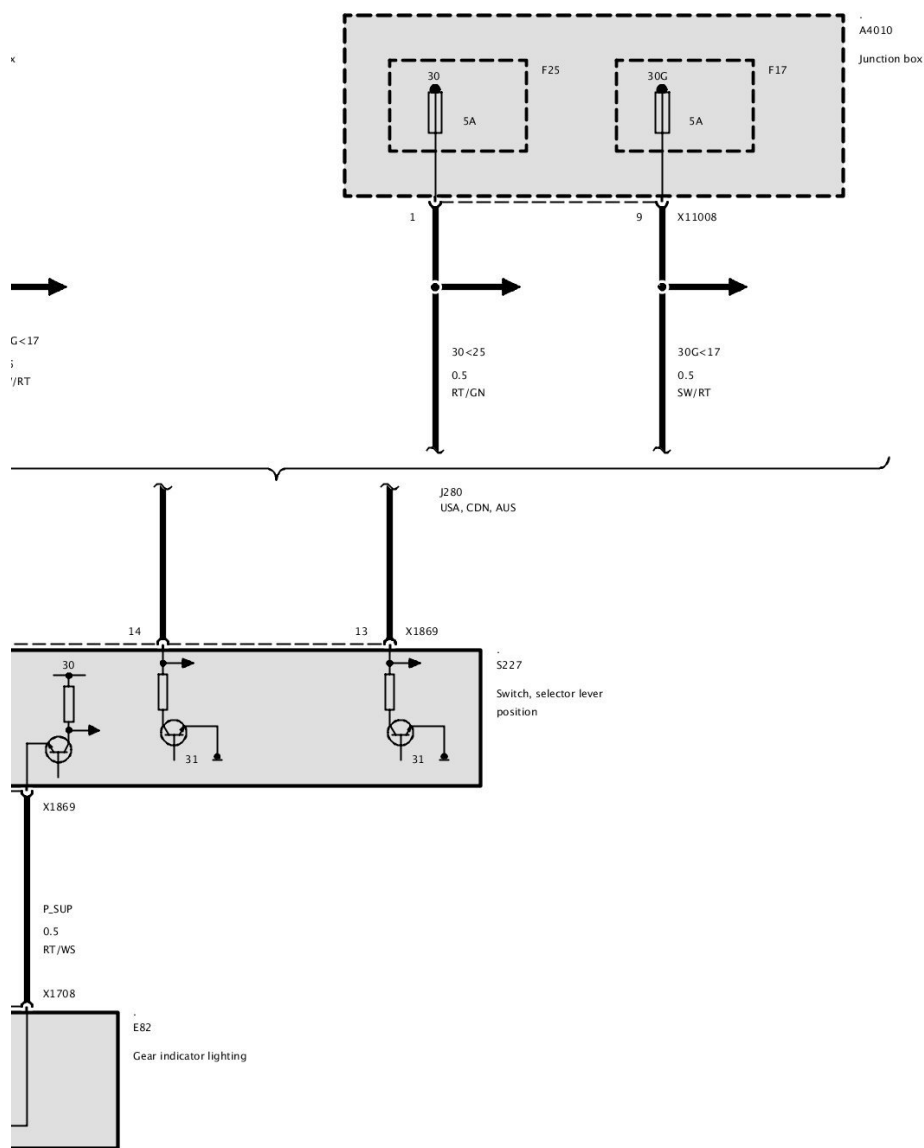


## Part 1





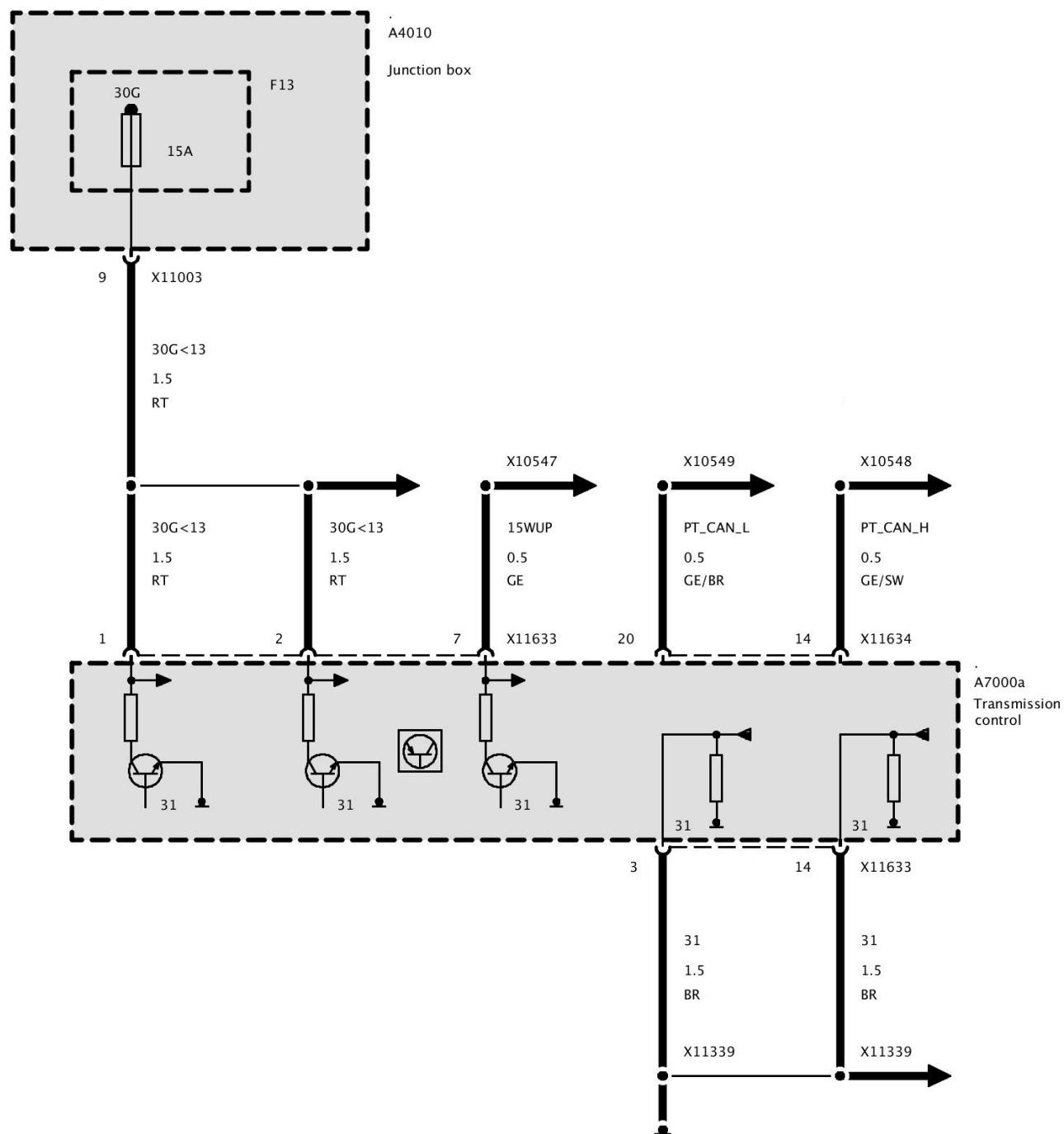
## Part 2



Part 3

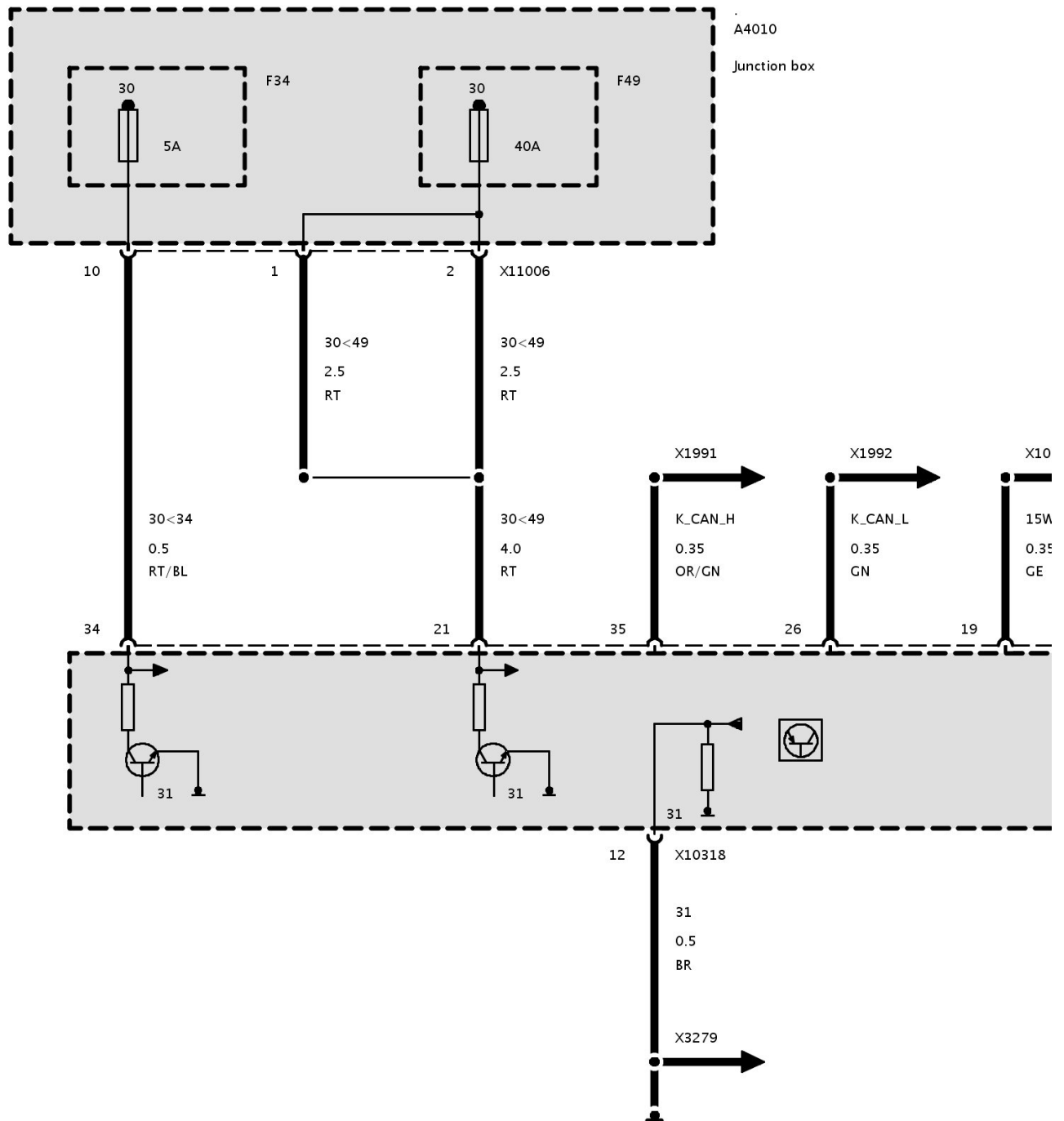
Interfaces

Voltage supply

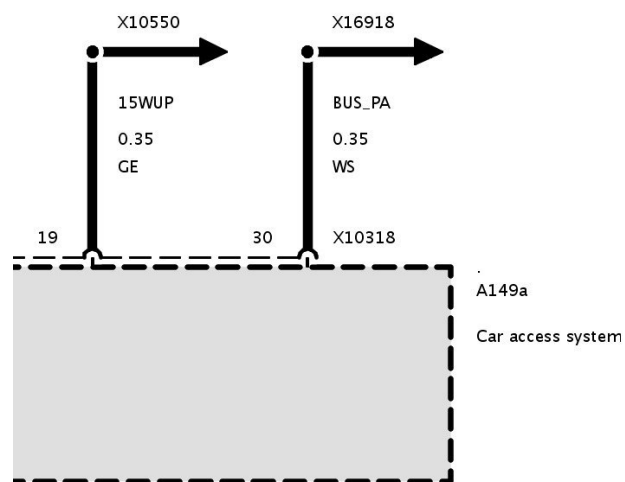


## Power Supply, Car Access System CAS (As Of 2007\_08 Up To 2008\_12)

### Power Supply, Car Access System CAS



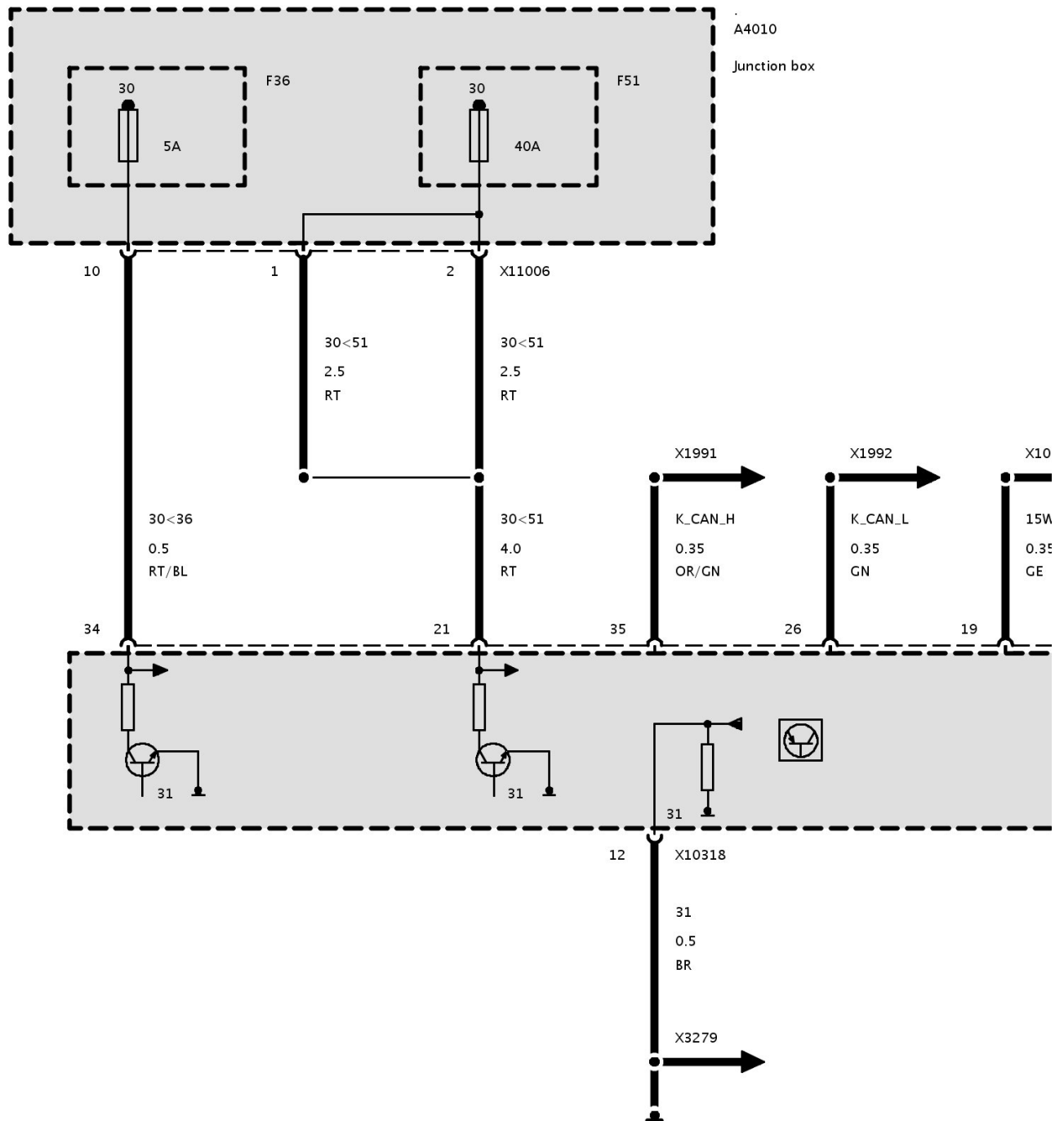
Part 1



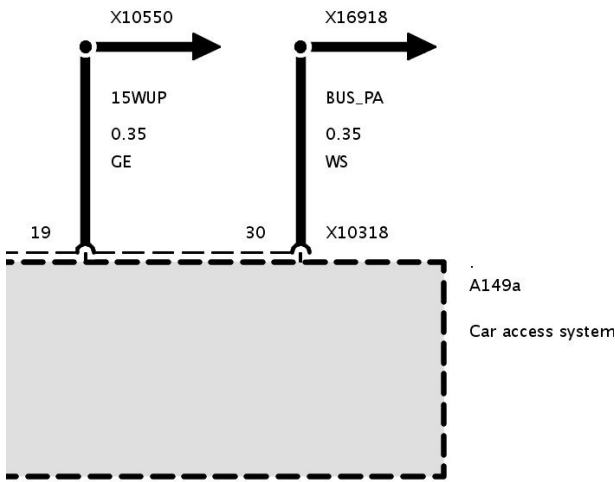
## Part 2

### Power Supply, Car Access System CAS (As Of 2008\_12)

Power Supply, Car Access System CAS



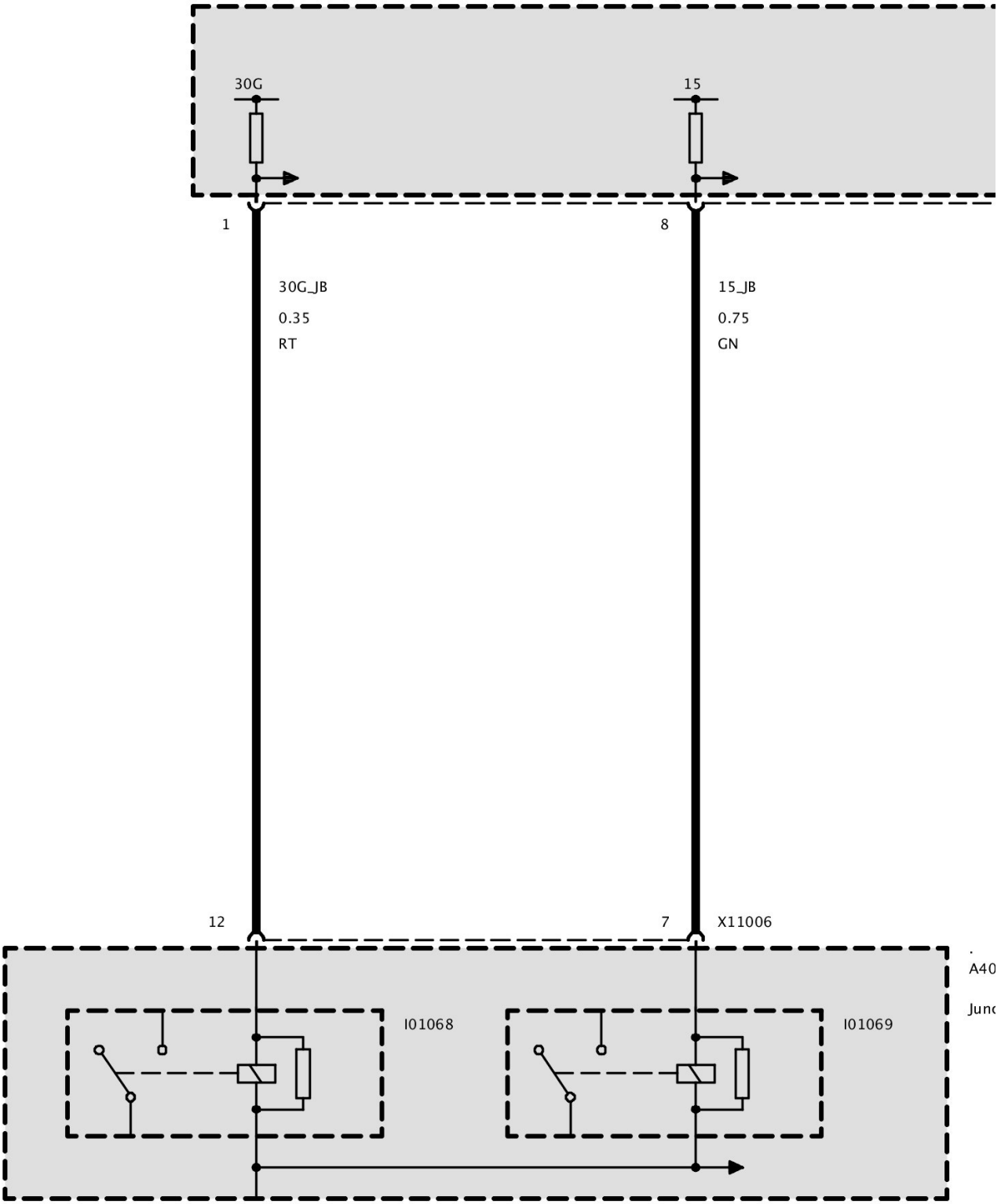
Part 1



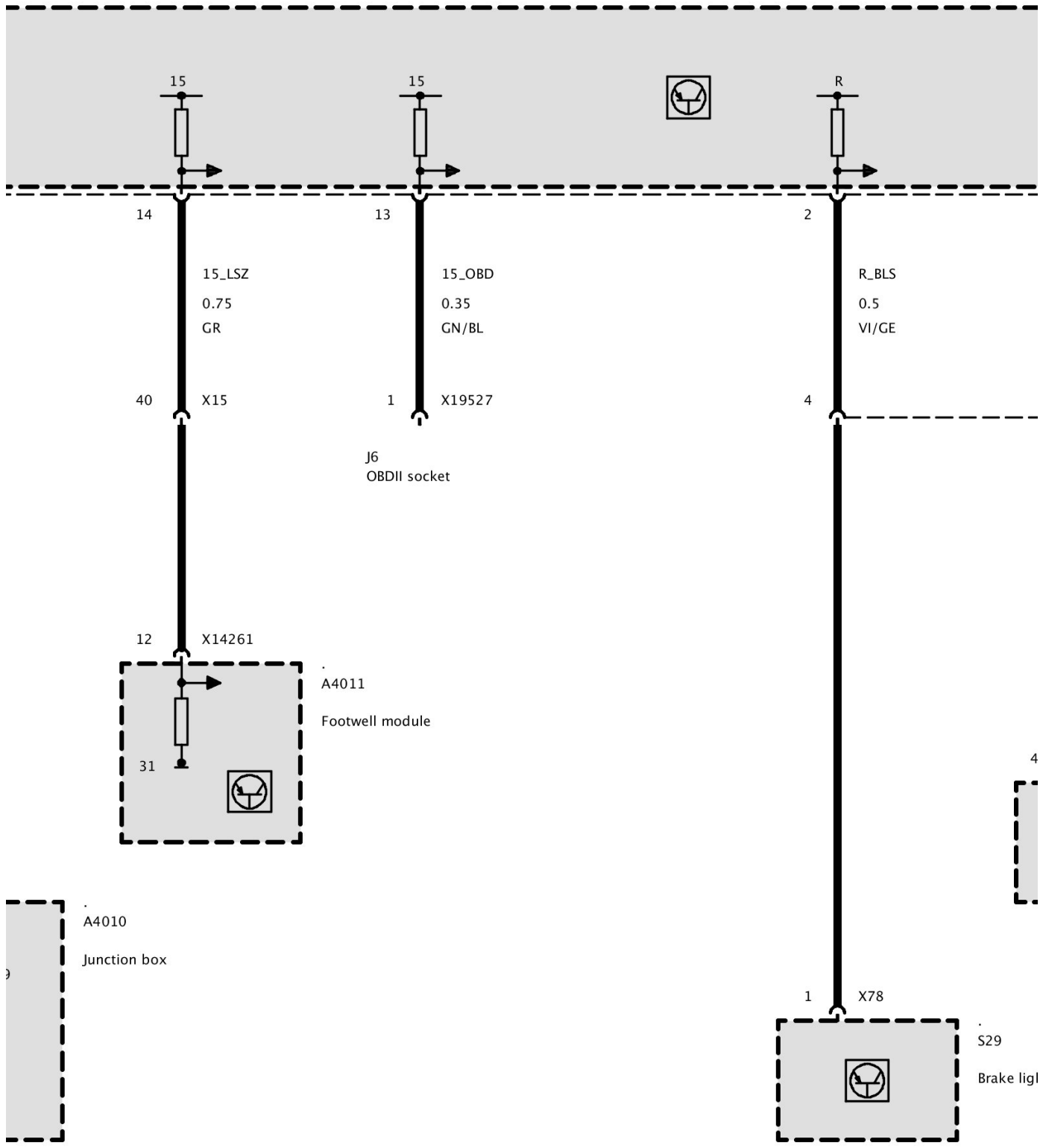
Part 2

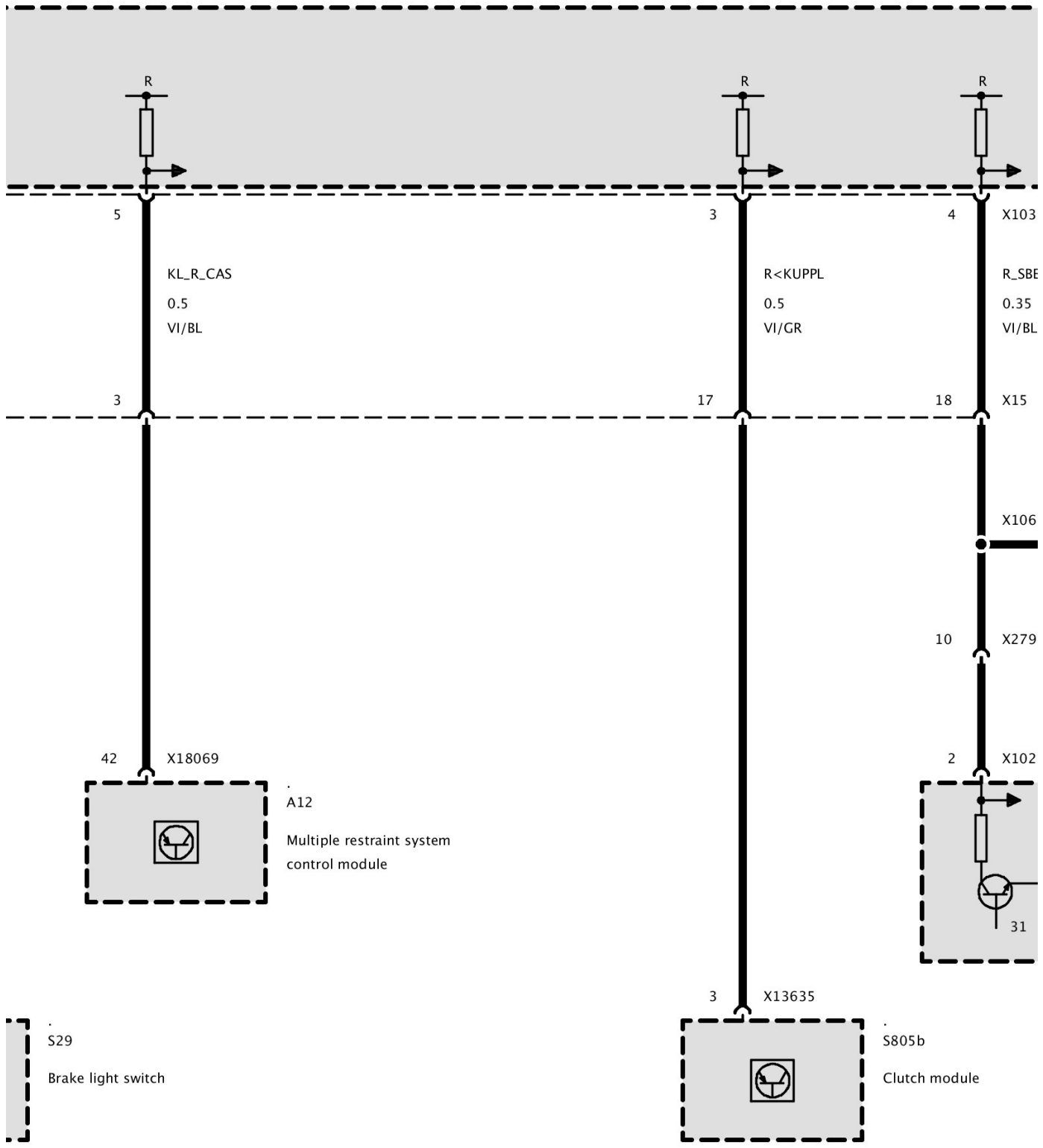
Terminal Control

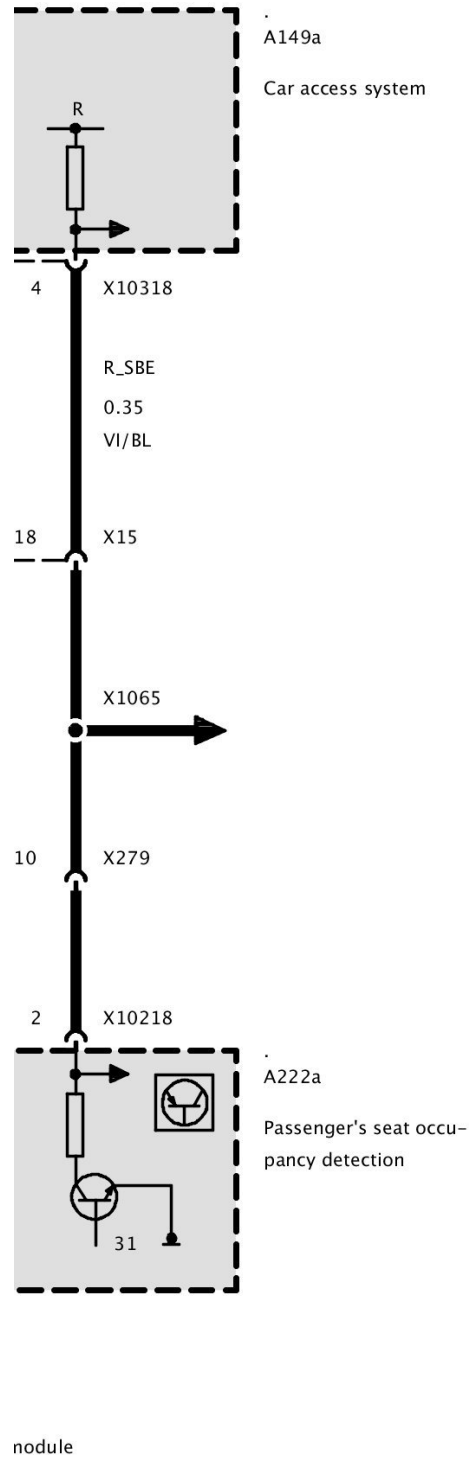
Terminal Control





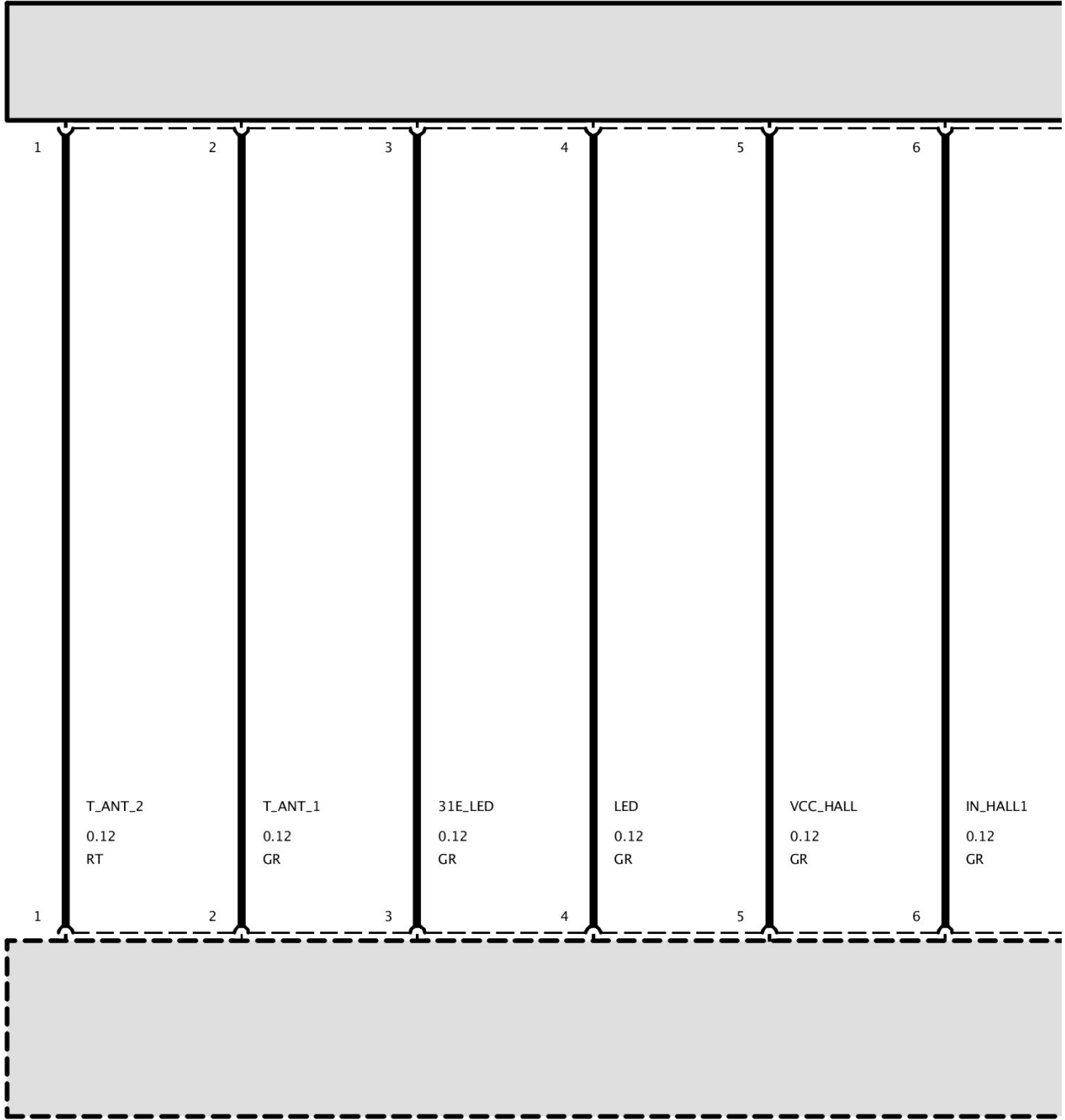


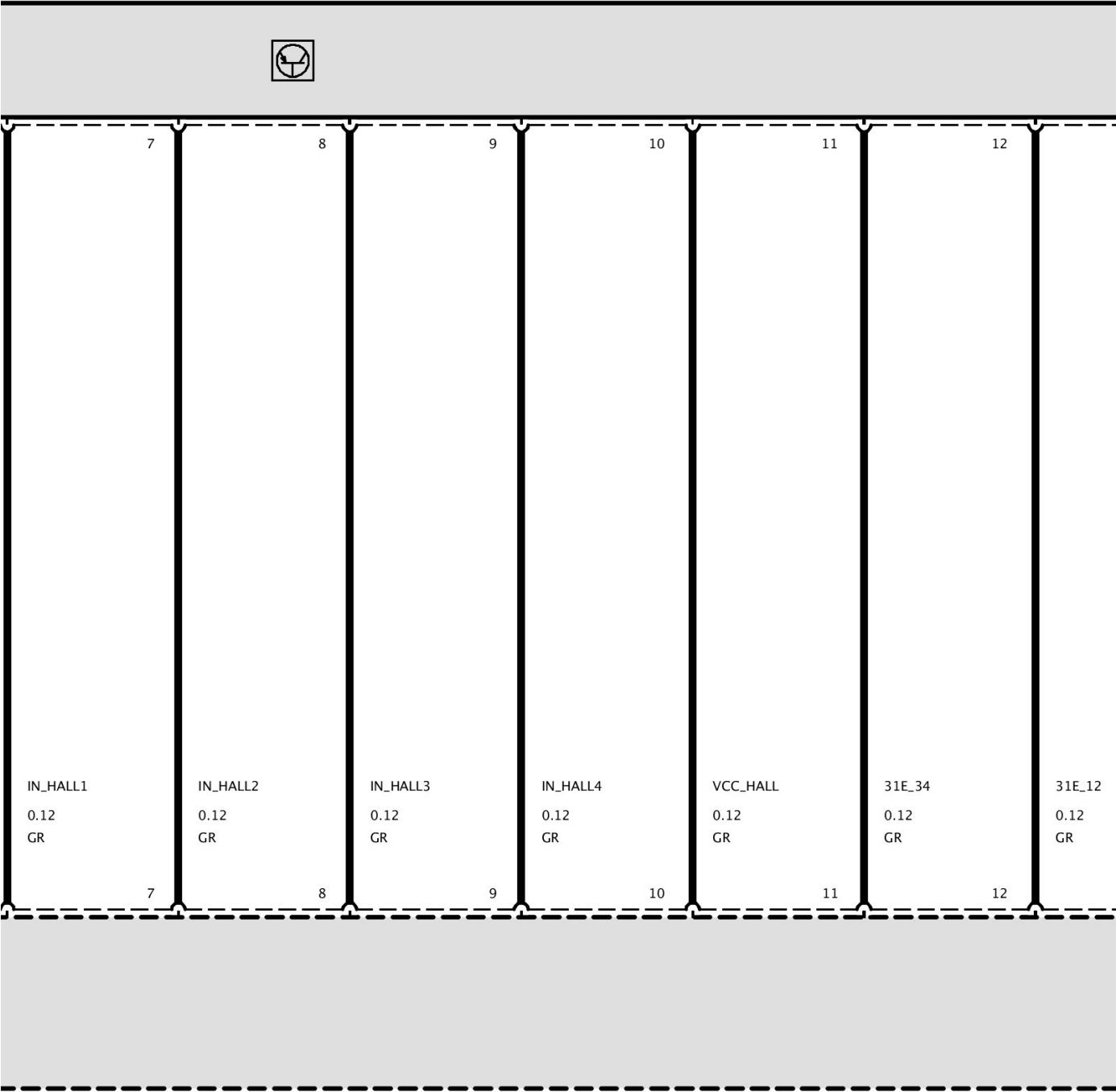


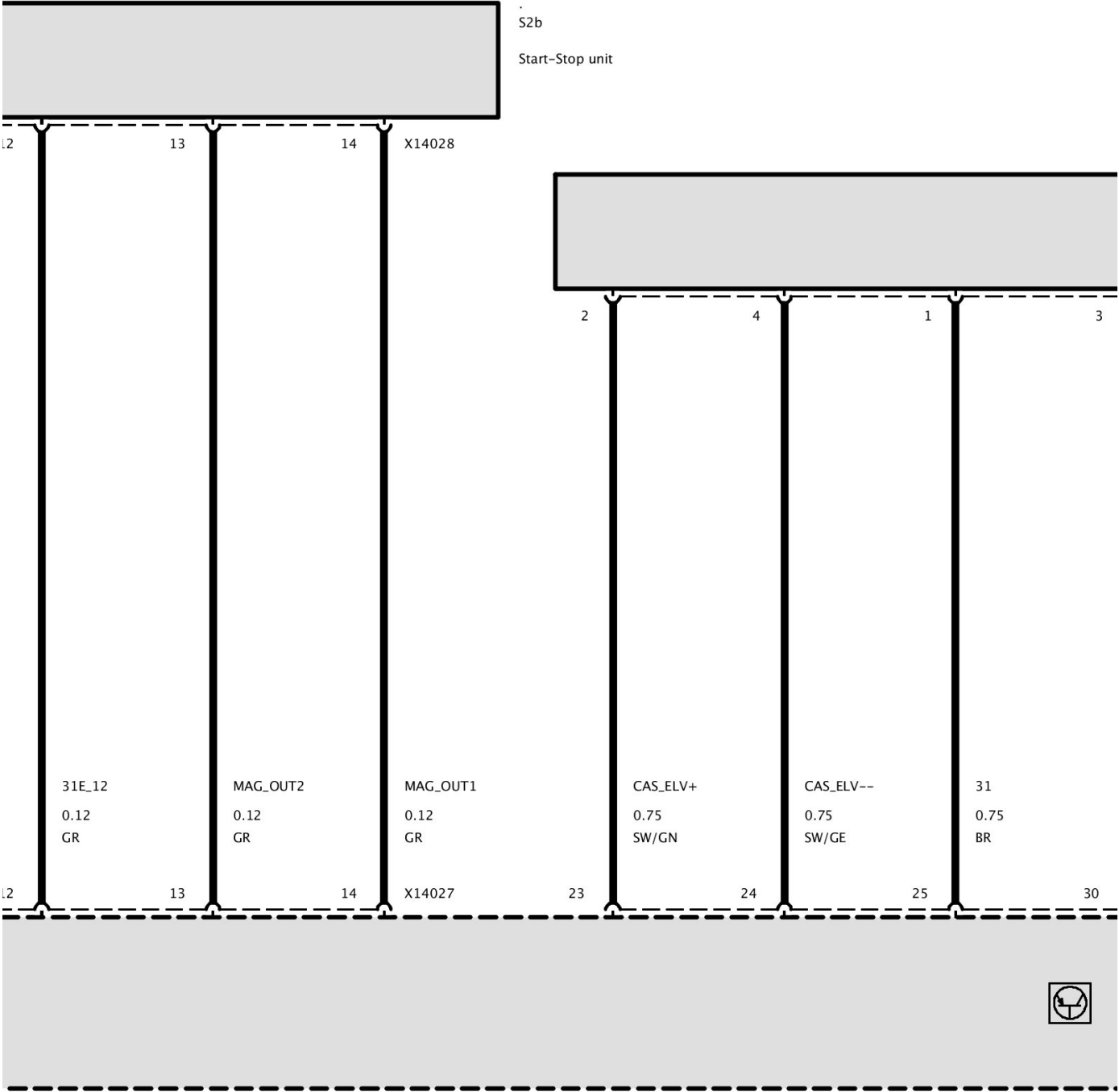


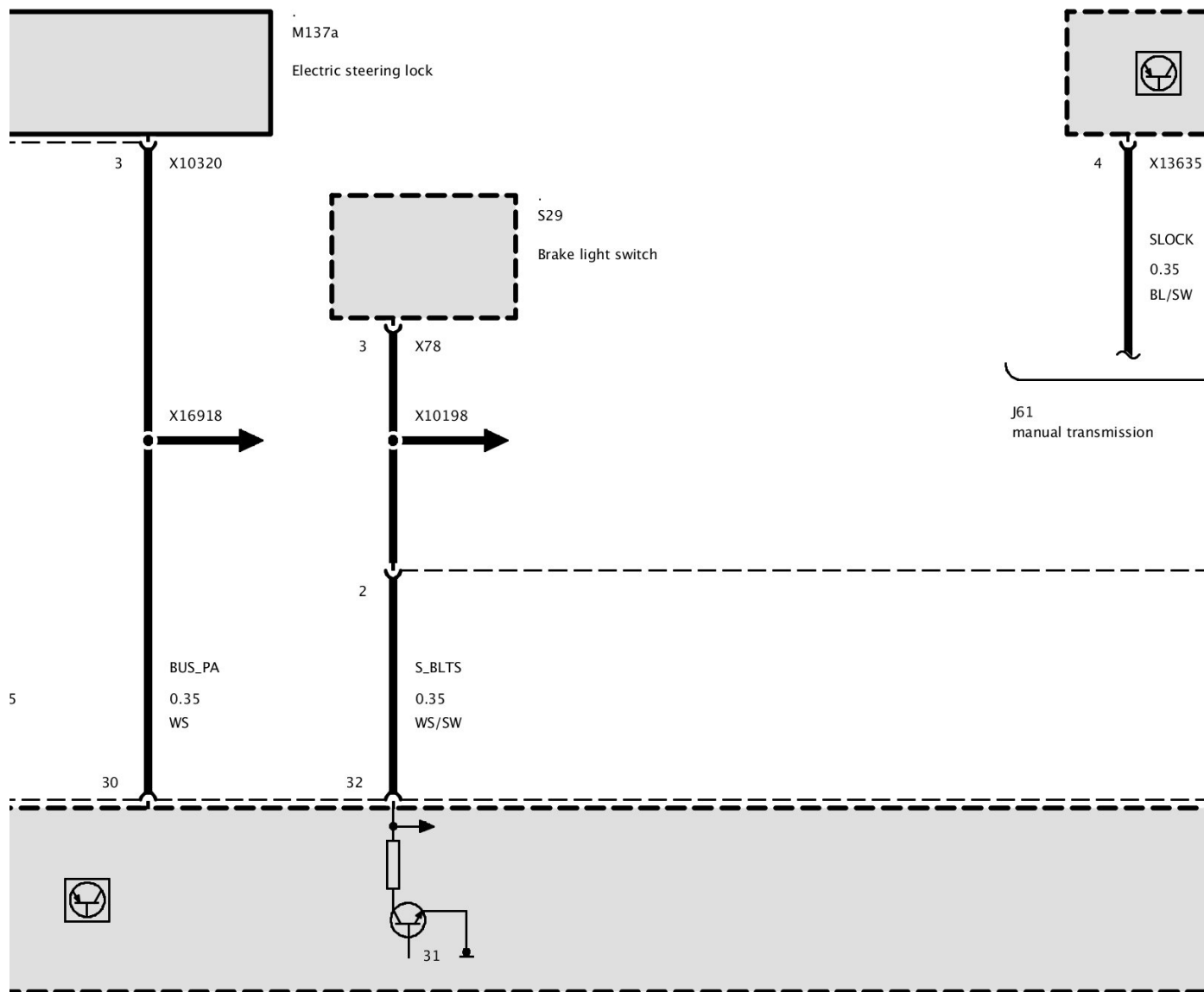
Convenient Start (Petrol Engine As Of 2007\_08)

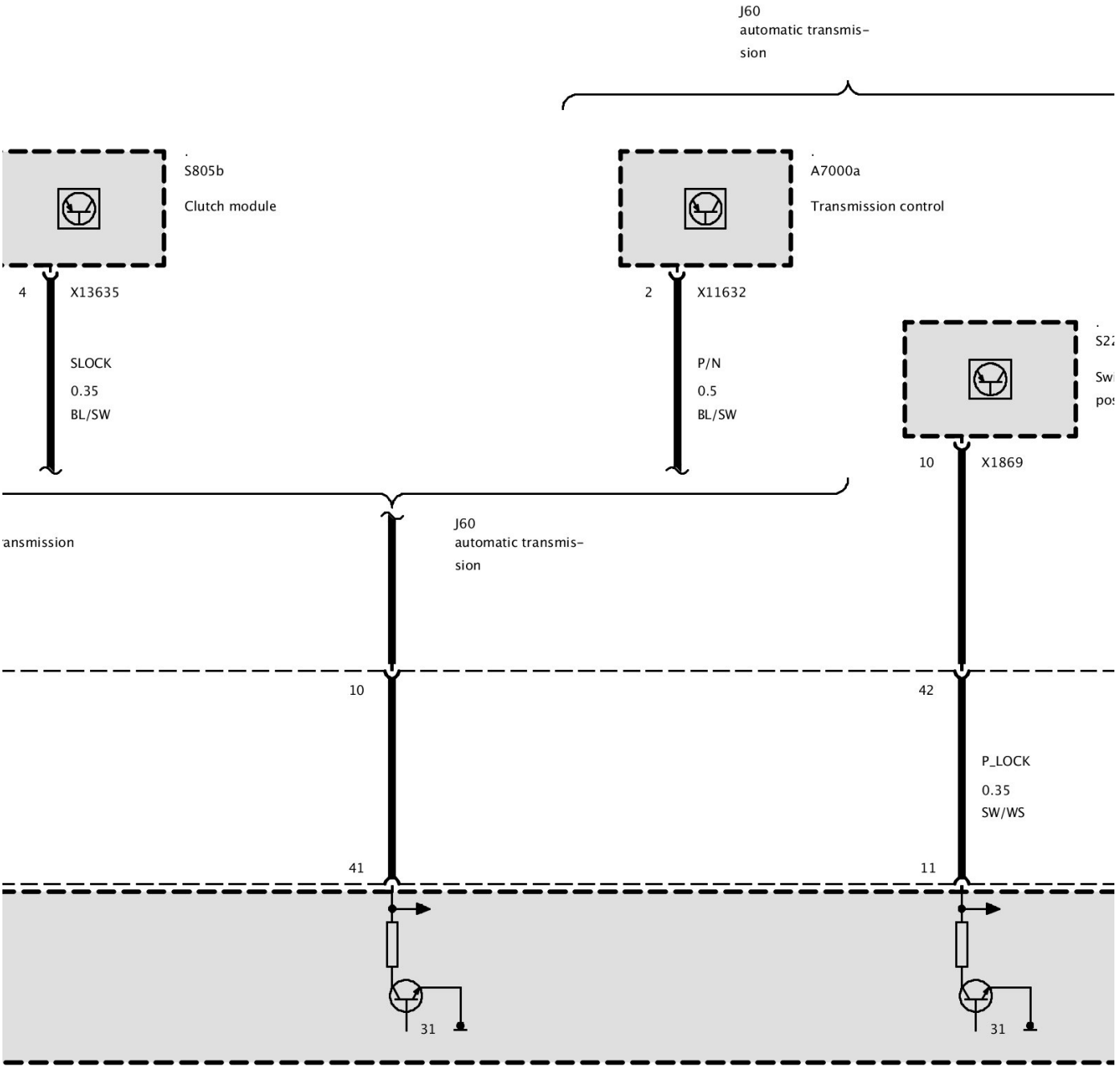
Convenient Start (Petrol Engine As Of 2007\_08)



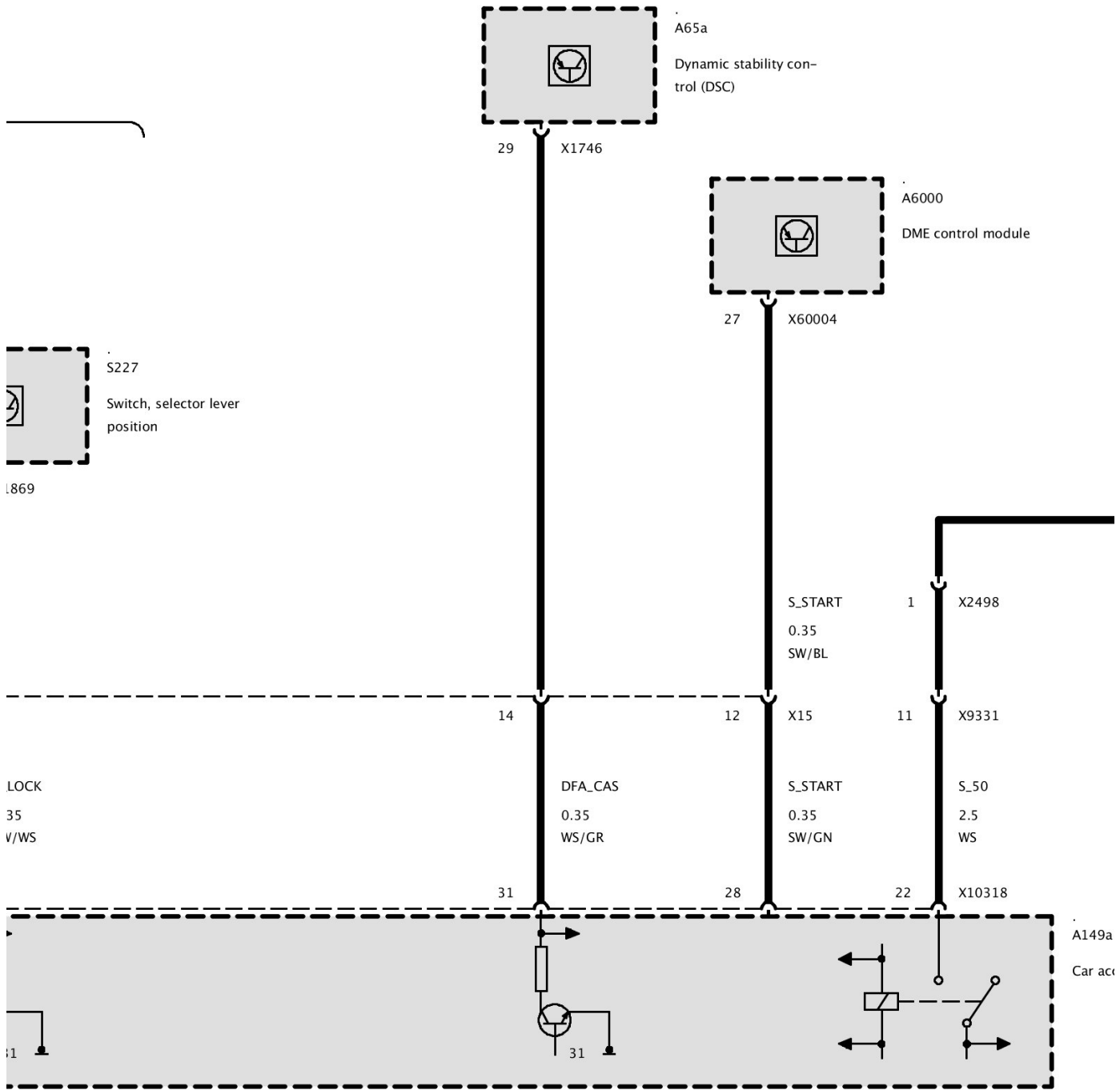


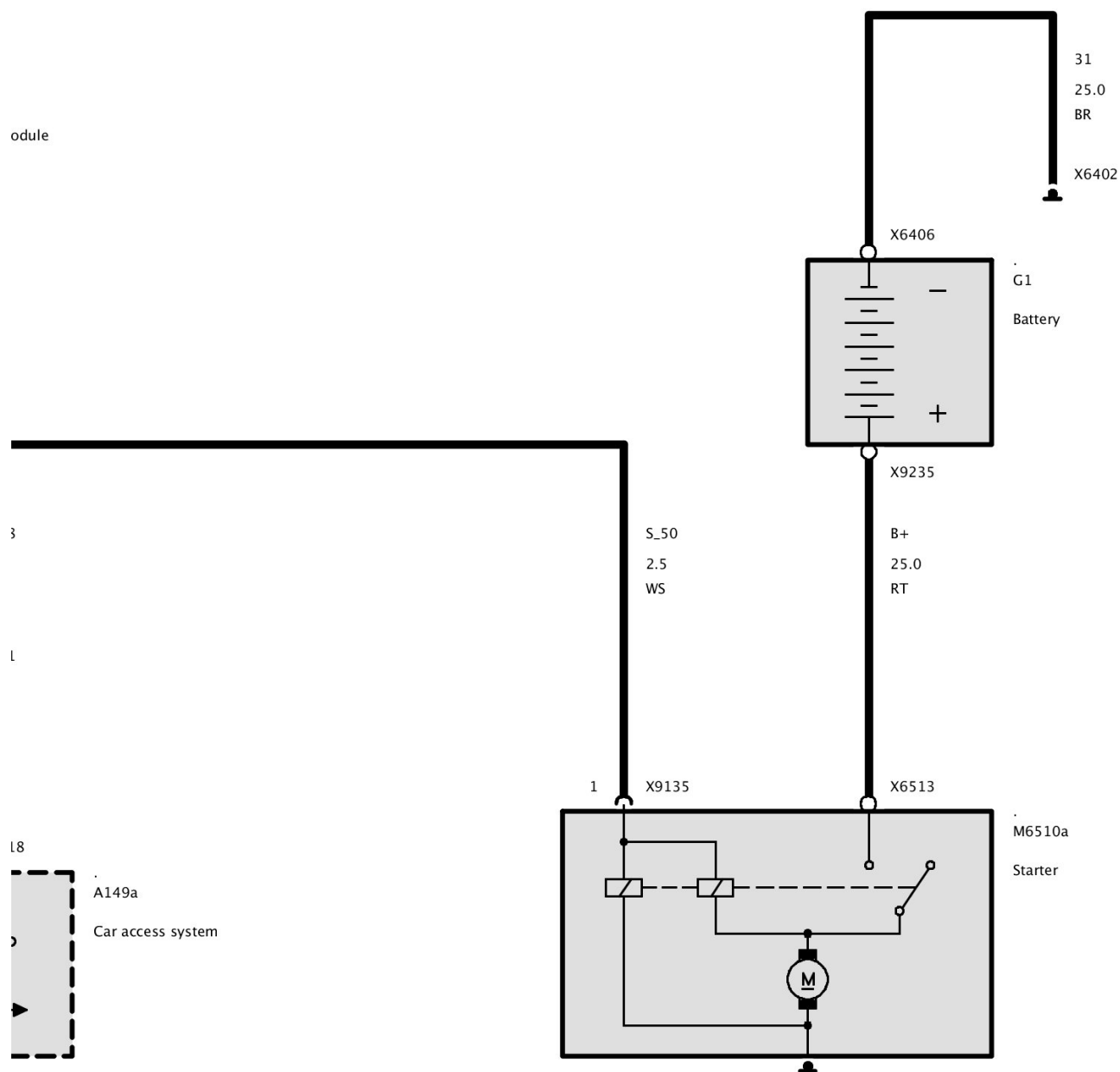






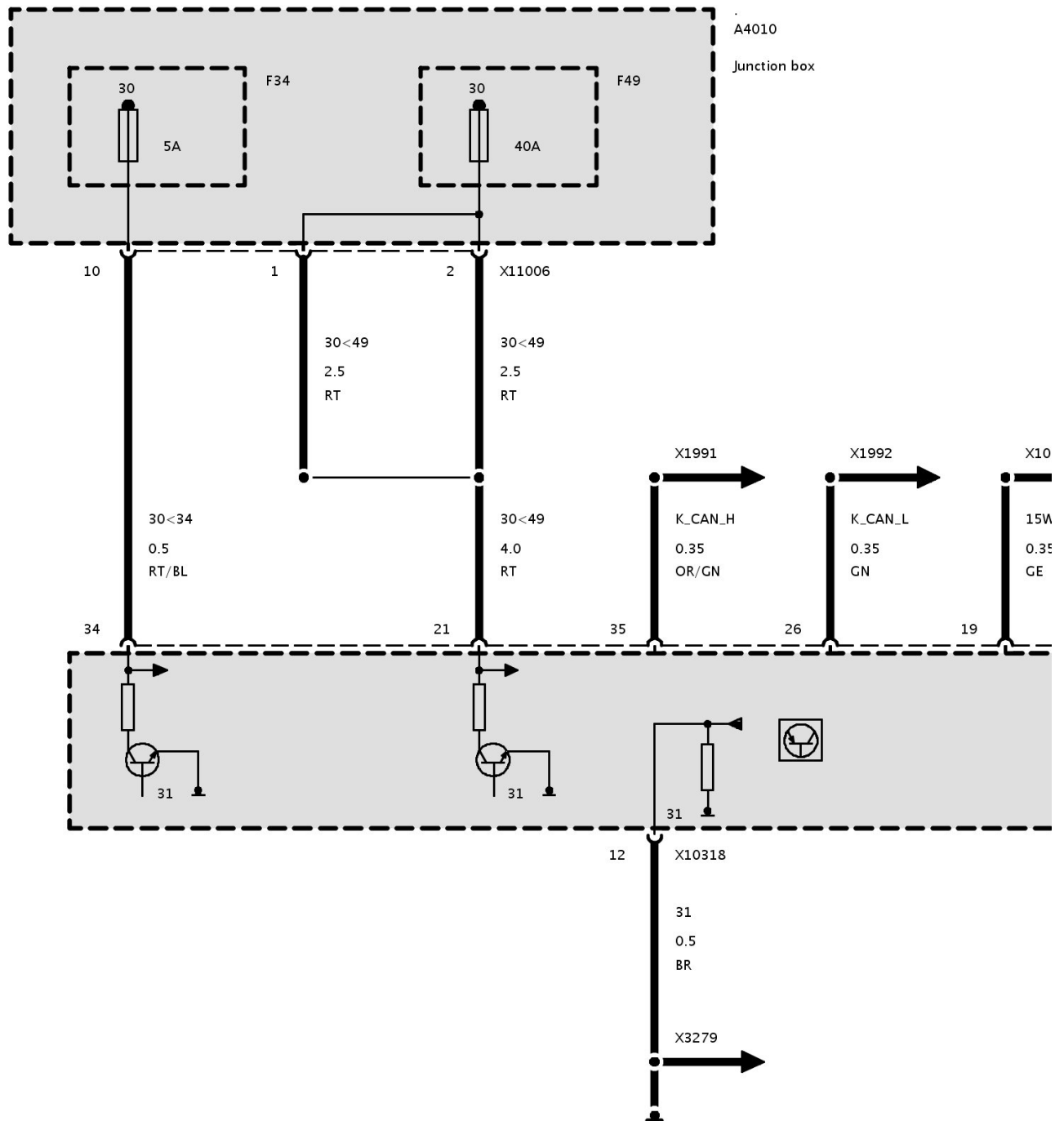




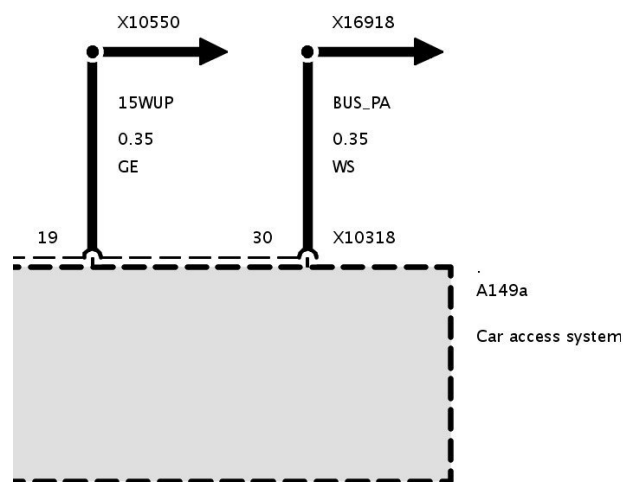


## Power Supply, Car Access System CAS (As Of 2007\_08 Up To 2008\_12)

Power Supply, Car Access System CAS



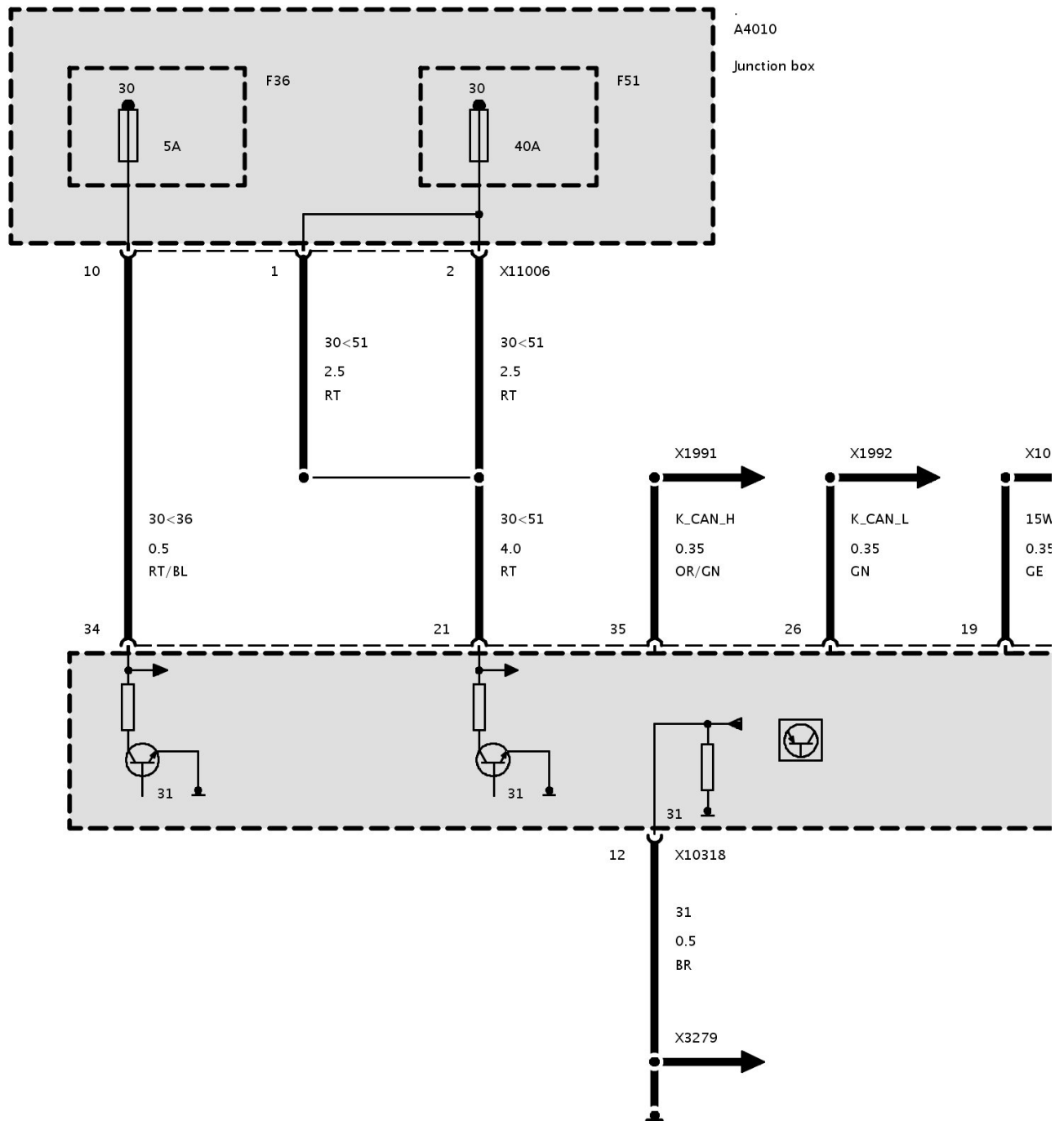
Part 1



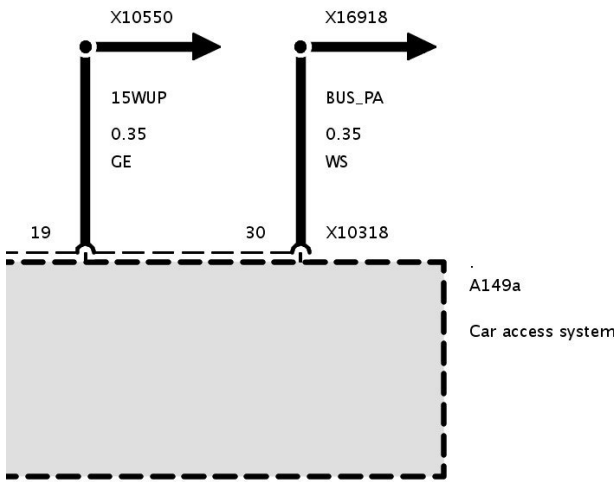
## Part 2

### Power Supply, Car Access System Cas (As of 2008\_12)

Power Supply, Car Access System CAS



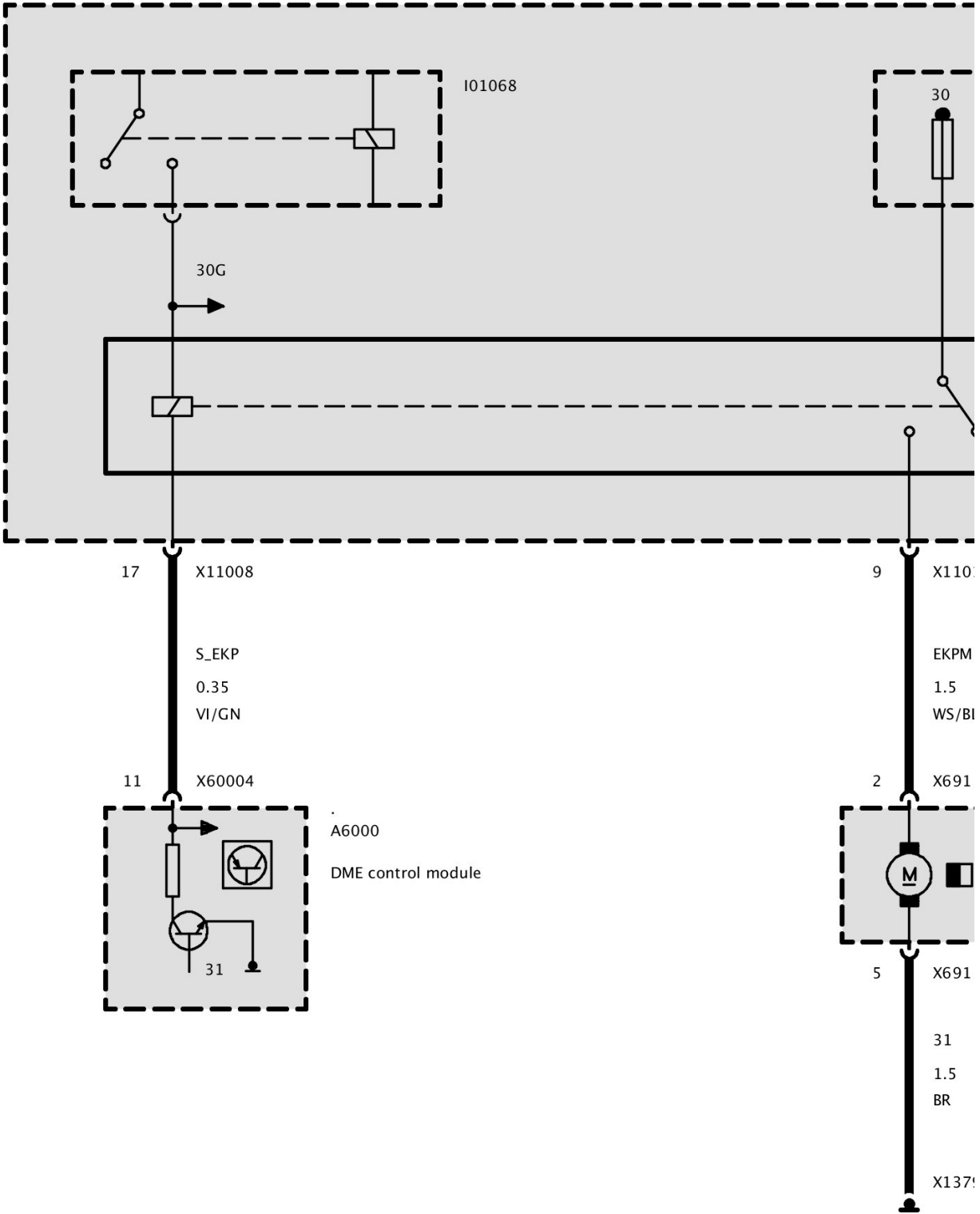
Part 1



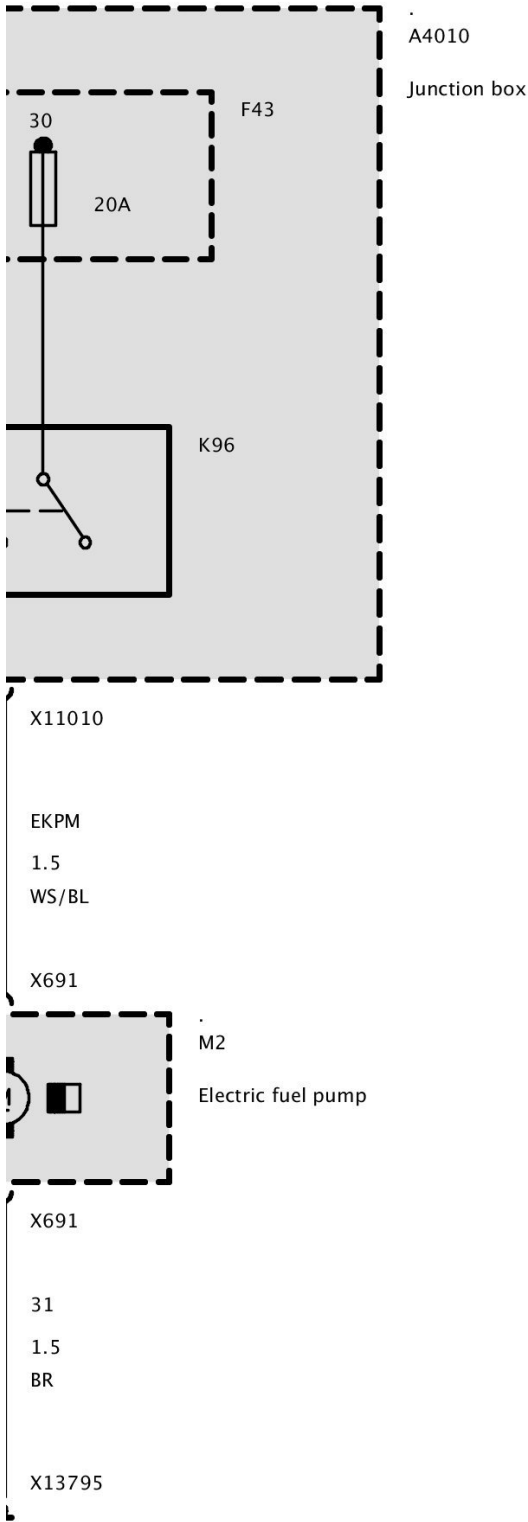
Part 2

Fuel Pump

Fuel Pump



Part 1

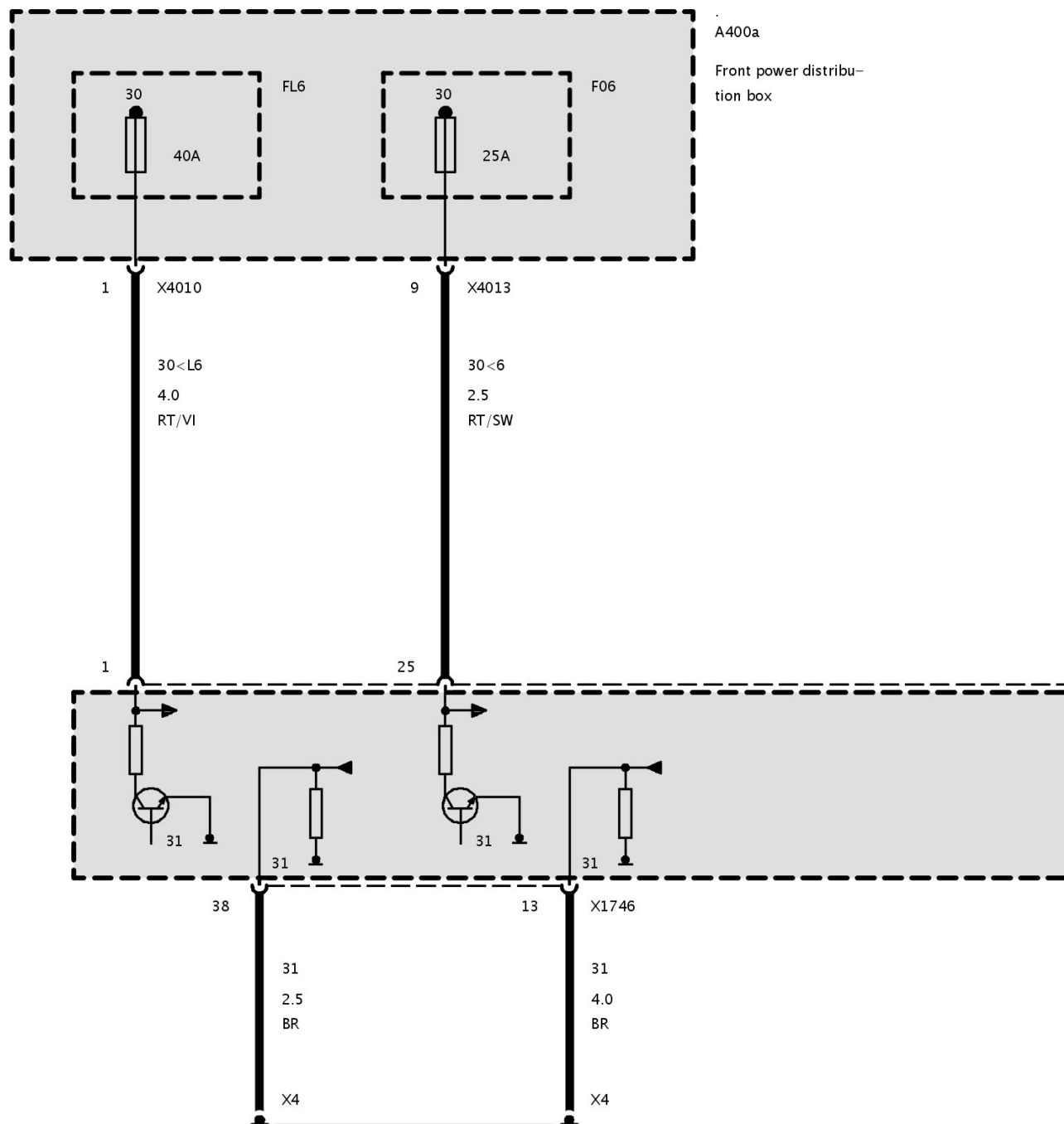


Part 2

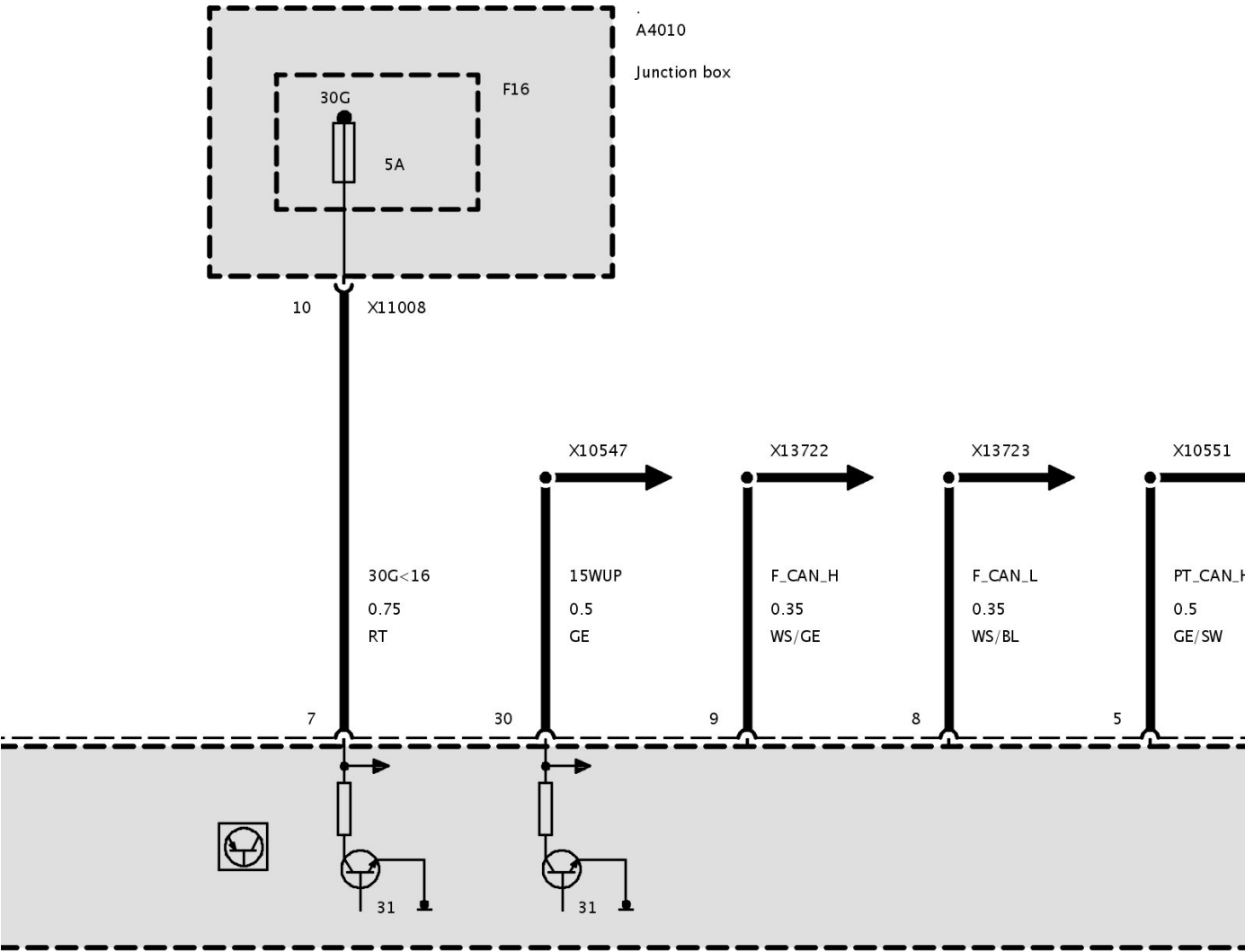
Power Supply, Dynamic Stability Control DSC (As of 03/08 up to 12/08)

Power Supply, Dynamic Stability Control DSC (As of 03/08 up to 12/08)

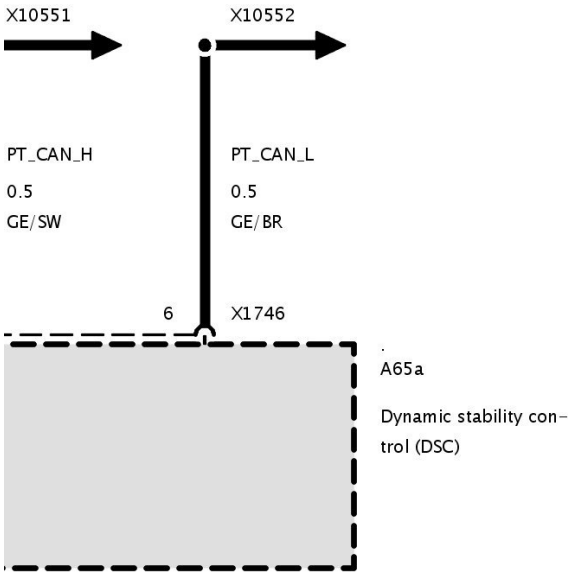




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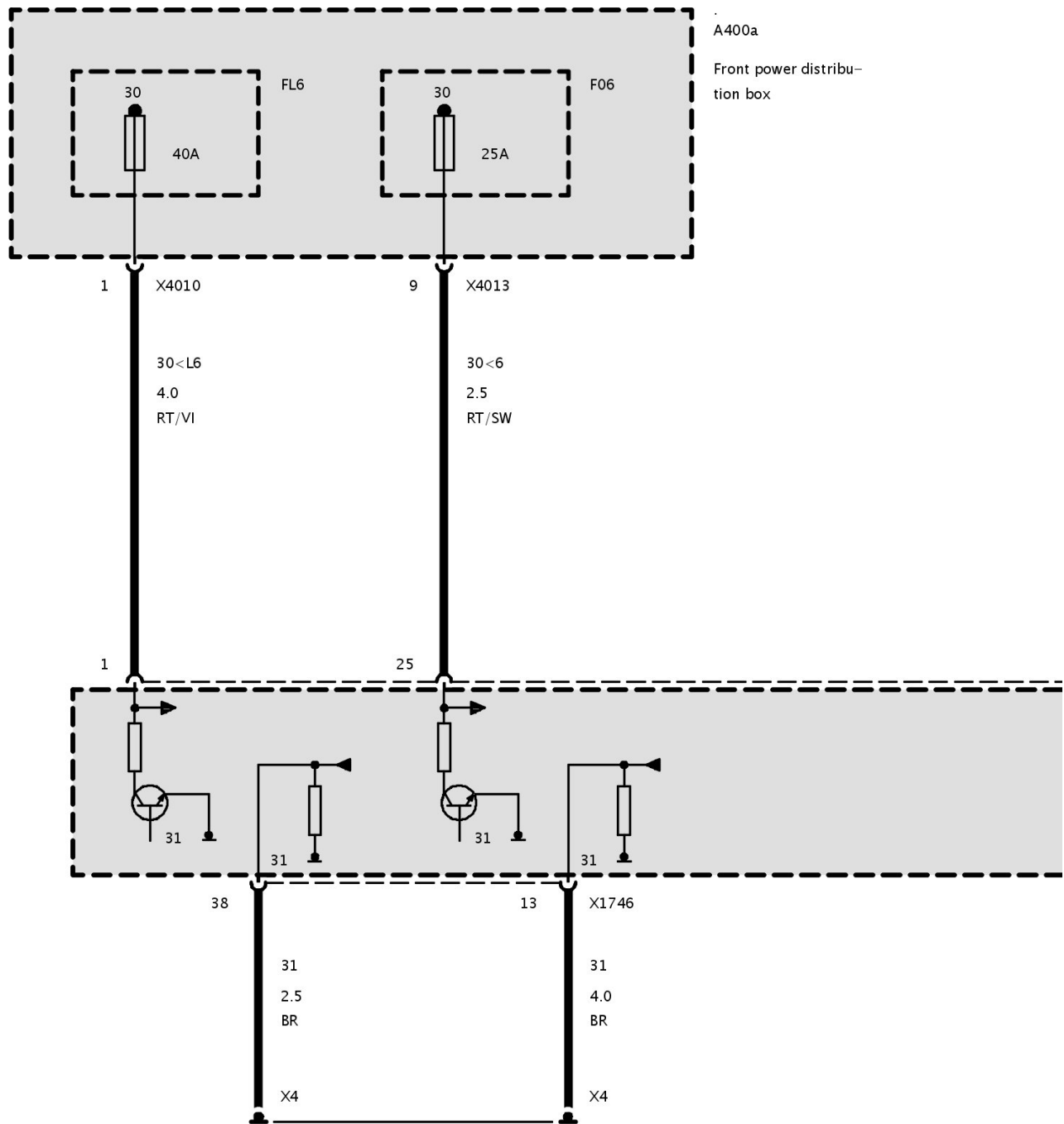
Part 2



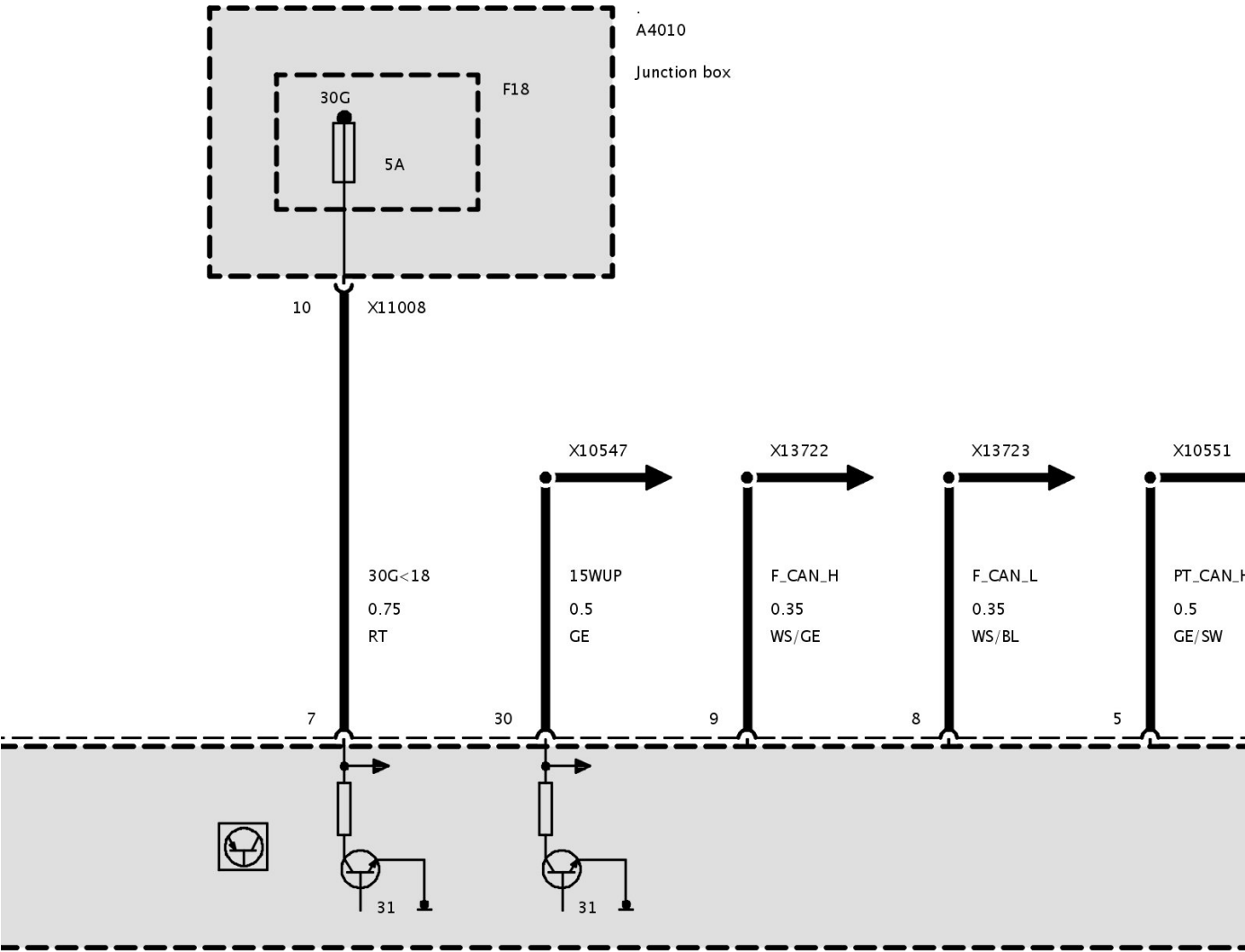
Part 3

Power Supply, Dynamic Stability Control DSC (As of 12/08)

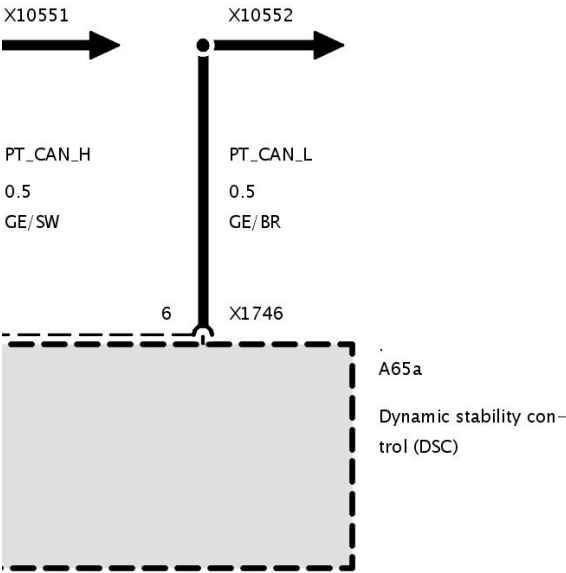
Power Supply, Dynamic Stability Control DSC (As of 12/08)



Part 1



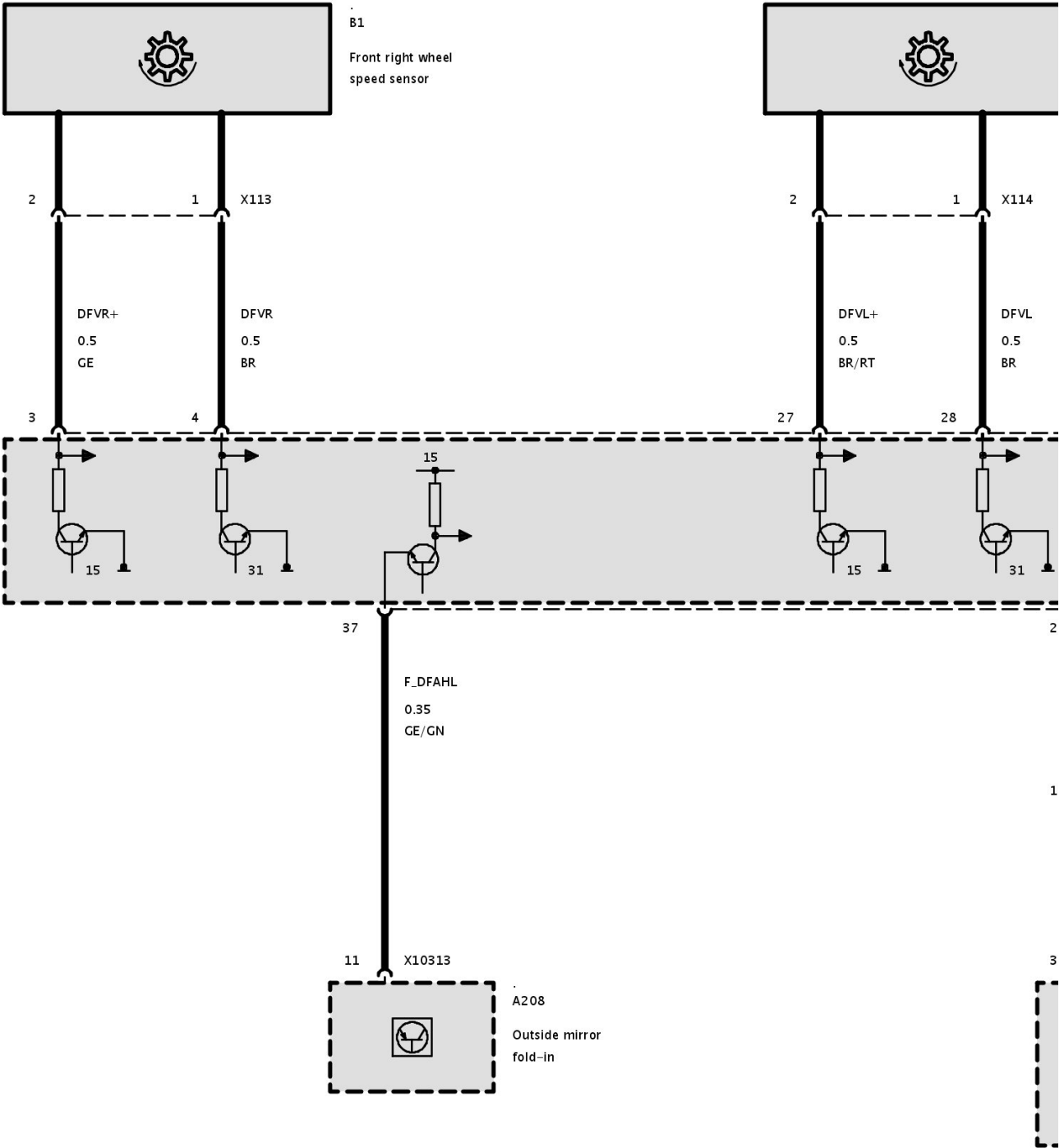
Part 2



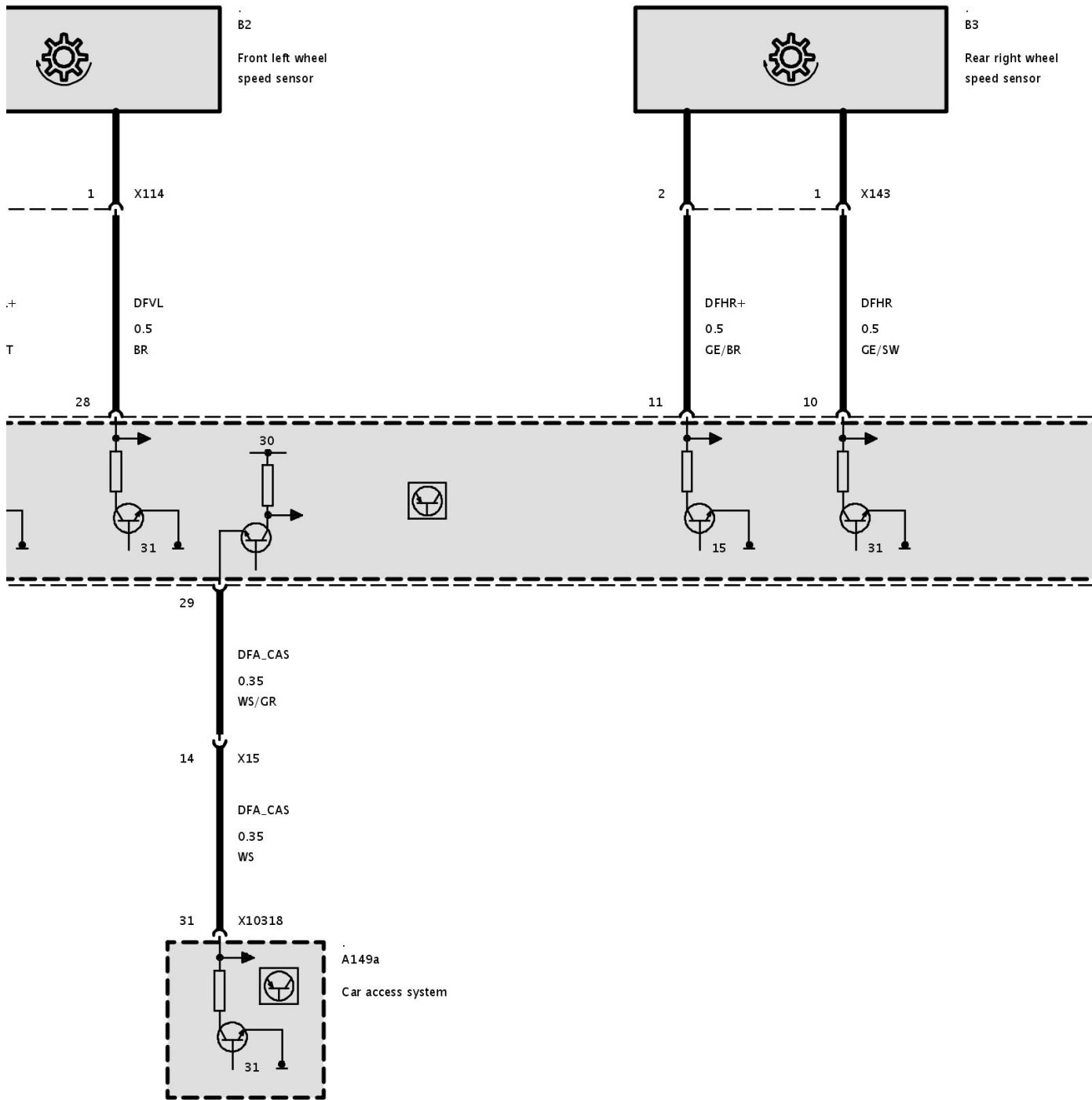
Part 3

Sensor System

Sensor System

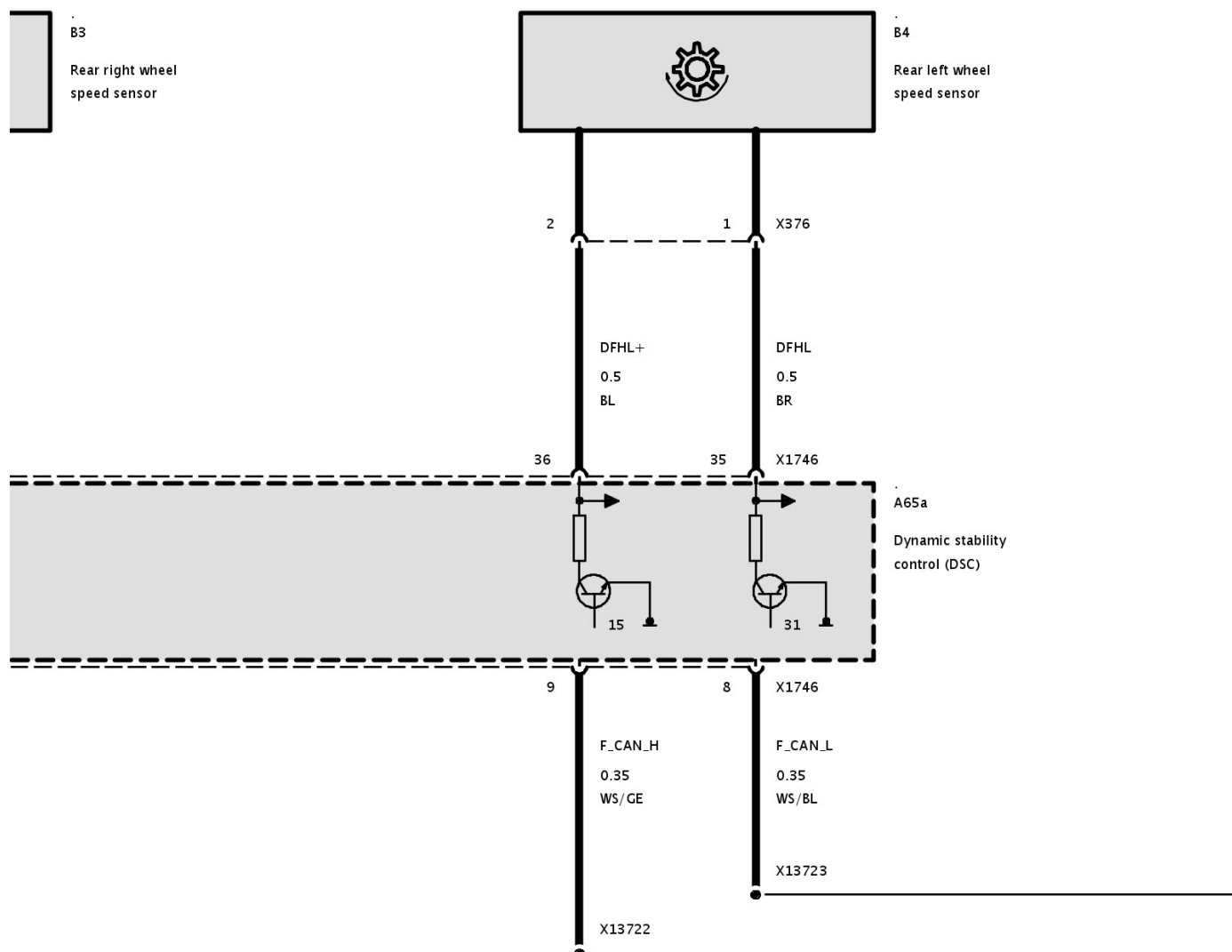


Part 1

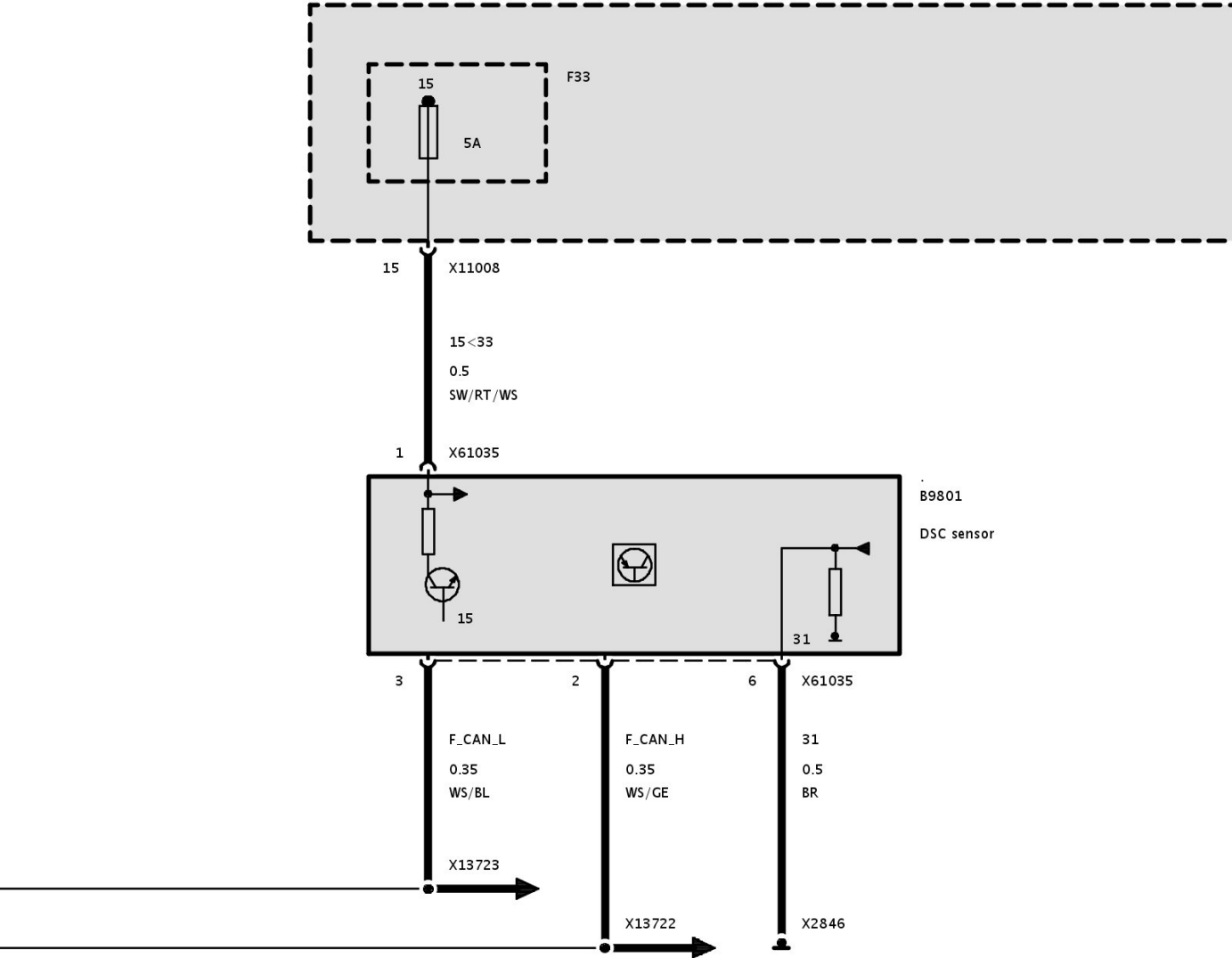


Part 2

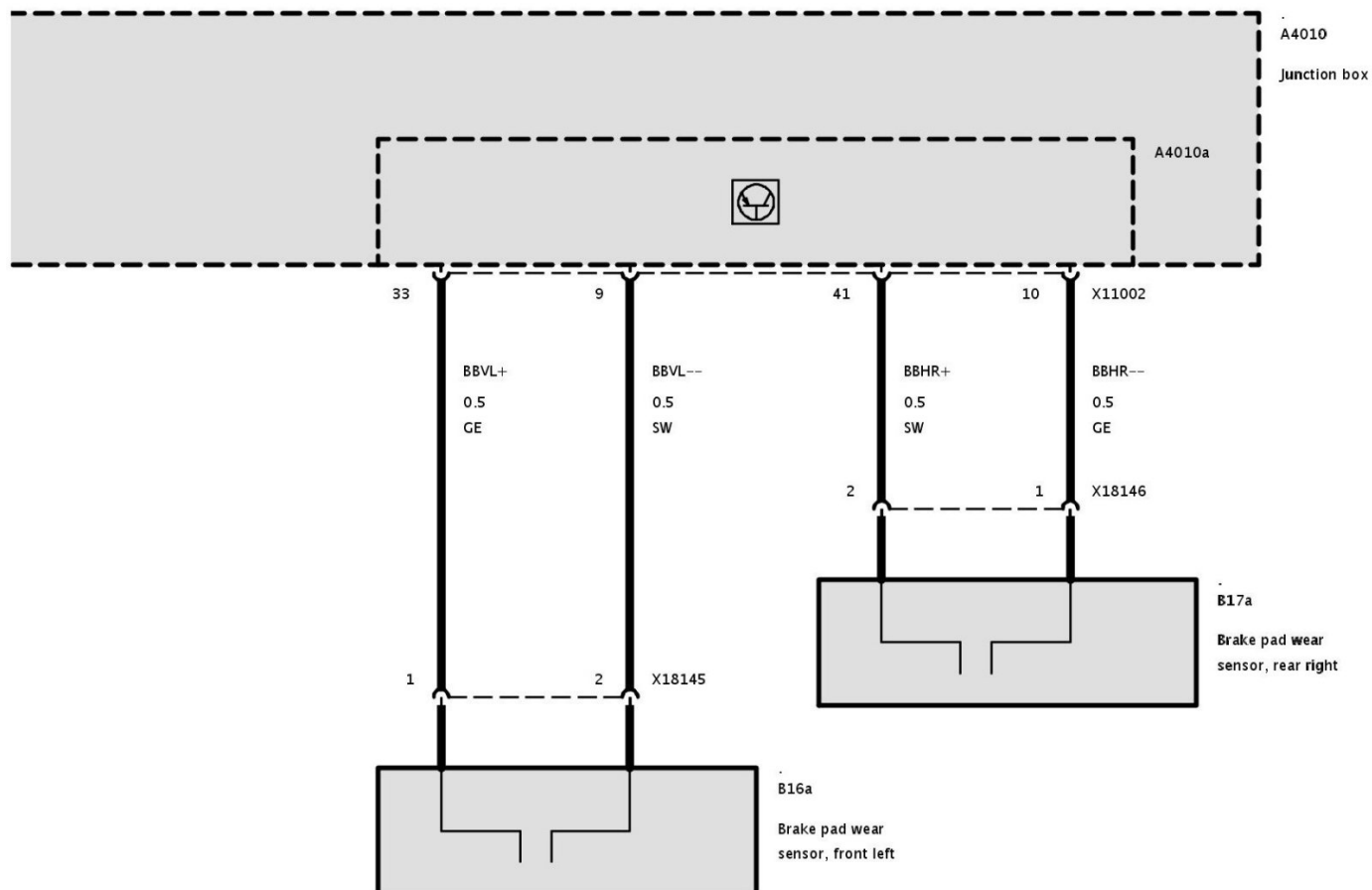




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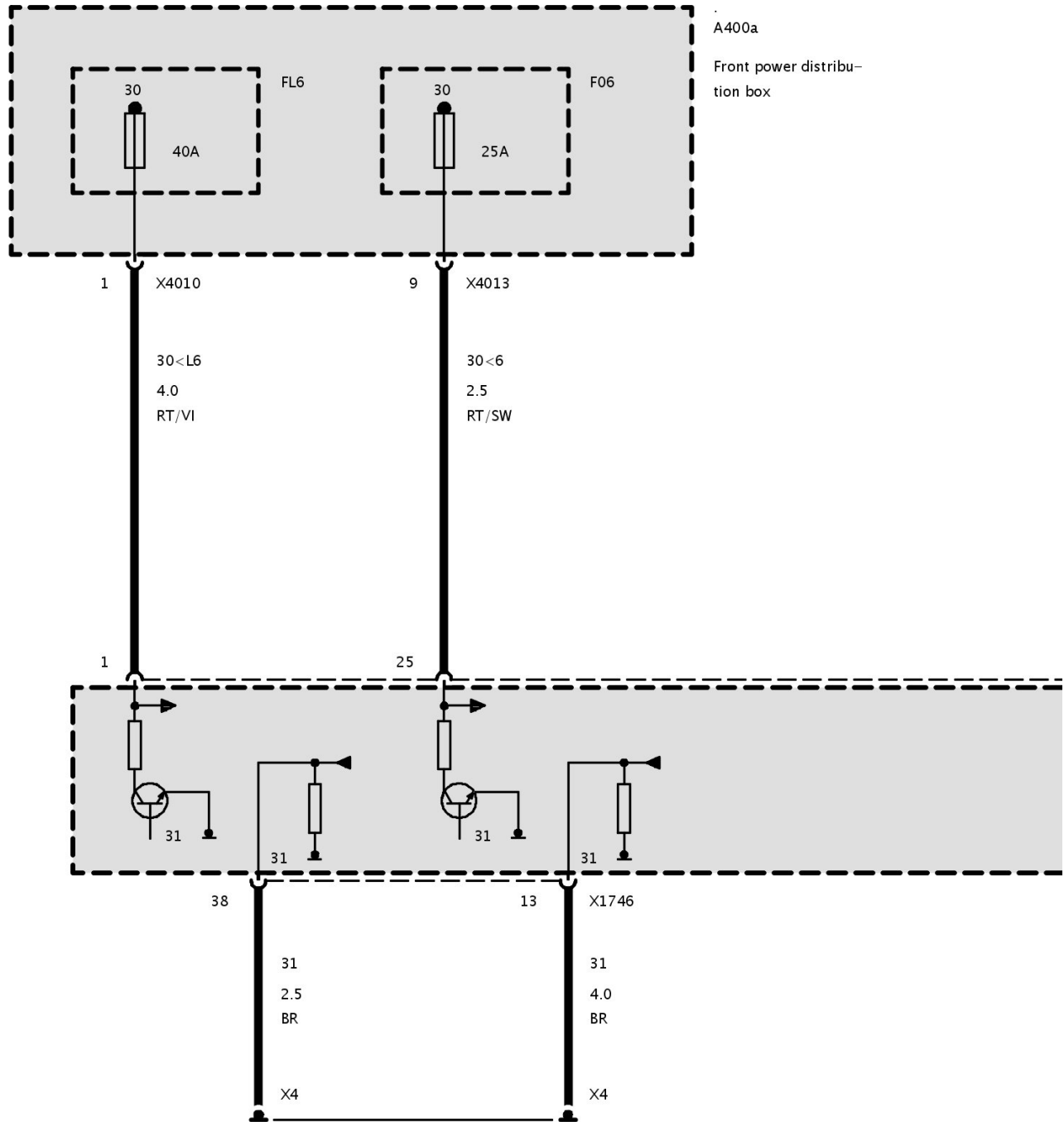
Part 4



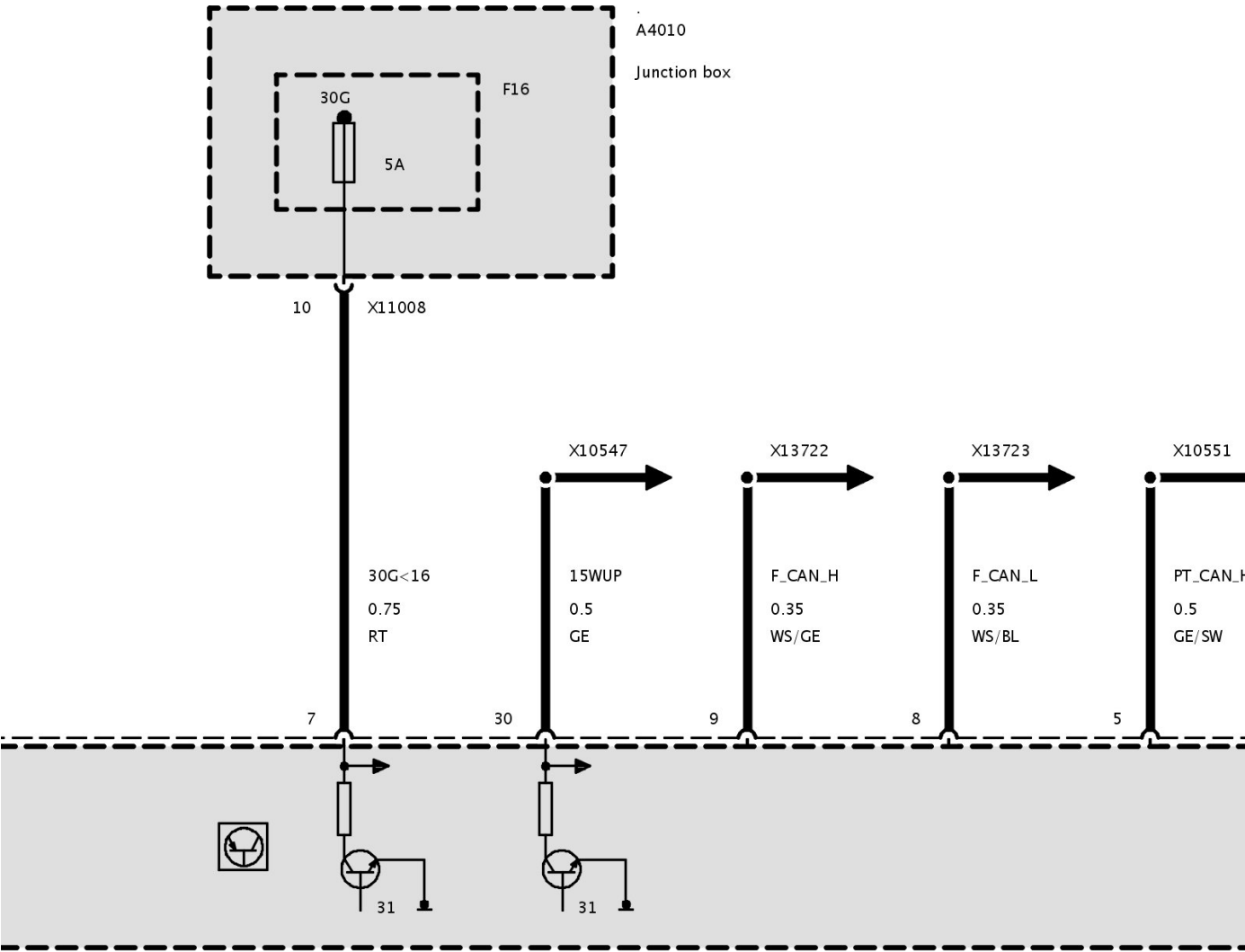
### Part 5

**Power Supply, Dynamic Stability Control DSC (As of 03/08 up to 12/08)**

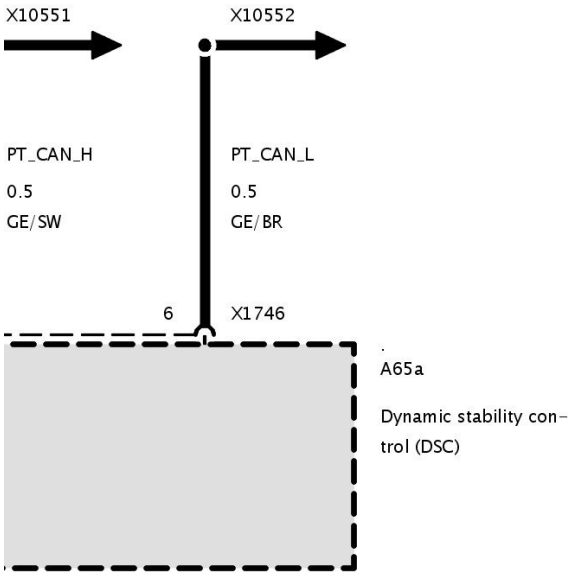
**Power Supply, Dynamic Stability Control DSC (As of 03/08 up to 12/08)**



Part 1



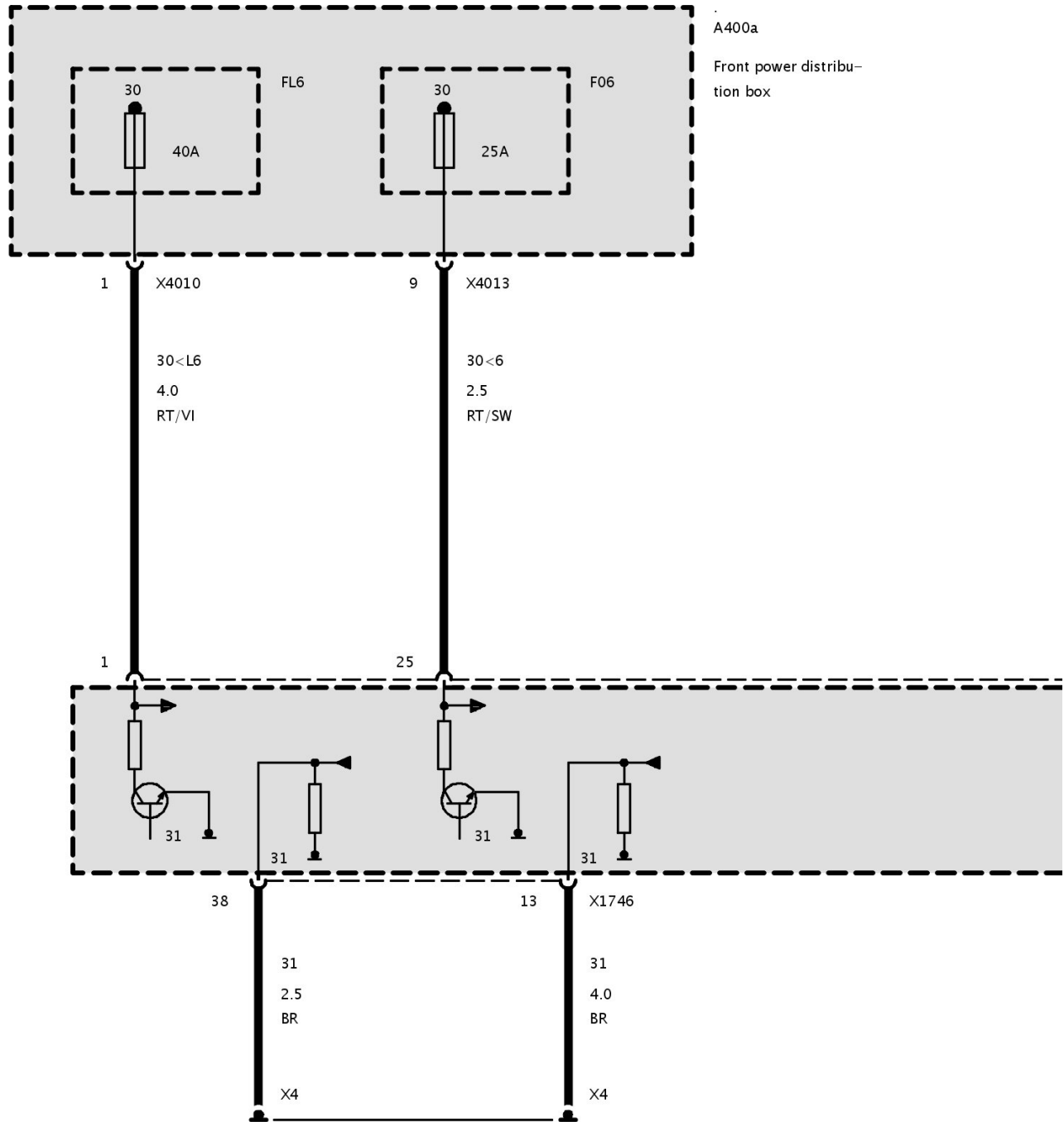
Part 2



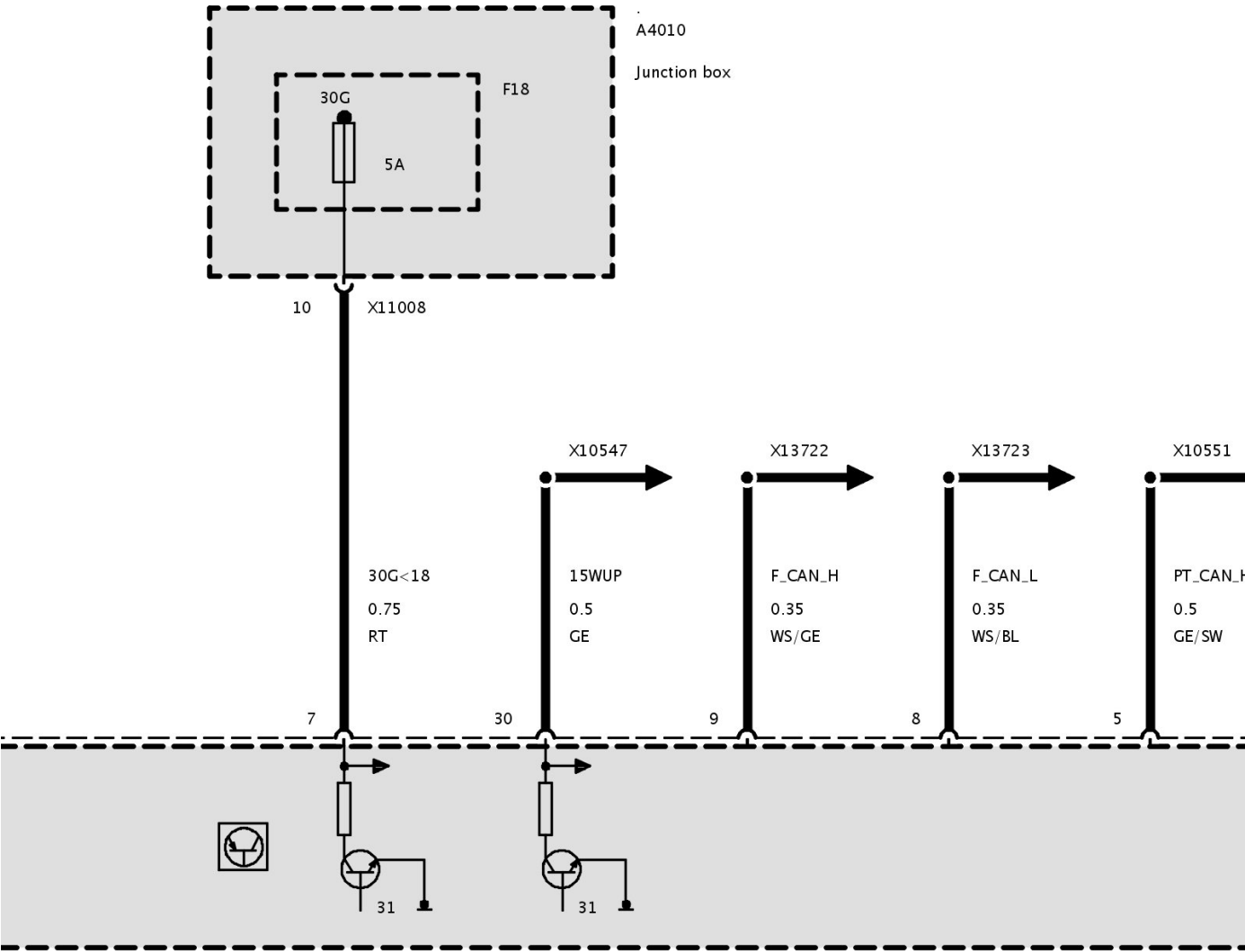
Part 3

Power Supply, Dynamic Stability Control DSC (As of 12/08)

Power Supply, Dynamic Stability Control DSC (As of 12/08)

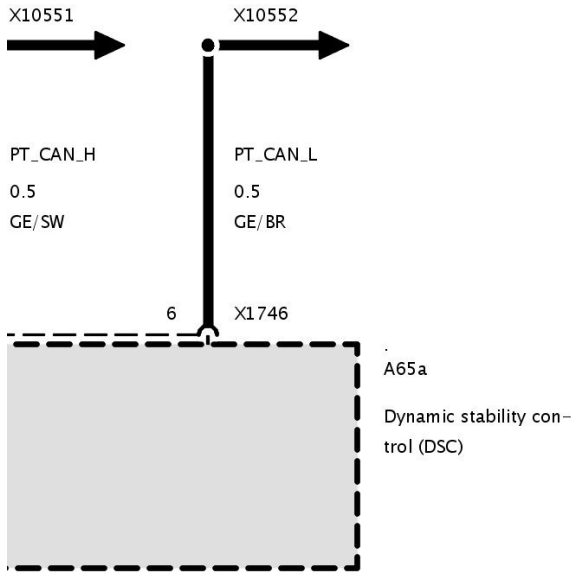


Part 1



Part 2

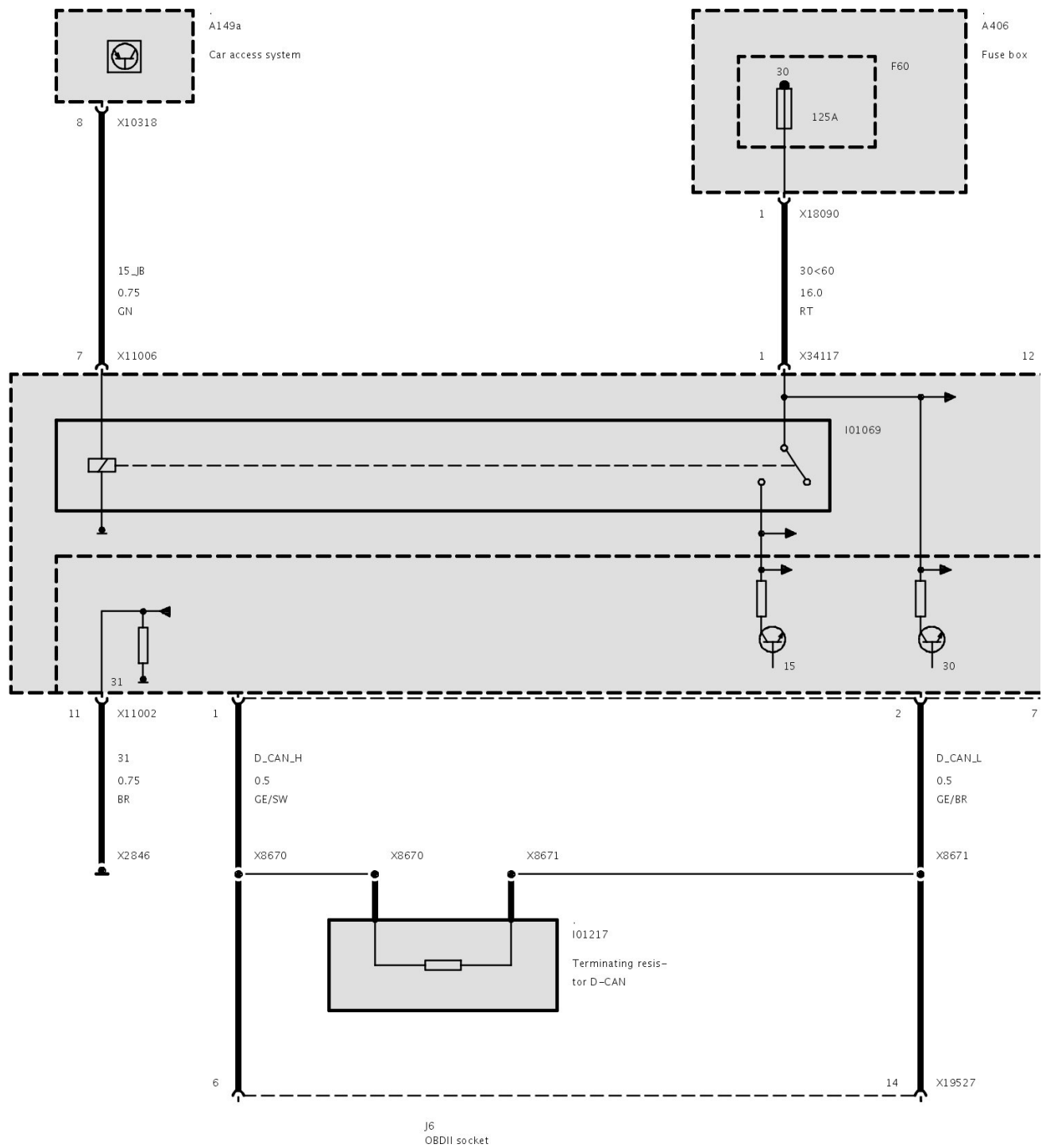




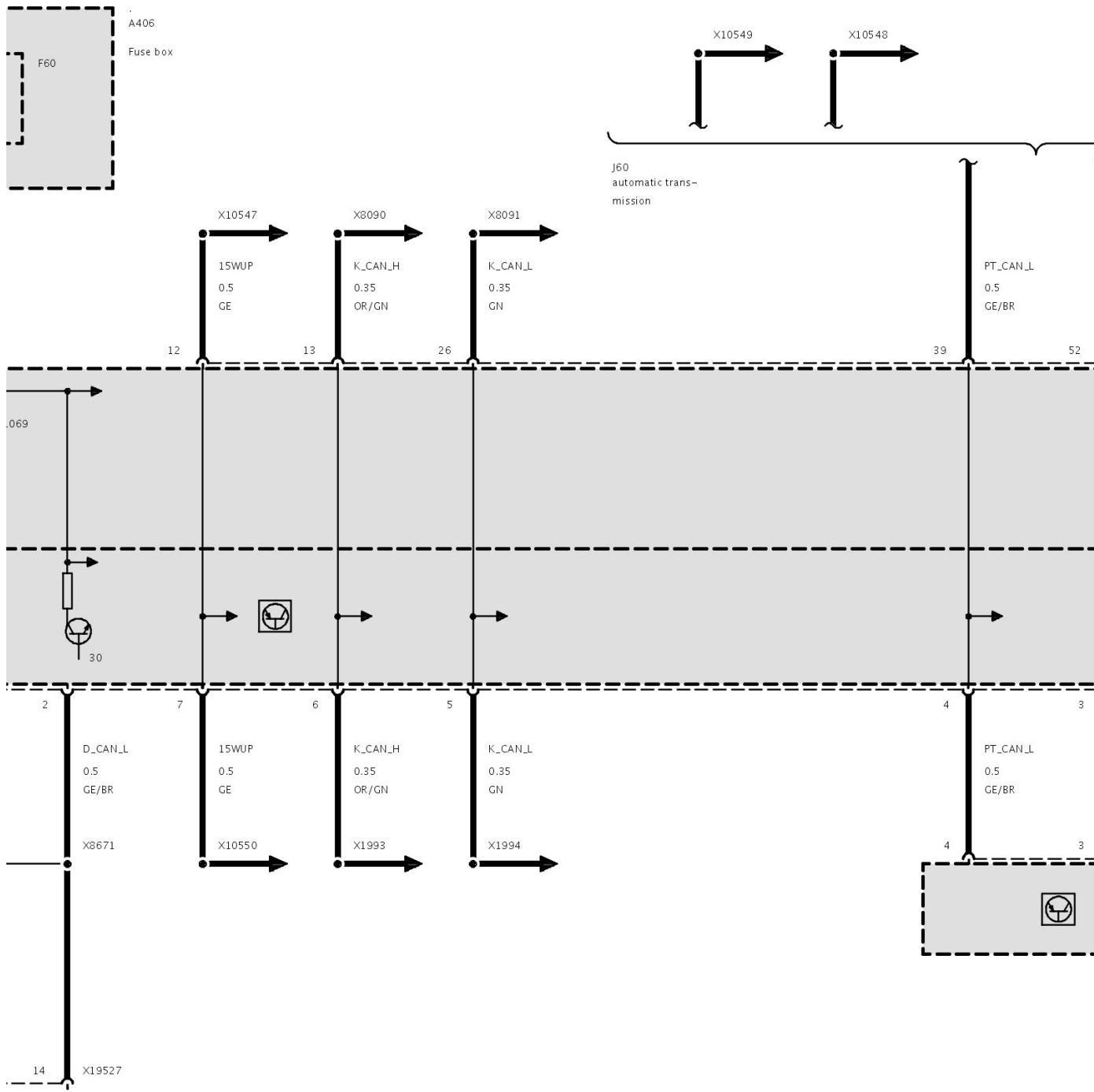
Part 3

Supply, JBE Junction-Box Electronics

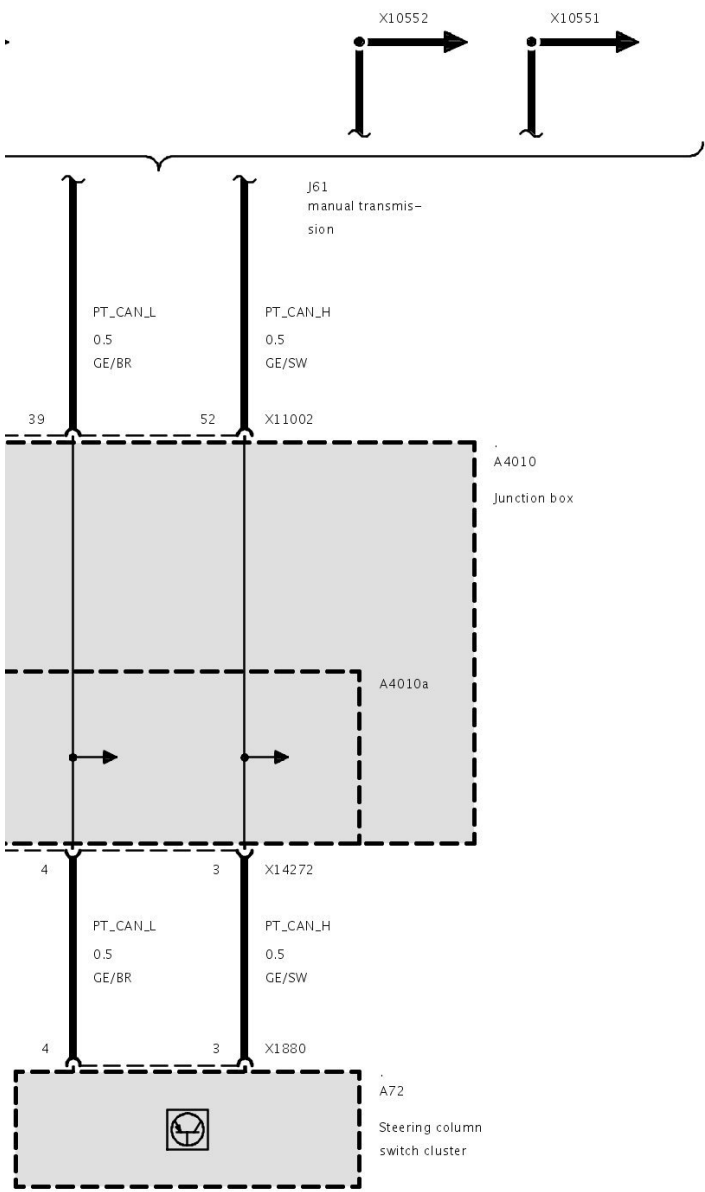
Power Supply JBE Junction Box, Electronics



Part 1



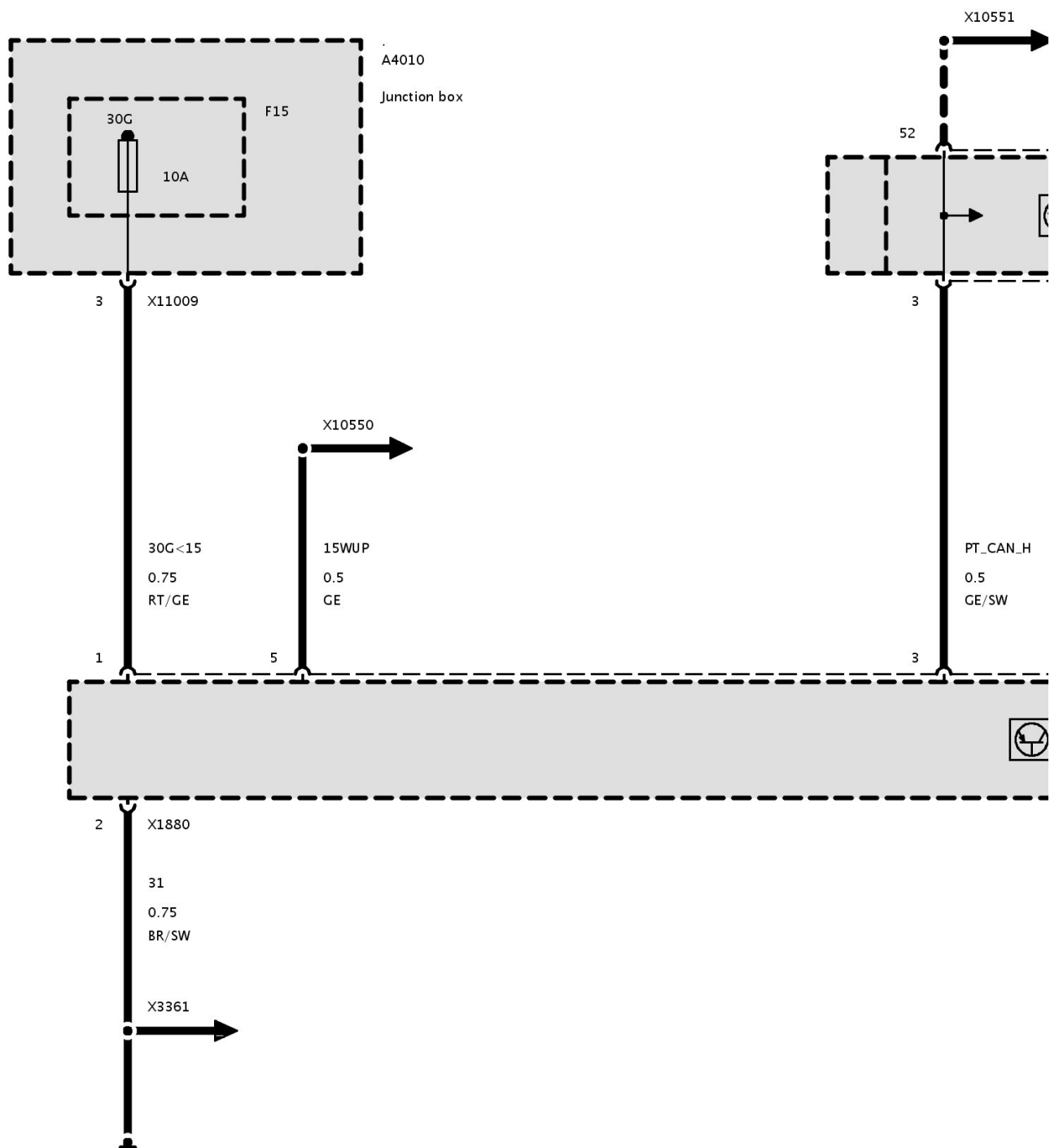
Part 2



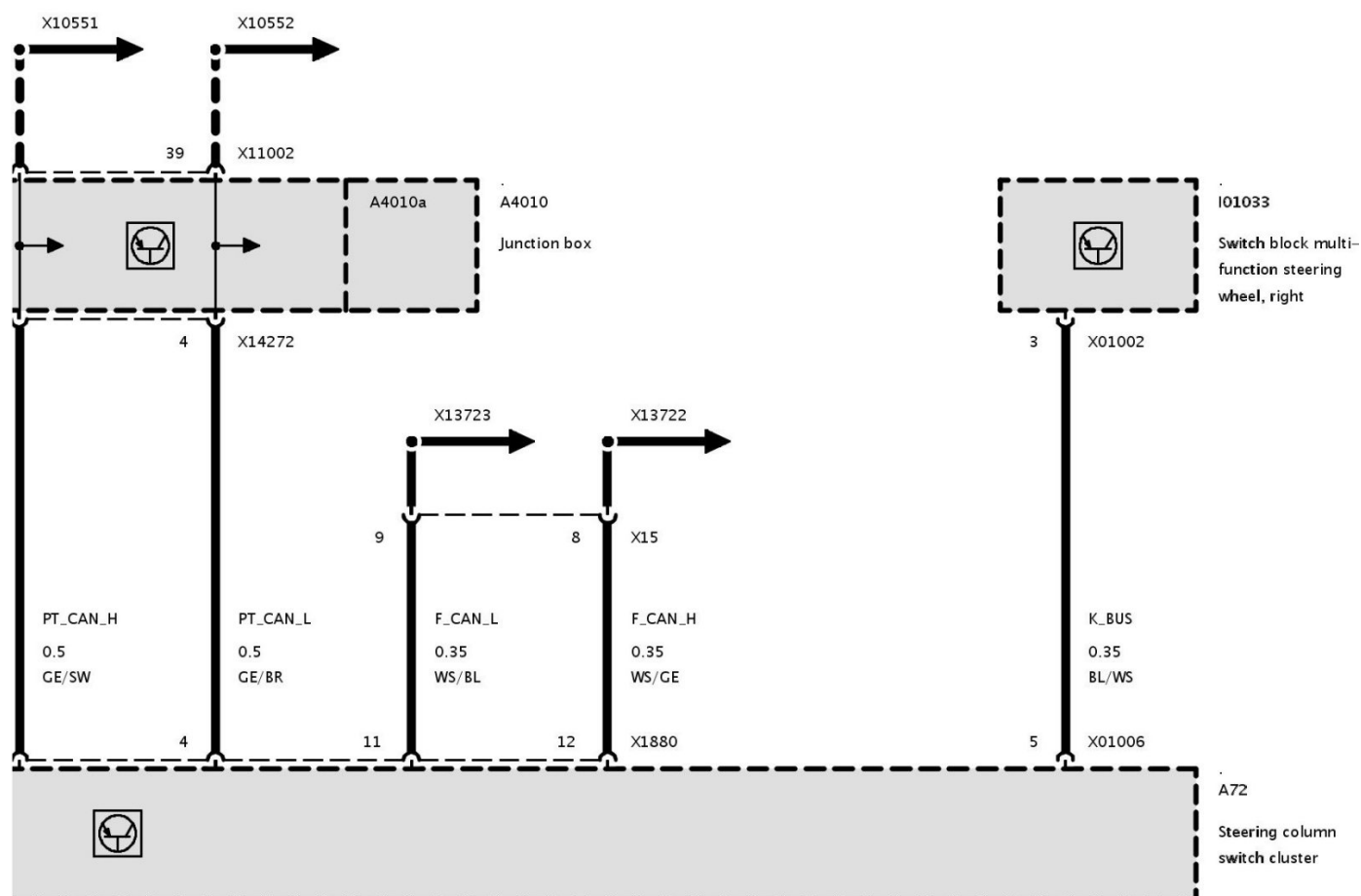
Part 3

Supply, Steering Column Switch Cluster SZL (Up to 12/08)

Supply, Steering Column Switch Cluster SZL (Up to 12/08)



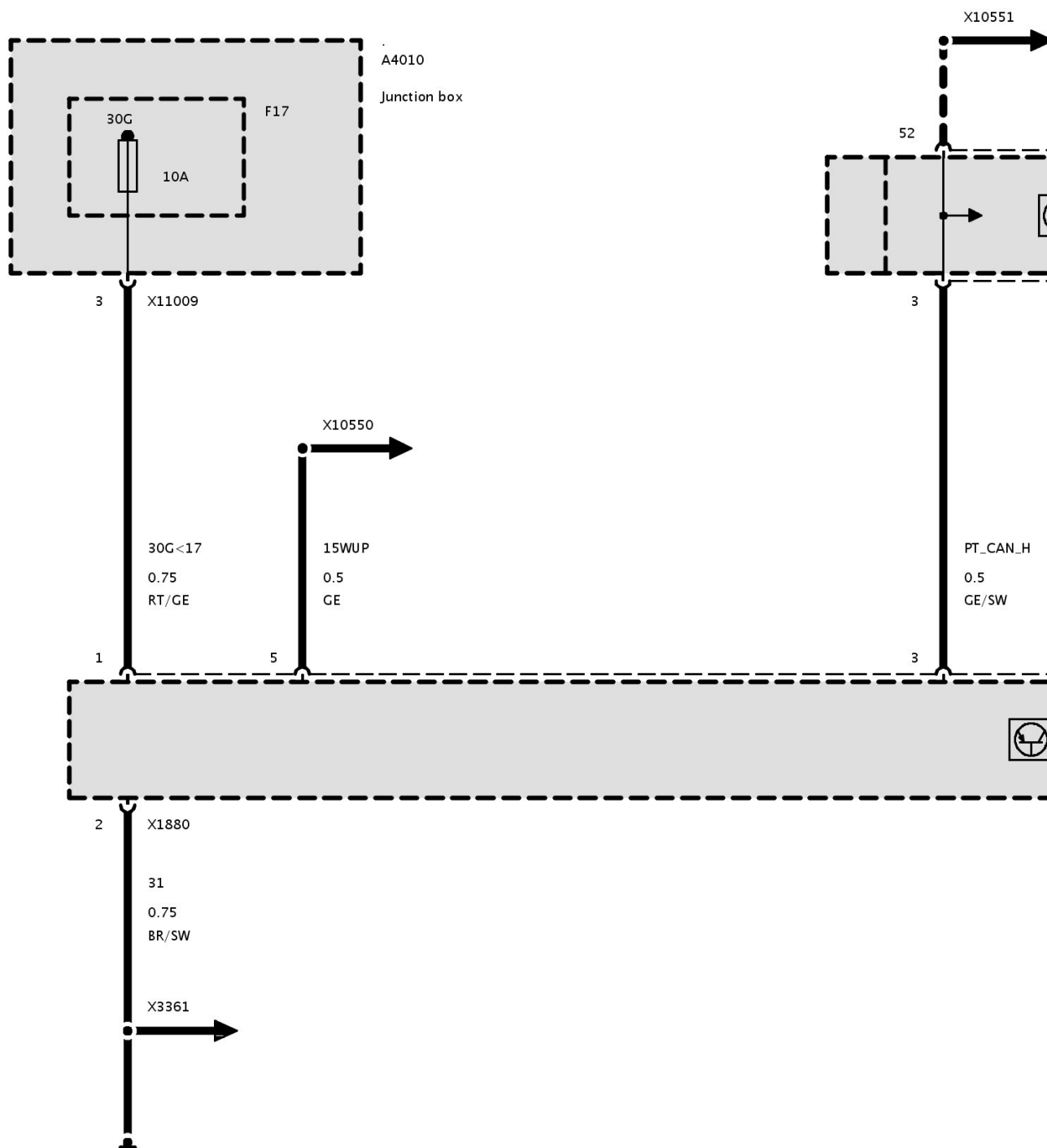
Part 1



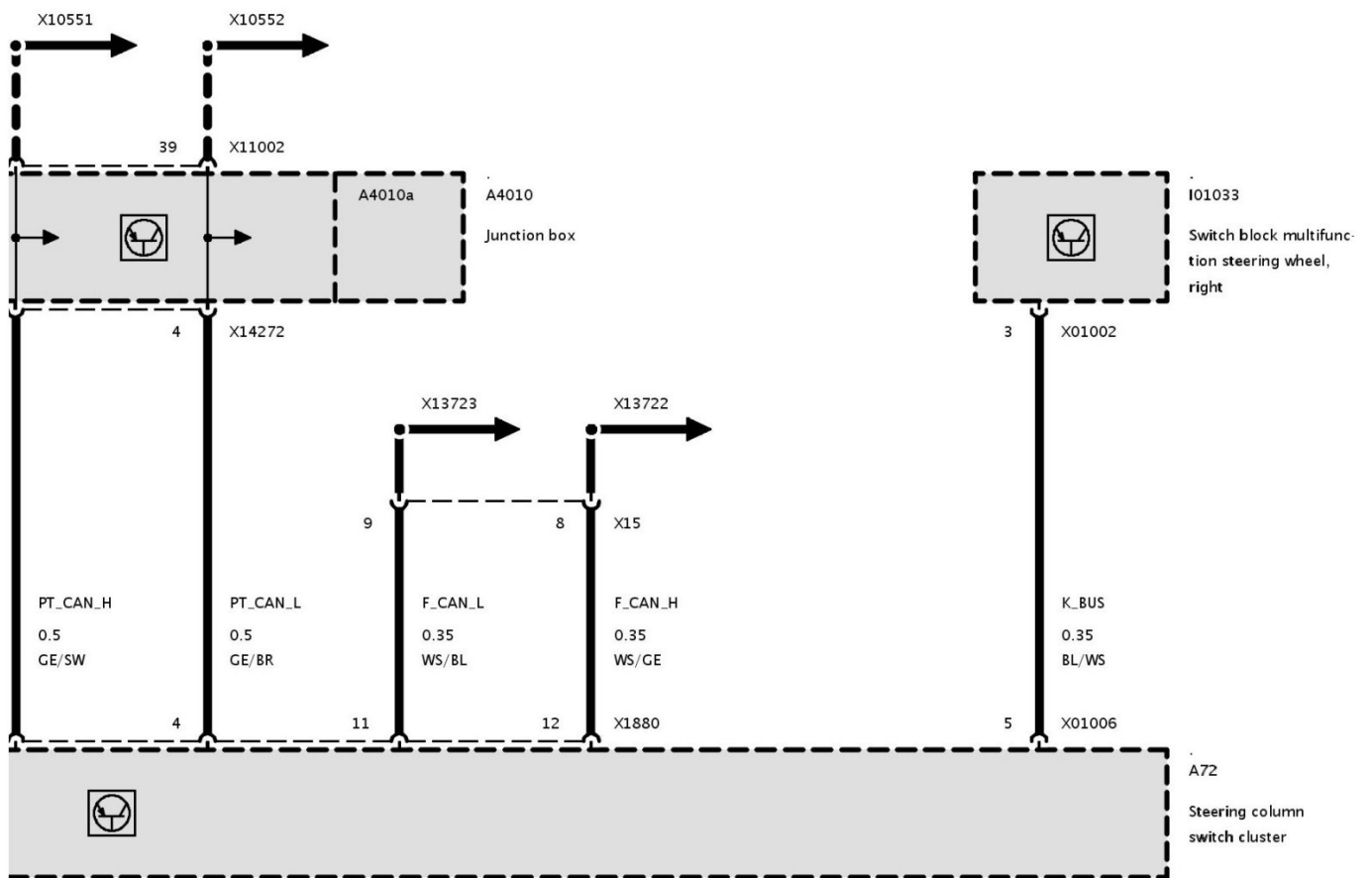
## Part 2

Supply, Steering Column Switch Cluster SZL (As of 12/08)

Supply, Steering Column Switch Cluster SZL (As of 12/08)



Part 1

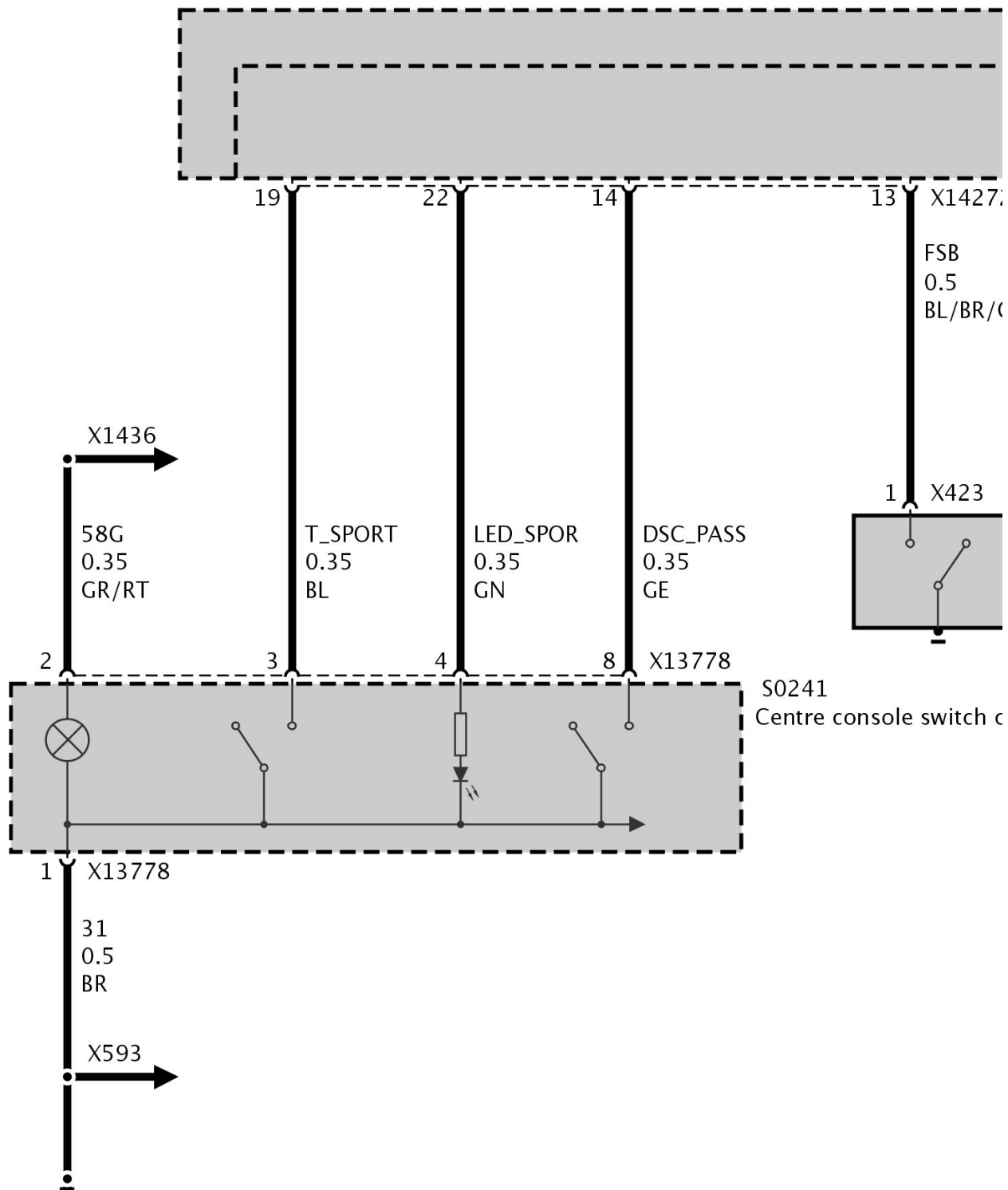


## Part 2

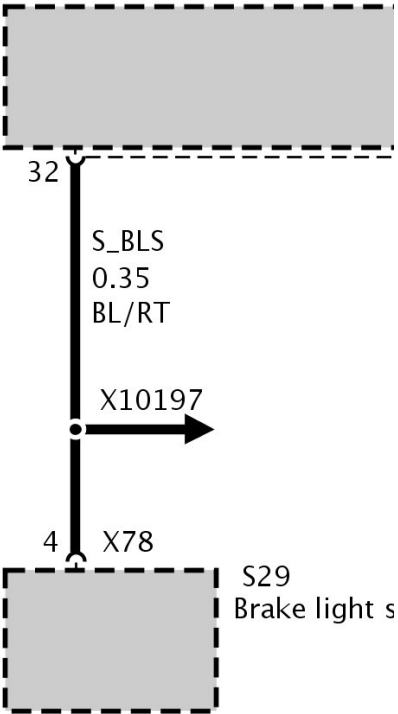
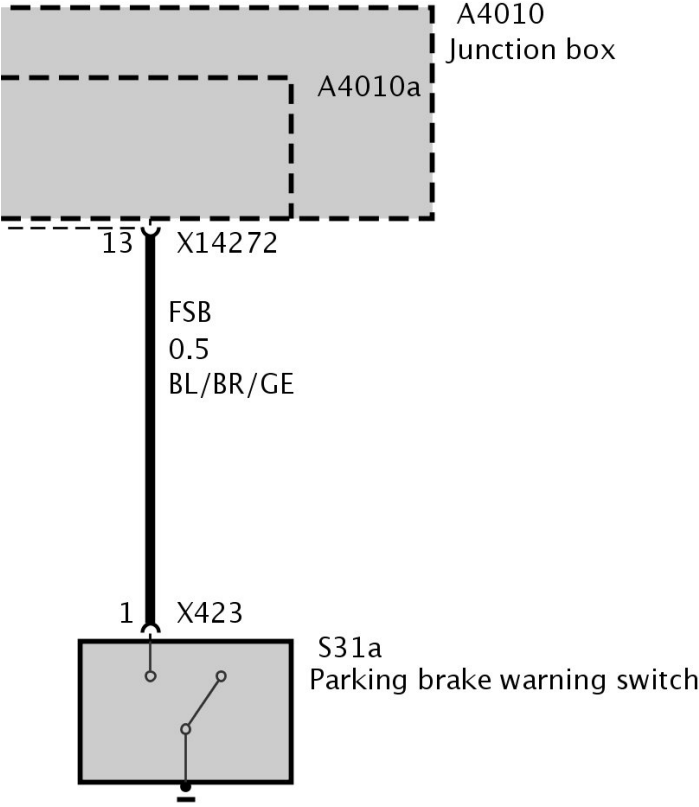
### Switch Function DSC

#### Switch Function DSC



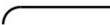


Part 1

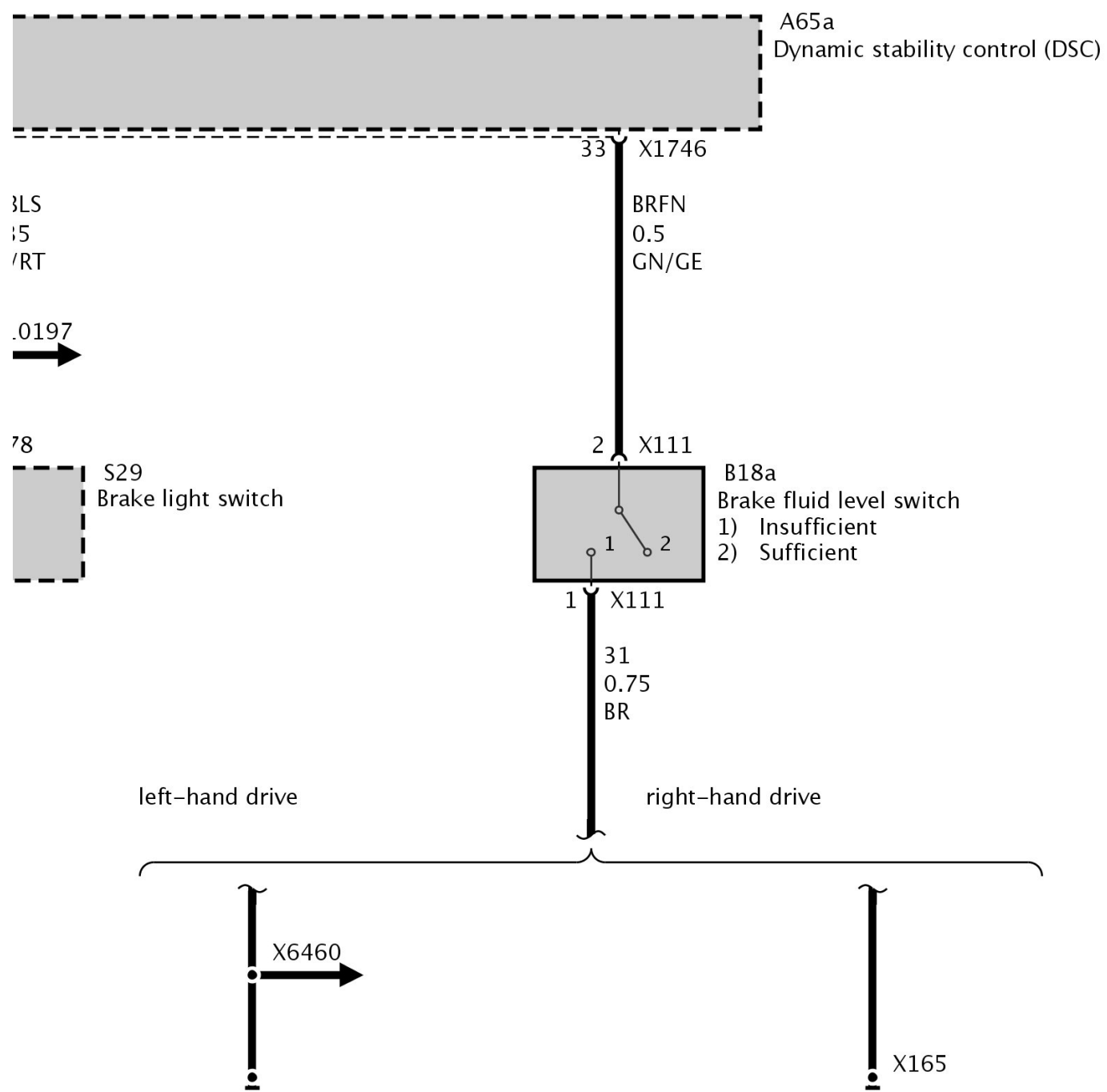


241  
itre console switch cluster

left-han



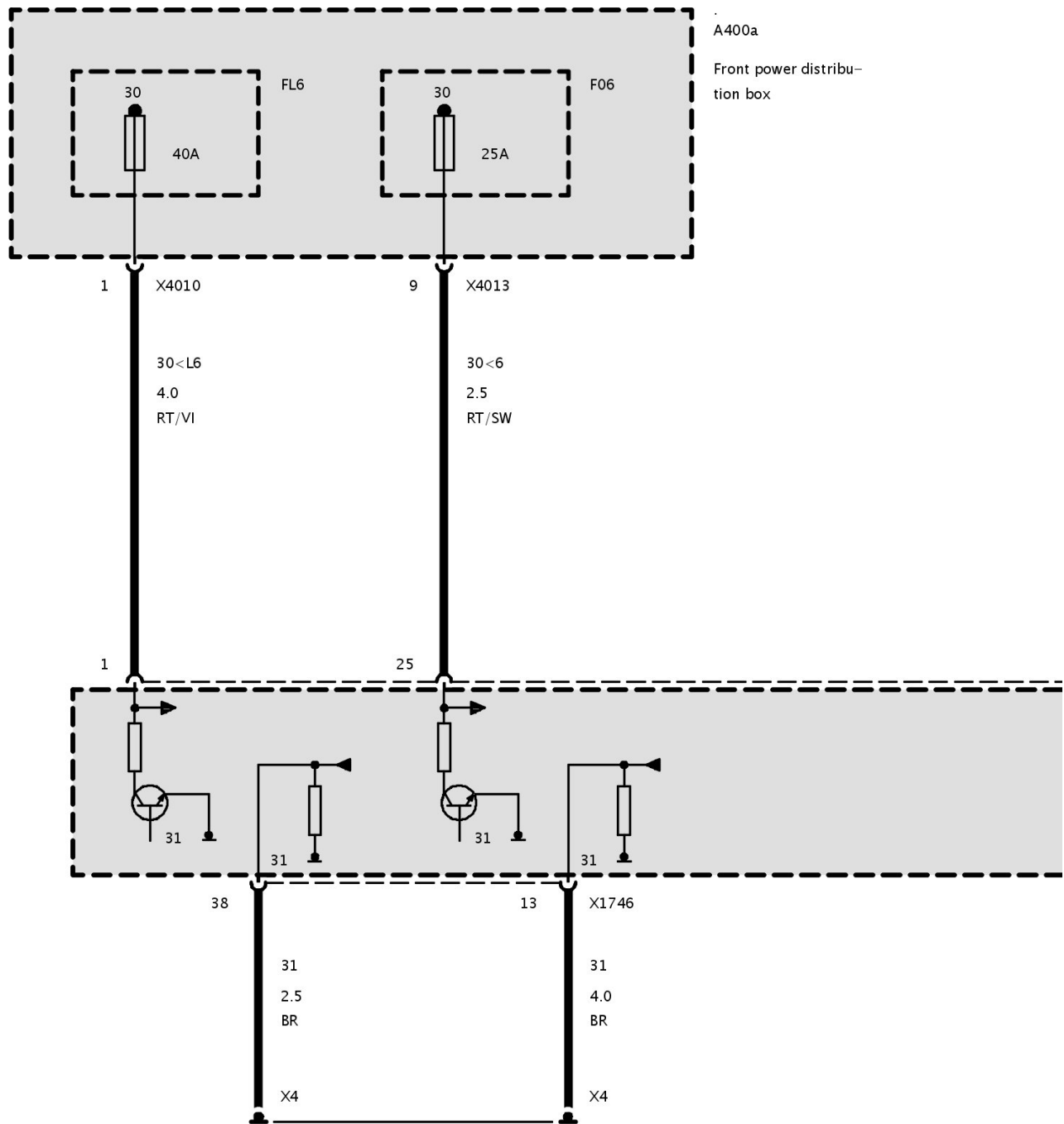
Part 2



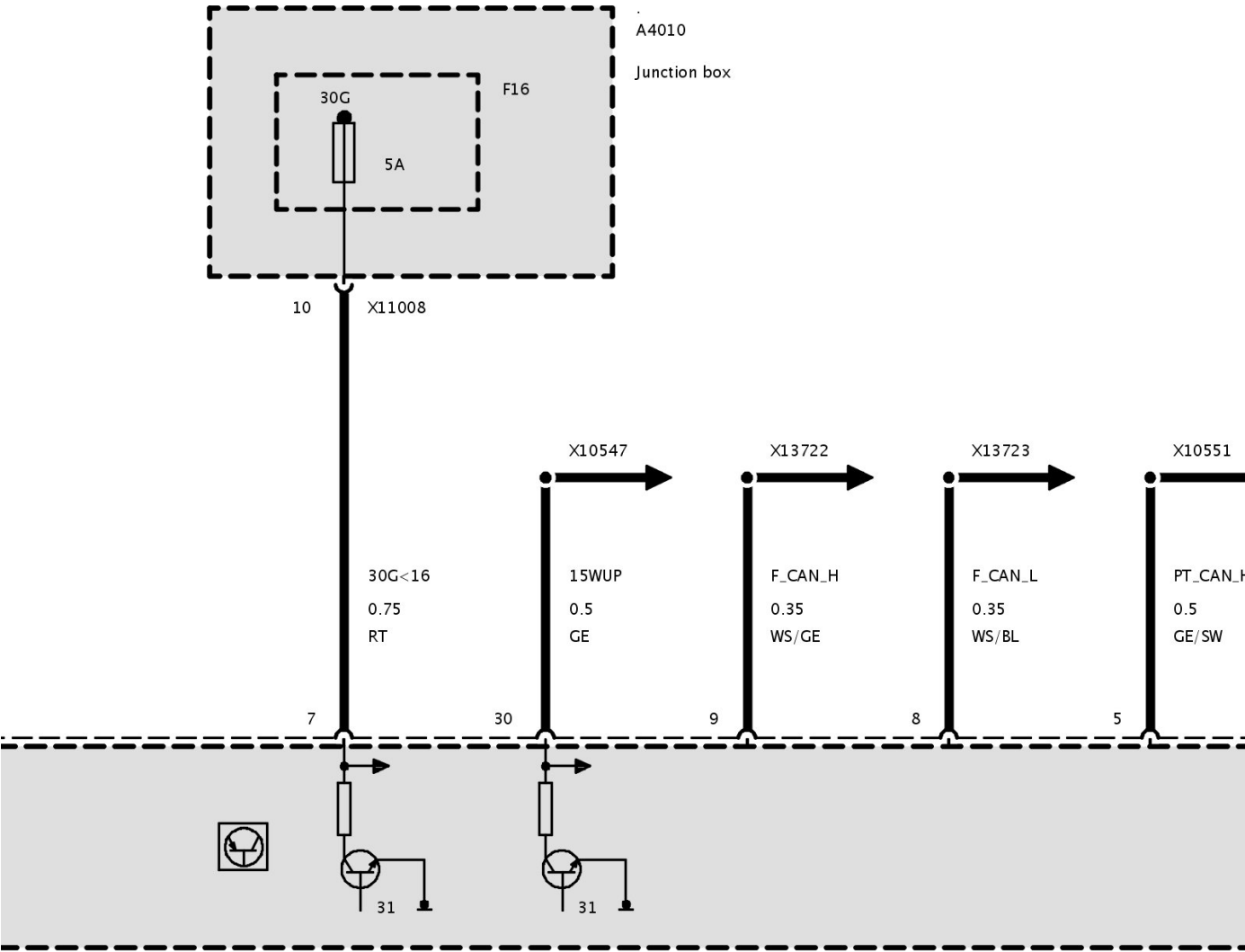
Part 3

Power Supply, Dynamic Stability Control DSC (As of 03/08 up to 12/08)

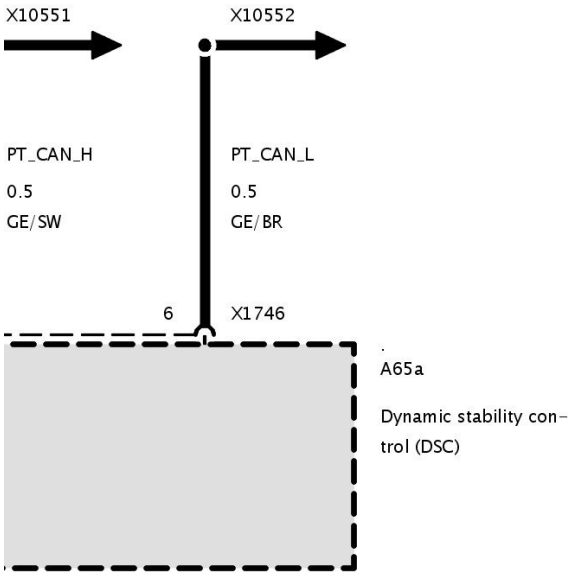
Power Supply, Dynamic Stability Control DSC (As of 03/08 up to 12/08)



Part 1



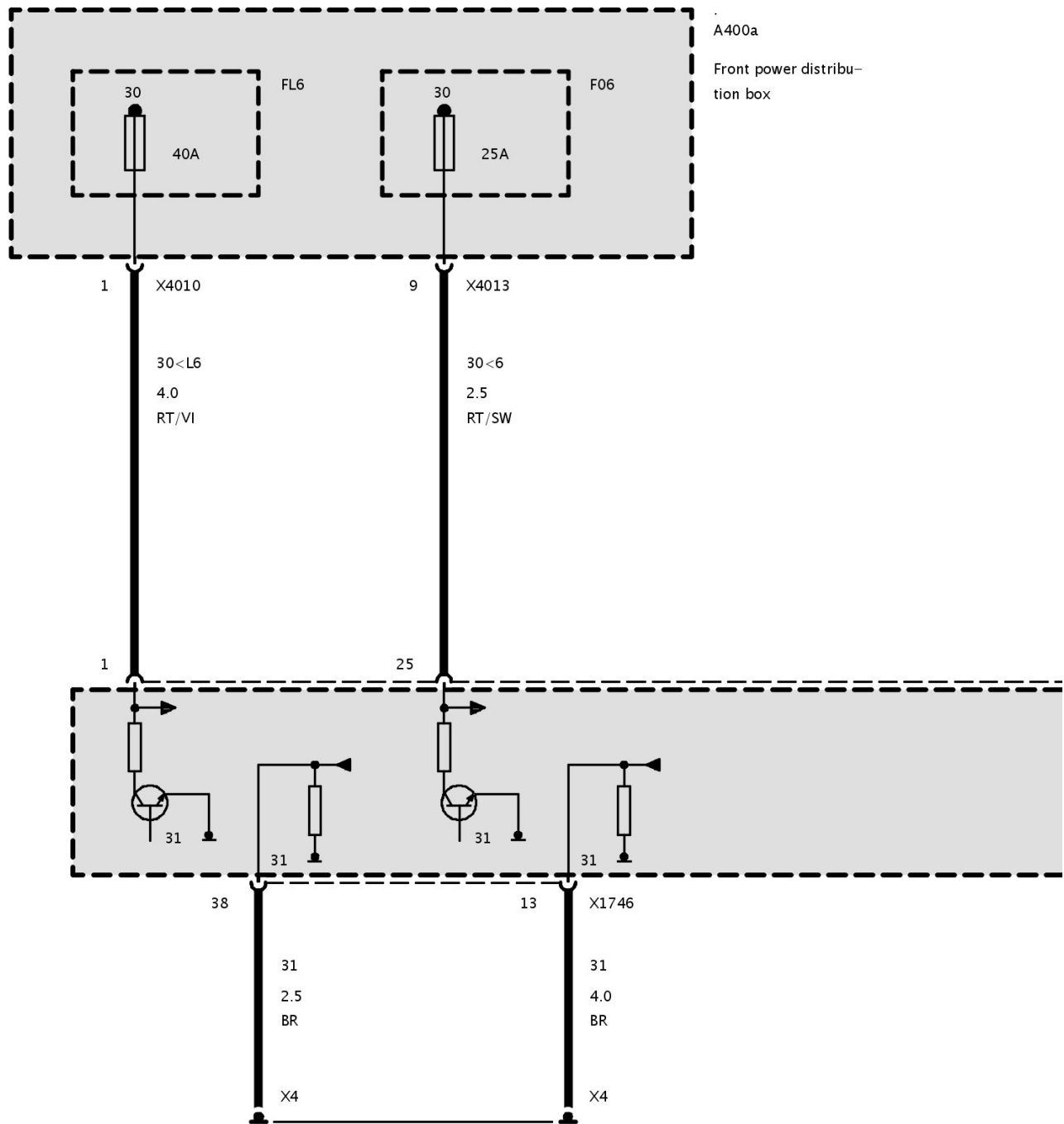
Part 2



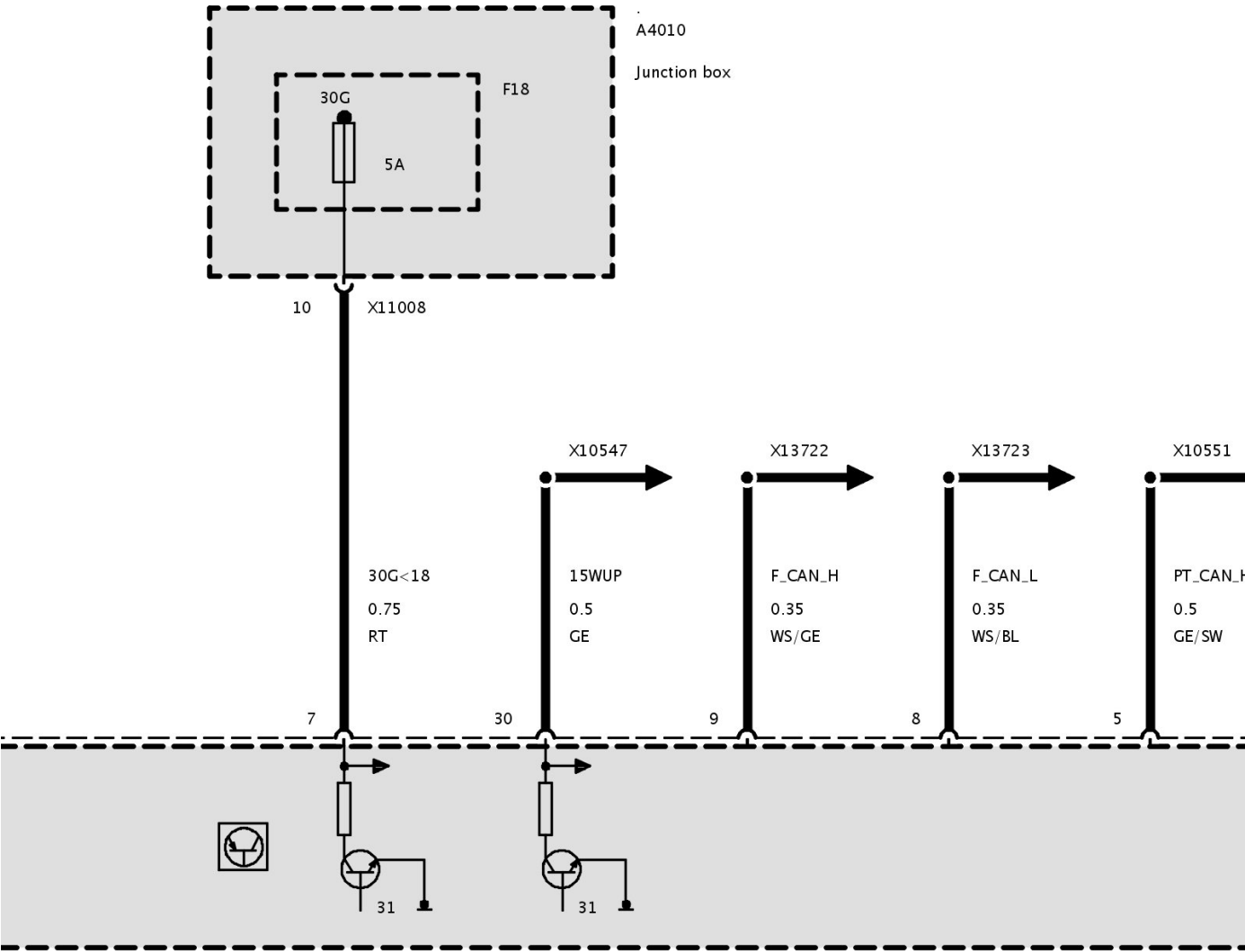
**Part 3**

**Power Supply, Dynamic Stability Control DSC (As of 12/08)**

Power Supply, Dynamic Stability Control DSC (As of 12/08)

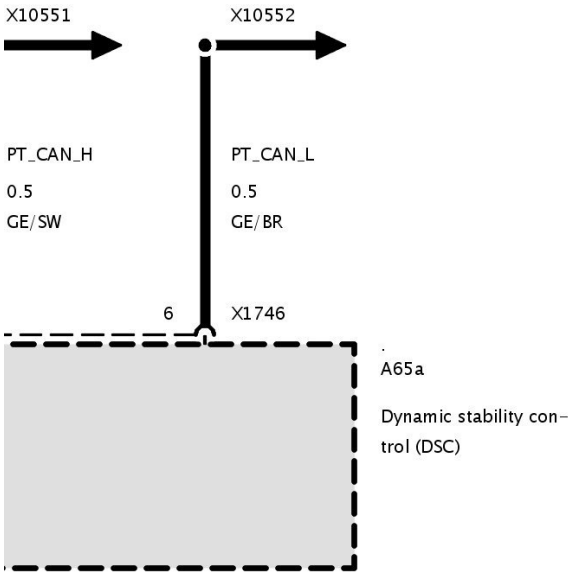


Part 1



Part 2

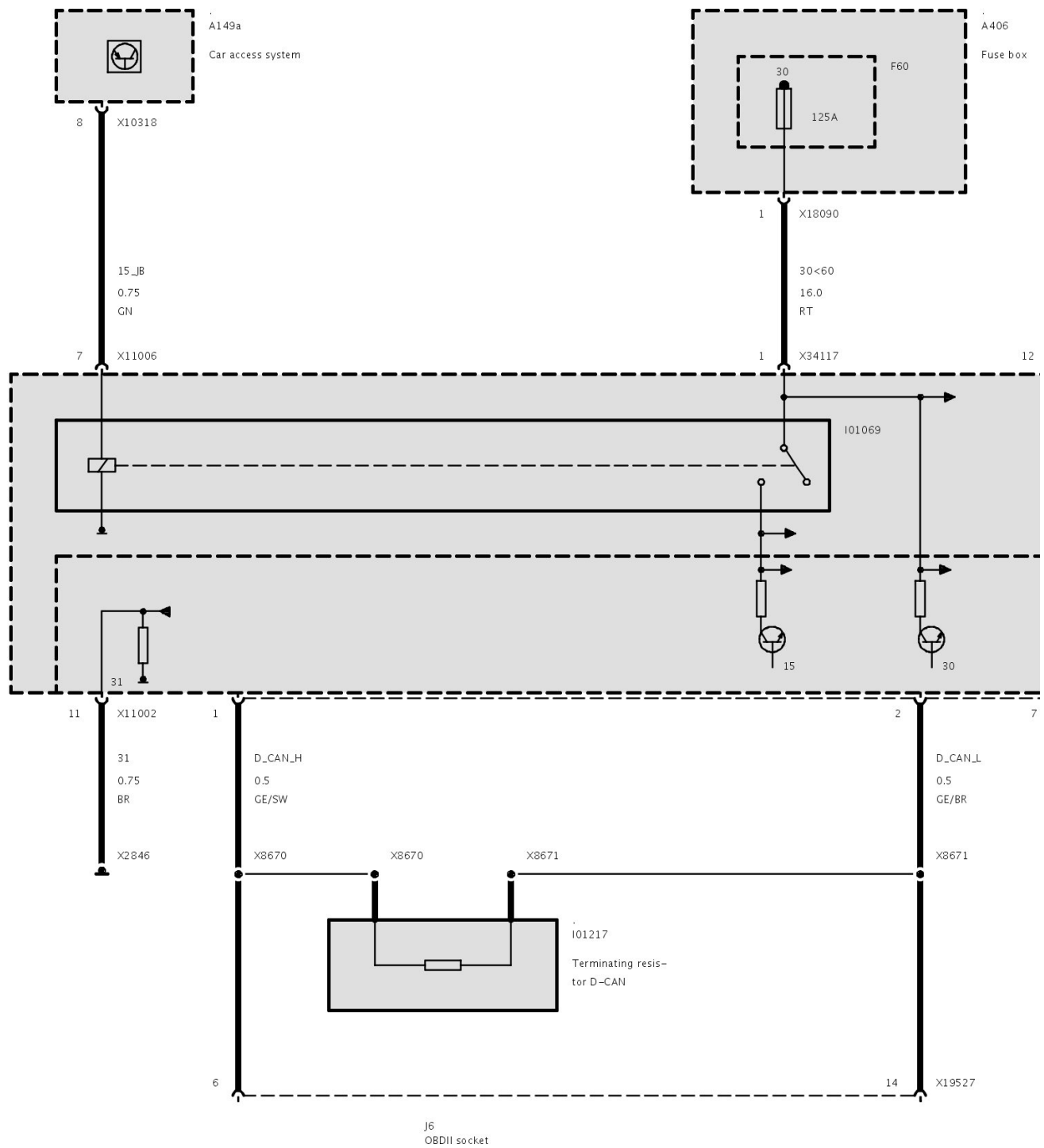




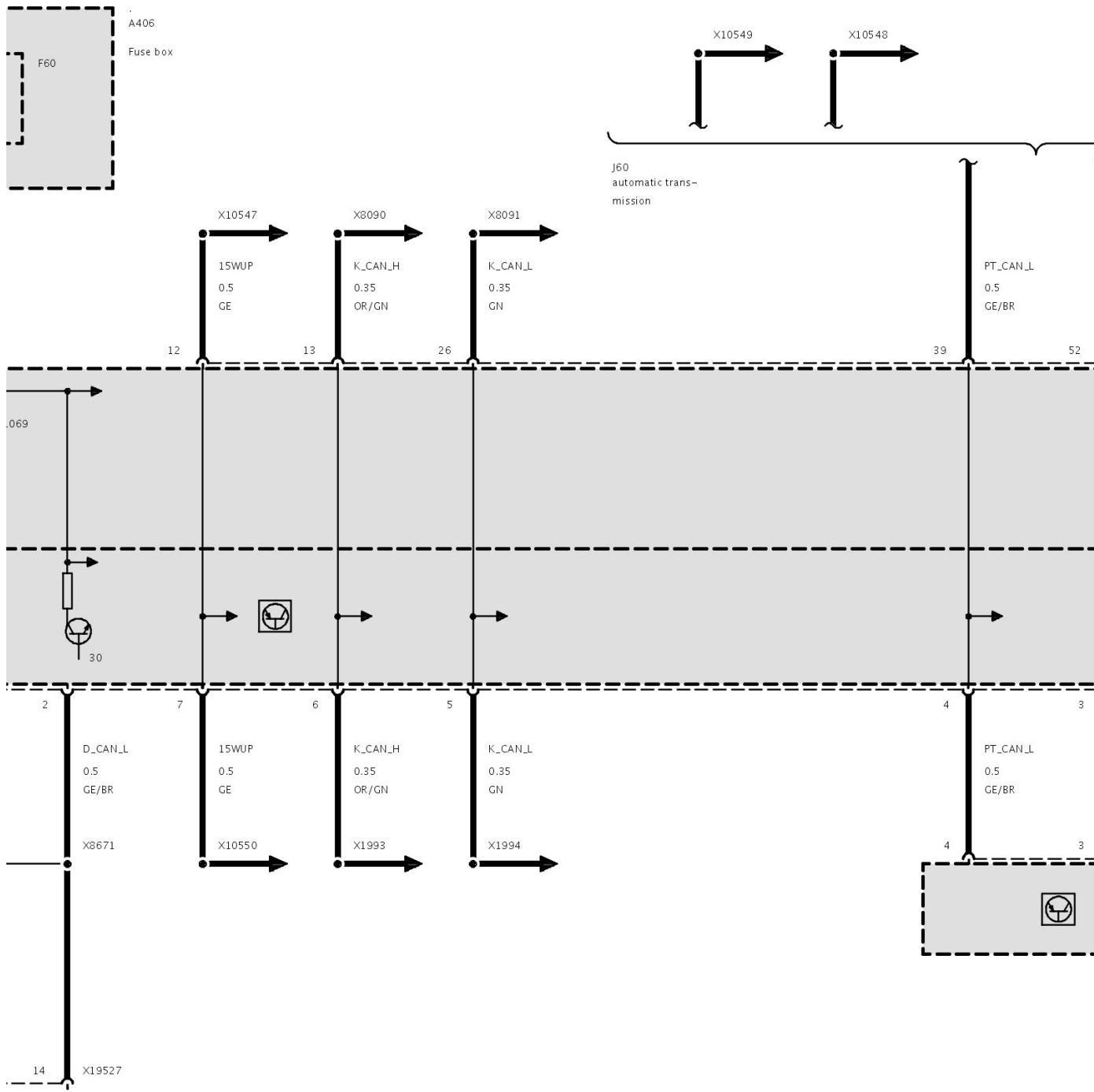
Part 3

Supply, JBE Junction-Box Electronics

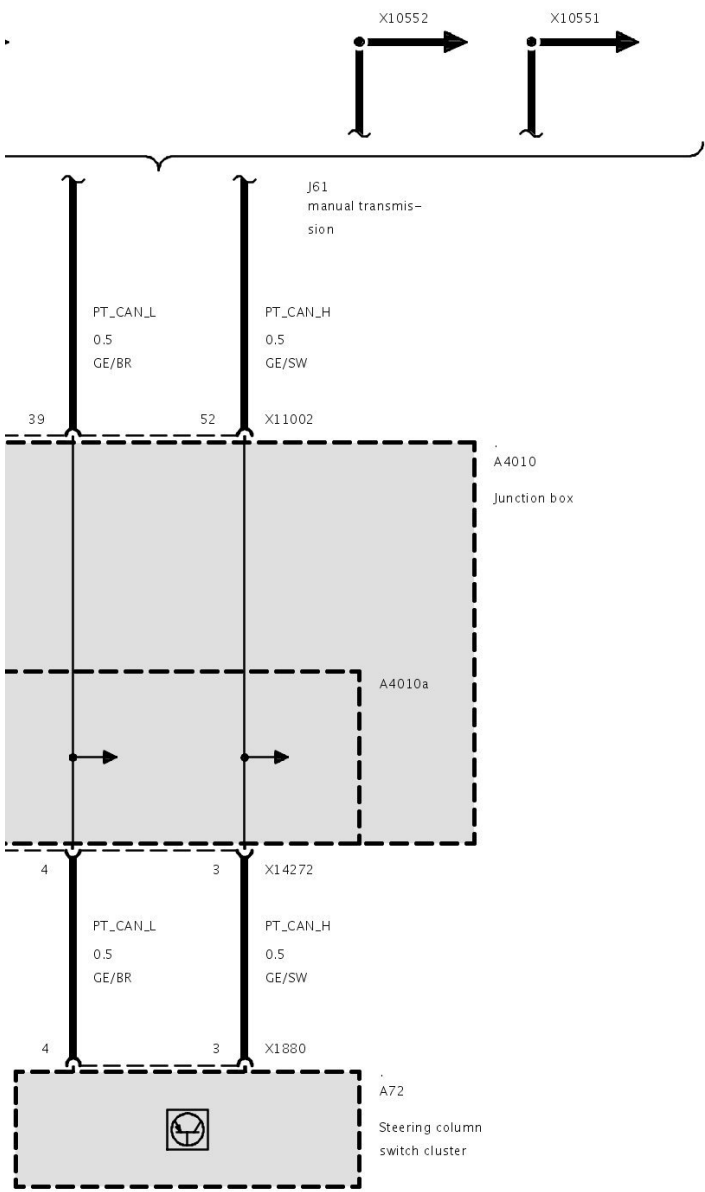
Power Supply JBE Junction Box, Electronics



### Part 1



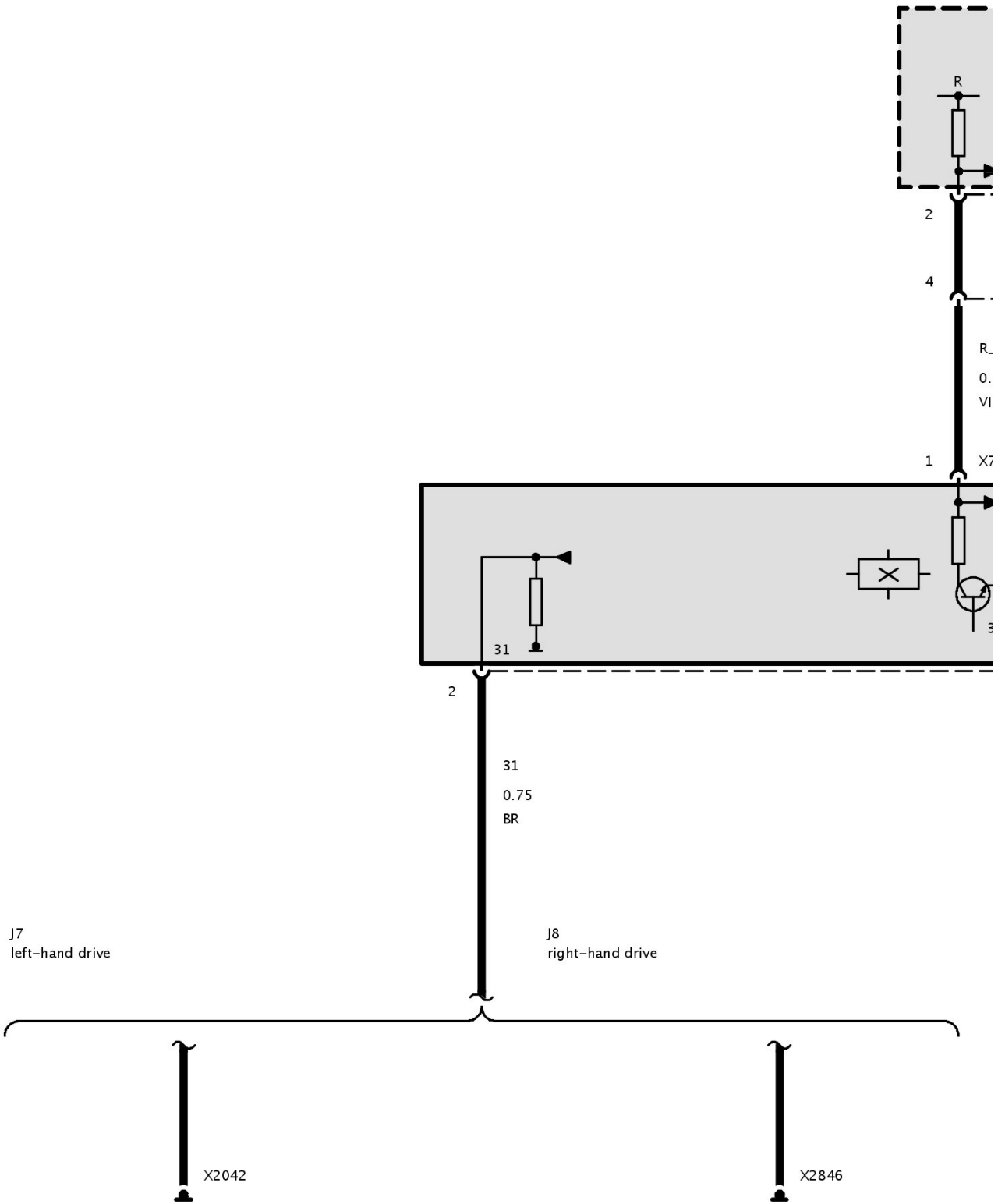
Part 2



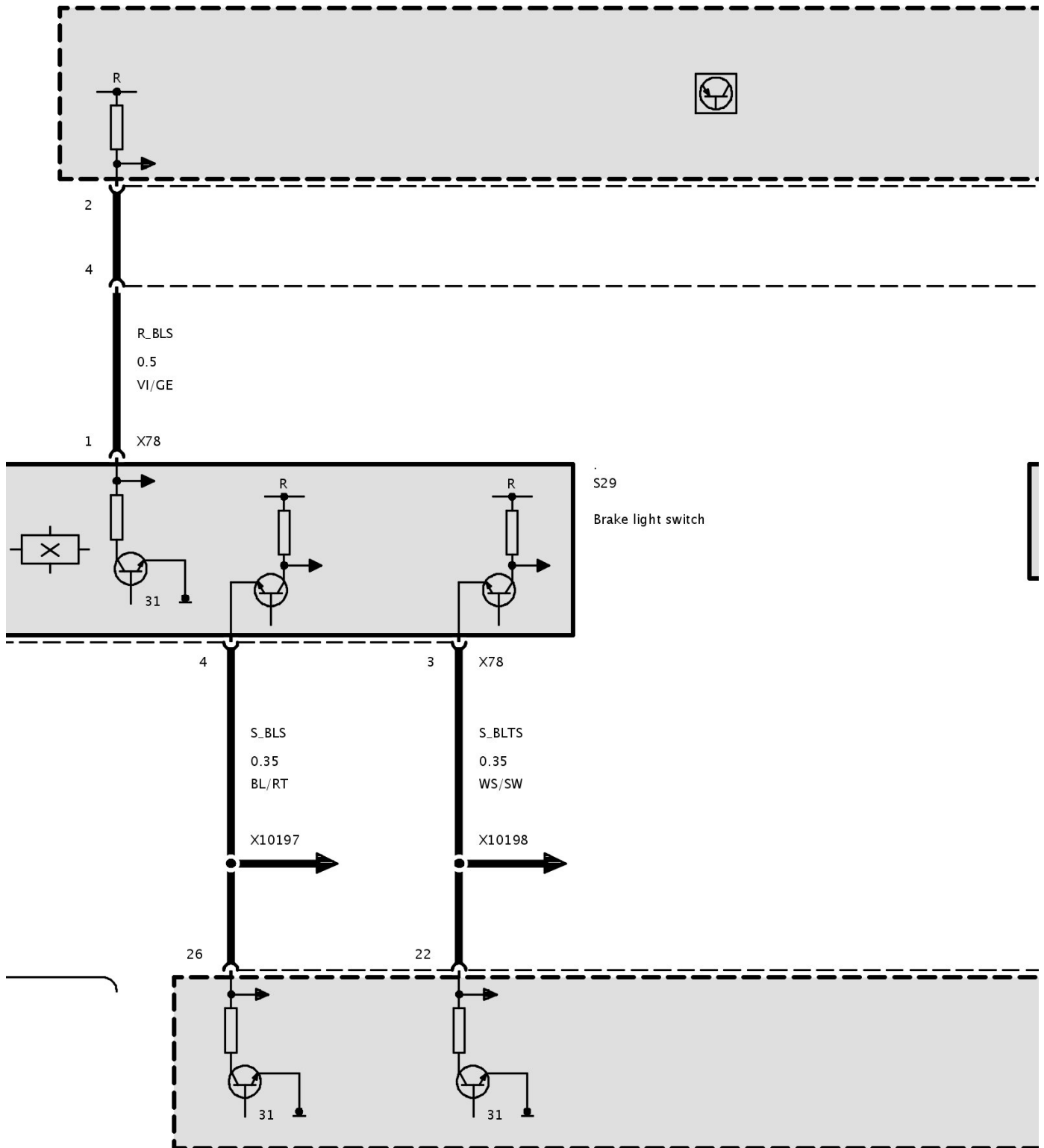
Part 3

Brake Light Switch

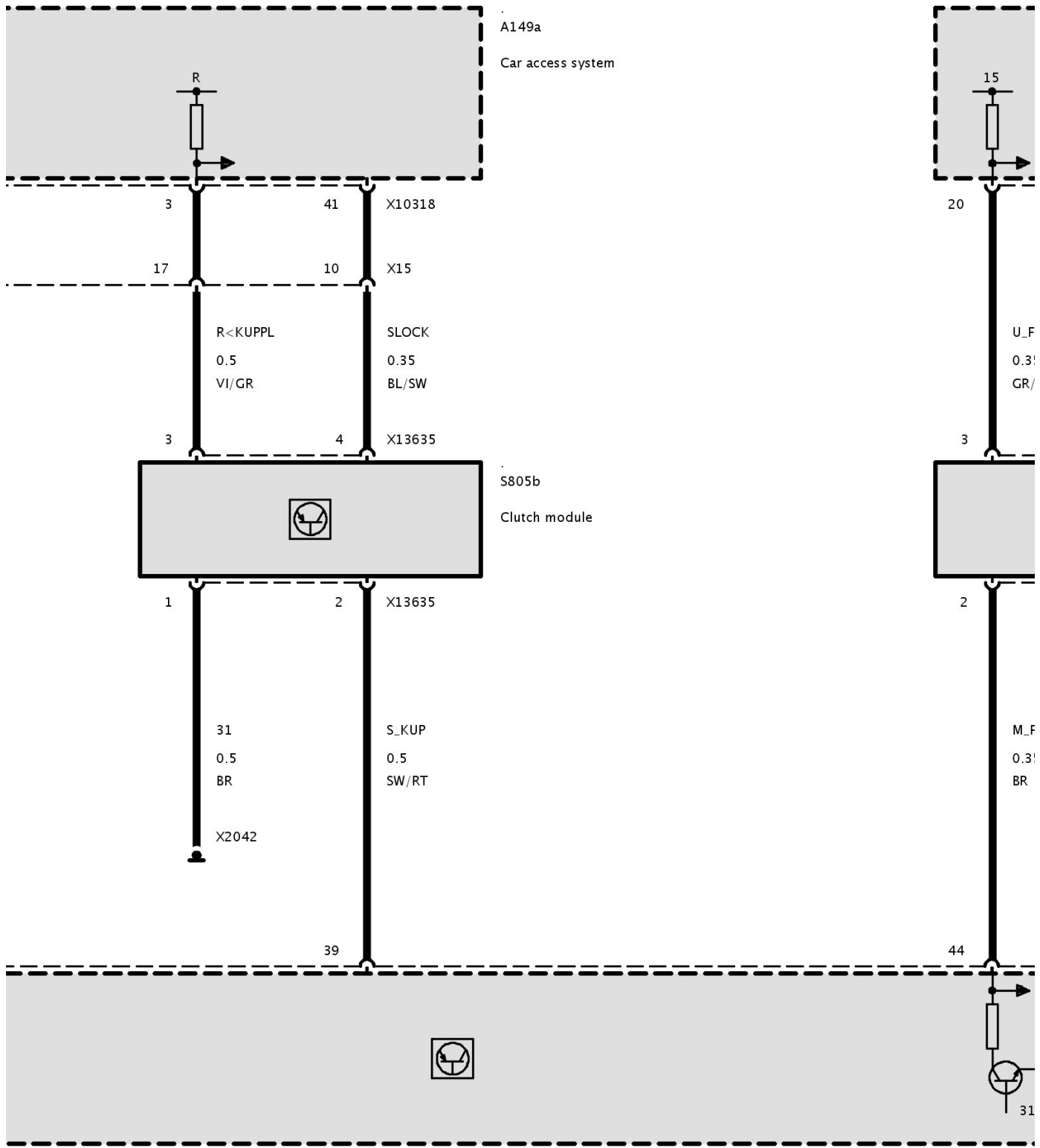
Foot Pedal



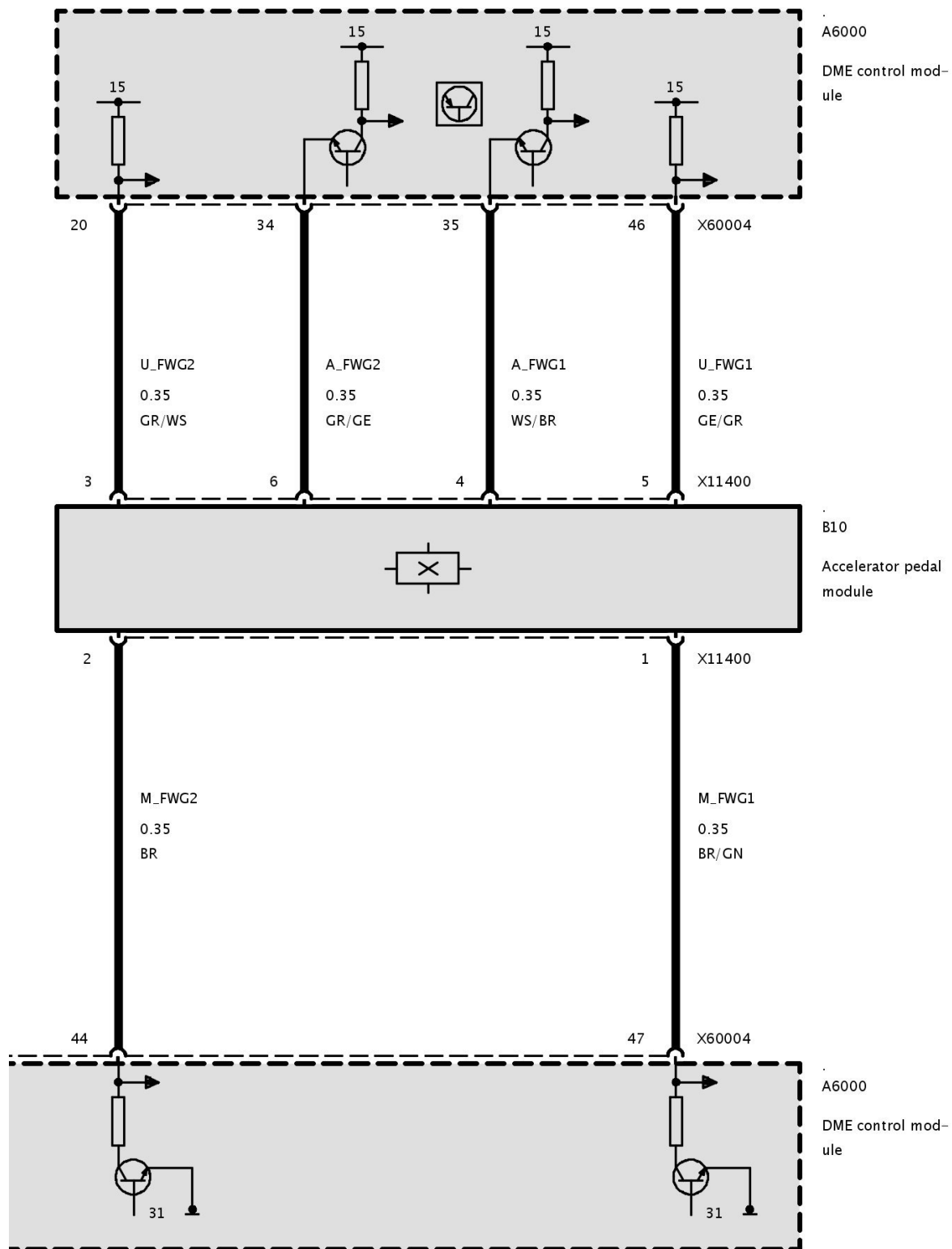
Part 1



## Part 2



Part 3

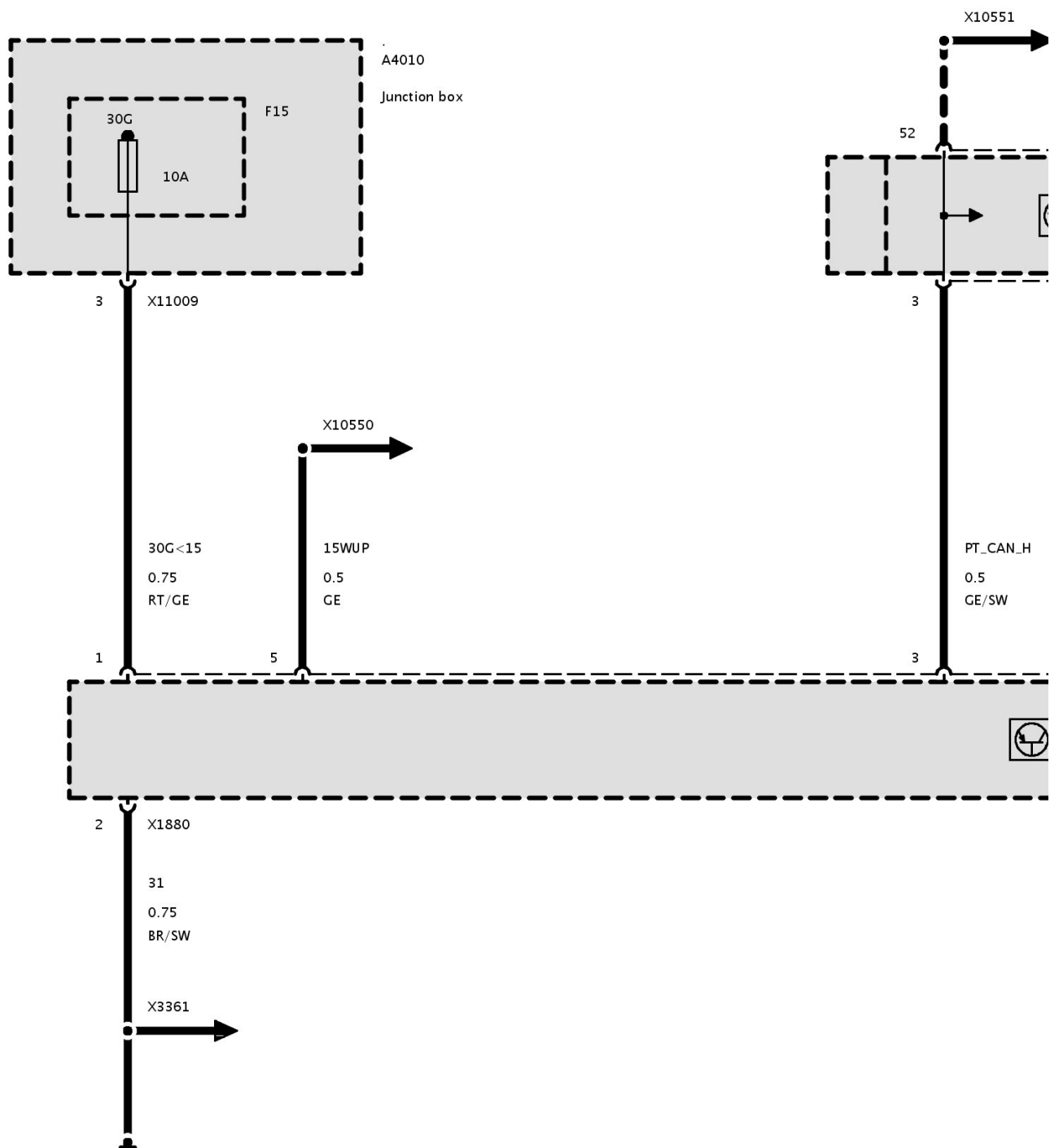


#### Part 4

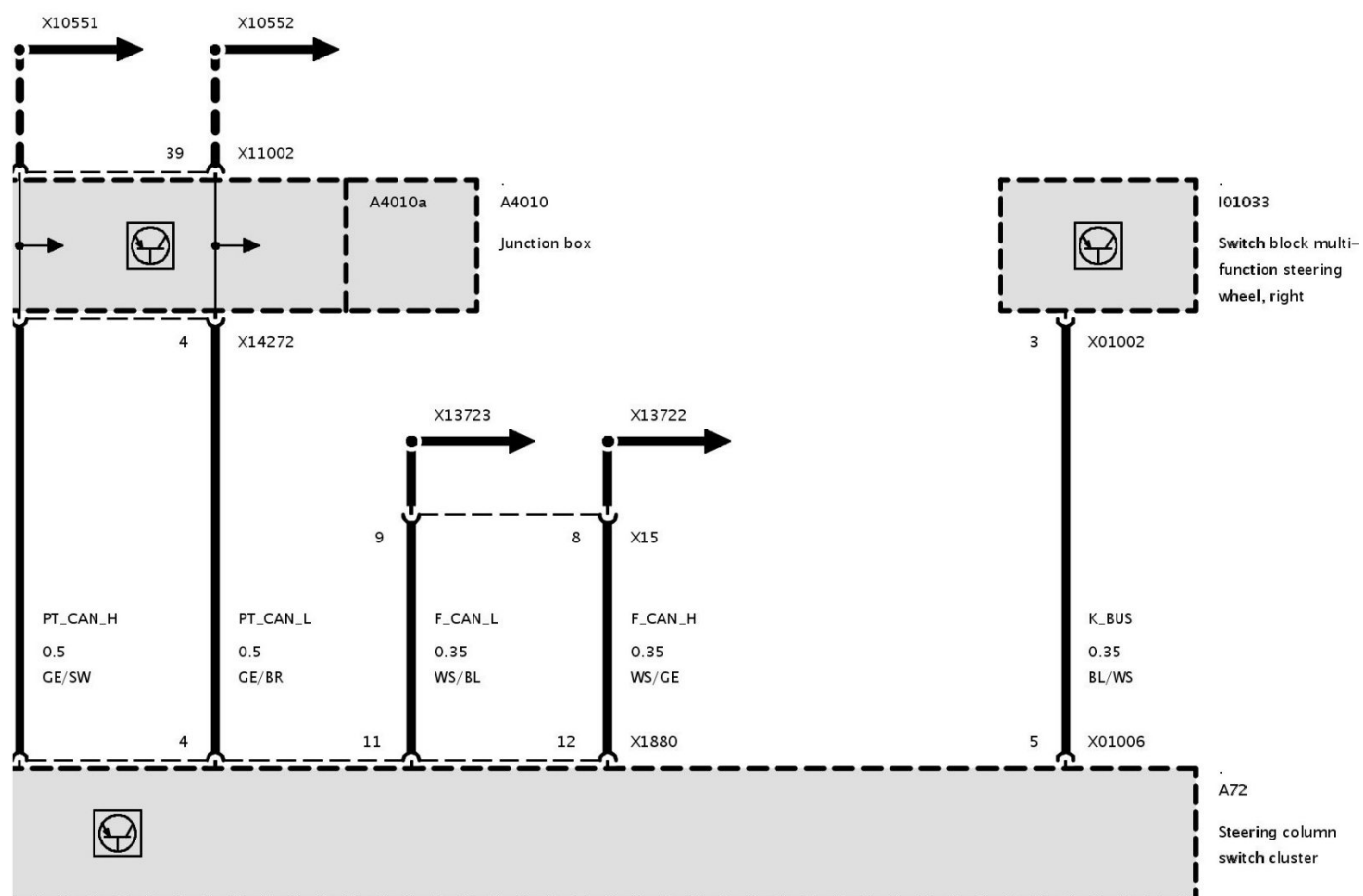
### Supply, Steering Column Switch Cluster SZL (Up to 12/08)

#### Supply, Steering Column Switch Cluster SZL (Up to 12/08)





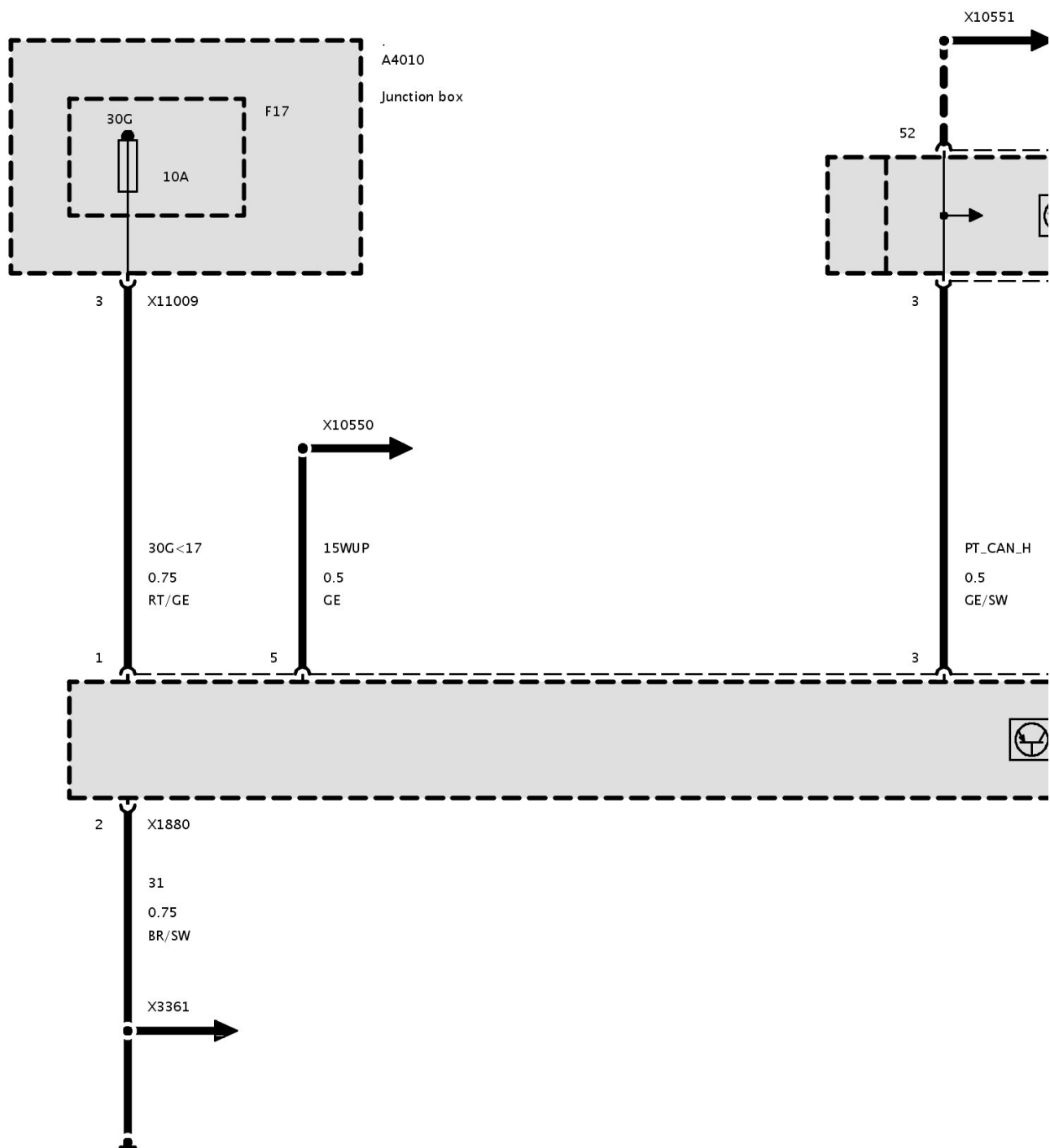
Part 1



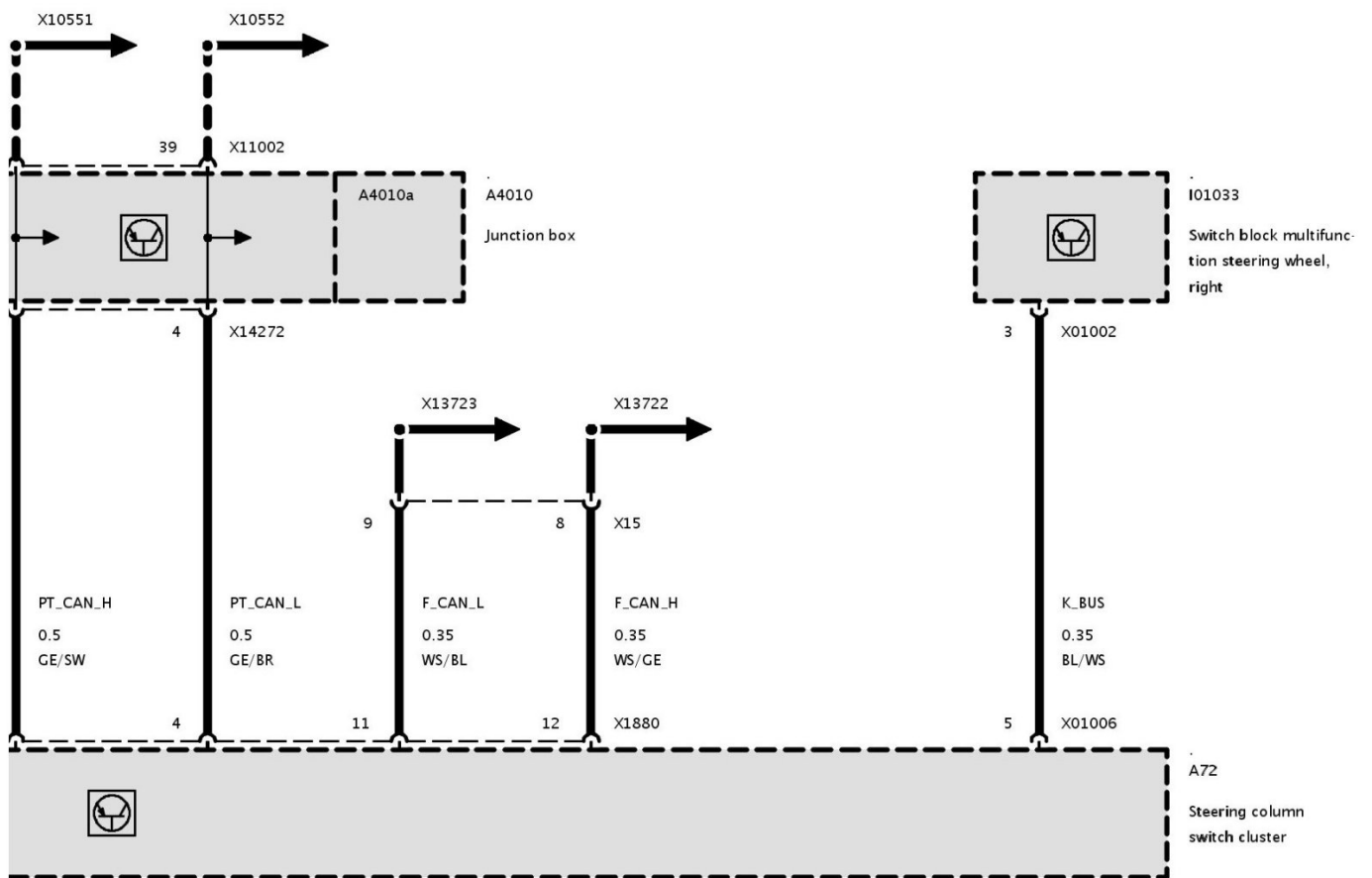
## Part 2

Supply, Steering Column Switch Cluster SZL (As of 12/08)

Supply, Steering Column Switch Cluster SZL (As of 12/08)



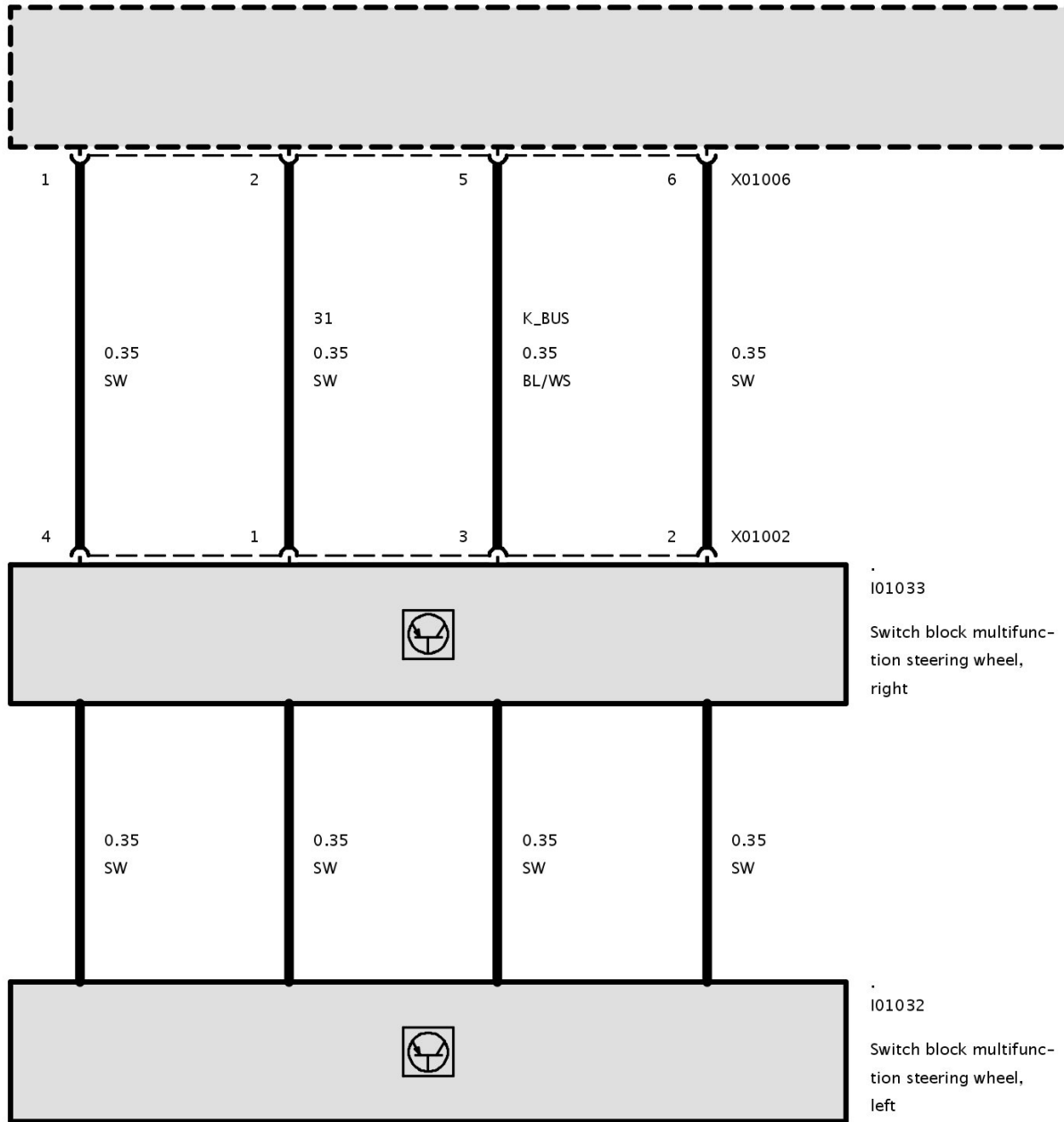
Part 1



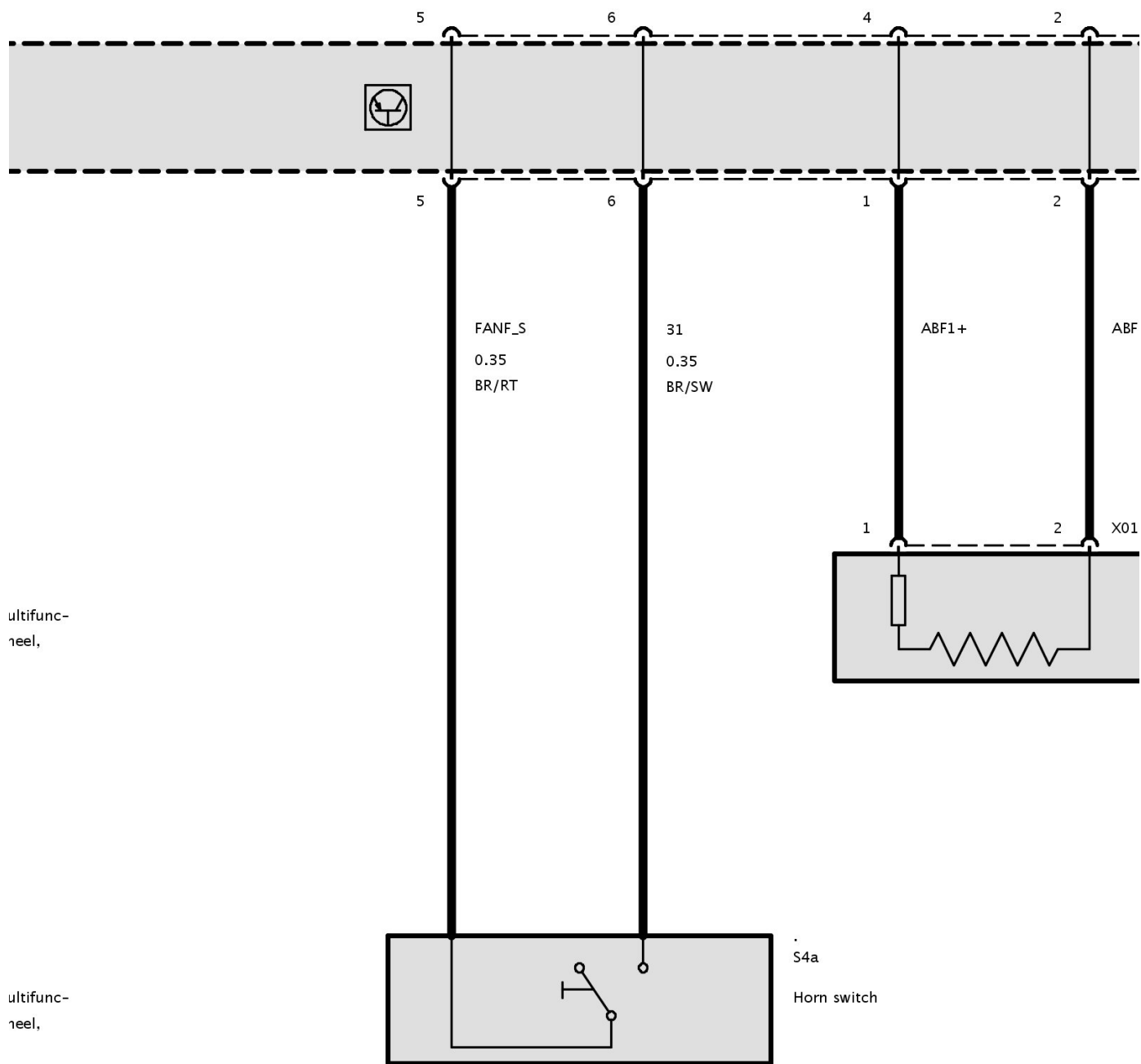
## Part 2

## Multifunction Steering Wheel

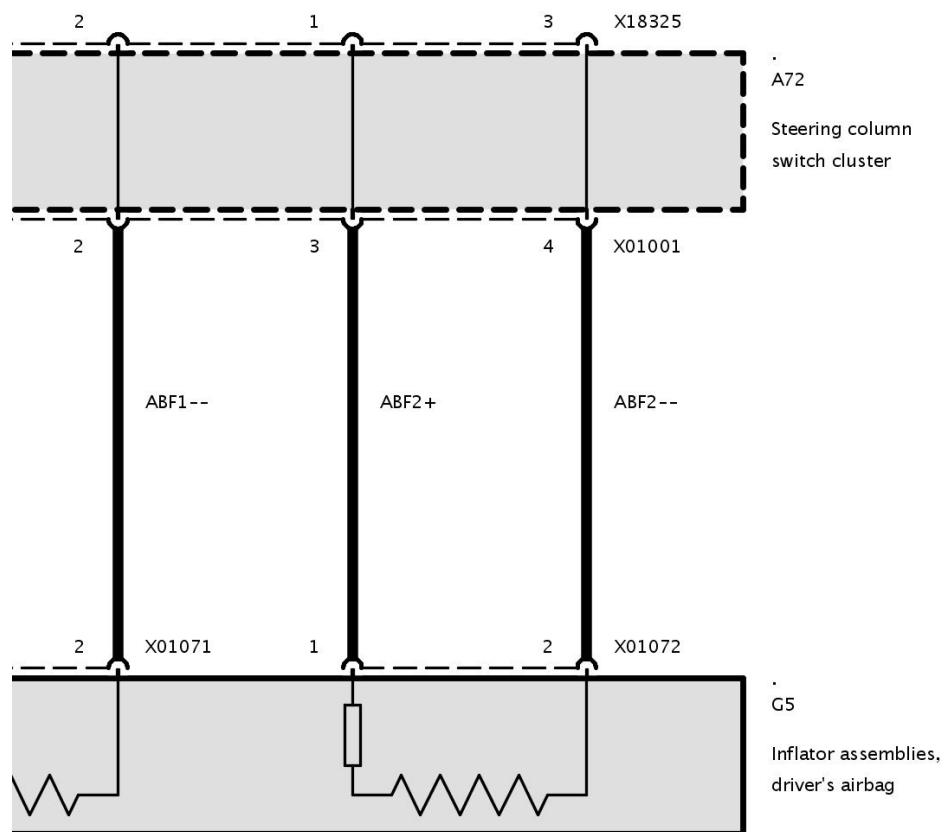
### Multifunction Steering Wheel



Part 1



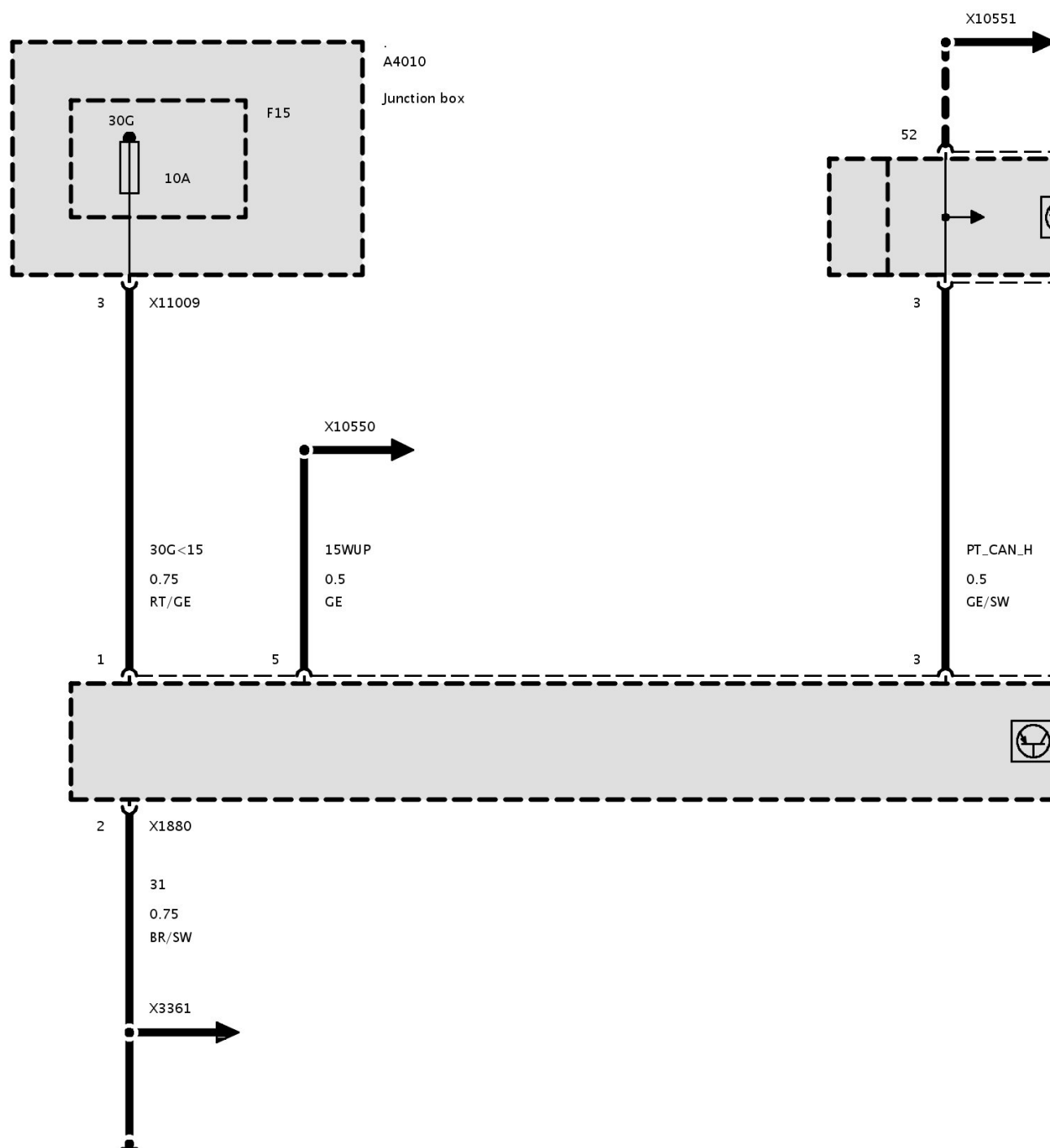
Part 2



### Part 3

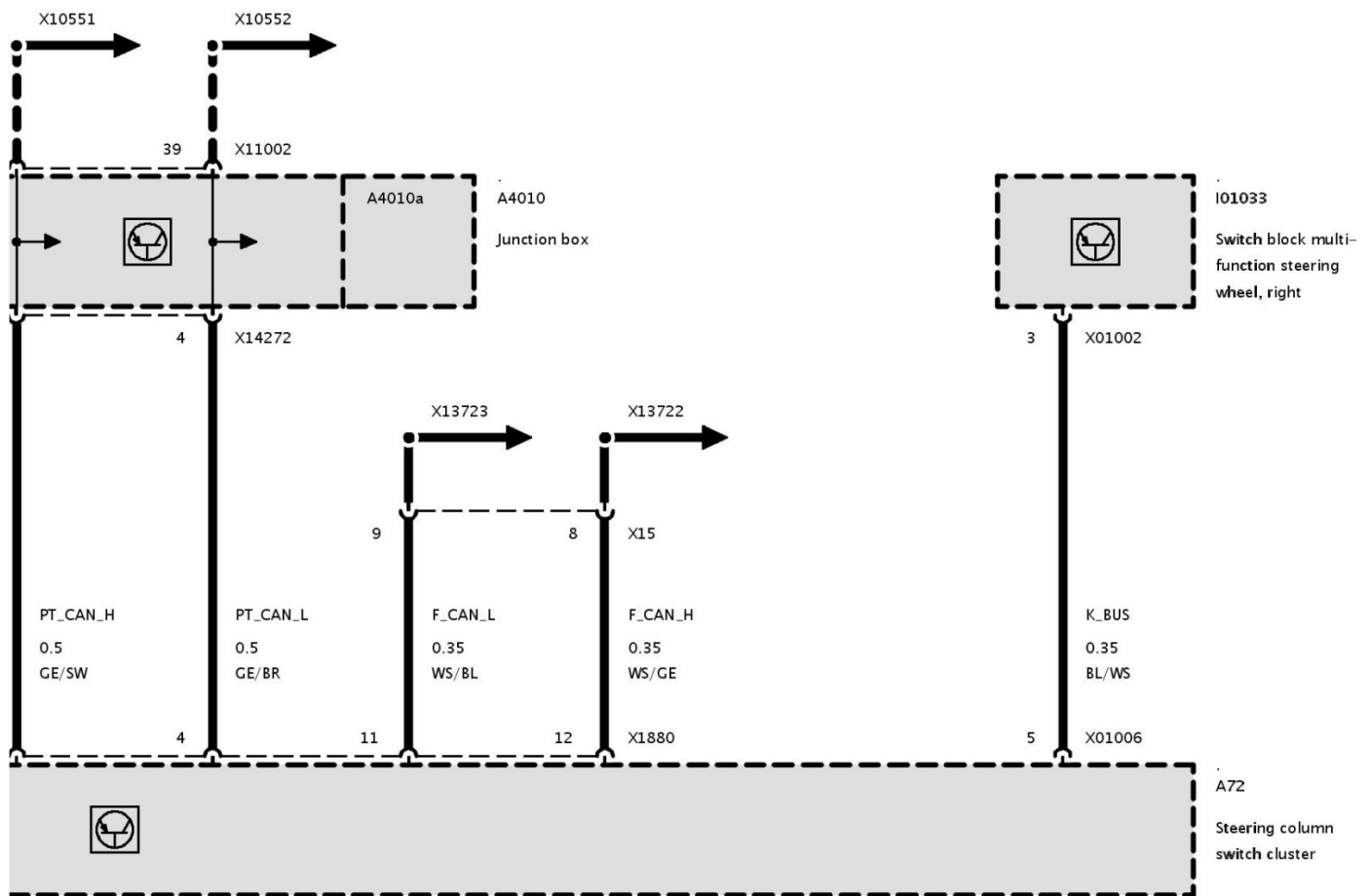
**Supply, Steering Column Switch Cluster SZL (Up to 12/08)**

**Supply, Steering Column Switch Cluster SZL (Up to 12/08)**



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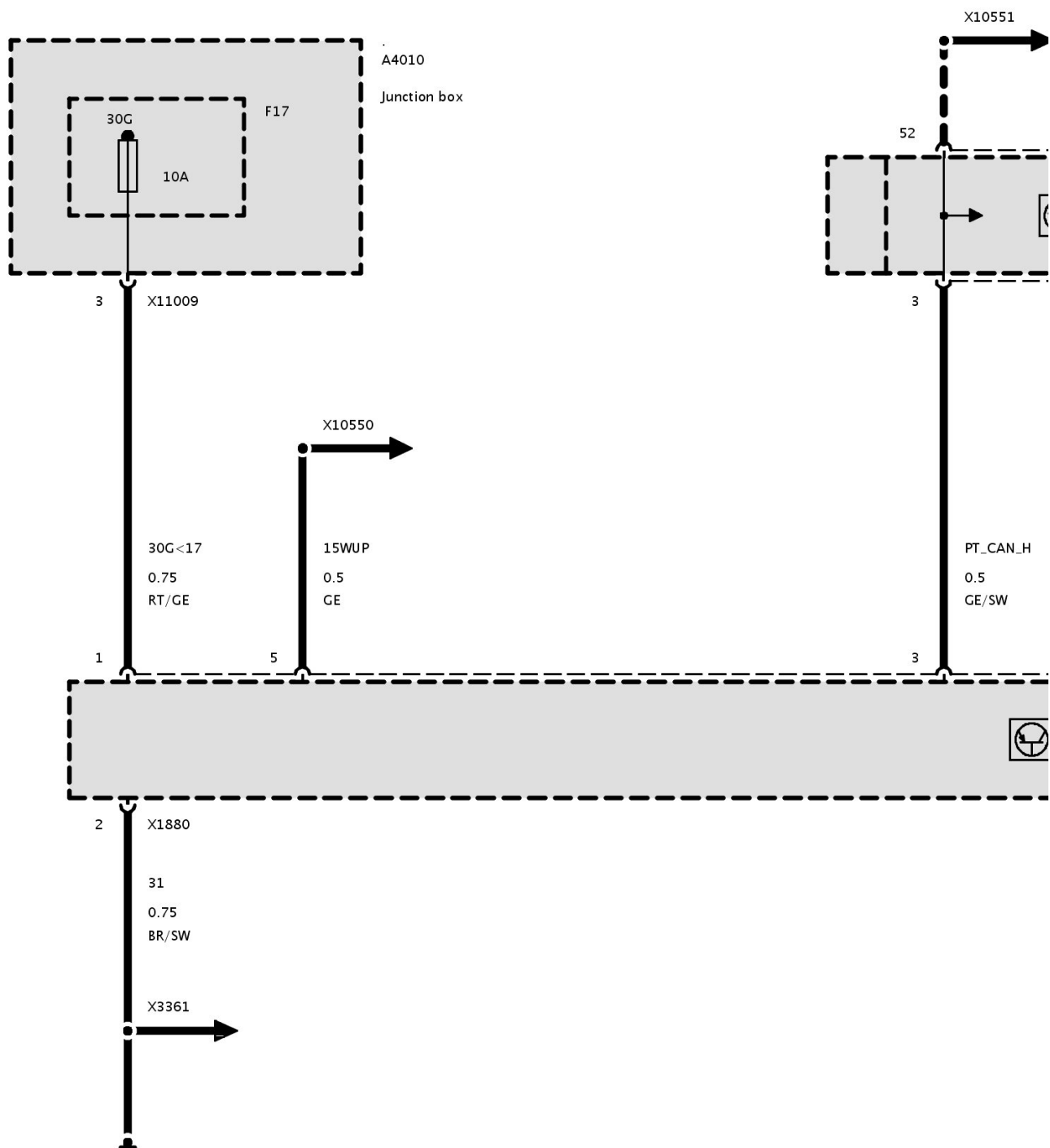




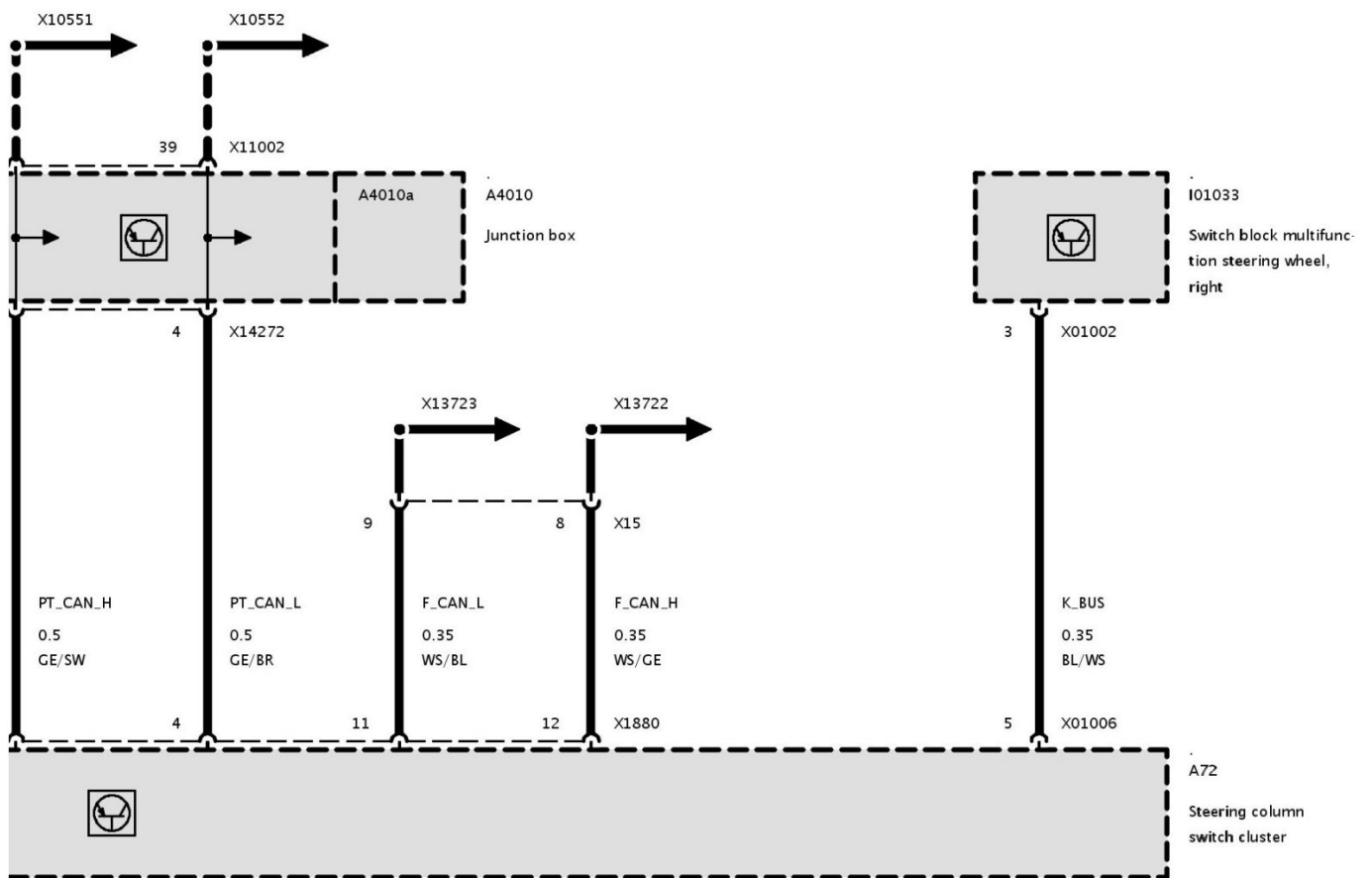
## Part 2

**Supply, Steering Column Switch Cluster SZL (As of 12/08)**

**Supply, Steering Column Switch Cluster SZL (As of 12/08)**



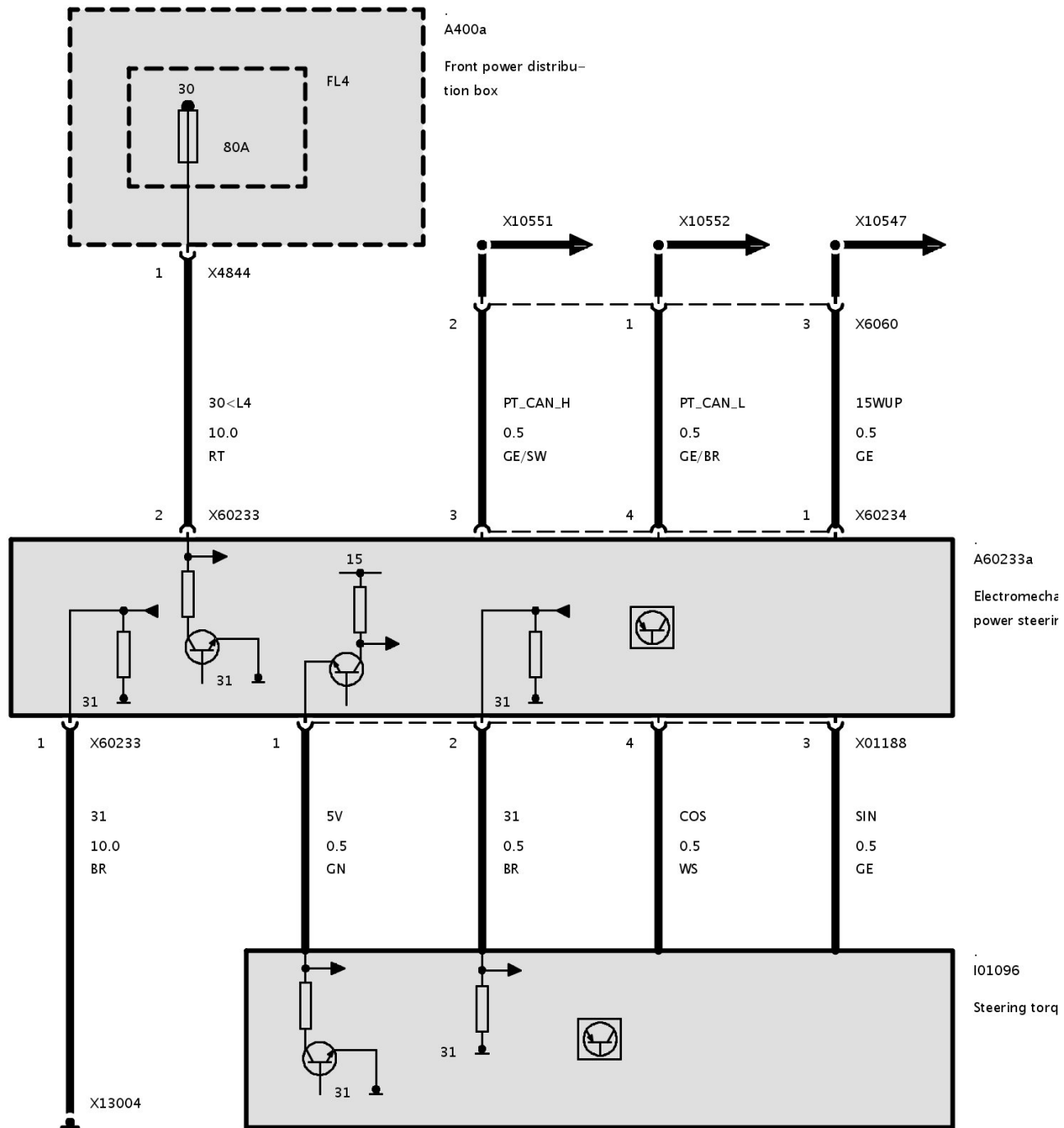
Part 1



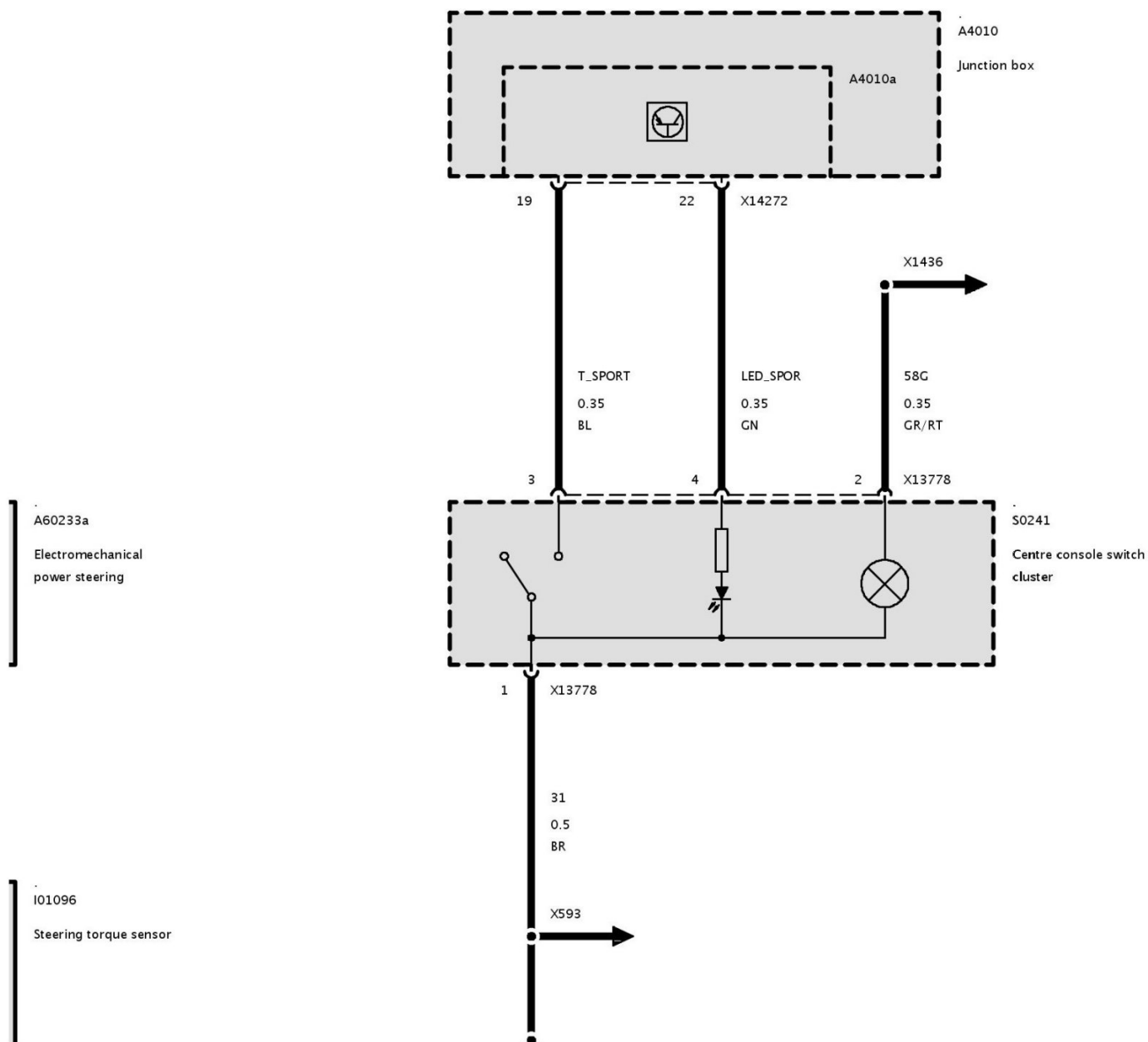
## Part 2

## Electromechanical Power Steering

### Electromechanical Power Steering (N14 Engine)



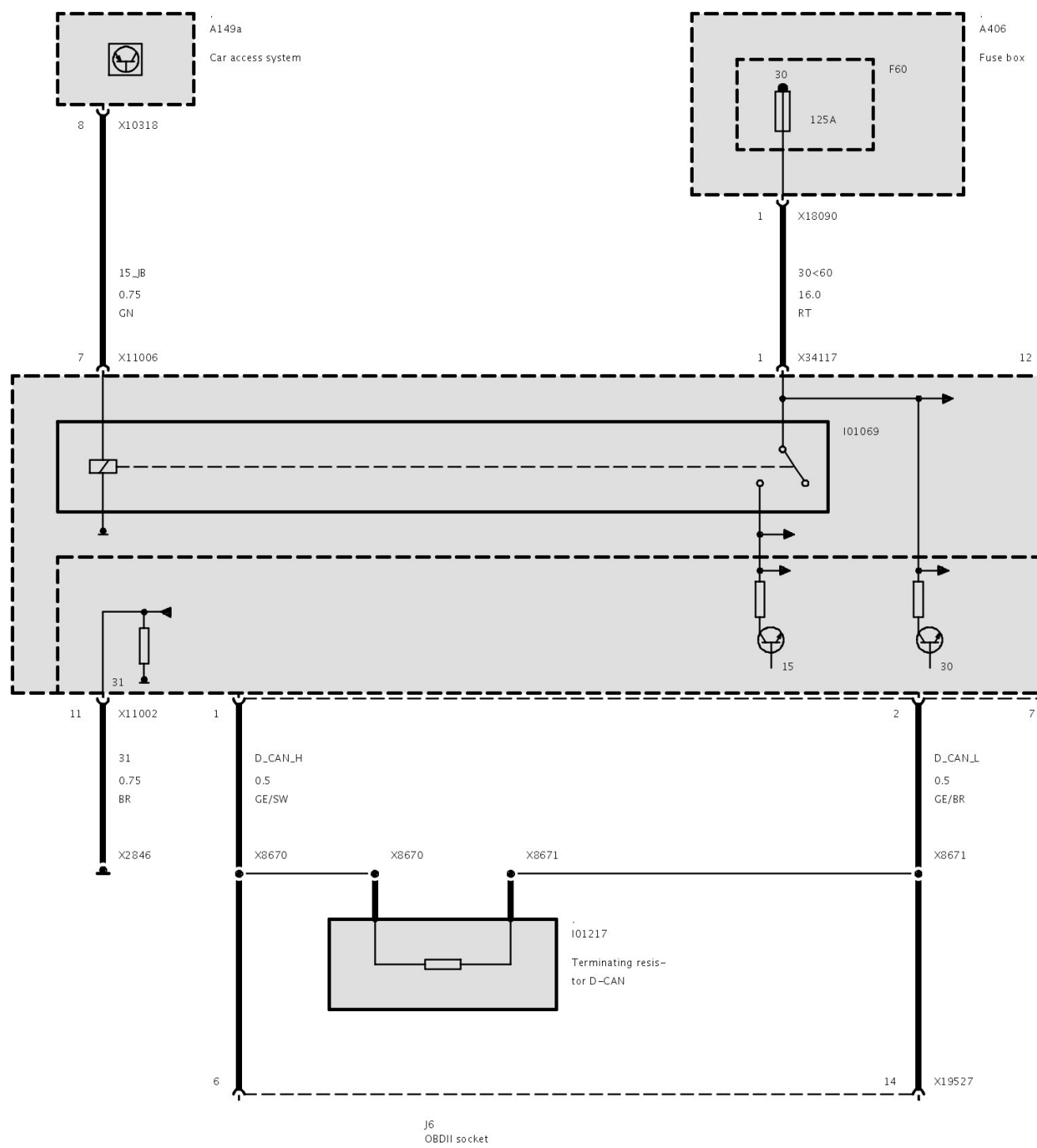
Part 1



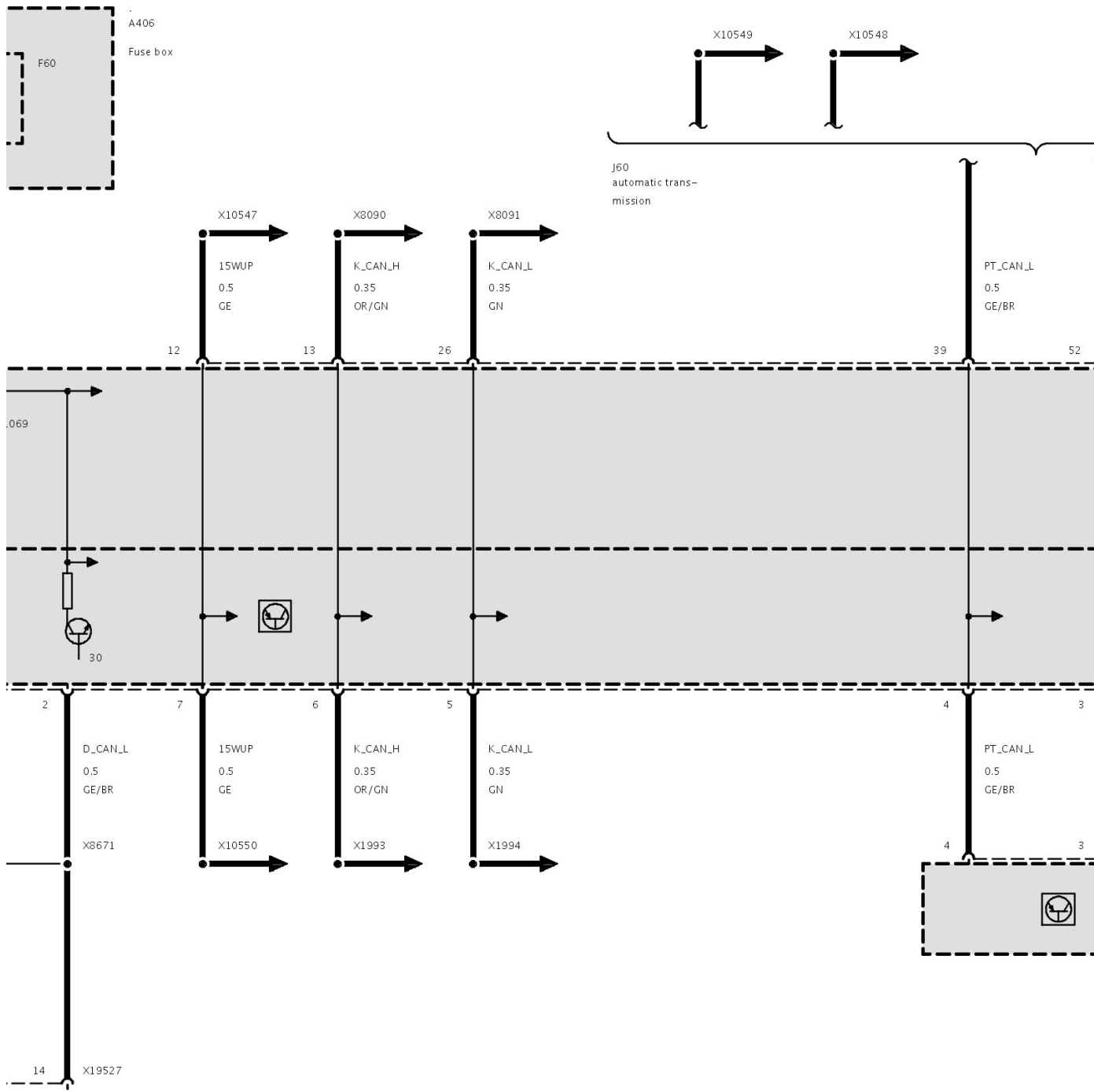
## Part 2

## Supply, JBE Junction-Box Electronics

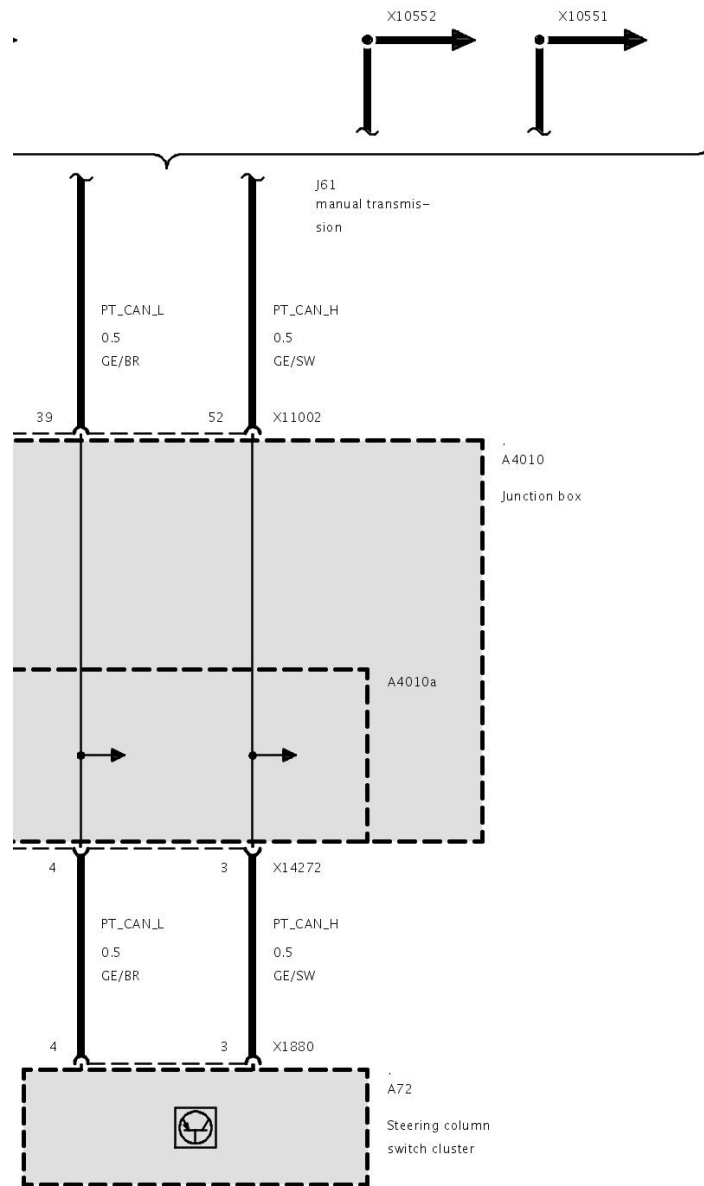
### Power Supply JBE Junction Box, Electronics



Part 1



Part 2

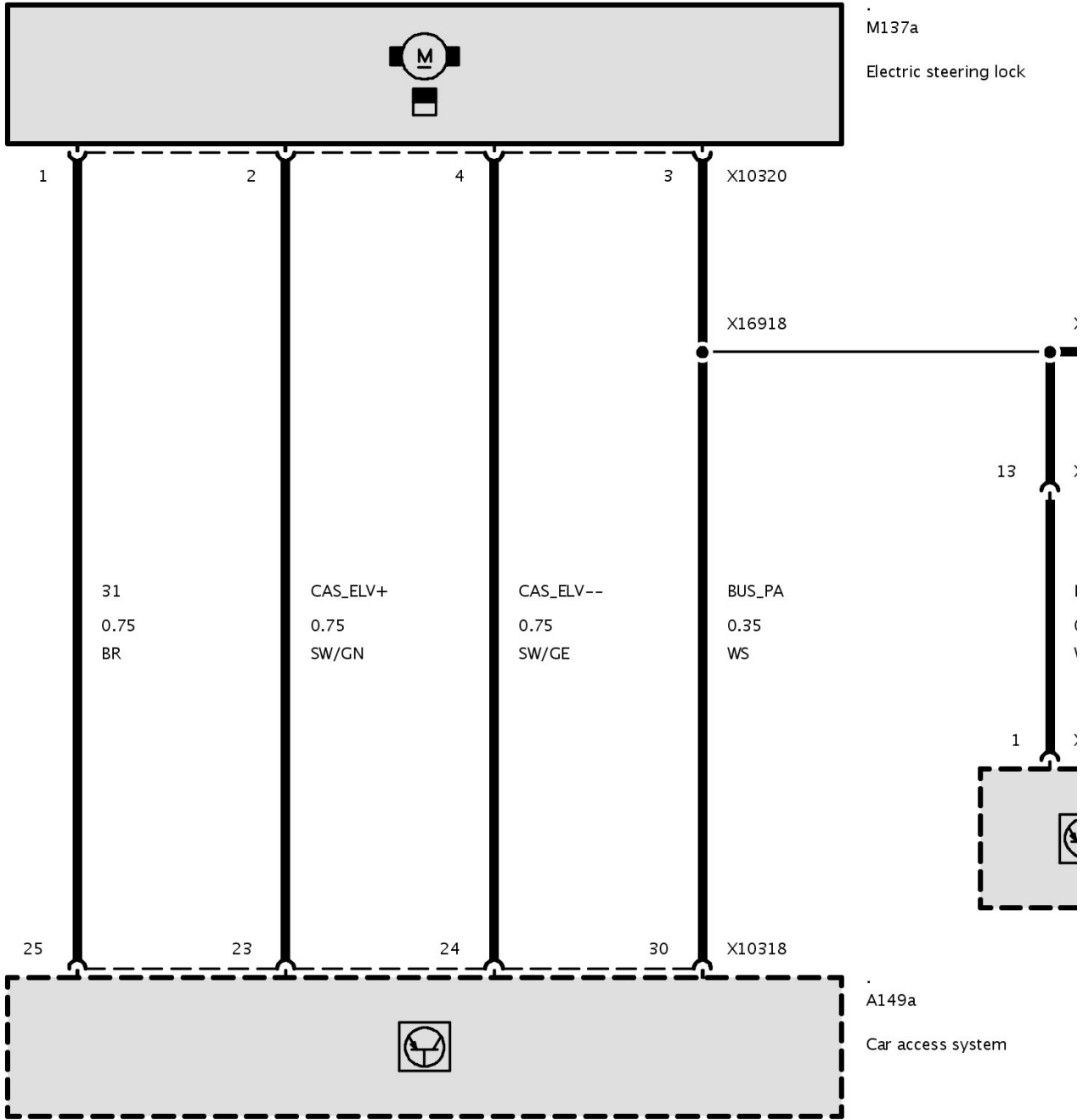


### Part 3

## Electric Steering Lock (As of 08/07)

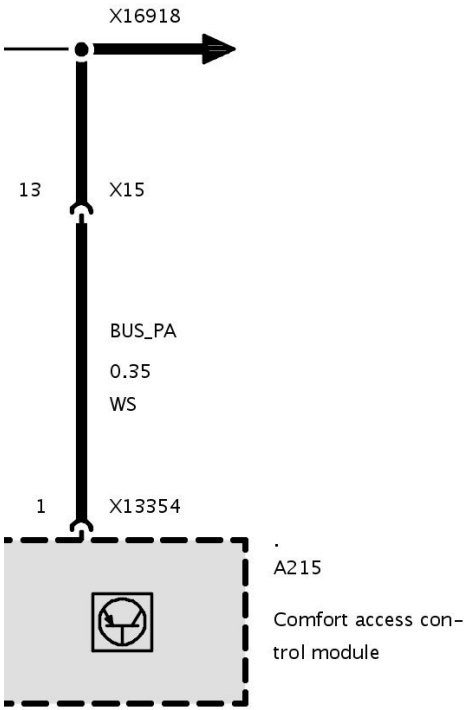
### Electric Steering Lock (As of 08/07)





Part 1

j lock

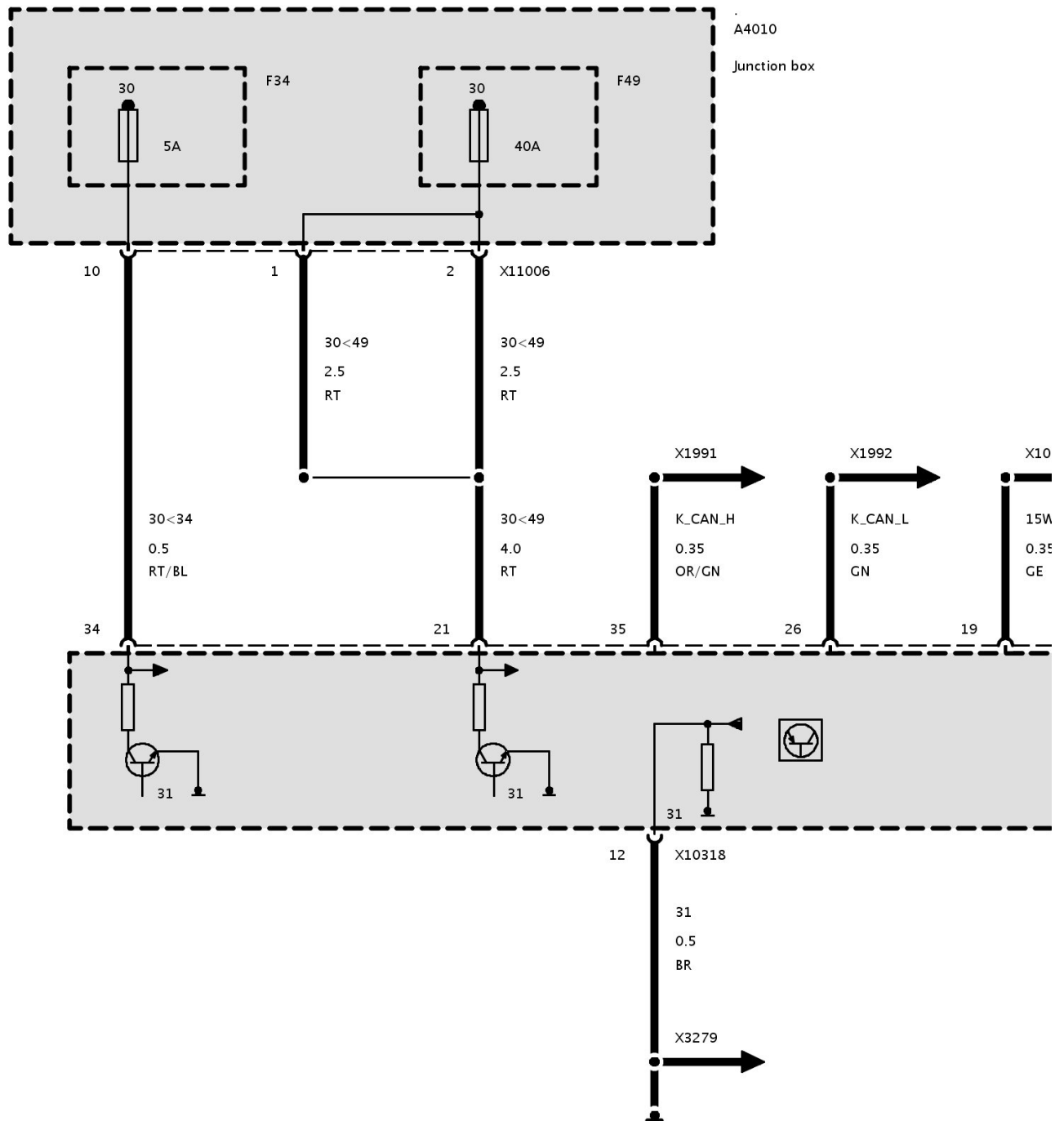


em

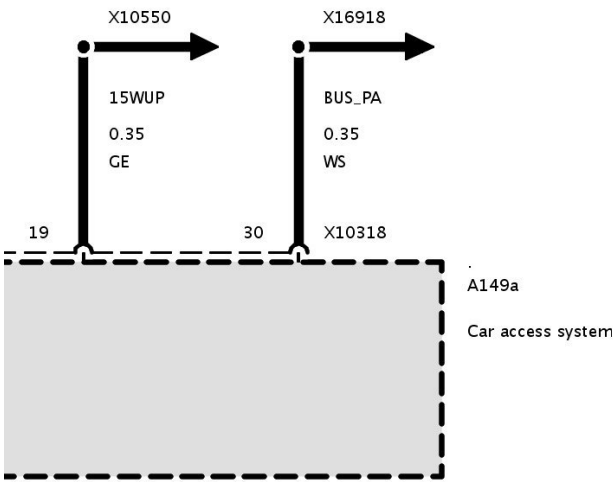
Part 2

Power Supply, Car Access System CAS ( As of 08/07 Up to 12/08)

Power Supply, Car Access System CAS ( As of 08/07 Up to 12/08)



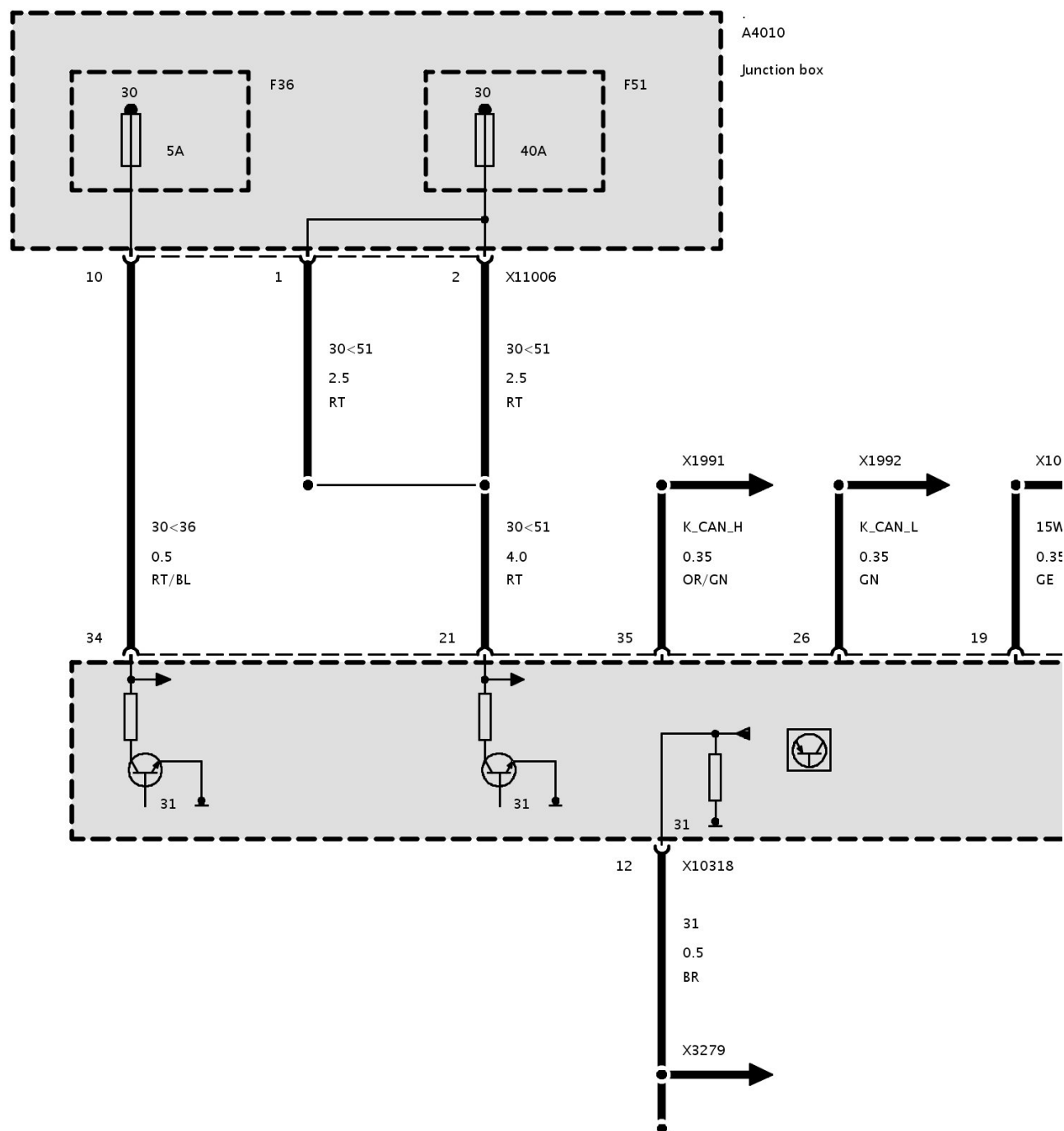
Part 1



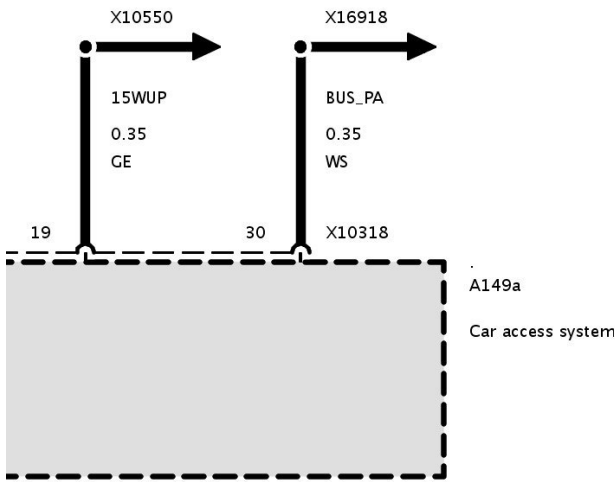
Part 2

Power Supply, Car Access System CAS (As of 12/08)

Power Supply, Car Access System CAS (As of 12/08)



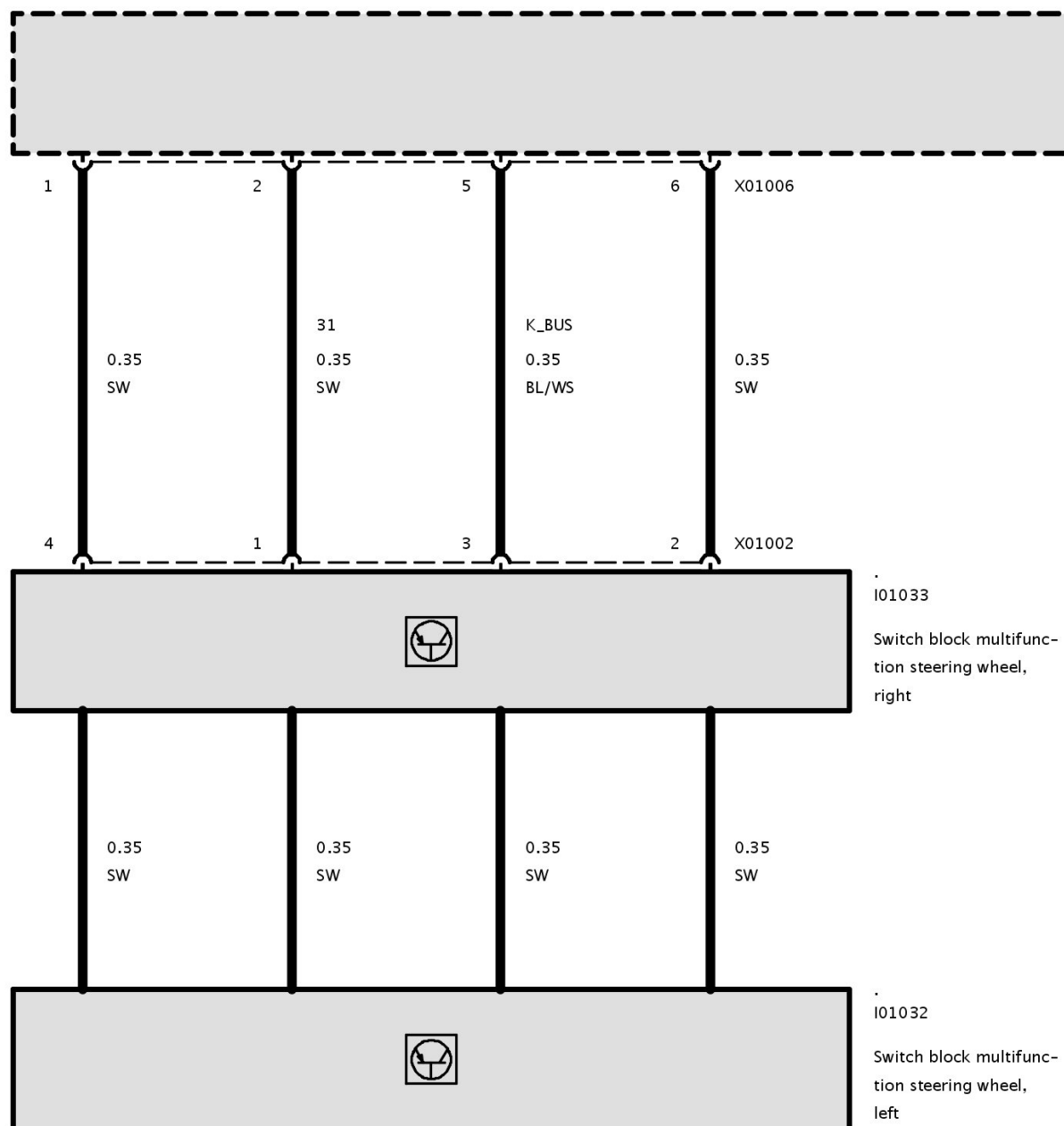
jmoraflores@hotmail.cl



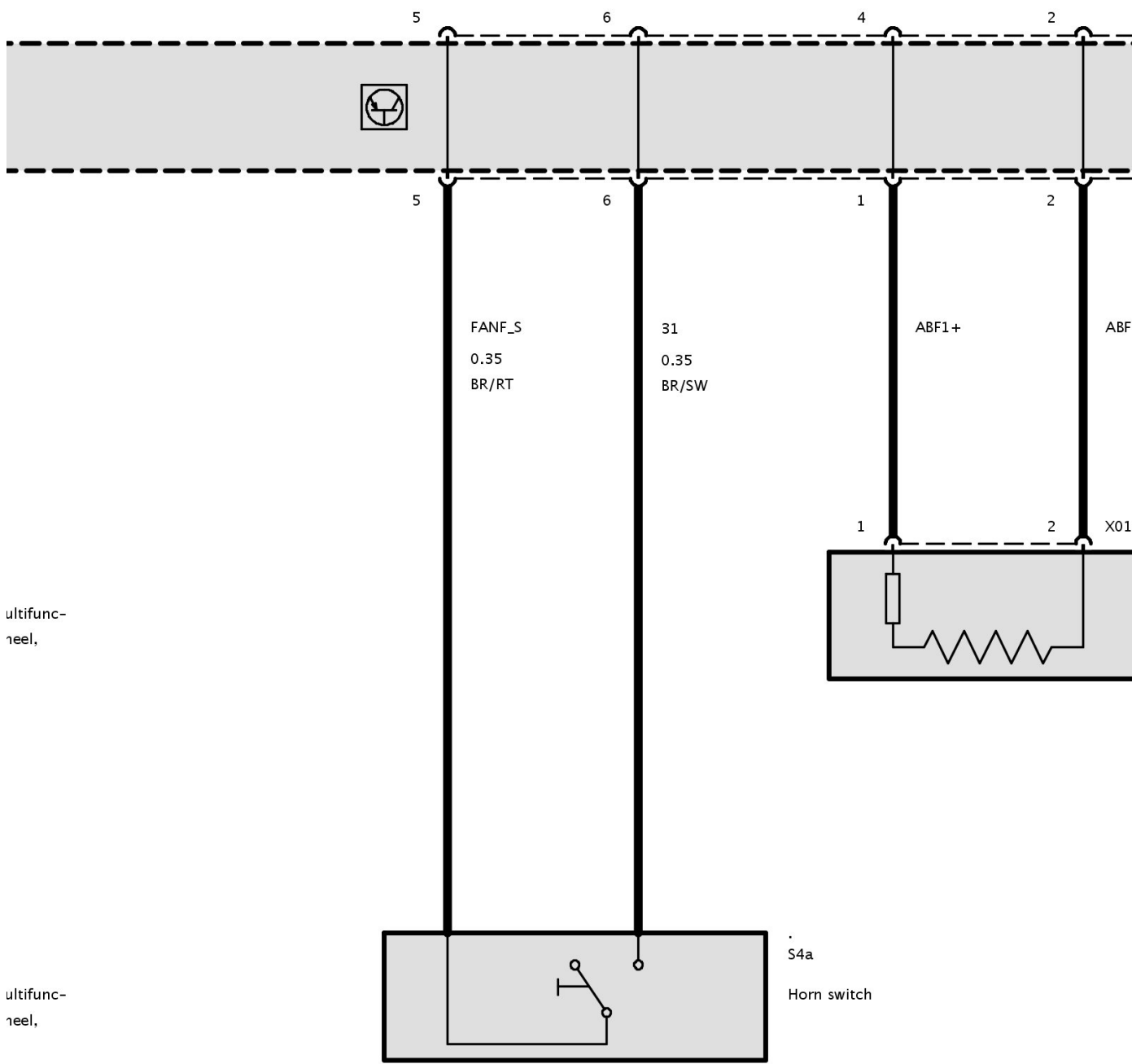
Part 2

Multifunction Steering Wheel

Multifunction Steering Wheel

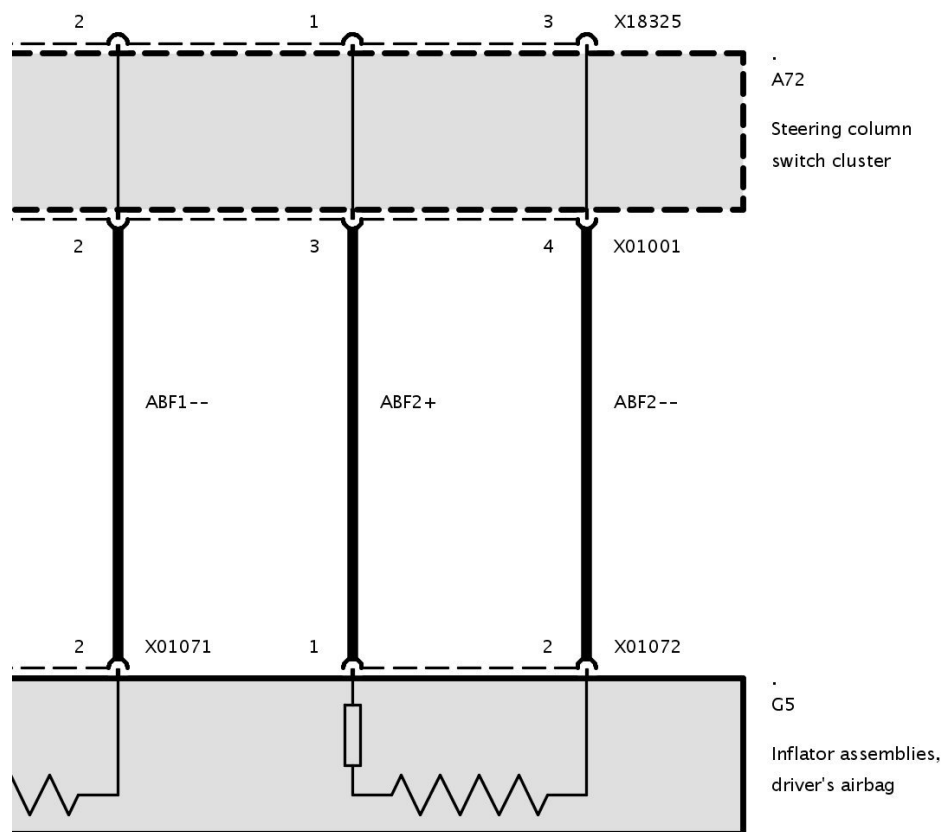


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Part 2

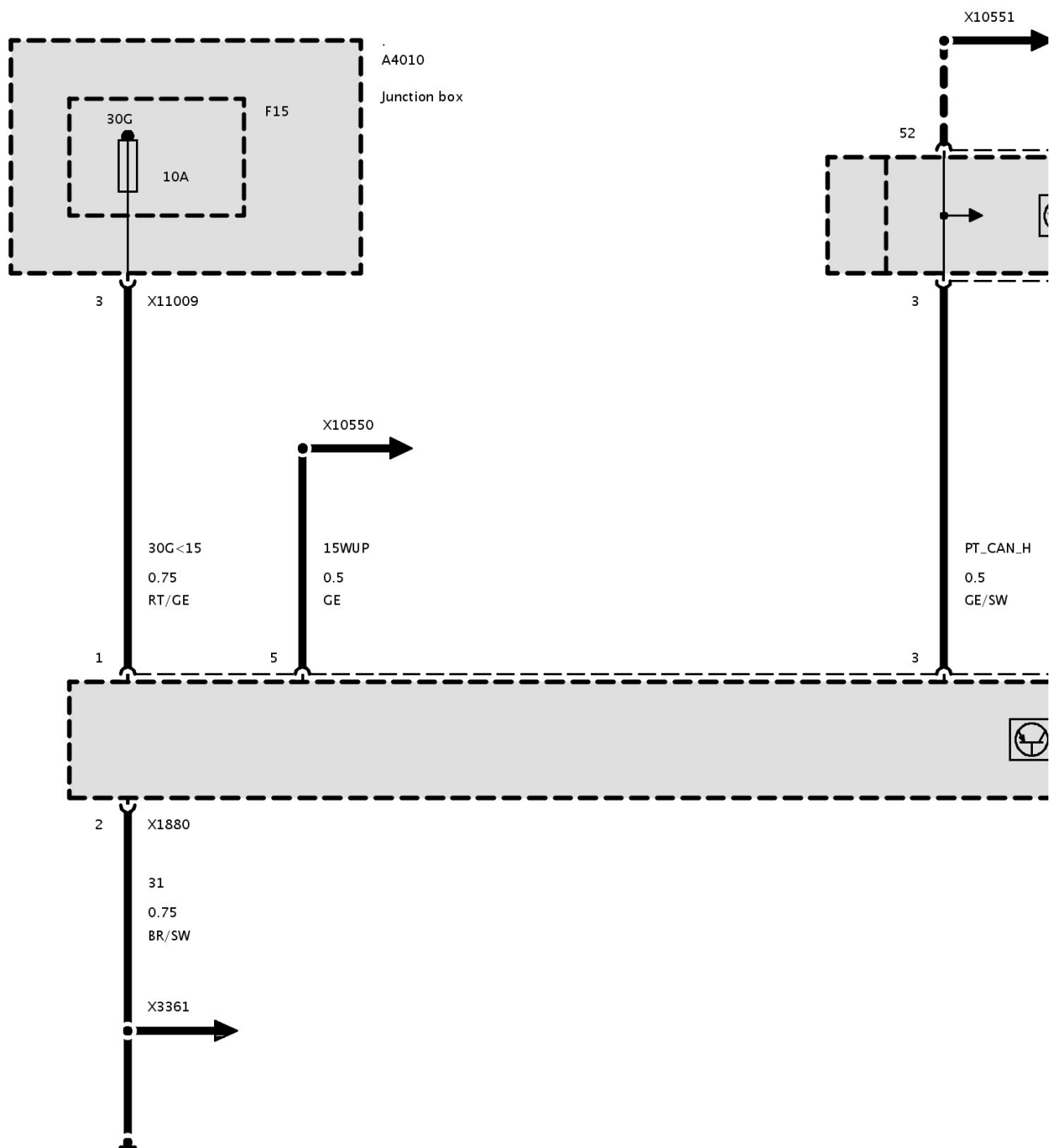




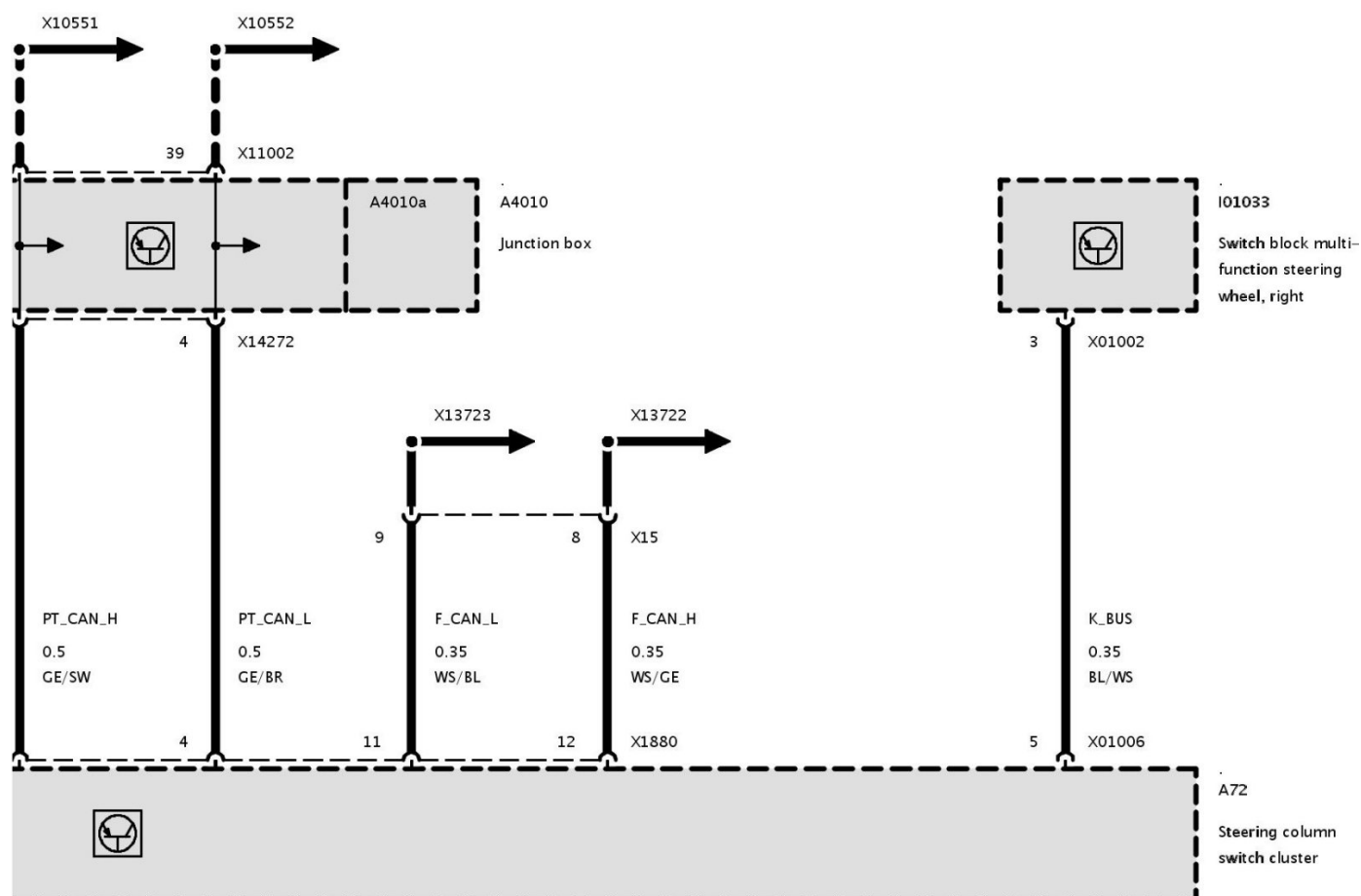
### Part 3

Supply, Steering Column Switch Cluster SZL (Up to 12/08)

Supply, Steering Column Switch Cluster SZL (Up to 12/08)



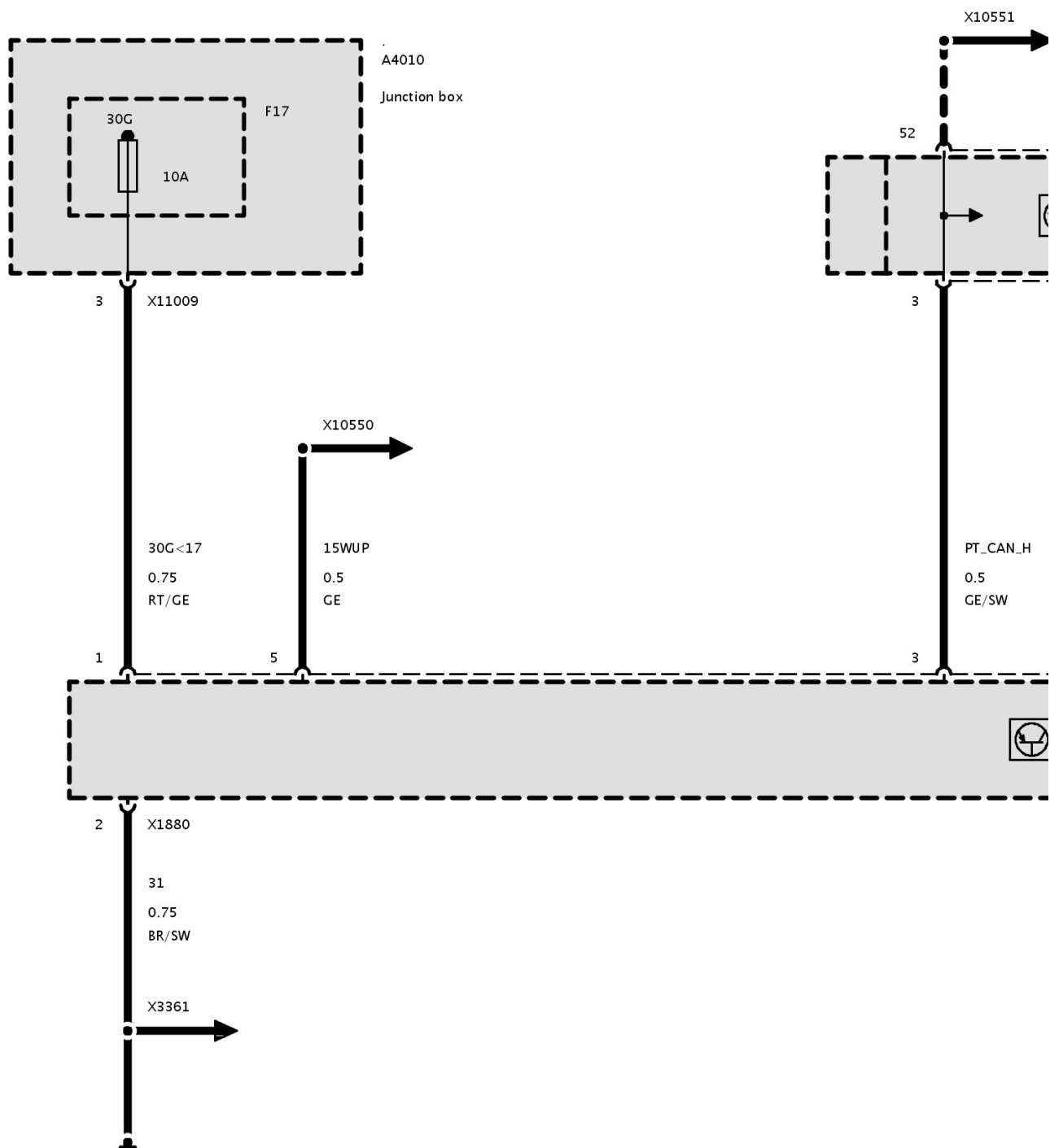
Part 1



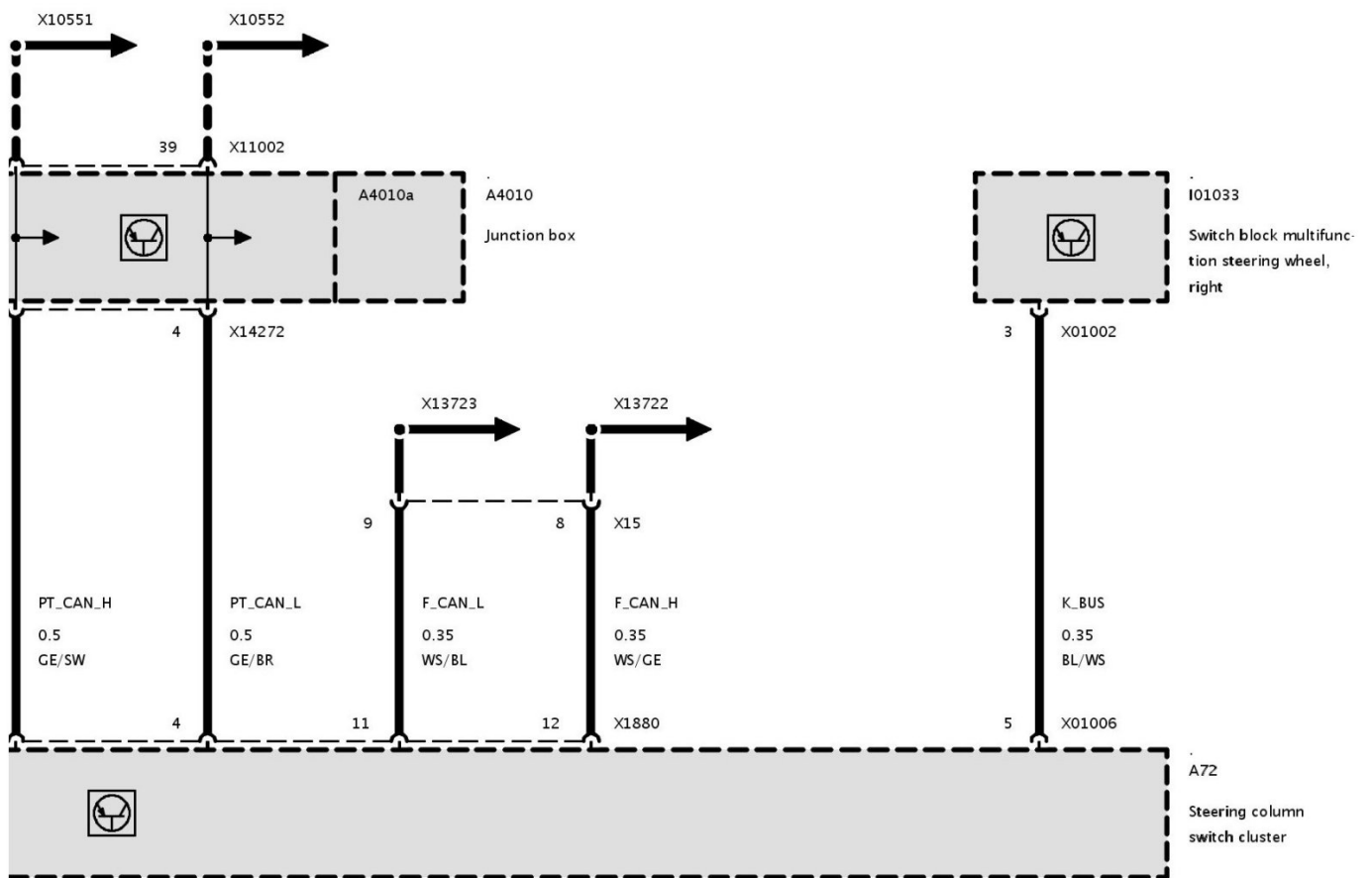
## Part 2

**Supply, Steering Column Switch Cluster SZL (As of 12/08)**

**Supply, Steering Column Switch Cluster SZL (As of 12/08)**



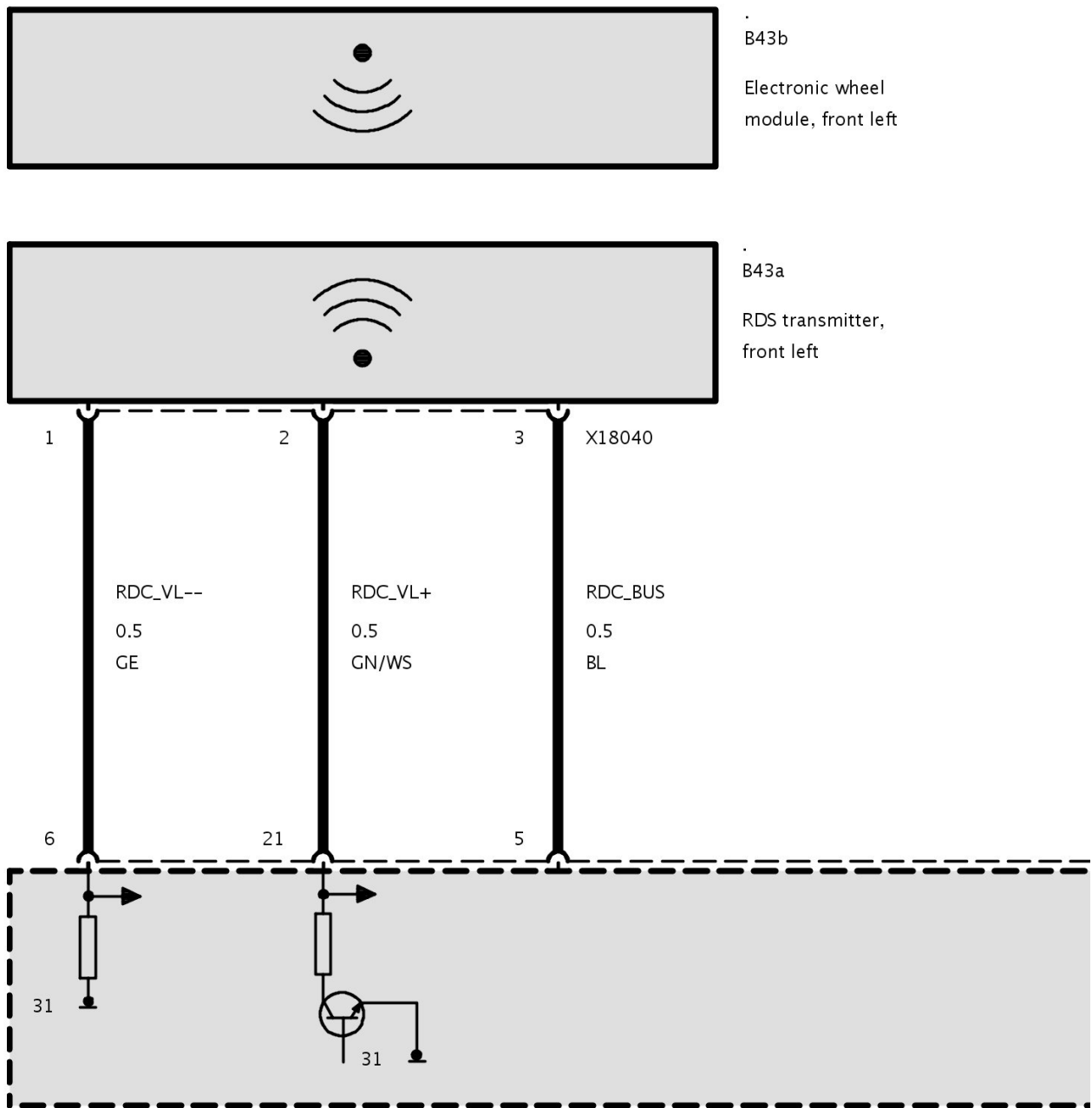
Part 1



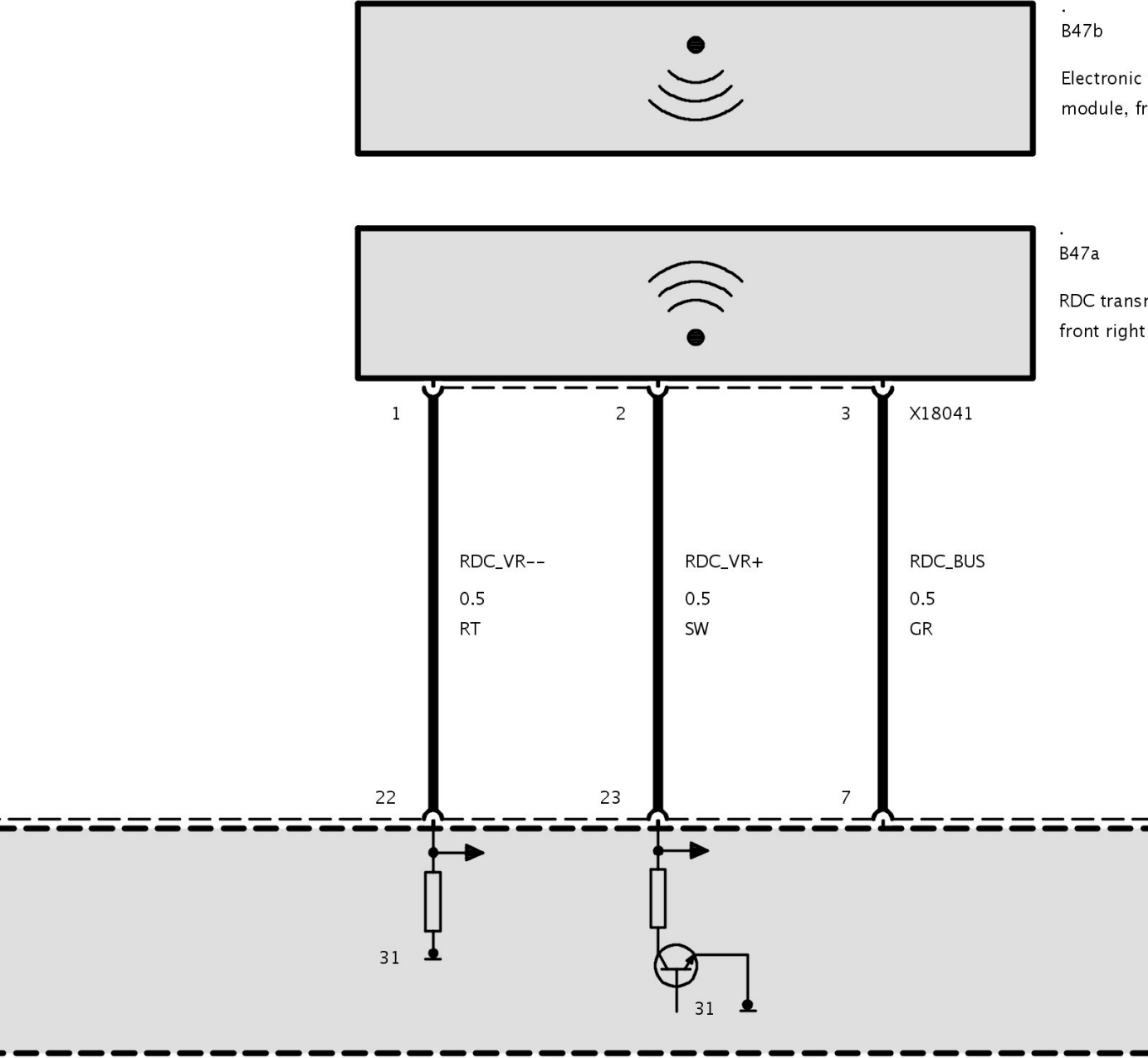
## Part 2

### Tire Pressure Control (RDC)

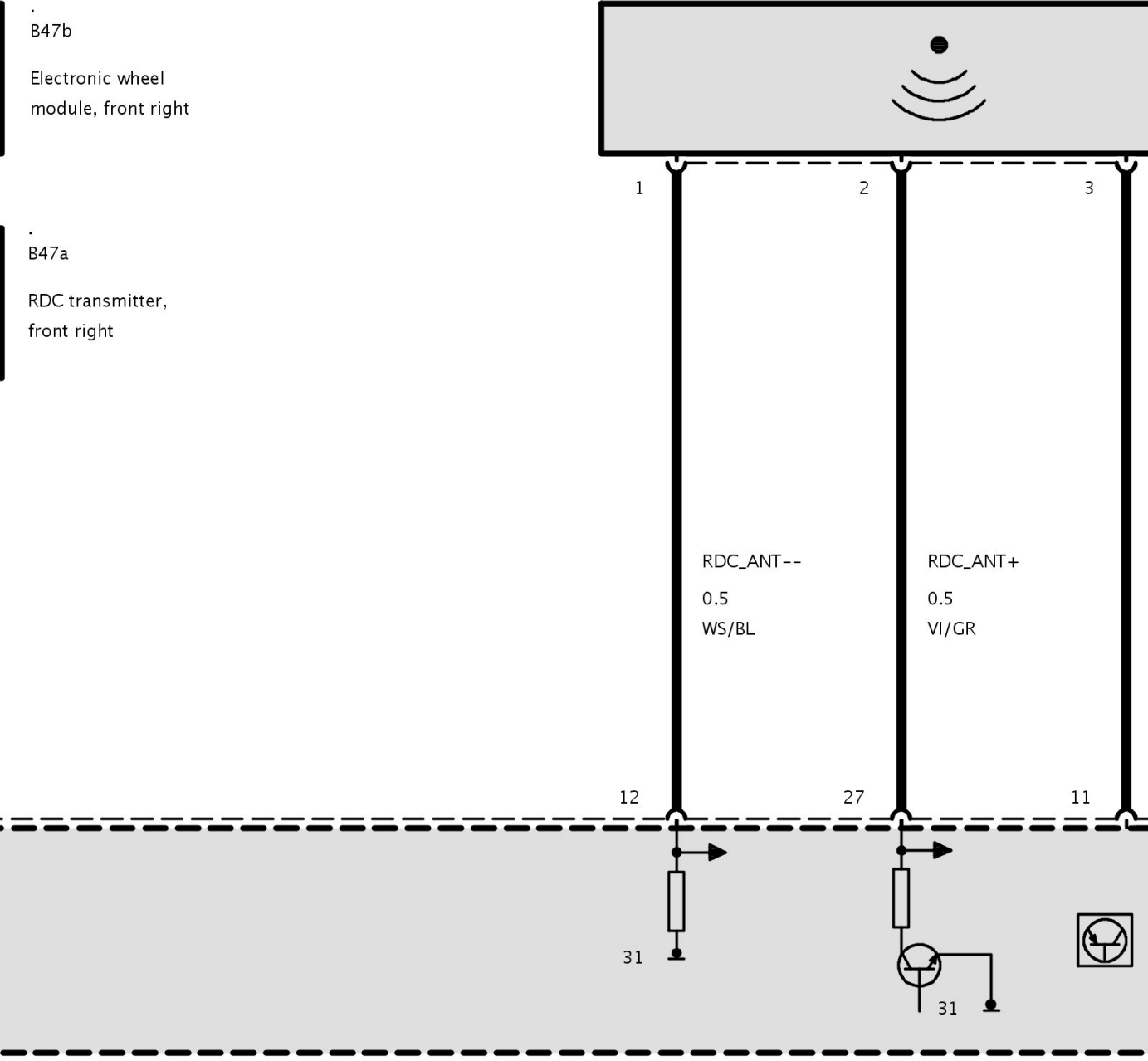
#### Tire Pressure Control (RDC)



Part 1

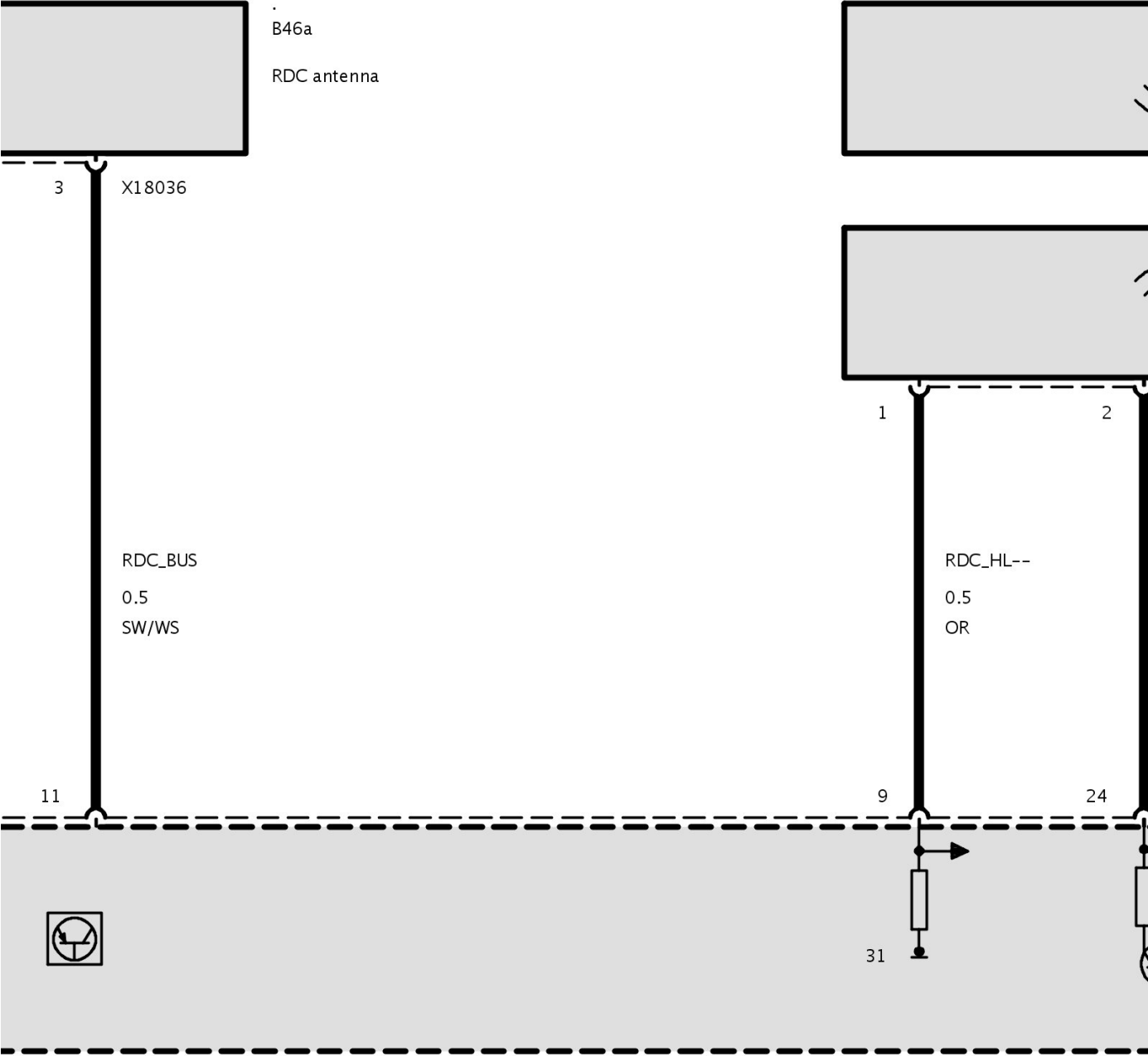


Part 2

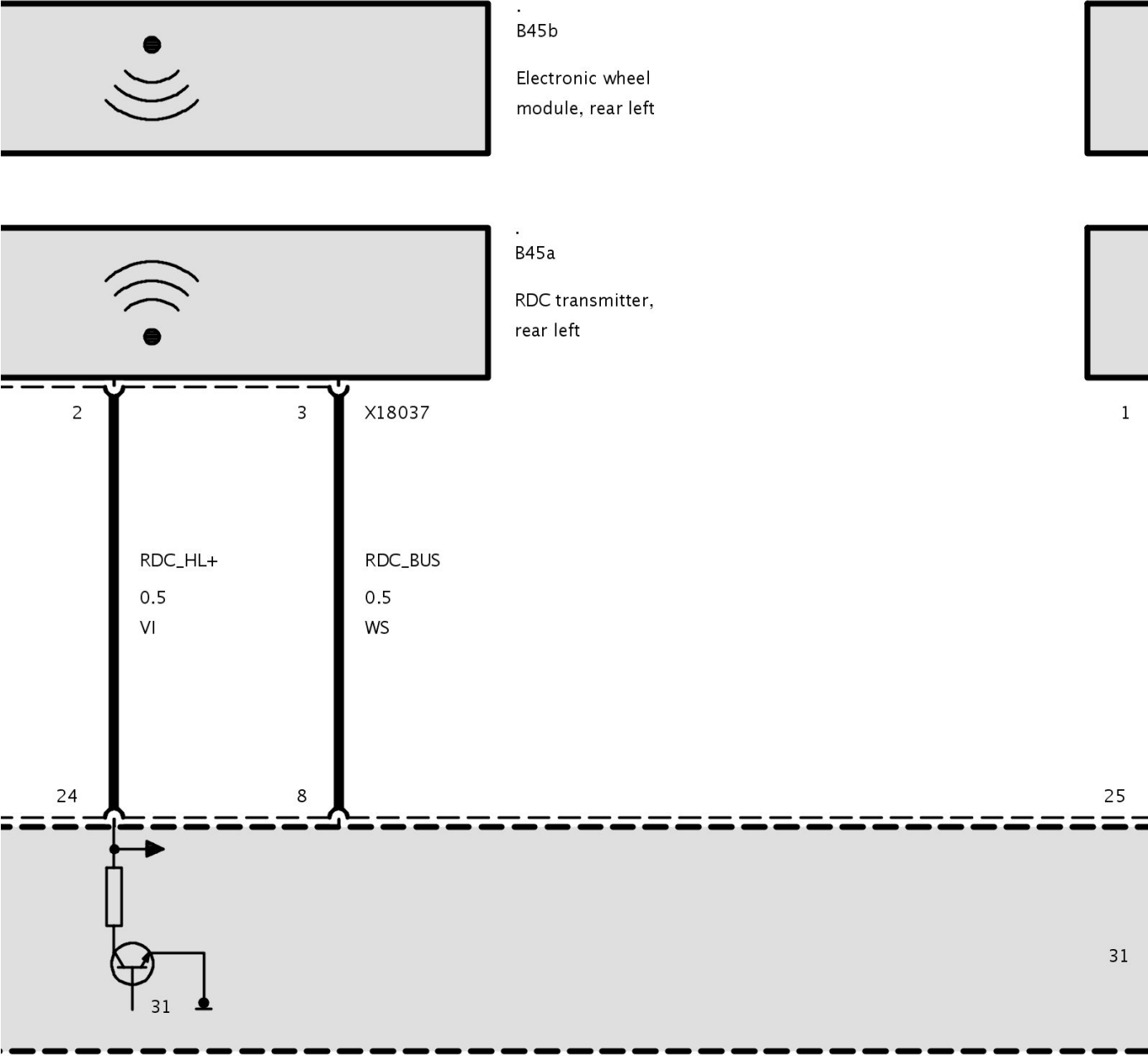


Part 3

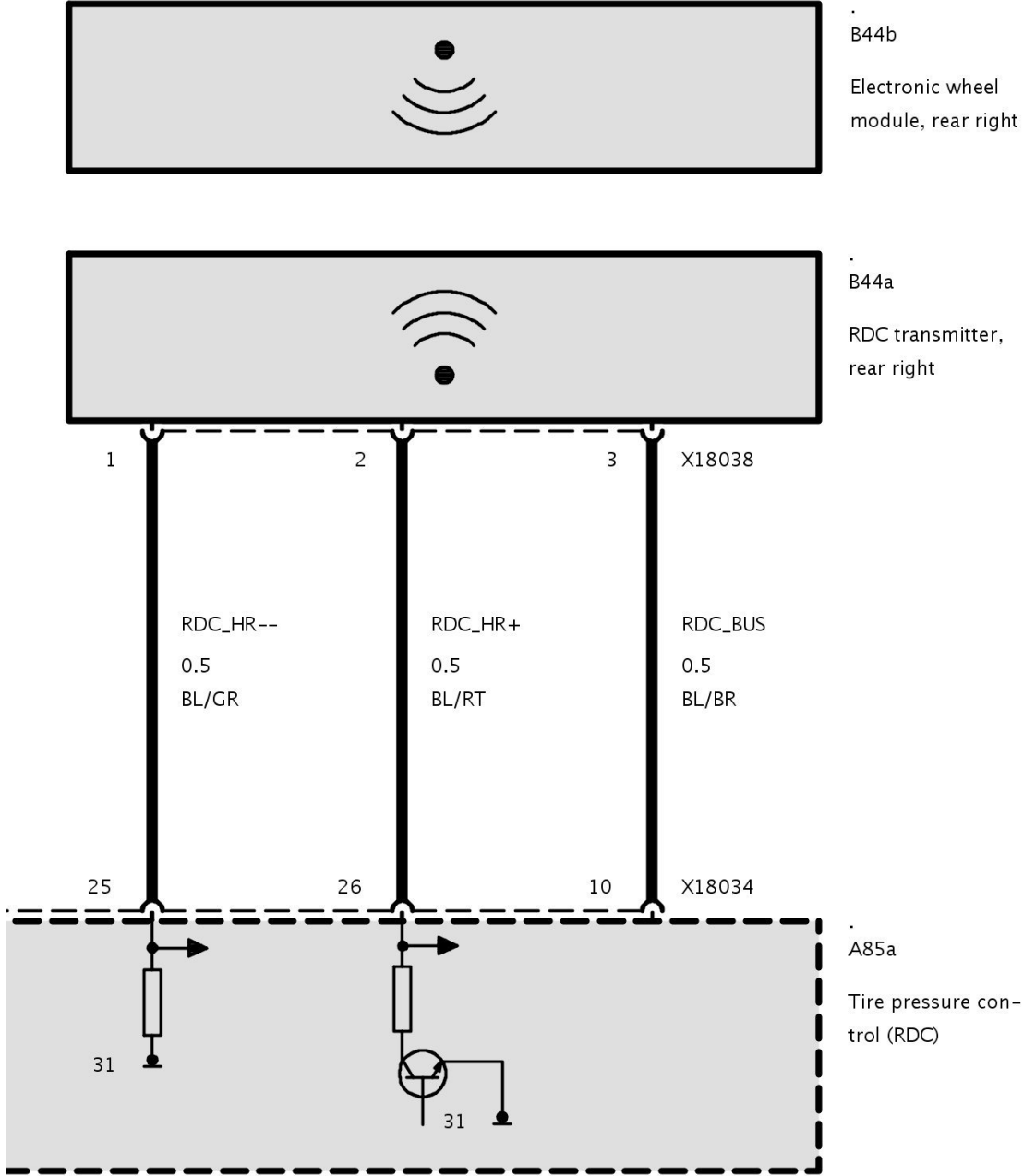




Part 4



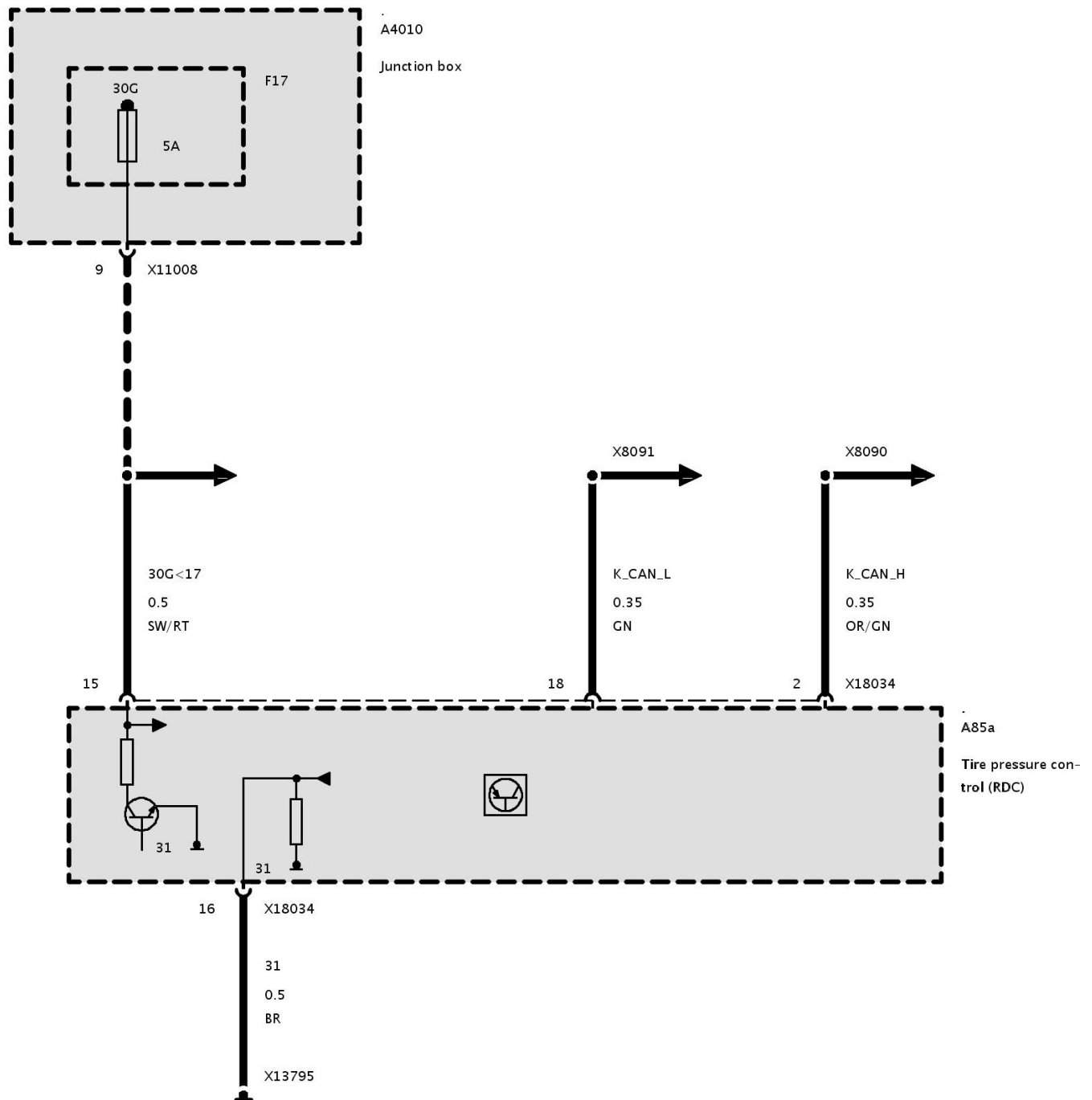
Part 5



Part 6

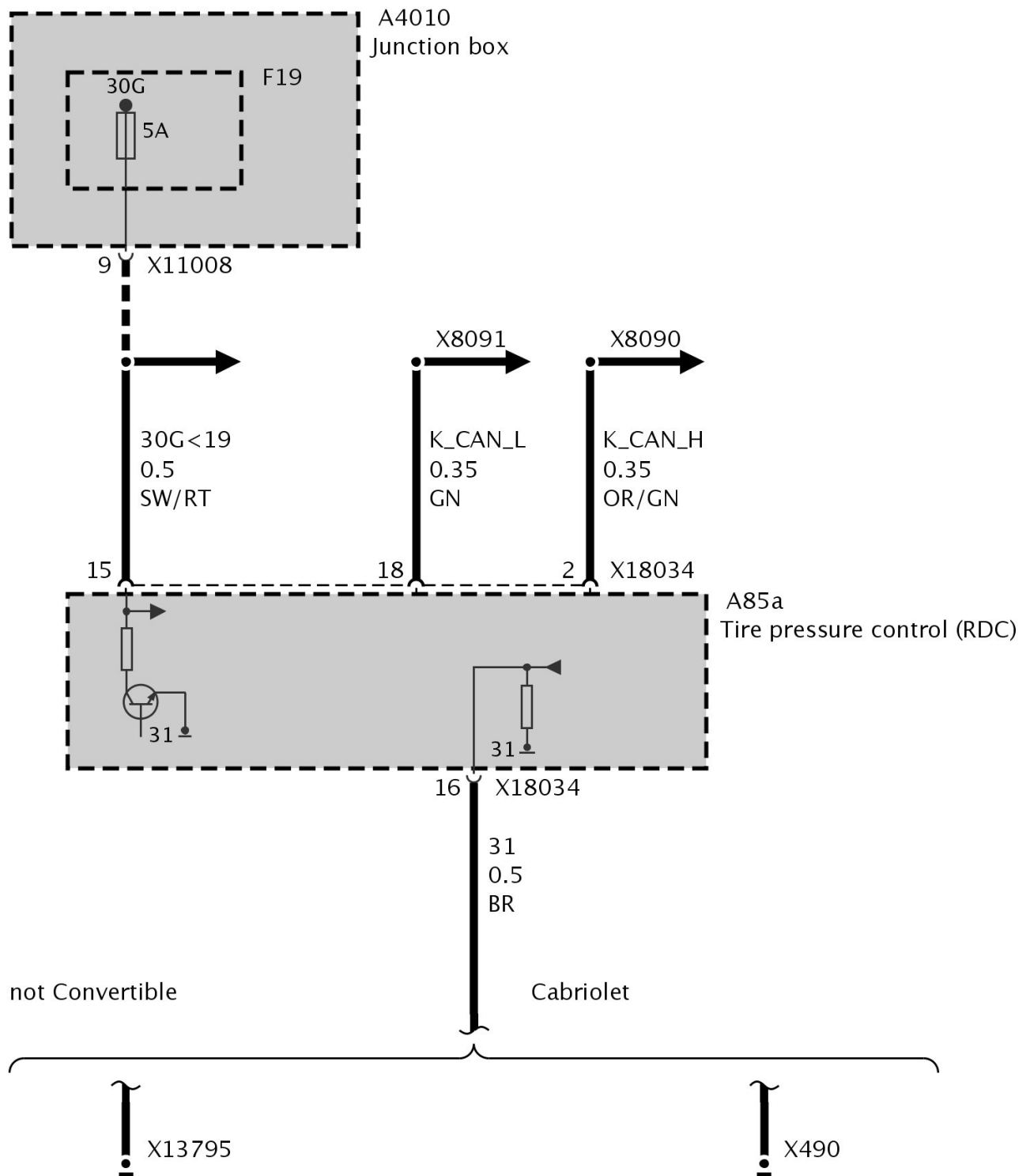
Supply, Control Module For Tire Pressure Control System (Up to 12/08)

Supply, Control Module For Tire Pressure Control System (Up to 12/08)



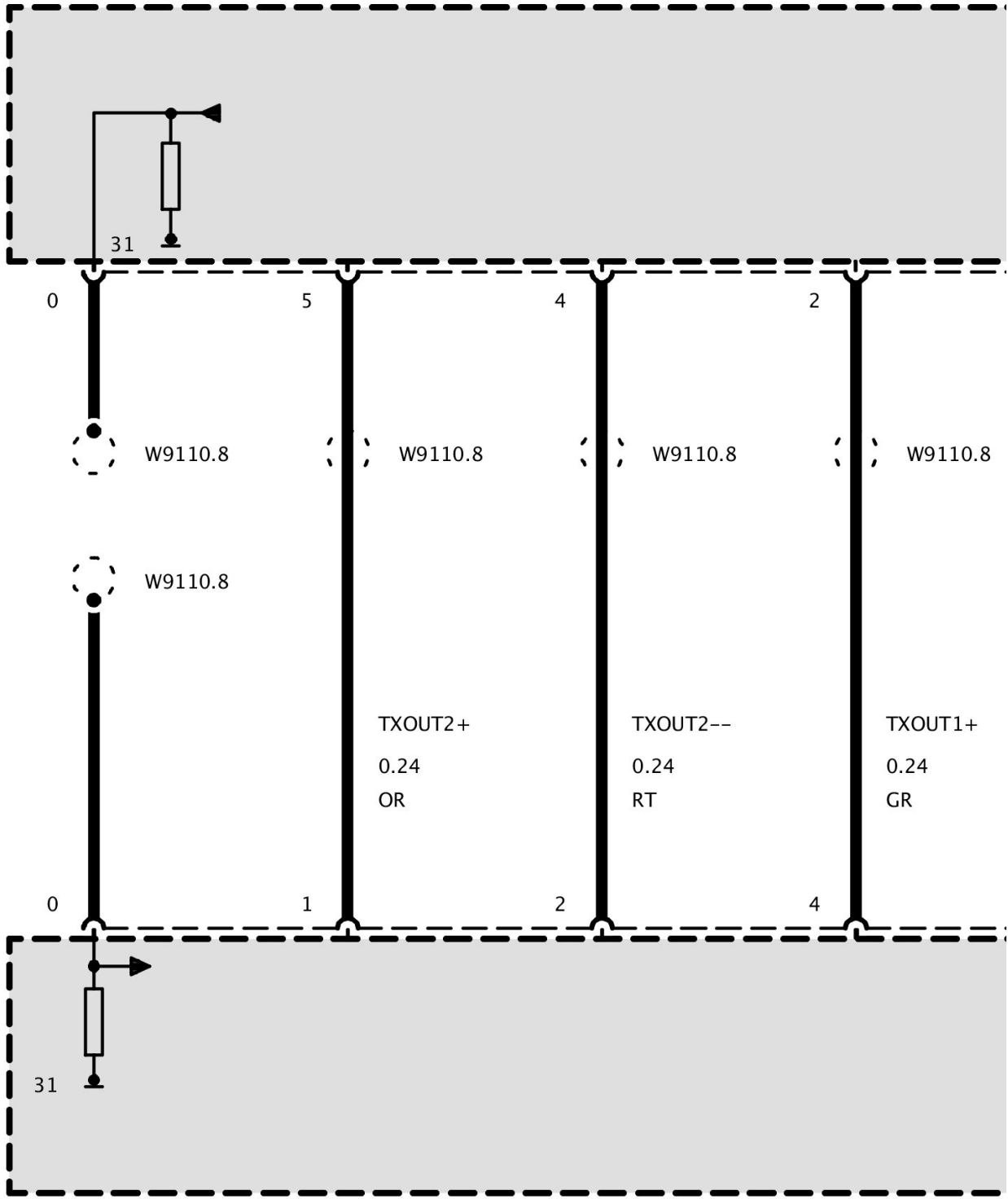
**Supply, Control Module For Tire Pressure Control System (As of 12/08)**

**Supply, Control Module For Tire Pressure Control System (As of 12/08)**

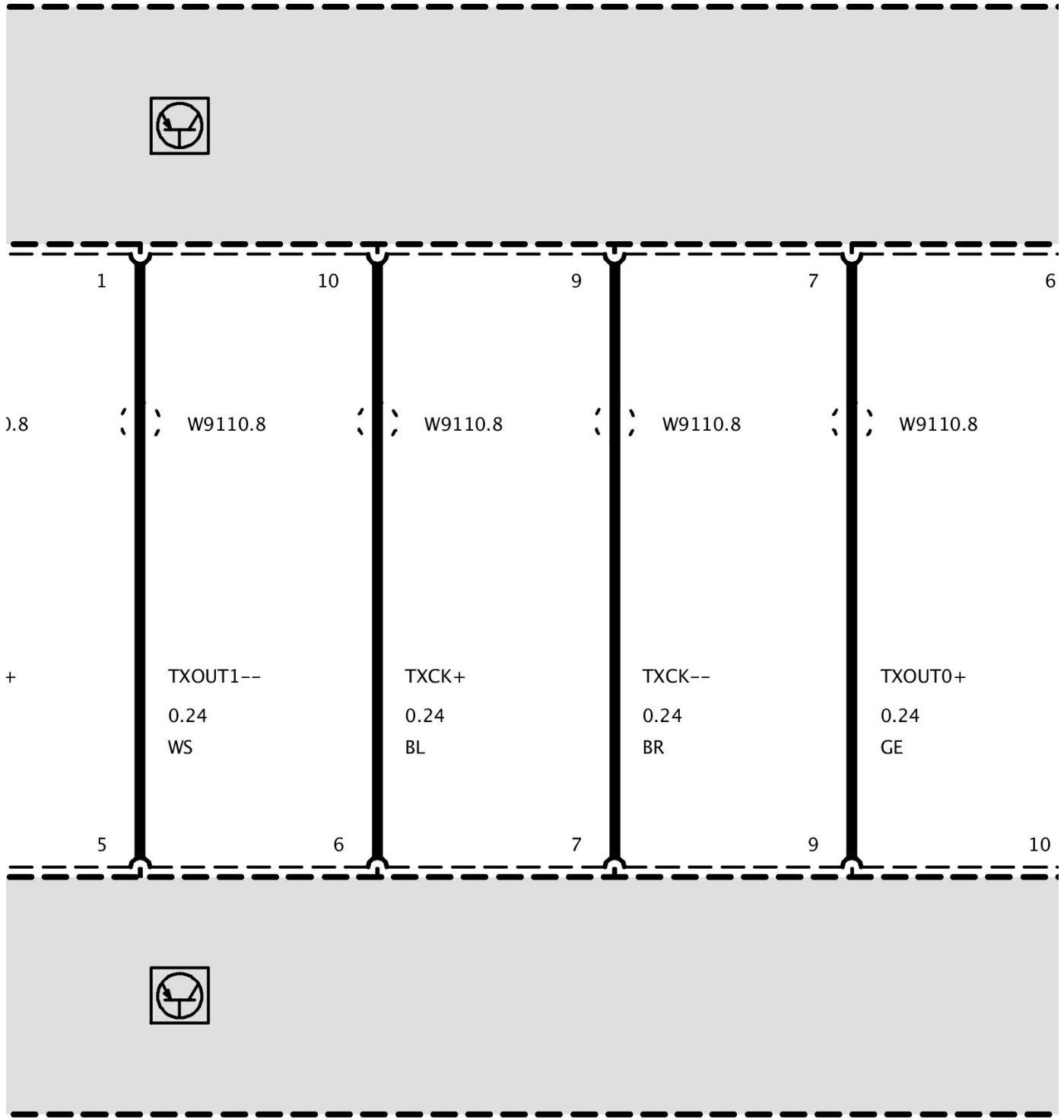


## Central Information Display (CID)

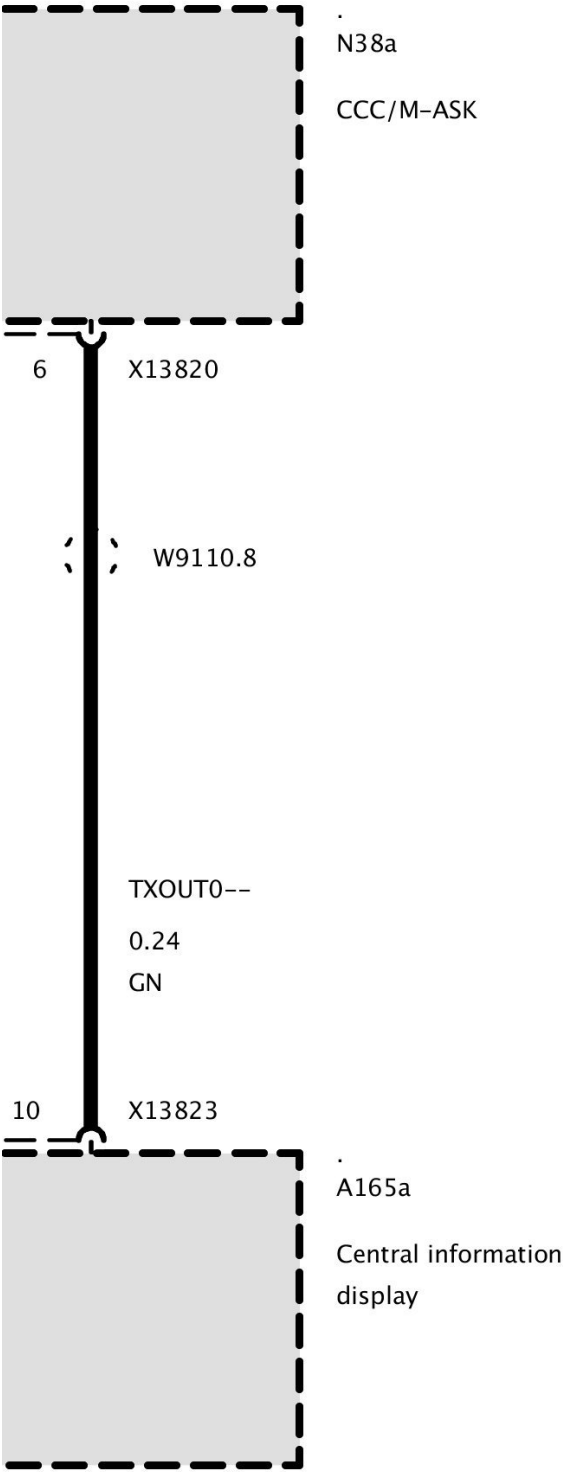
Central Information Display (CID)



Part 1



Part 2

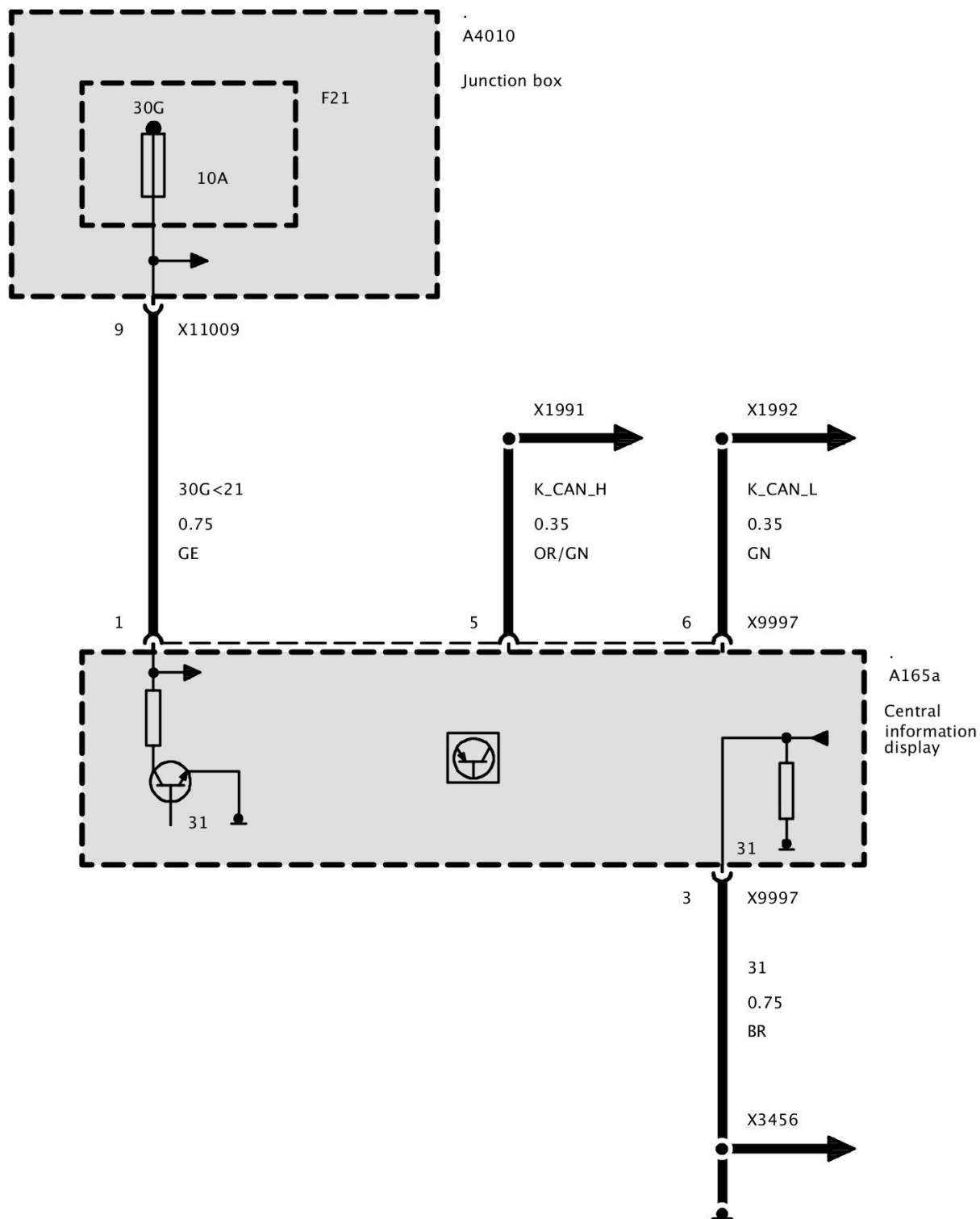


Part 3

Power Supply, Central Information Display CID

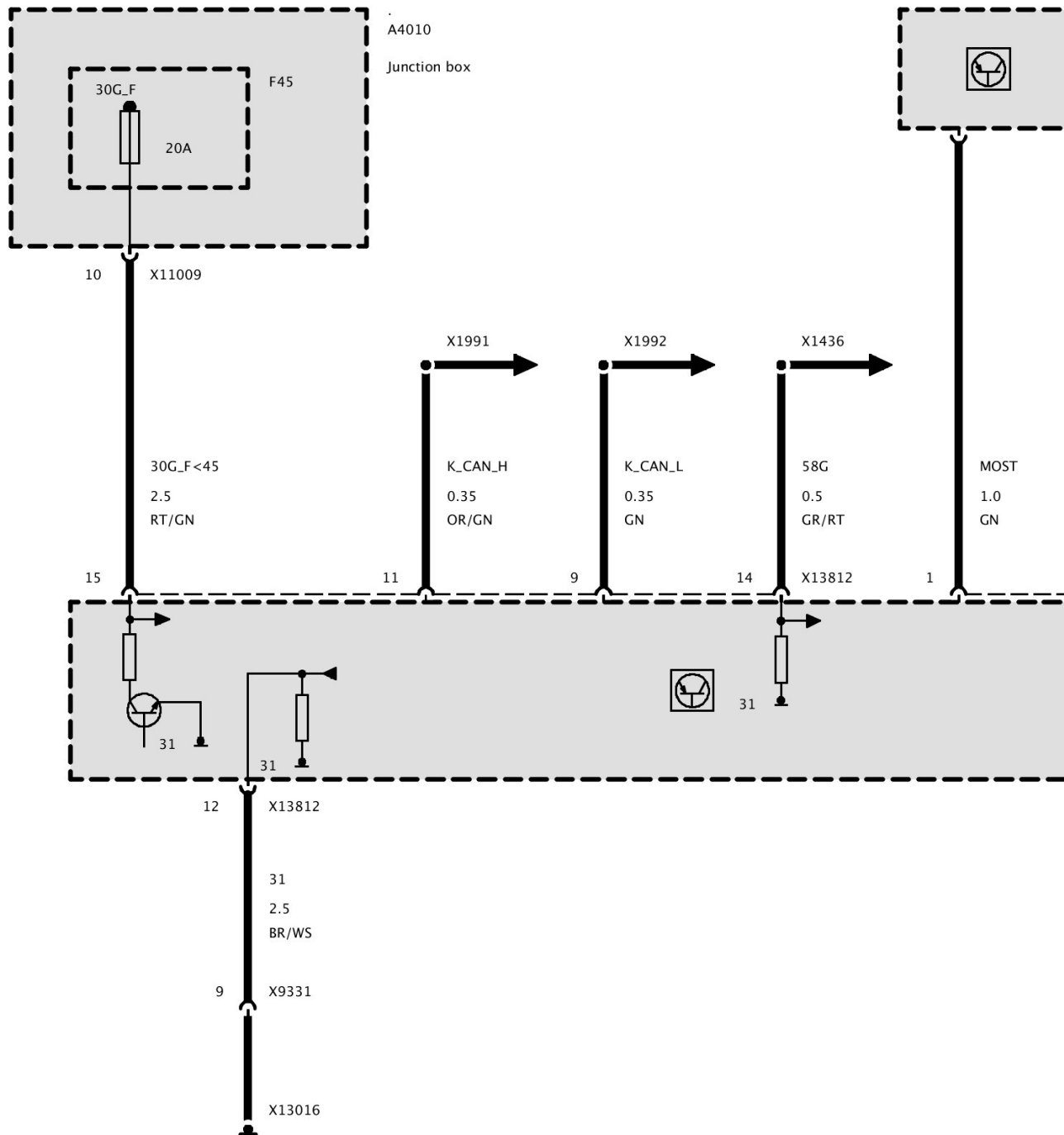
Supply Central Information Display (CID)



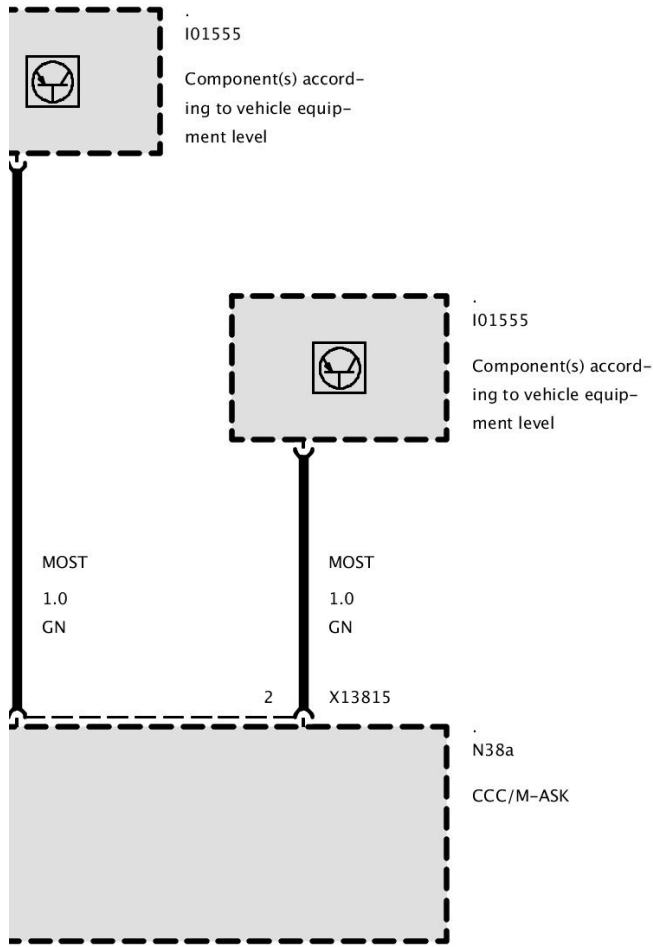


## Supply, CCC Car Communication Computer (CCC-BO User Interface)

Power Supply CCC/M-ASK (As Of 08/07)



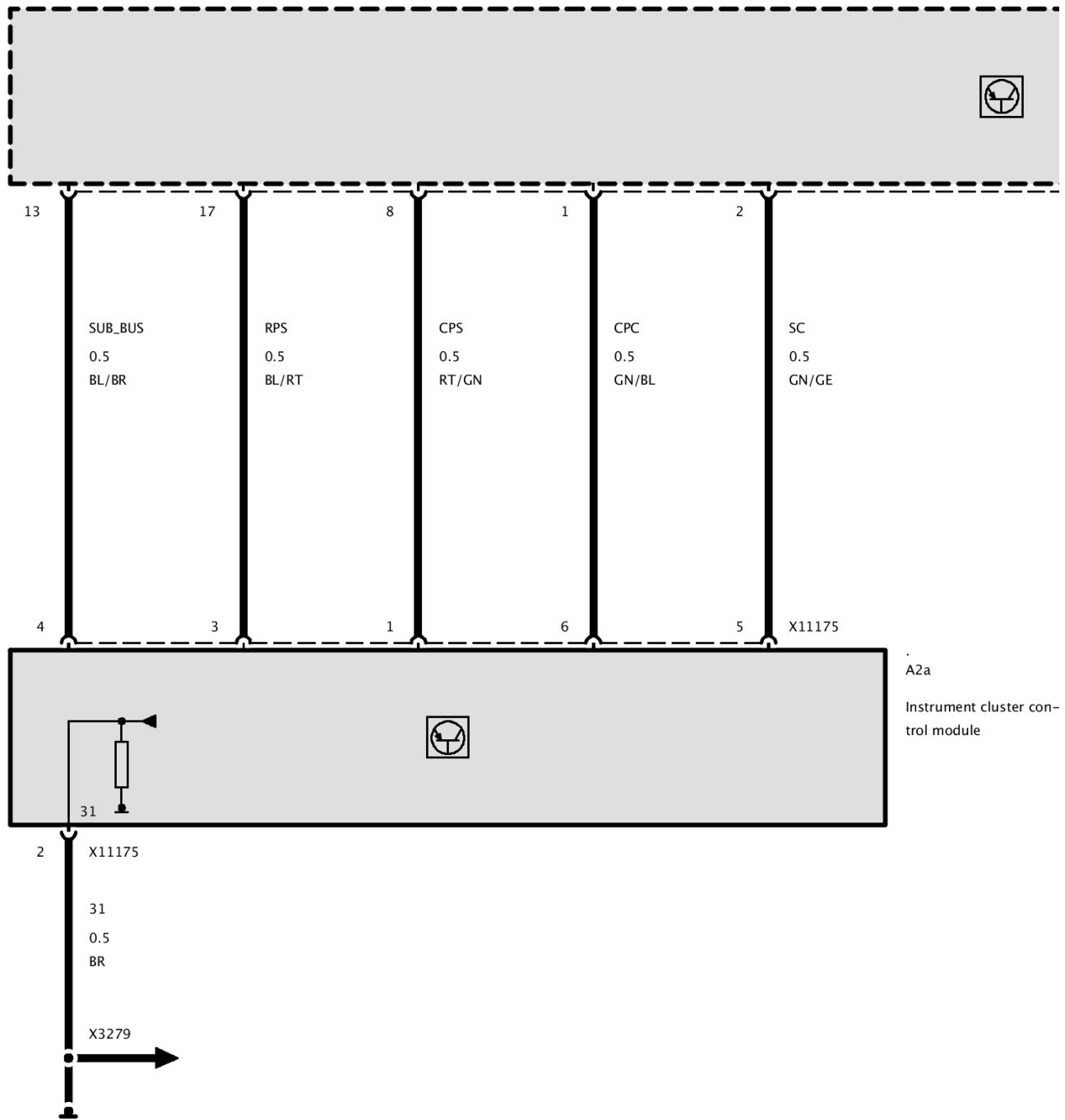
Part 1



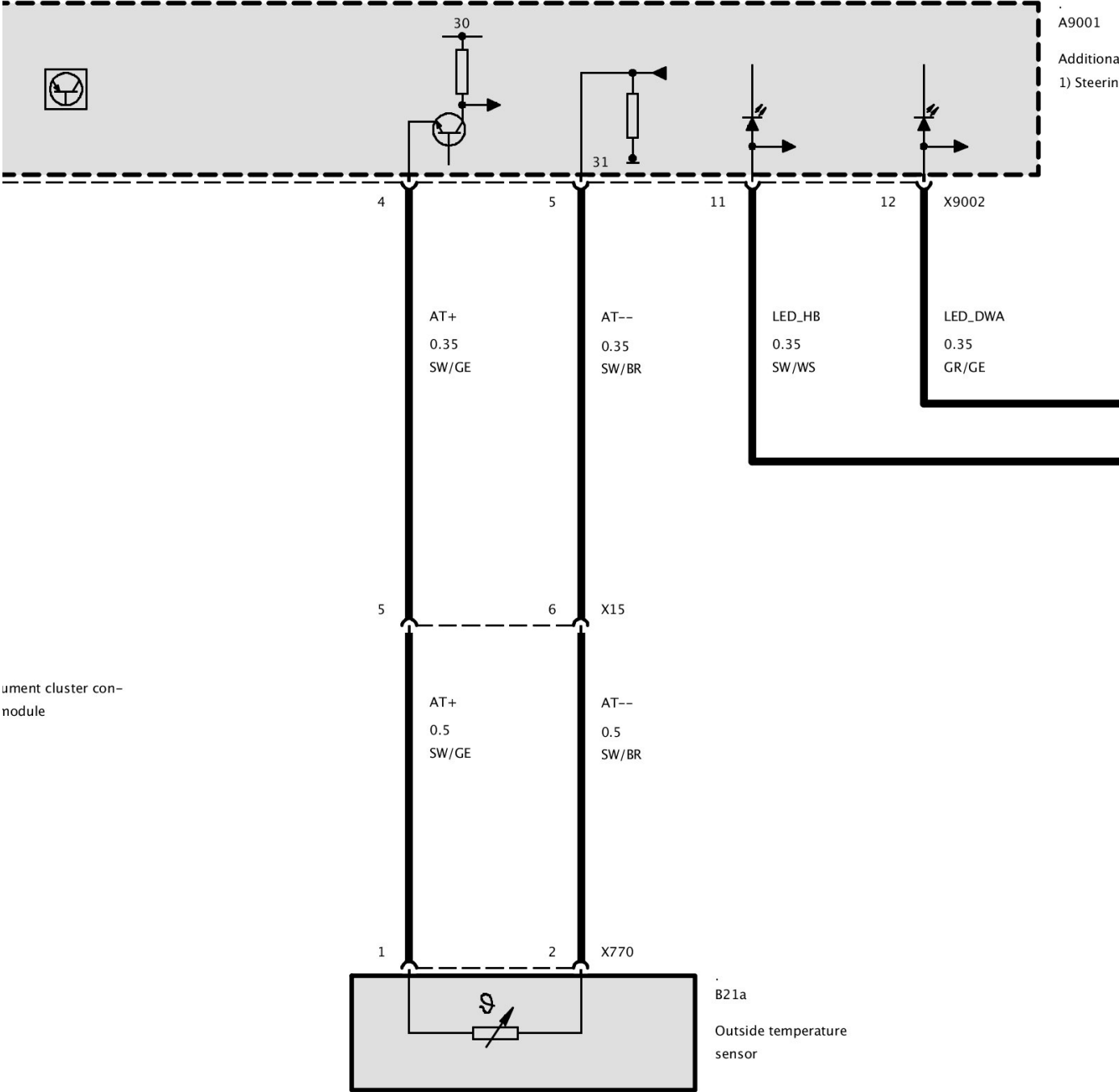
**Part 2**

**A2a Instrument Cluster Control Module (USA\_LHD)**

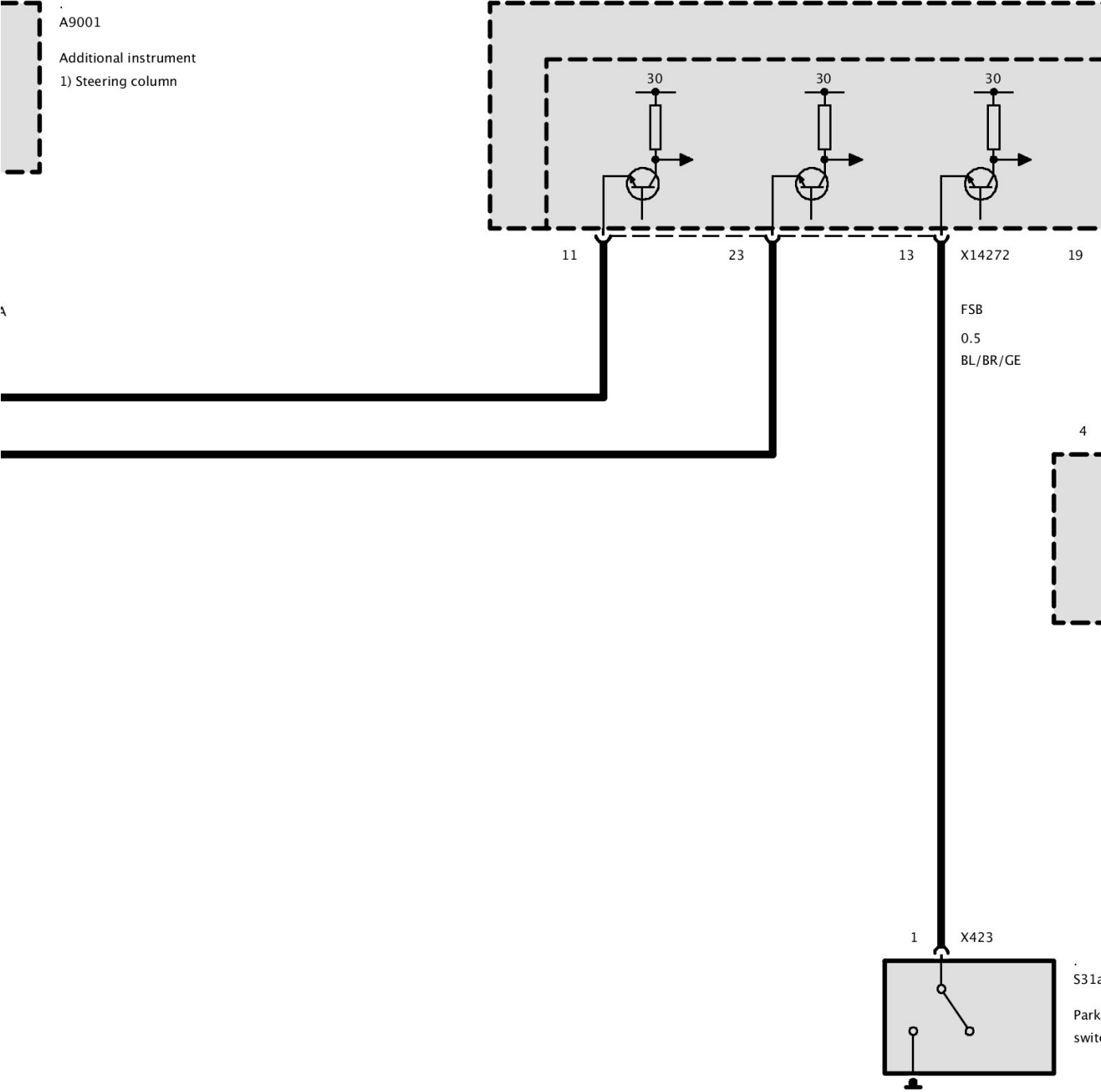
A2a Instrument Cluster Control Module (USA\_LHD)



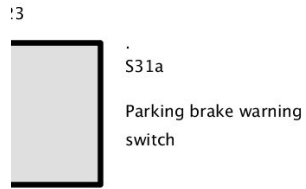
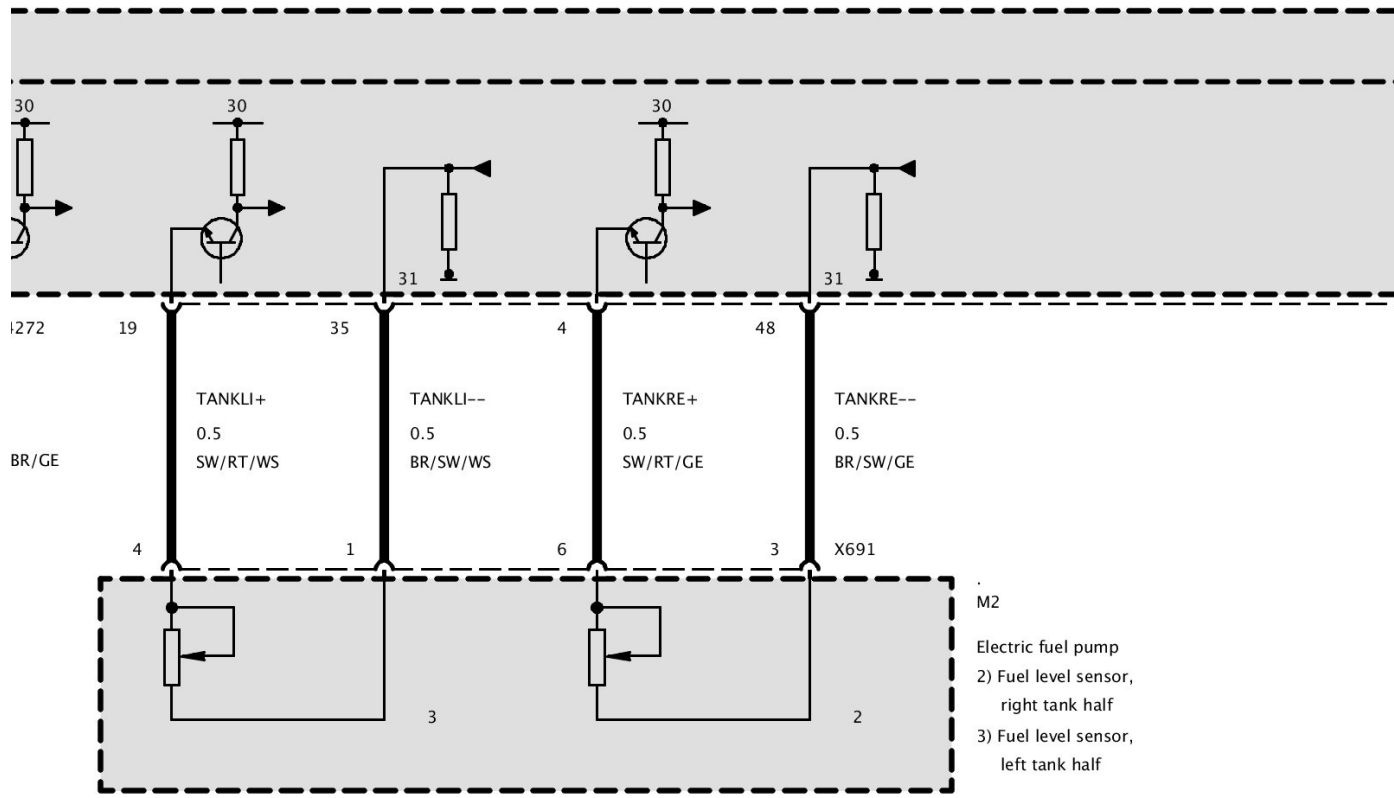
Part 1



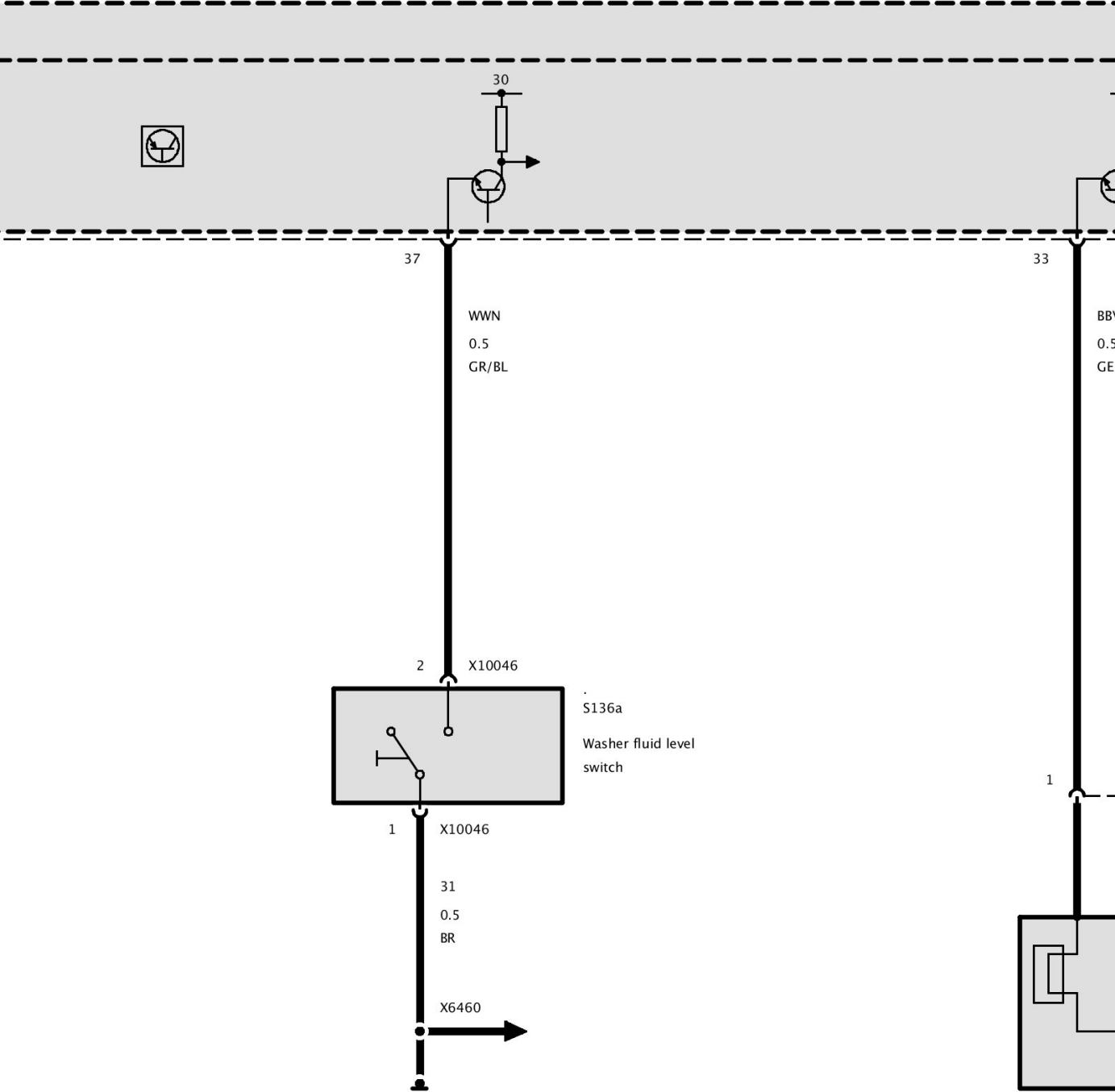
Part 2



Part 3

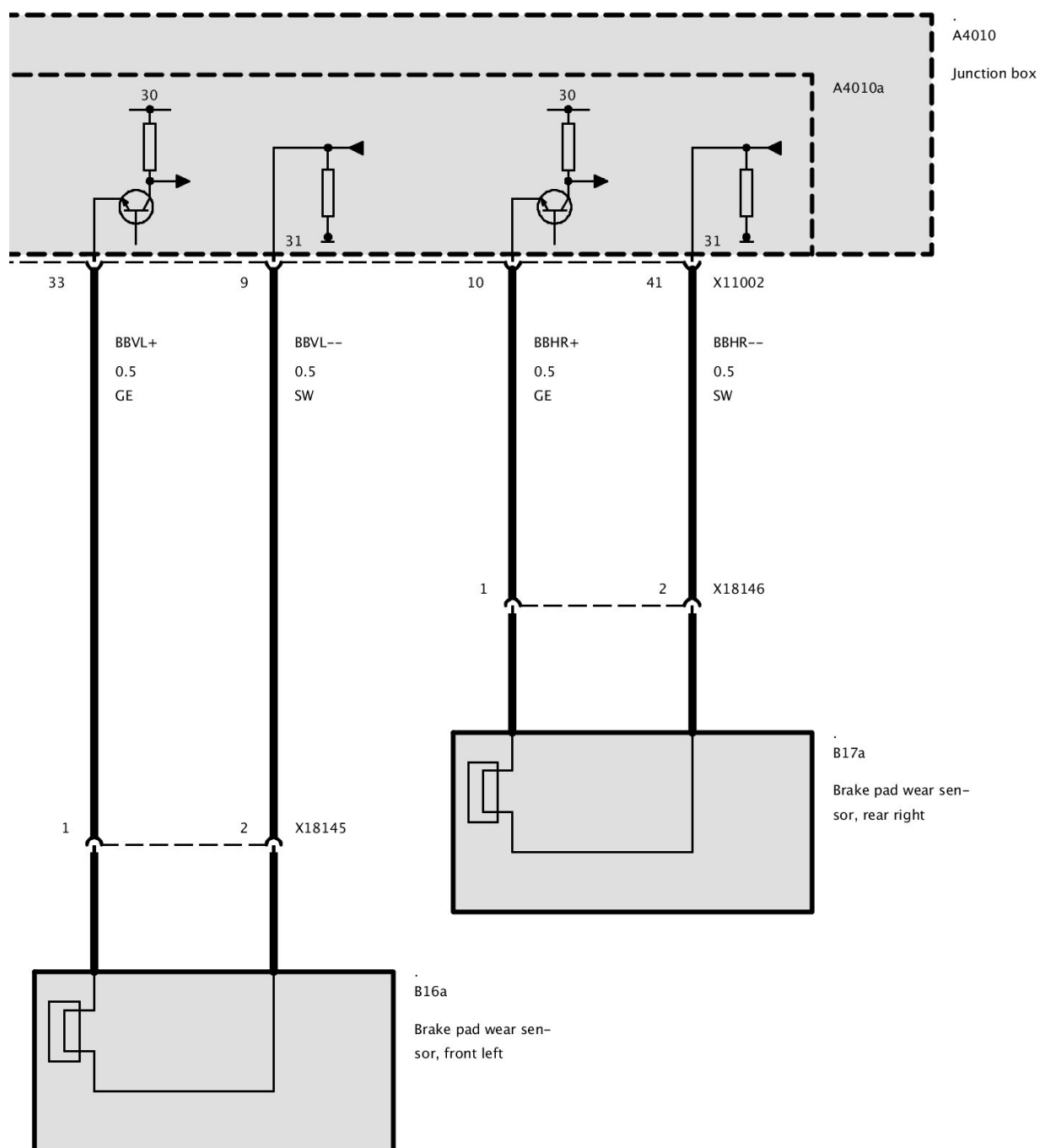


Part 4



Part 5

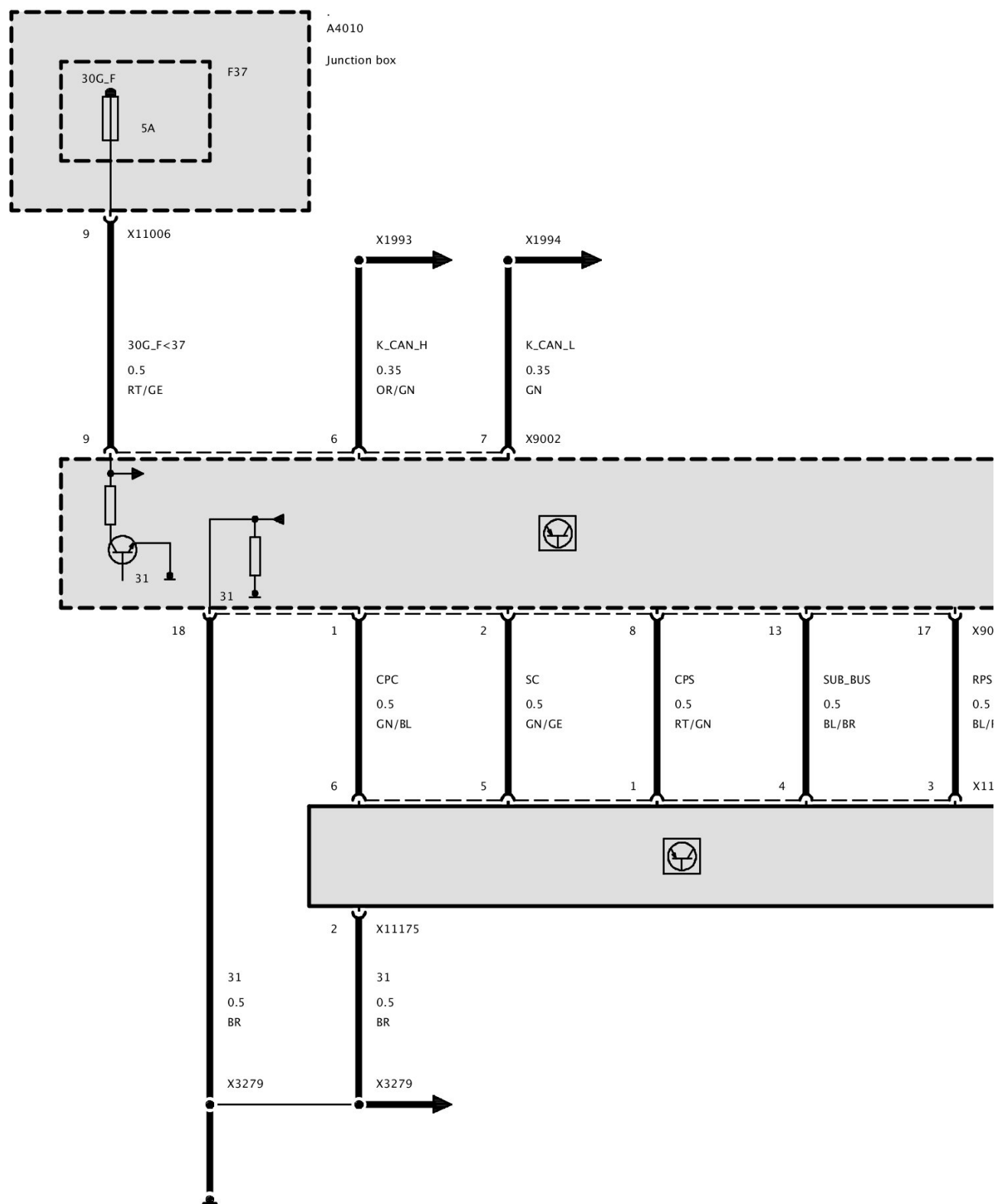




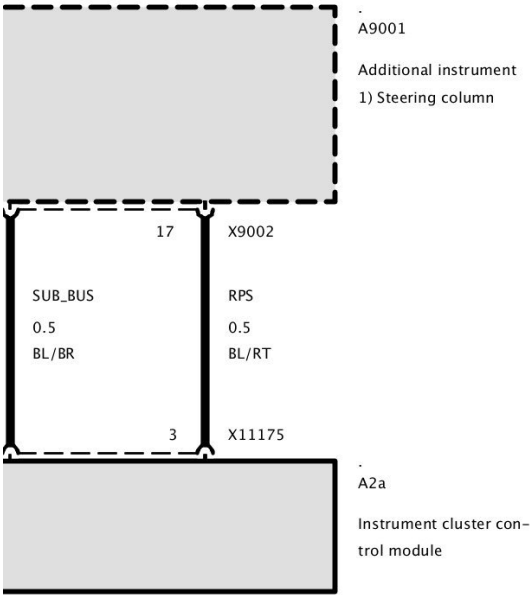
### Part 6

## Power Supply, Instrument Cluster KOMBI (Up To 12/08)

Power Supply, Instrument Cluster KOMBI (Up To 12/08)



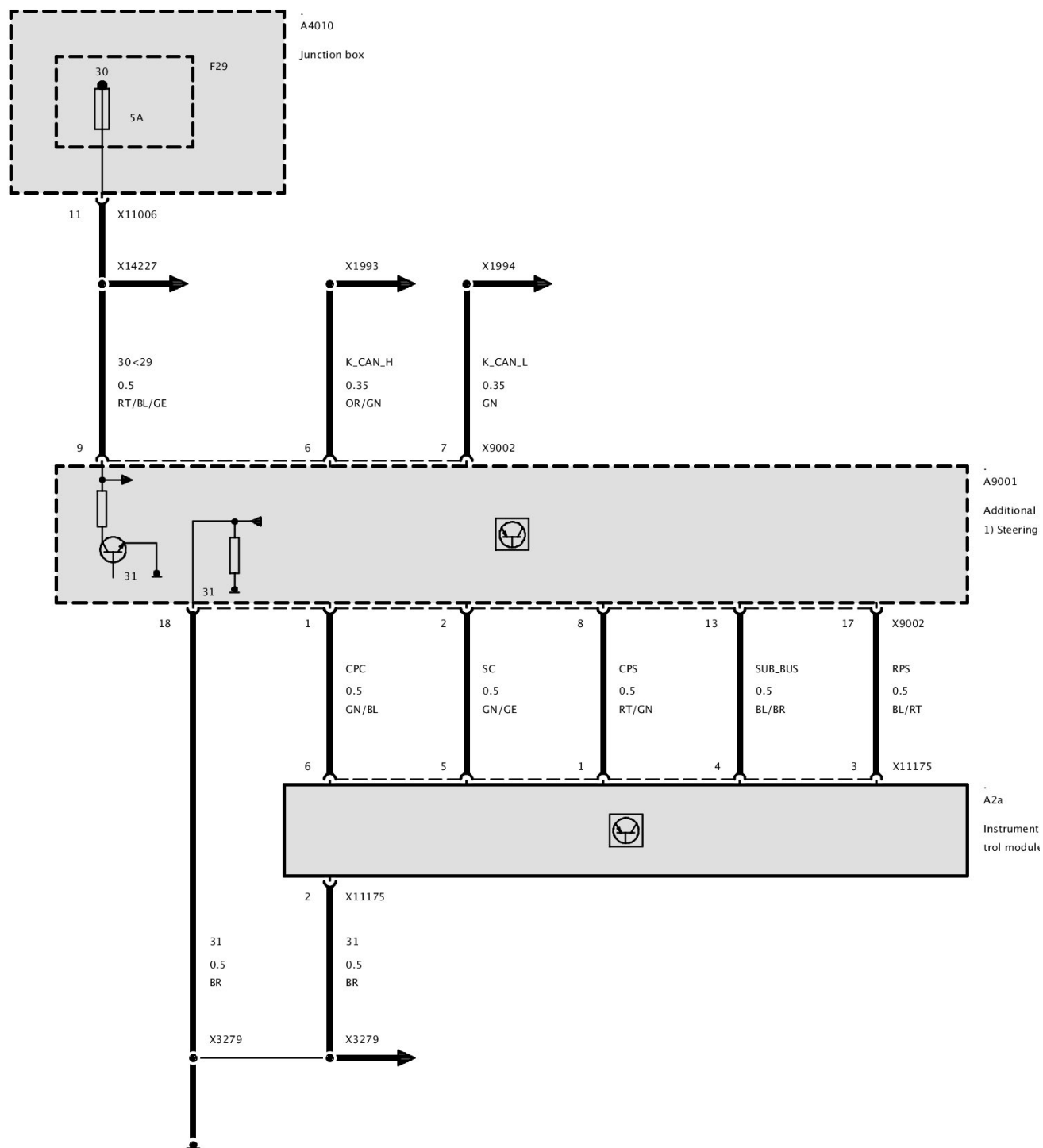
jmoraflores@hotmail.cl



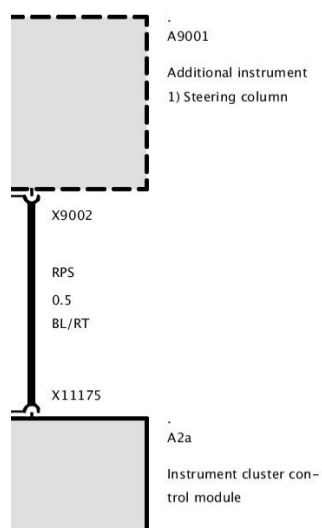
Part 2

Power Supply, Instrument Cluster KOMBI (As Of 12/08)

Power Supply, Instrument Cluster KOMBI (As Of 12/08)



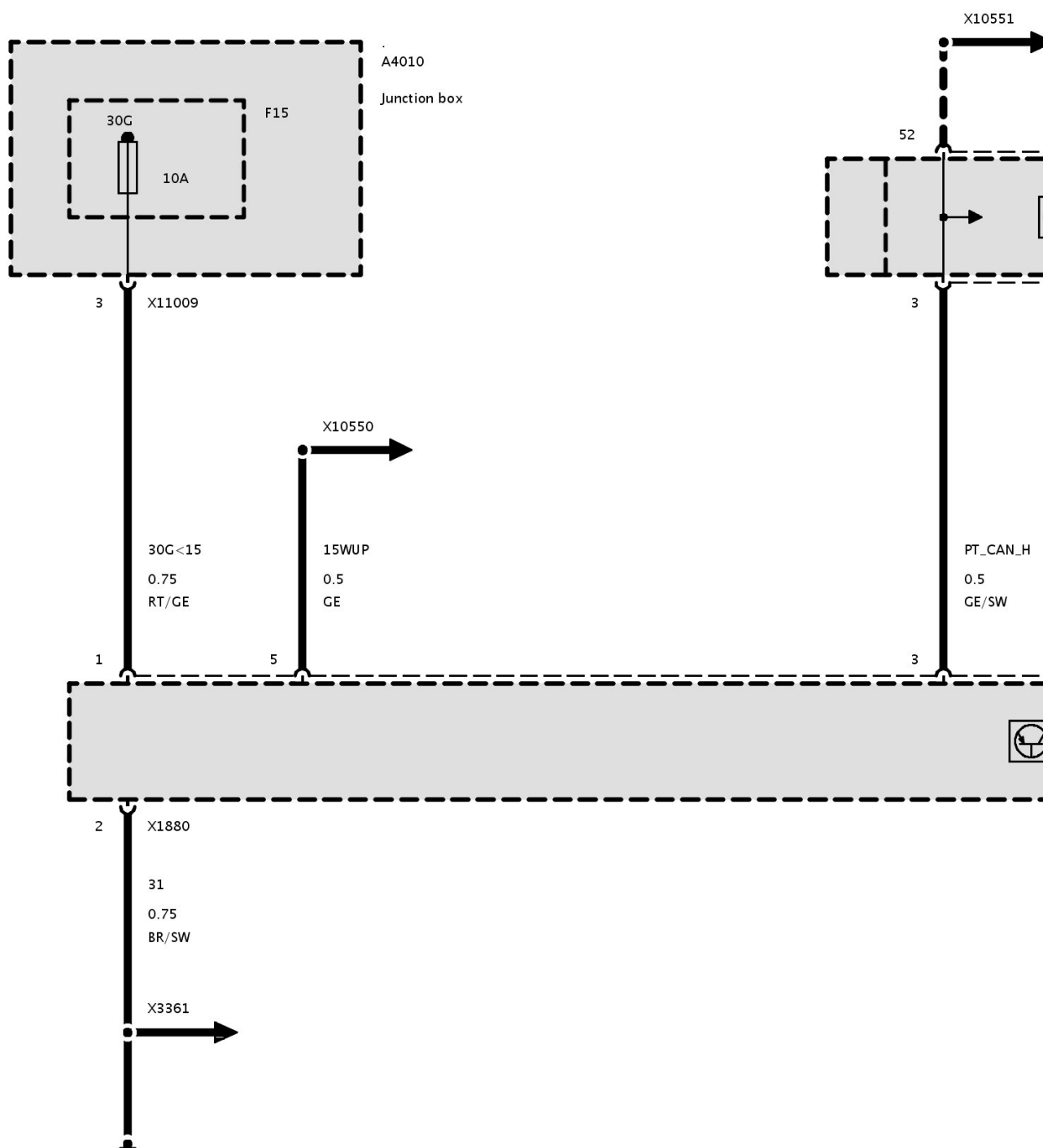
## Part 1



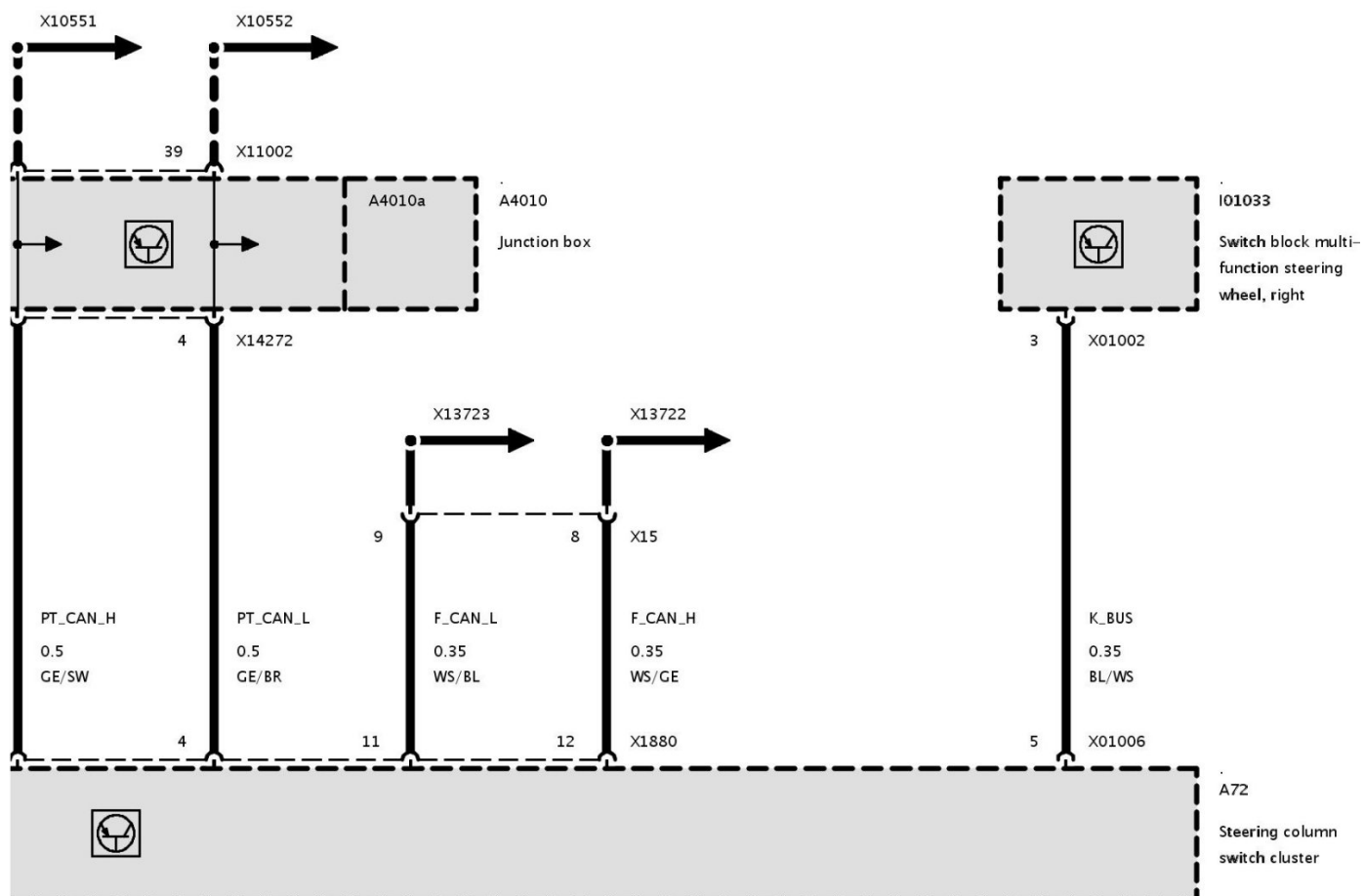
## Part 2

**Supply, Steering Column Switch Cluster SZL (Up To 12/08)**

**Supply, Steering Column Switch Cluster SZL (Up To 12/08)**



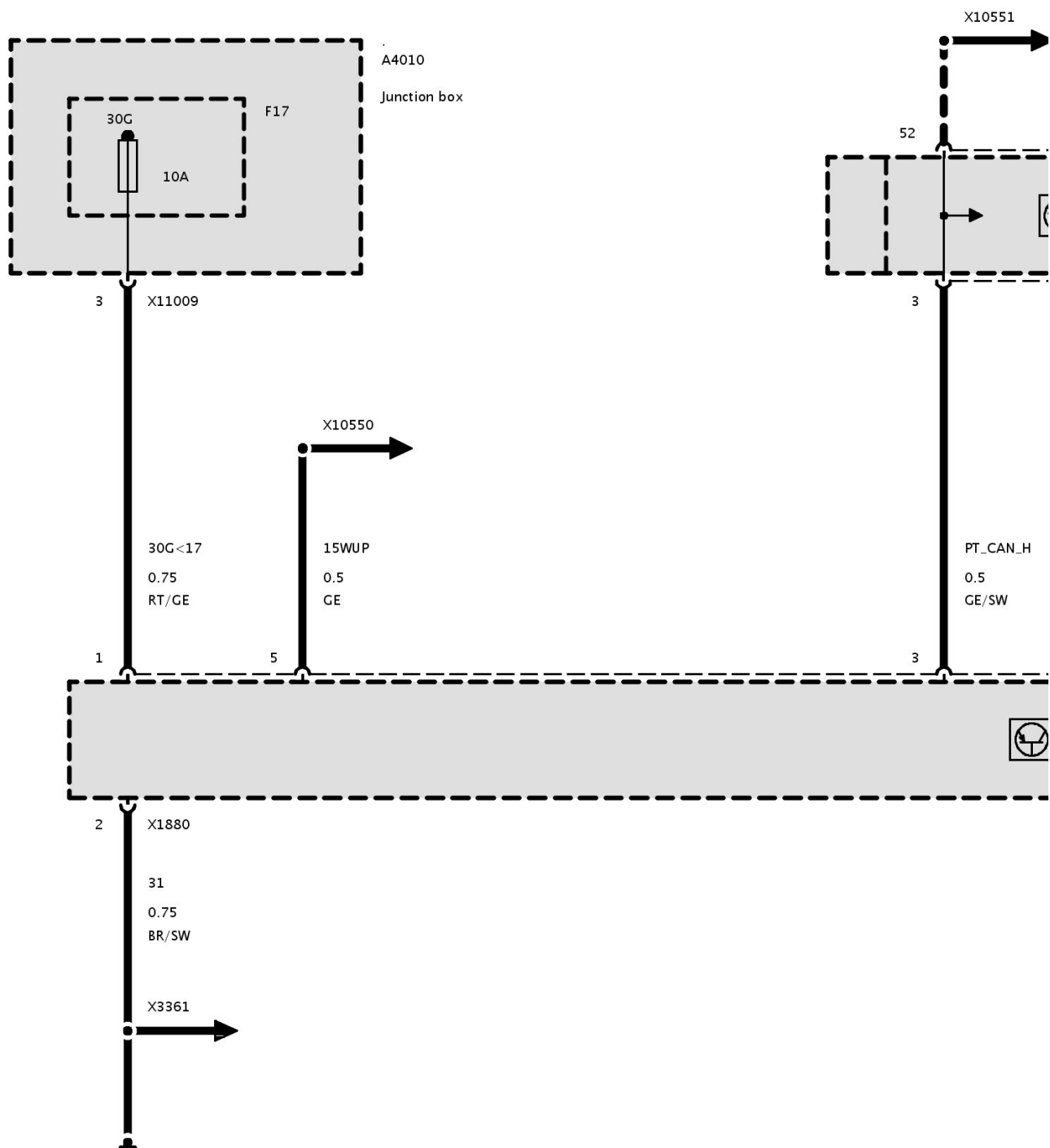
jmoraflores@hotmail.cl



## Part 2

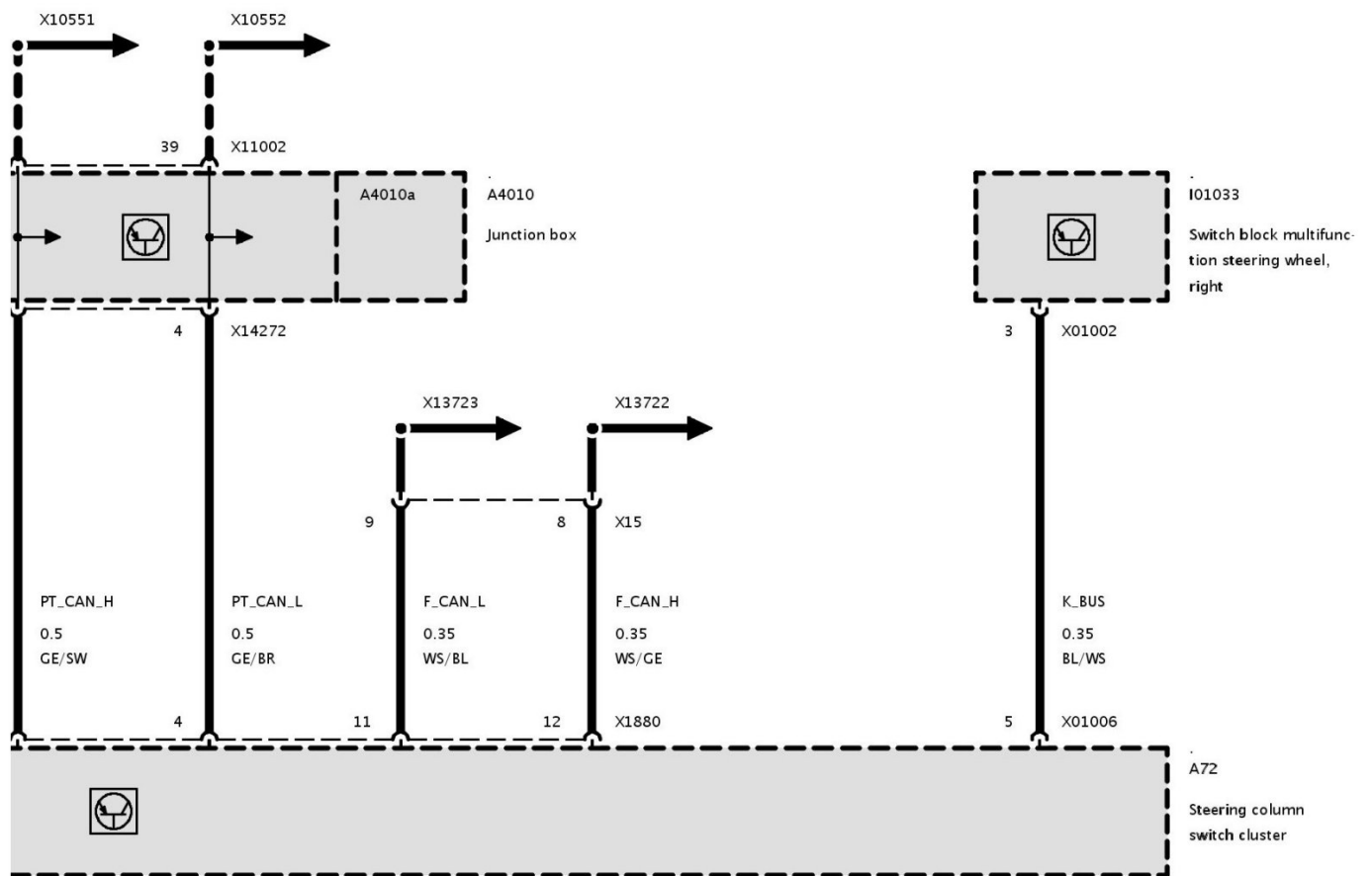
Supply, Steering Column Switch Cluster SZL (As Of 12/08)

Supply, Steering Column Switch Cluster SZL (As Of 12/08)



Part 1

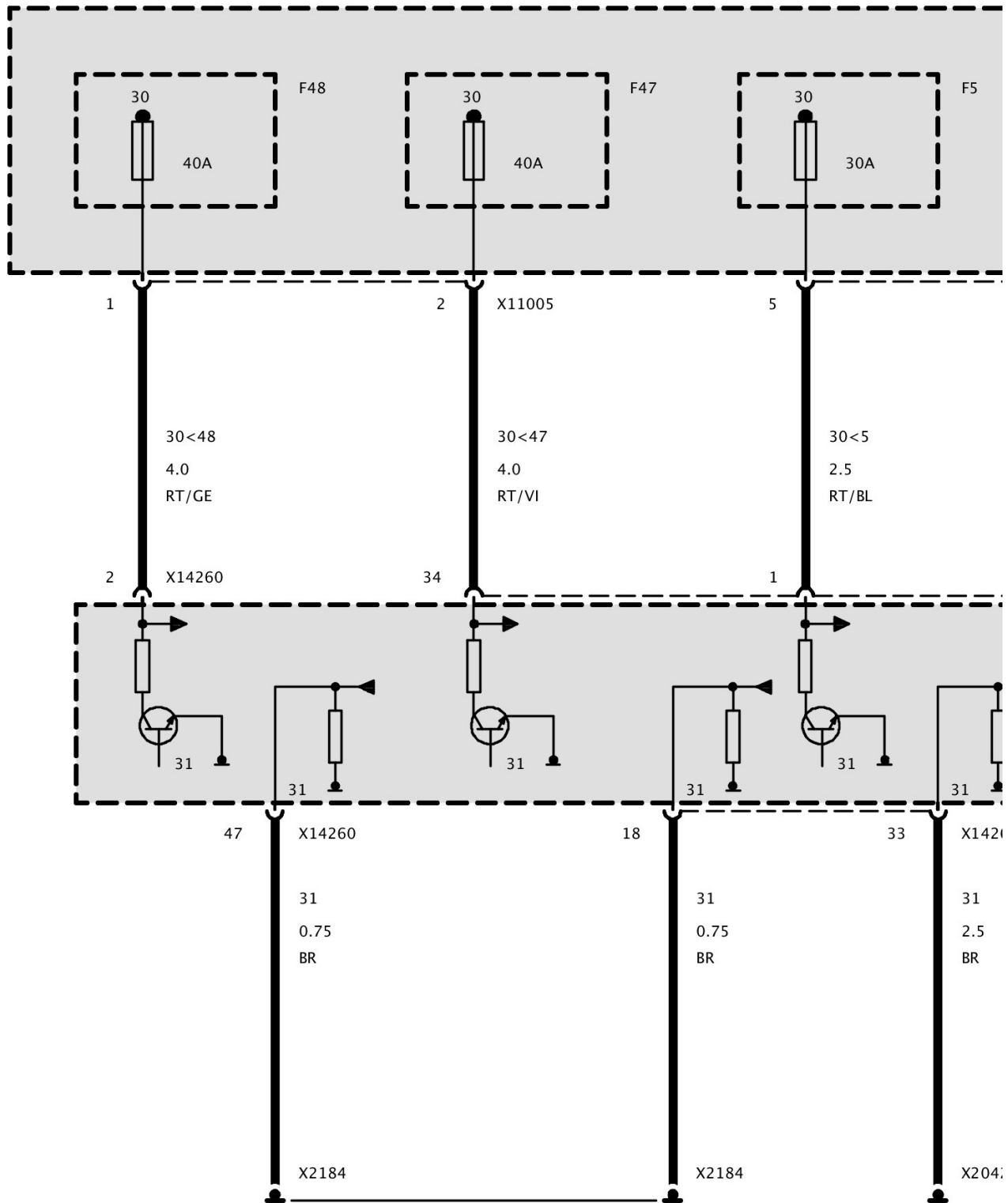




## Part 2

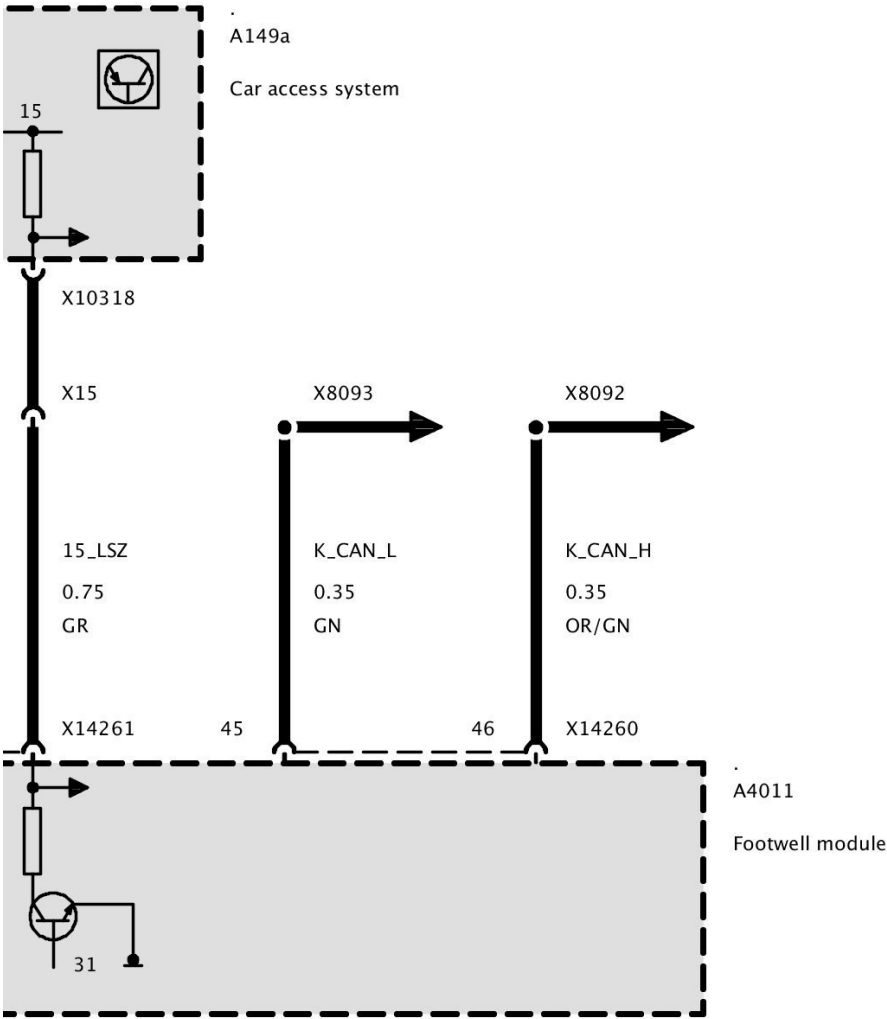
### Power Supply, Footwell Module FRM (Up To 12/08)

Power Supply, Footwell Module FRM (Up To 12/08)



Part 1

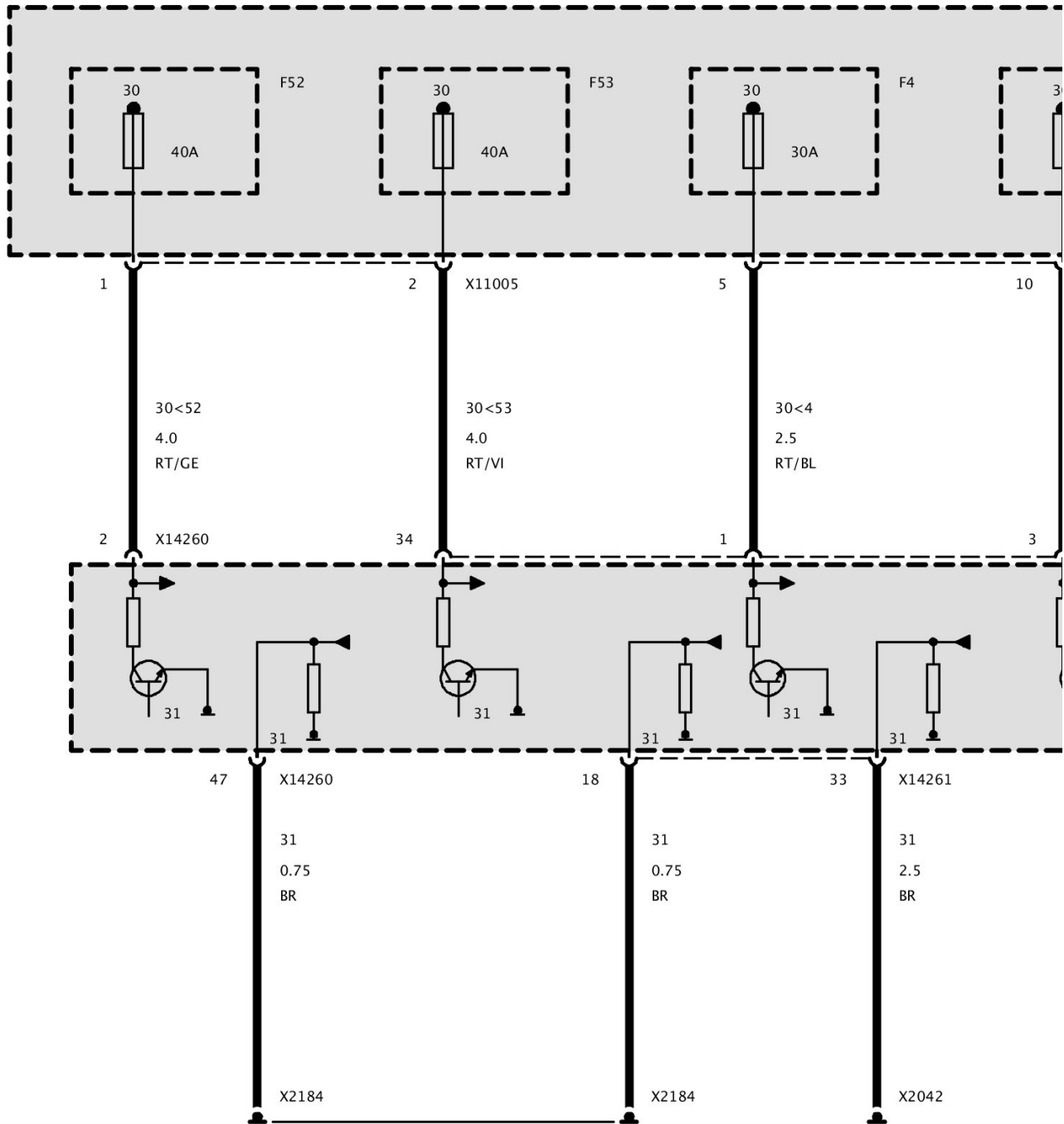




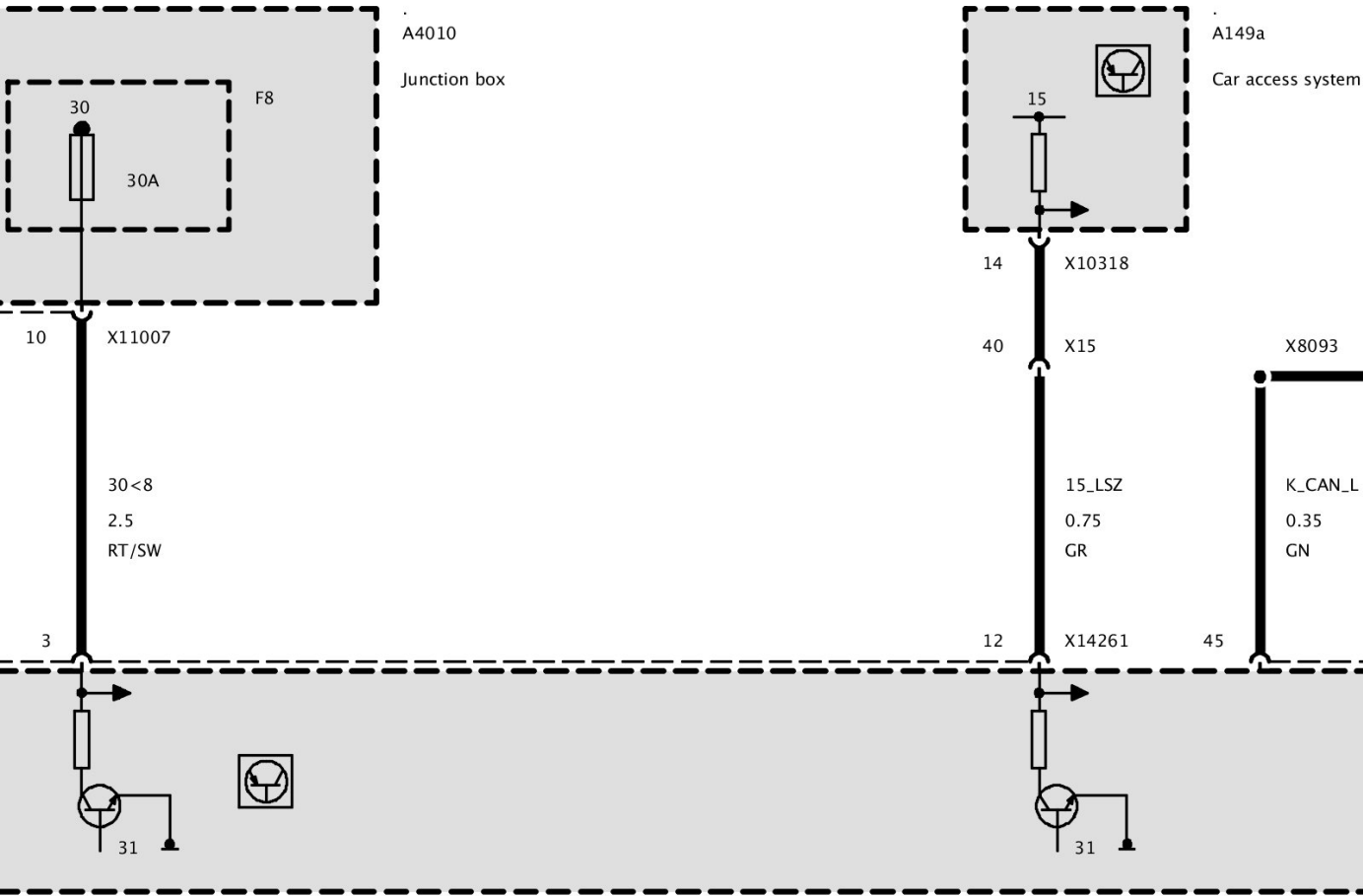
Part 3

Power Supply, Footwell Module FRM (As Of 12/08)

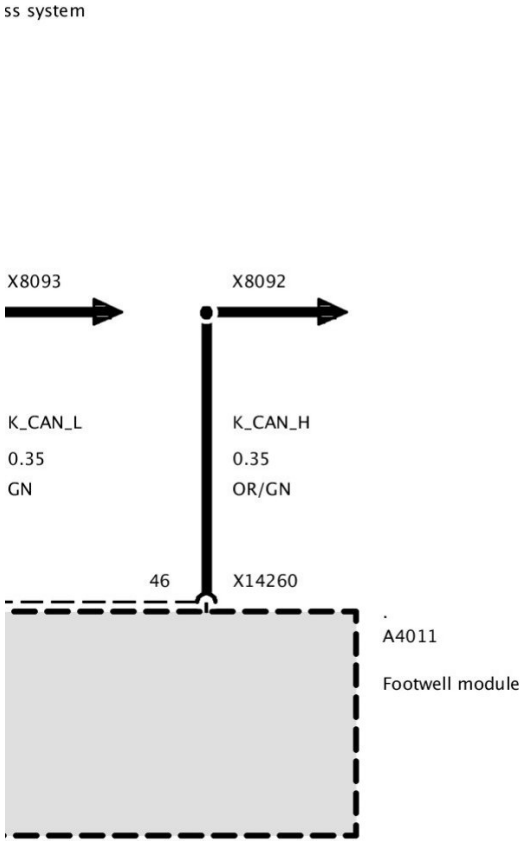
Power Supply, Footwell Module FRM (As Of 12/08)



Part 1



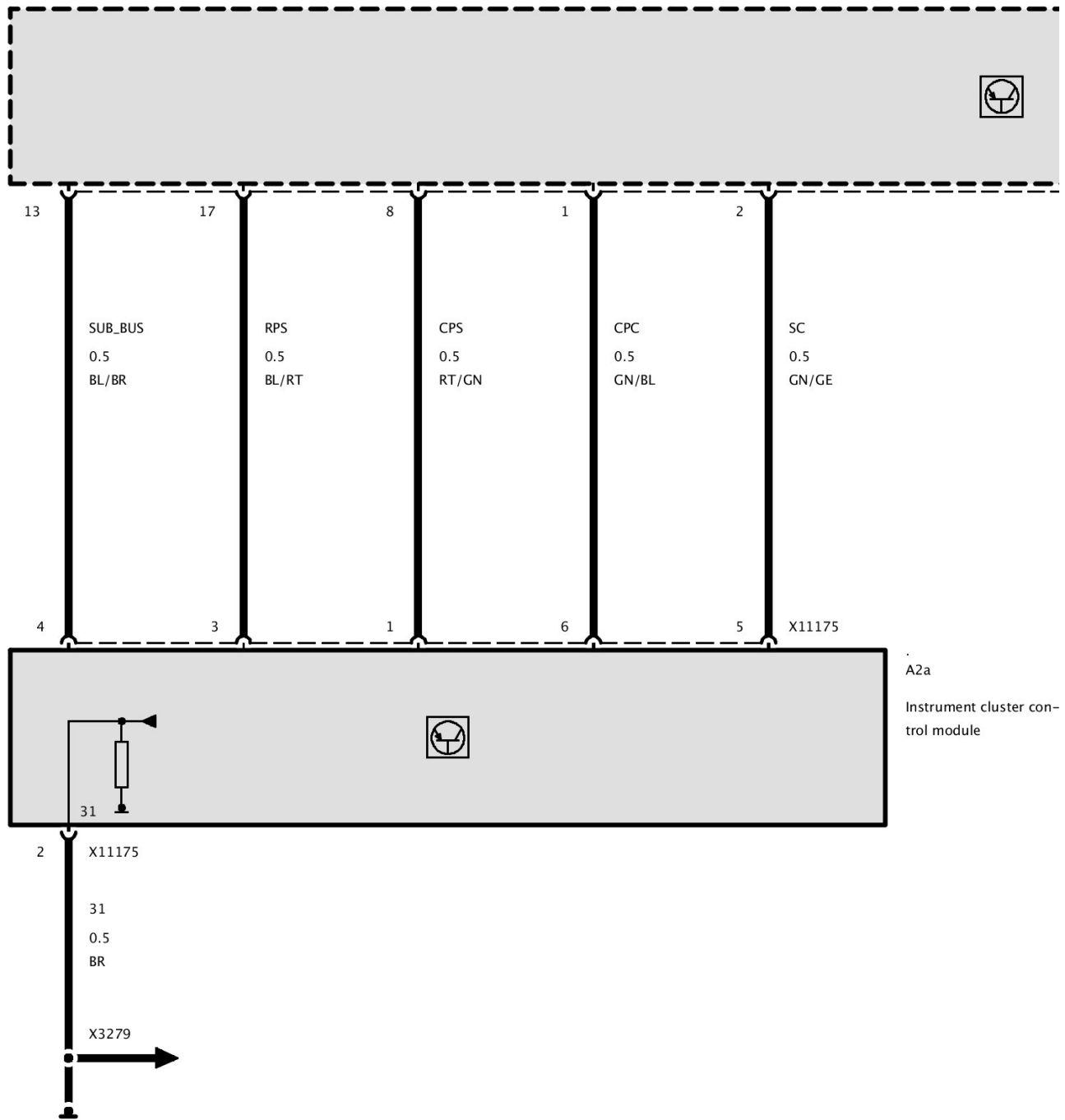
Part 2



Part 3

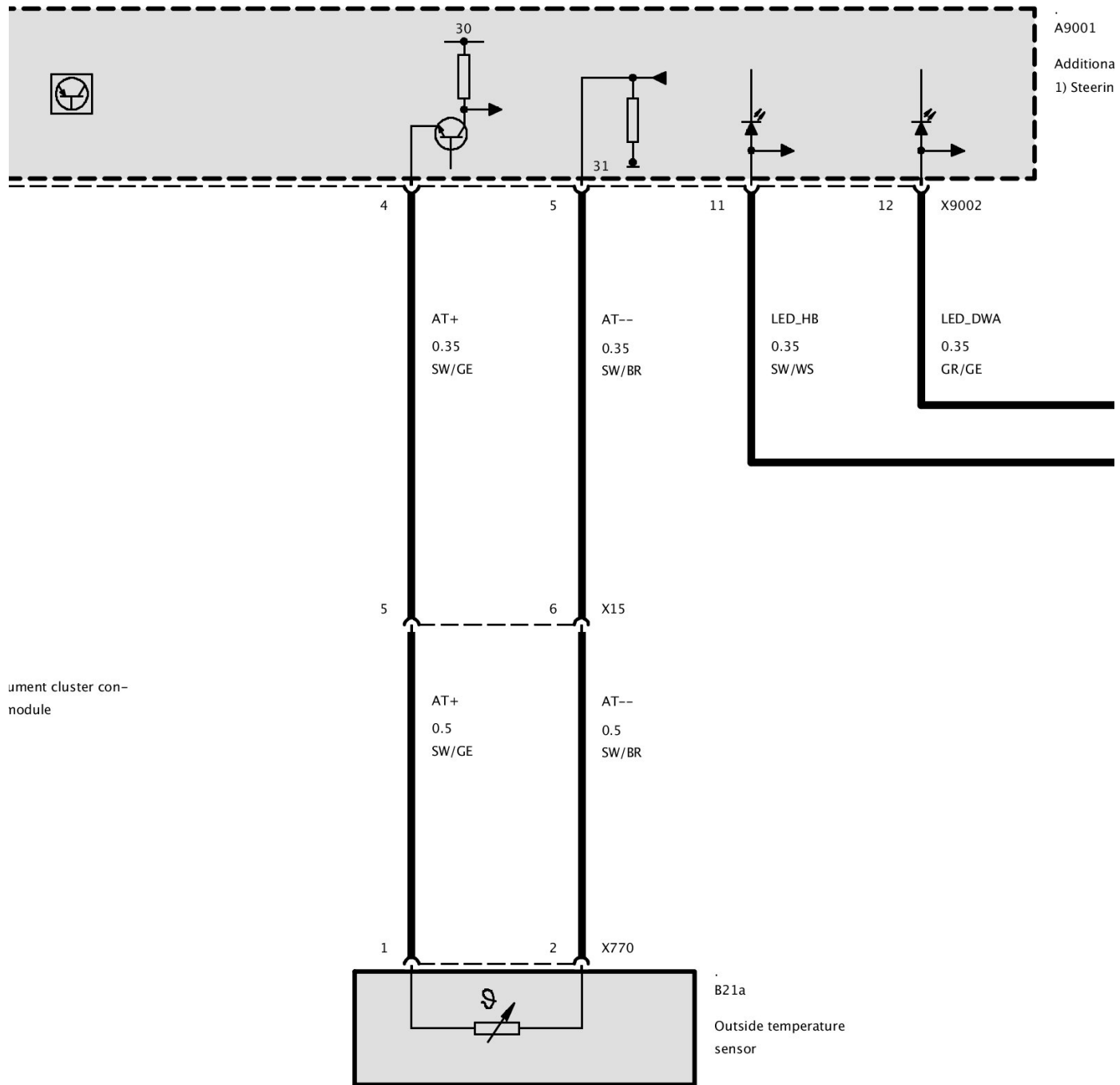
A2a Instrument Cluster Control Module (USA\_LHD)

A2a Instrument Cluster Control Module (USA\_LHD)

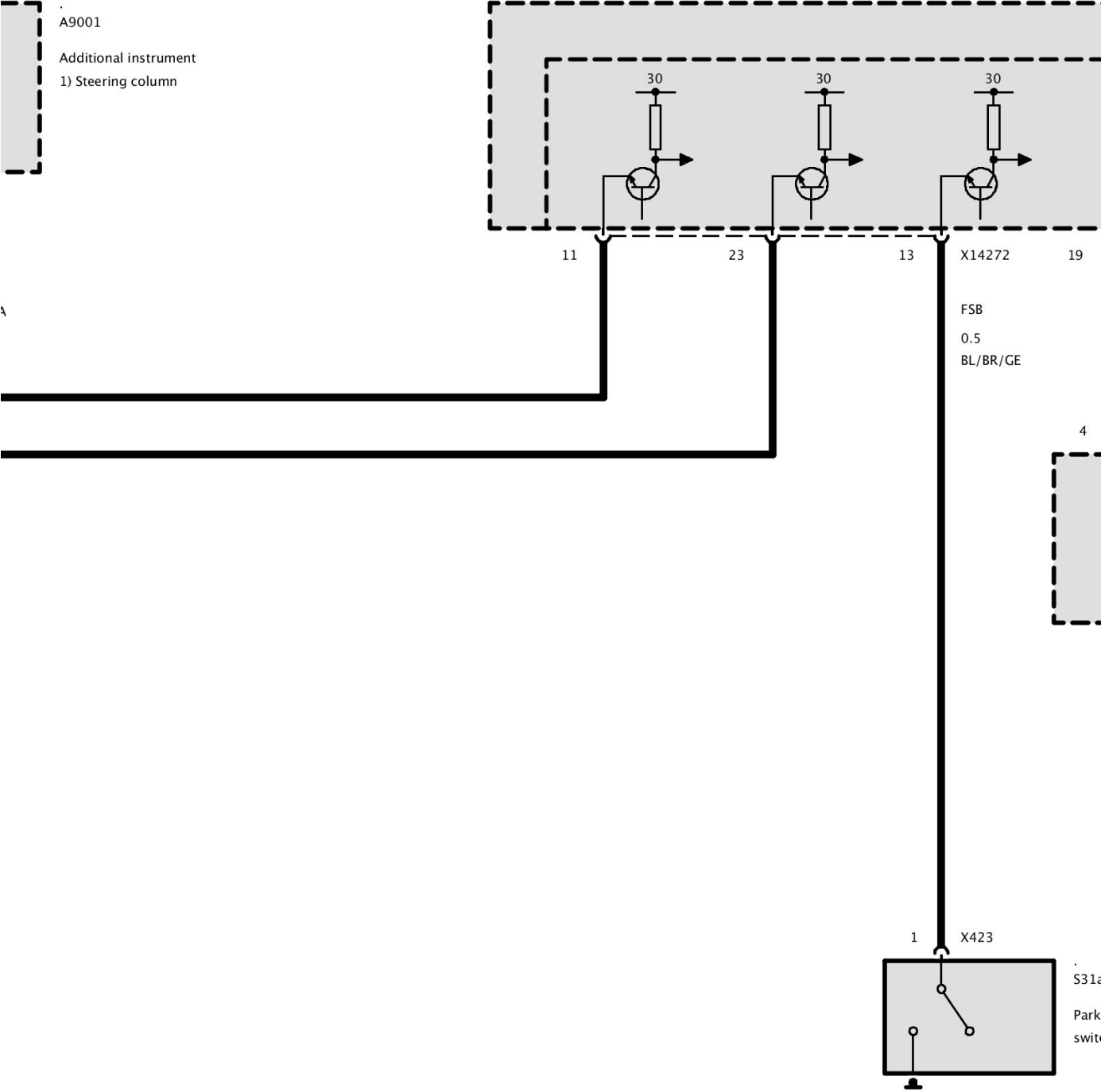


Part 1

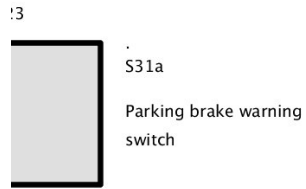
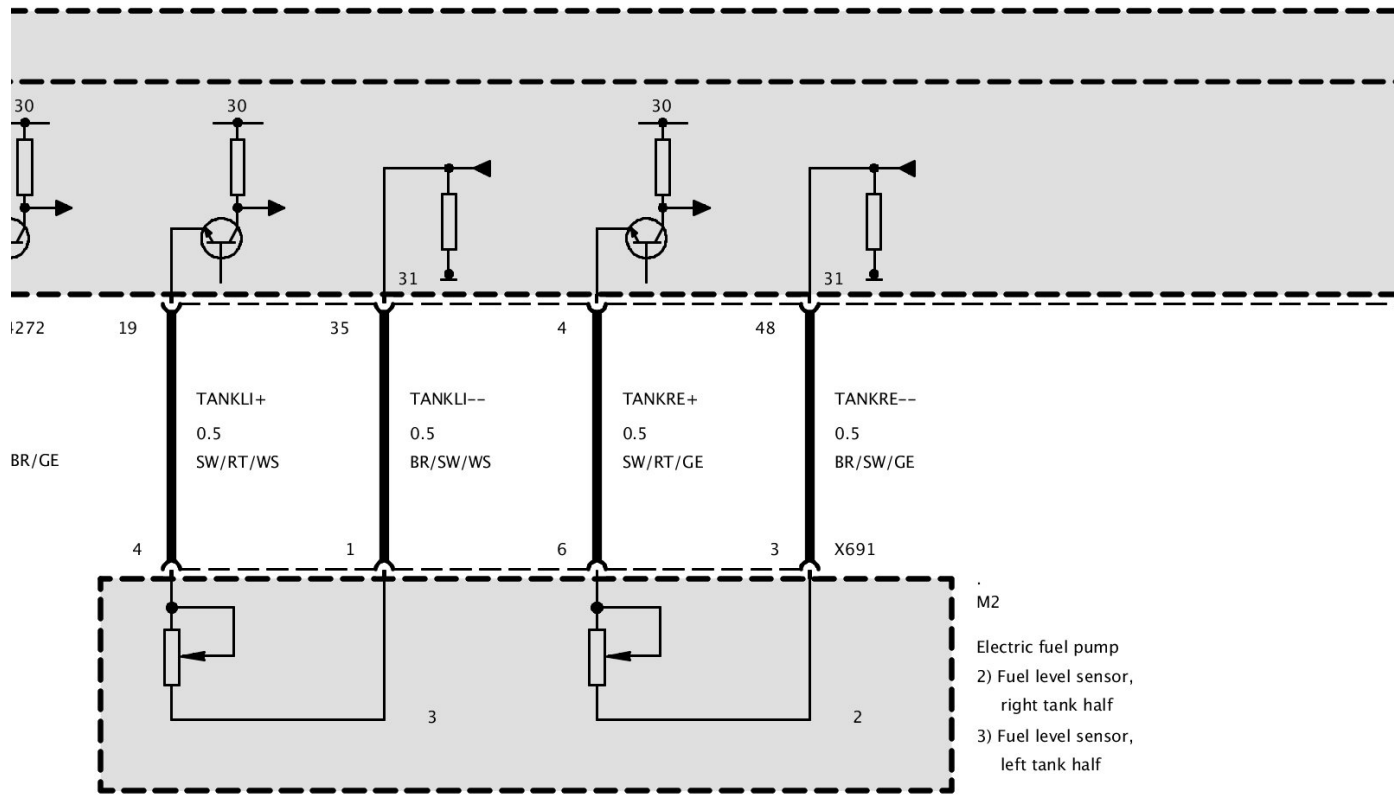




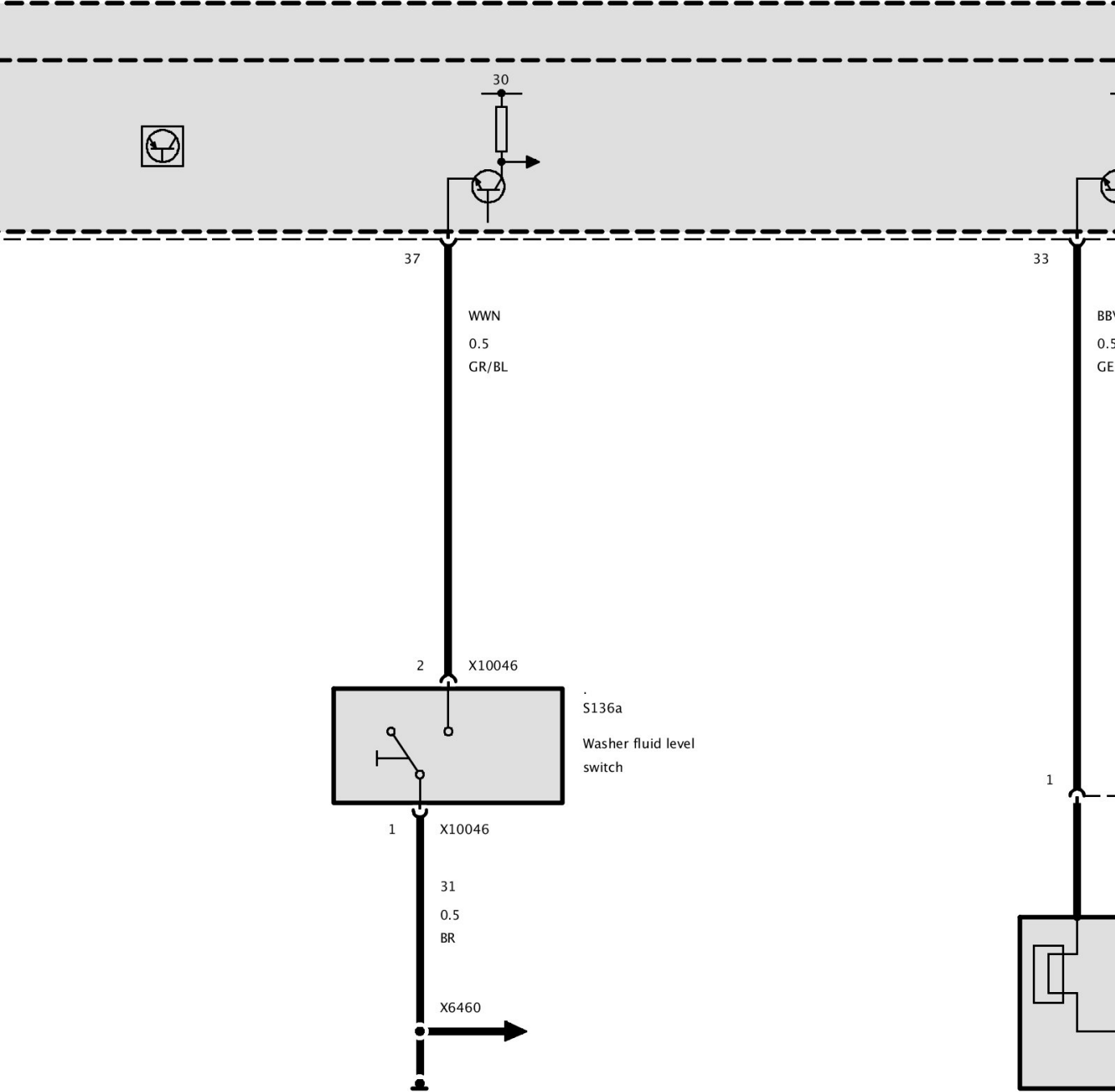
Part 2



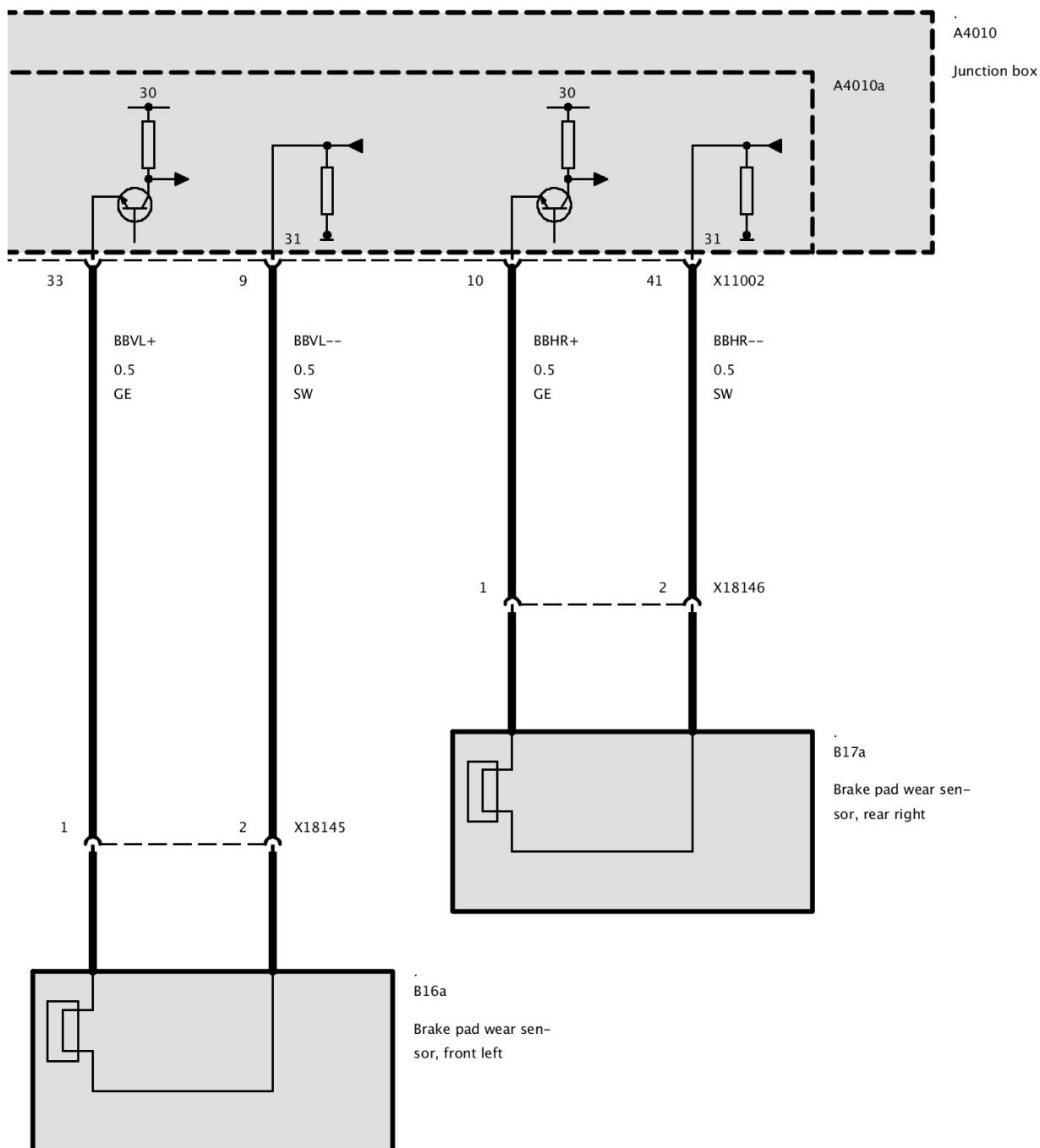
Part 3



Part 4



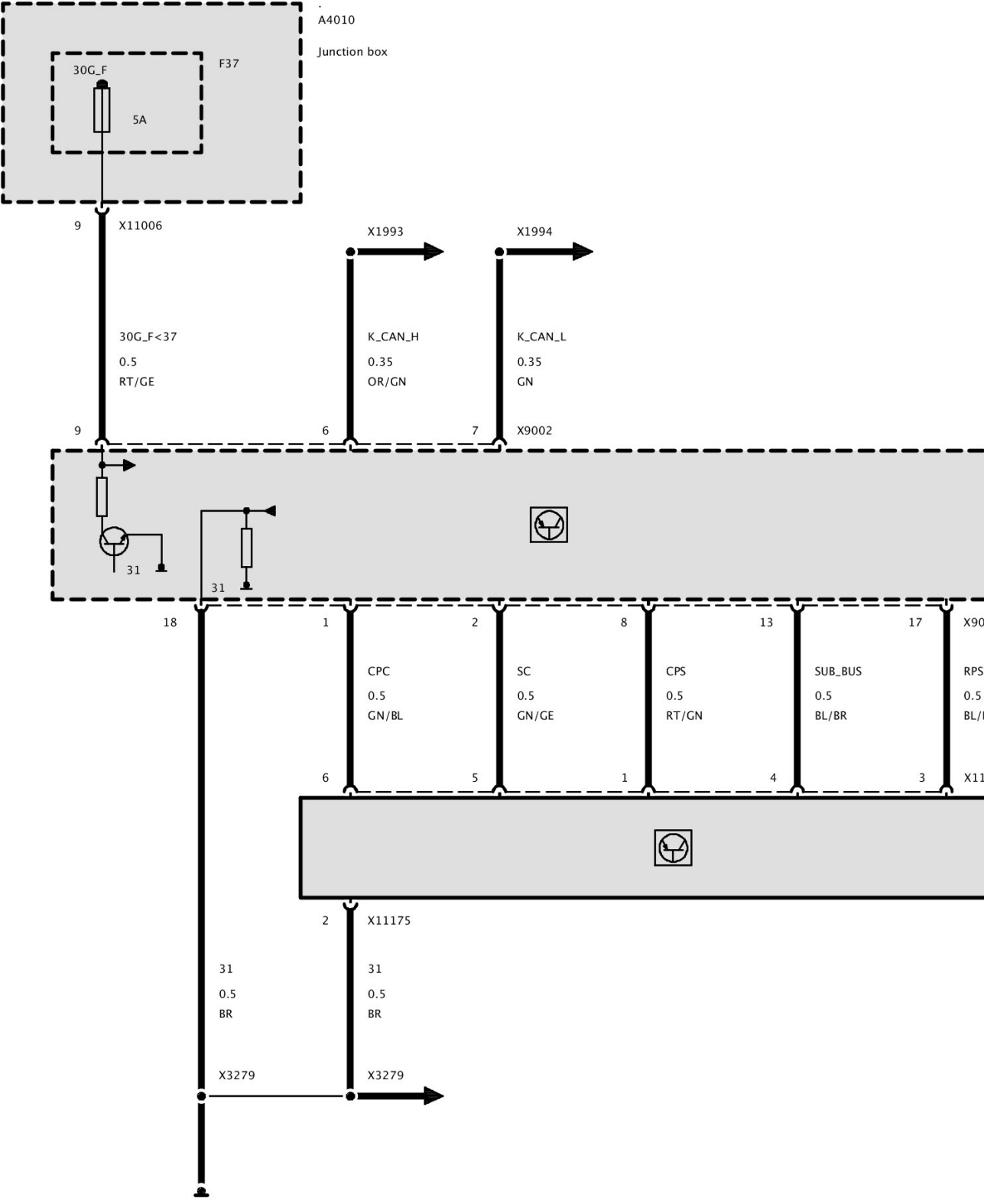
Part 5



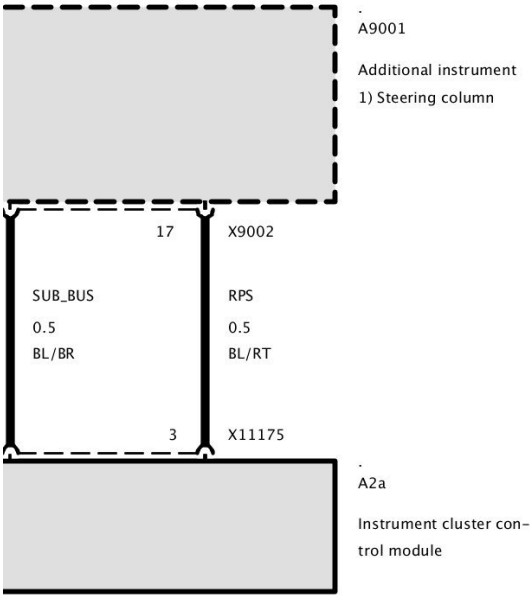
### Part 6

## Power Supply, Instrument Cluster KOMBI (Up To 12/08)

Power Supply, Instrument Cluster KOMBI (Up To 12/08)



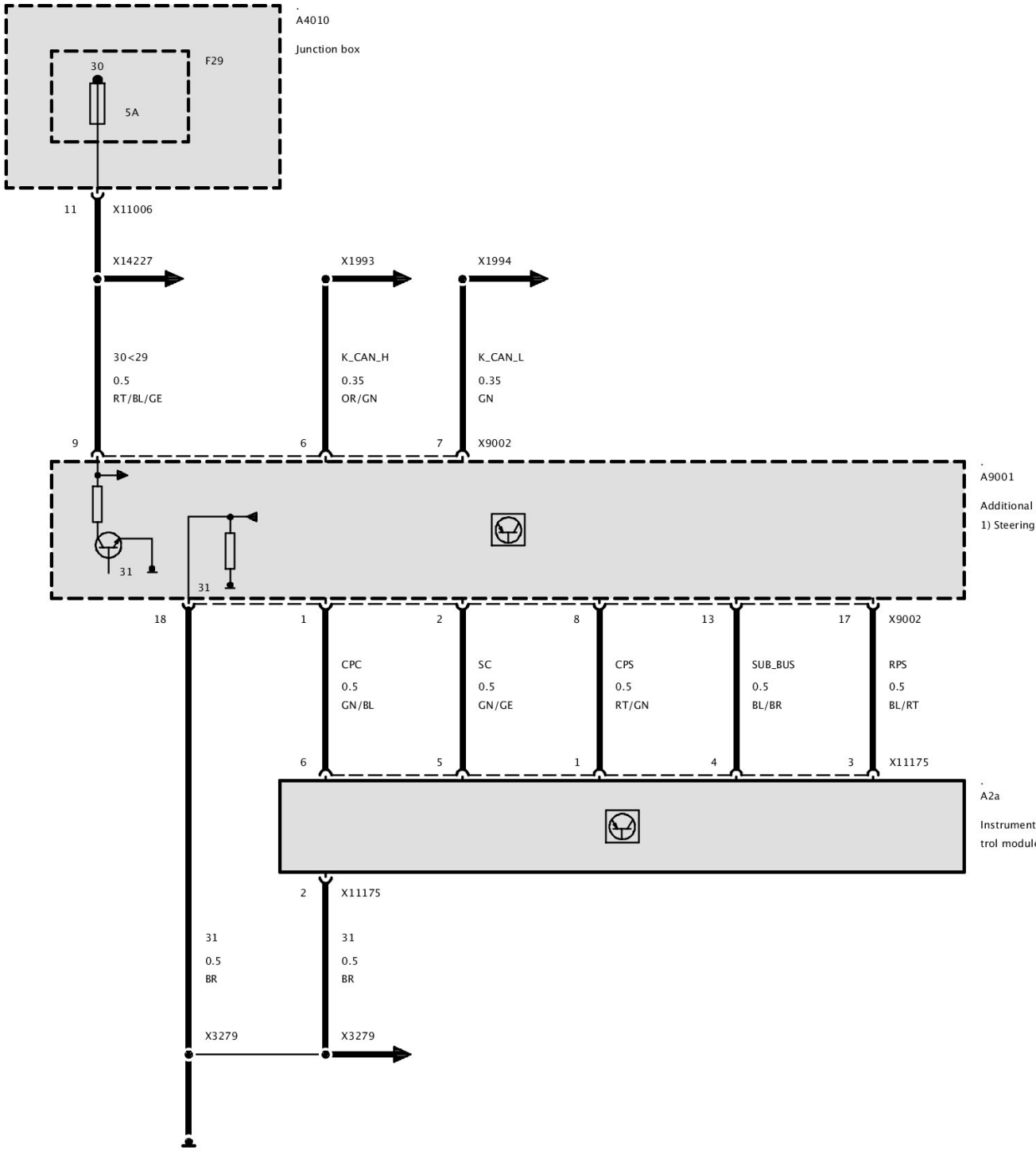
Part 1



**Part 2**

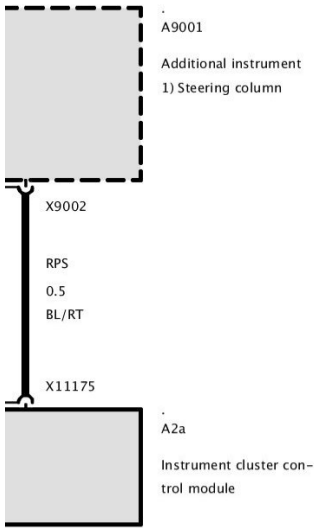
**Power Supply, Instrument Cluster KOMBI (As Of 12/08)**

Power Supply, Instrument Cluster KOMBI (As Of 12/08)



Part 1

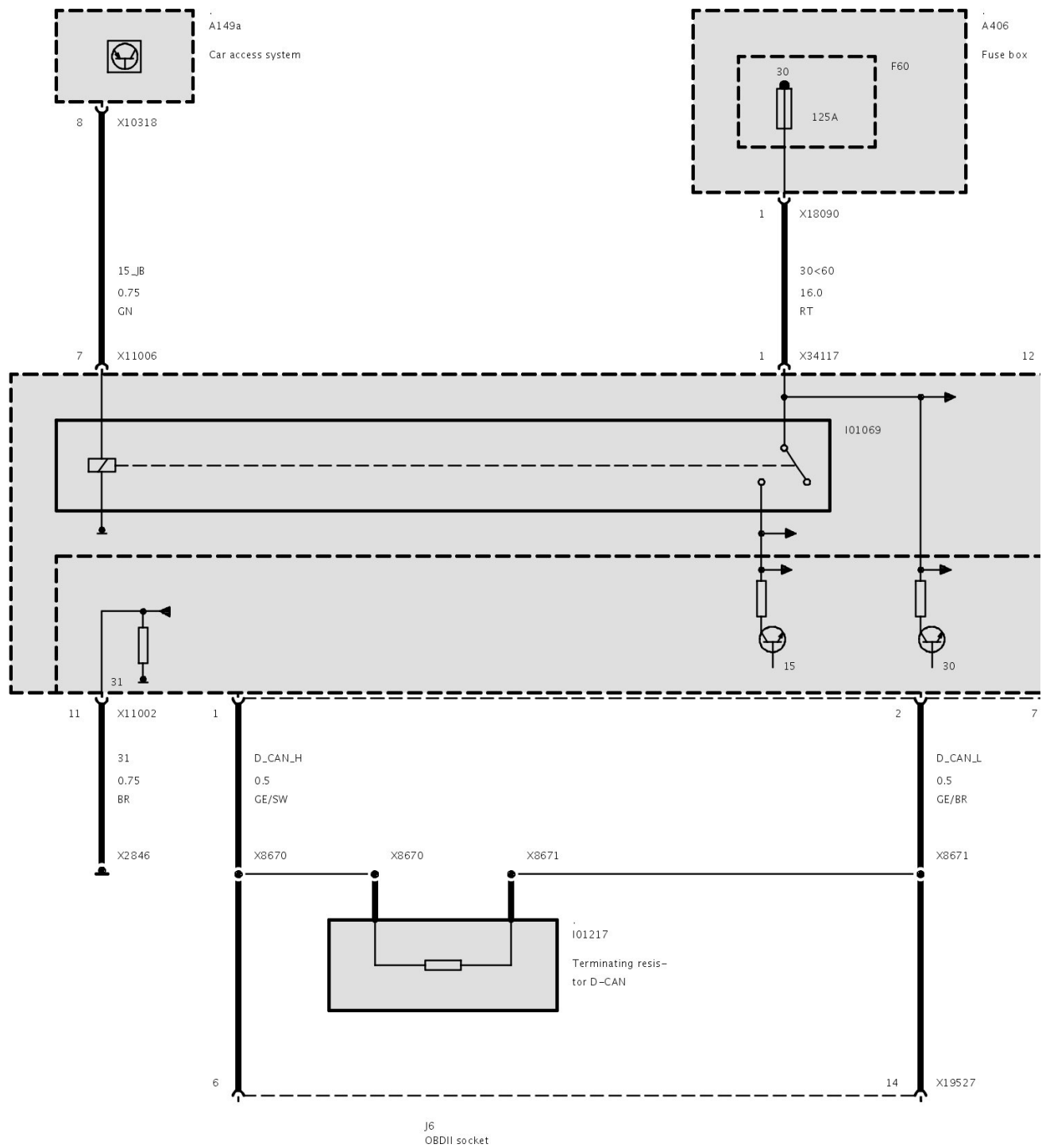




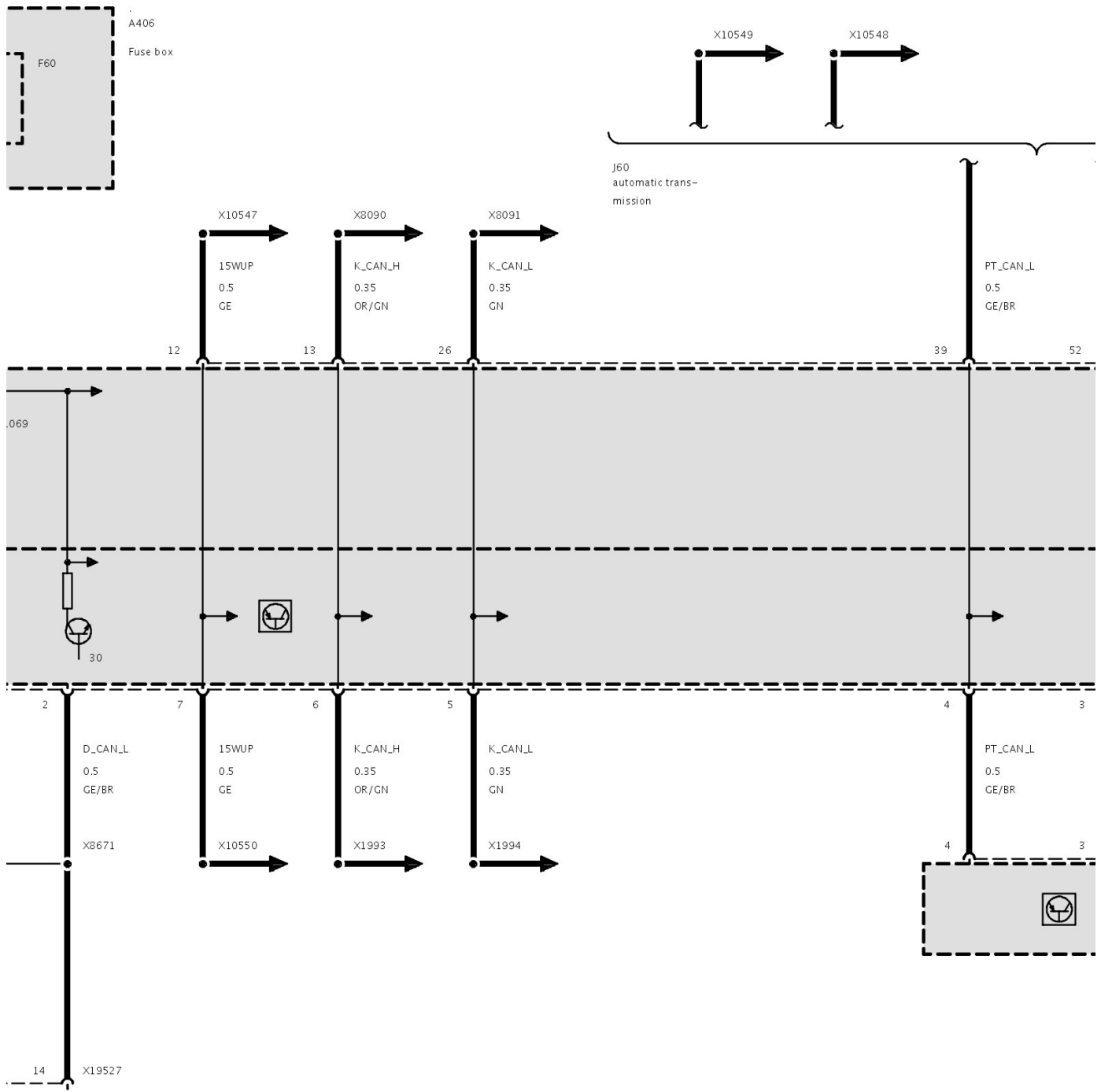
Part 2

Supply, JBE Junction-Box Electronics

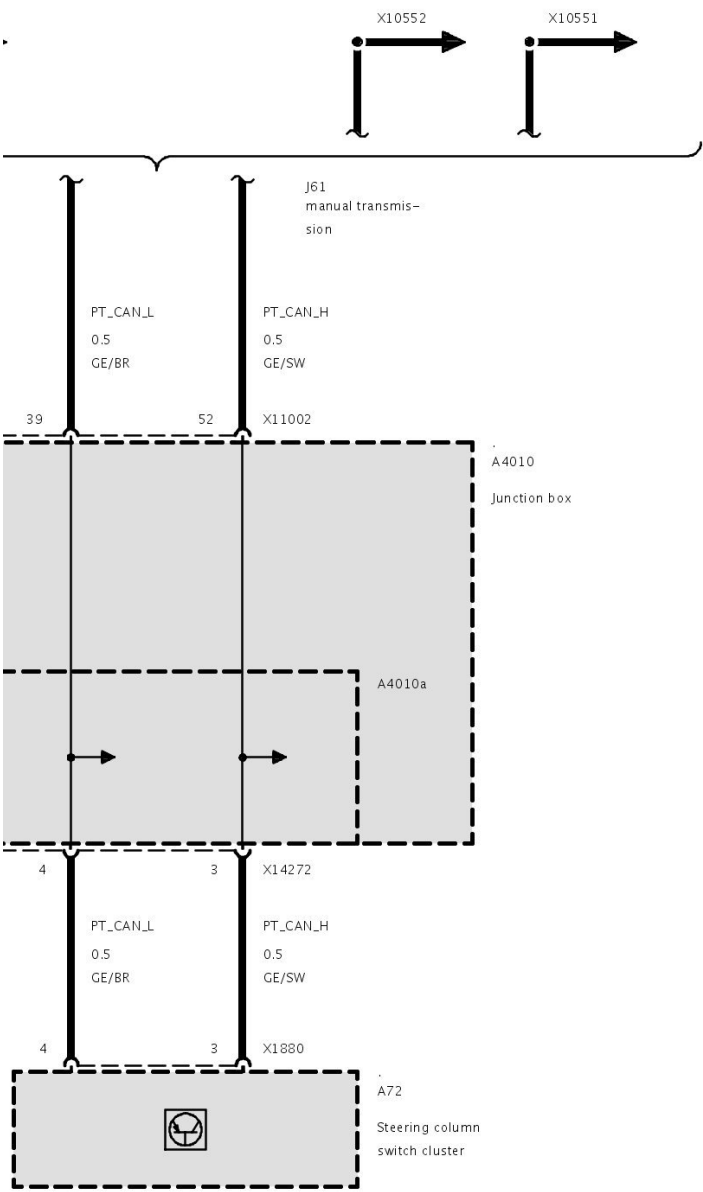
Power Supply JBE Junction Box, Electronics



Part 1



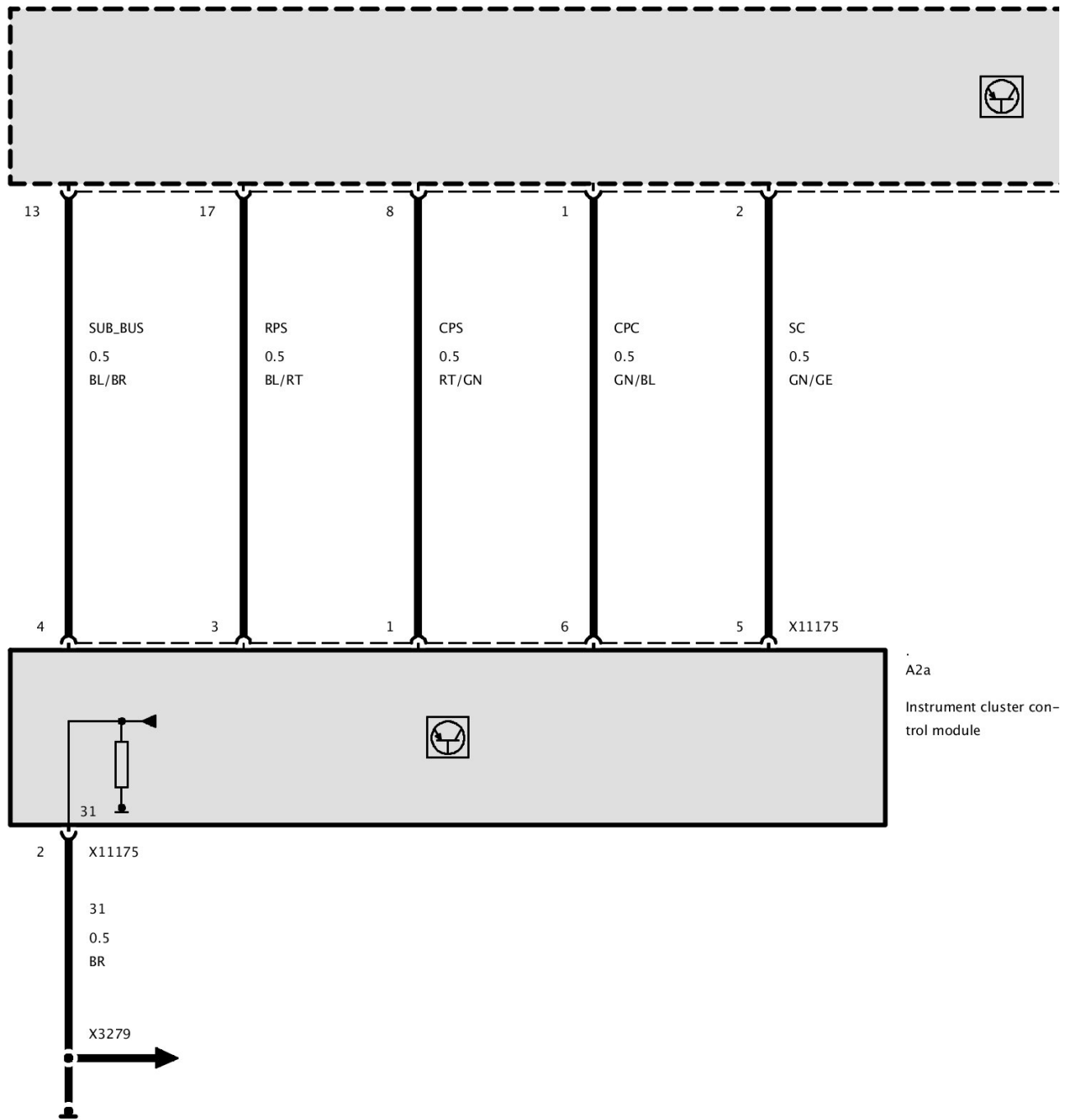
Part 2



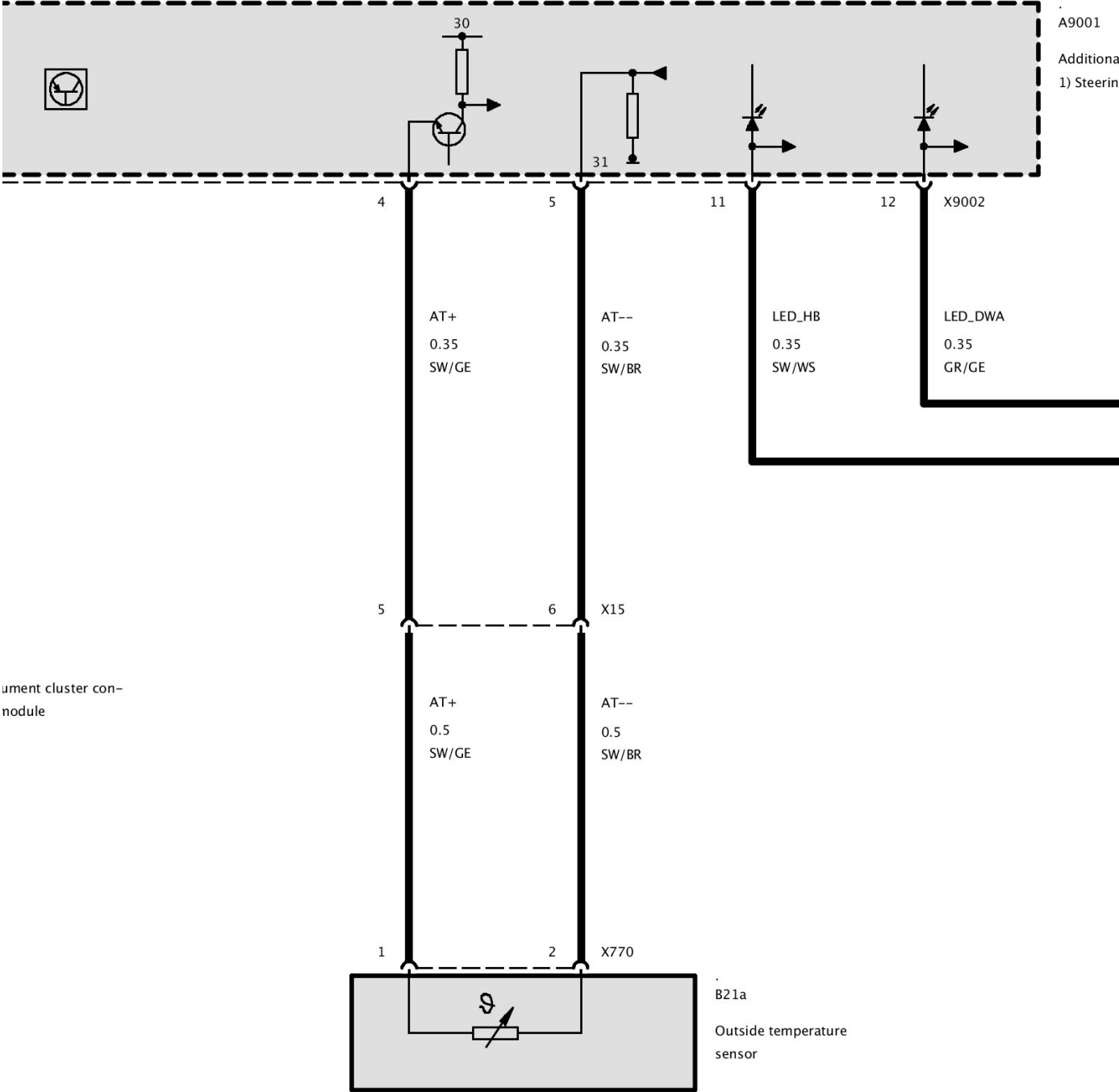
Part 3

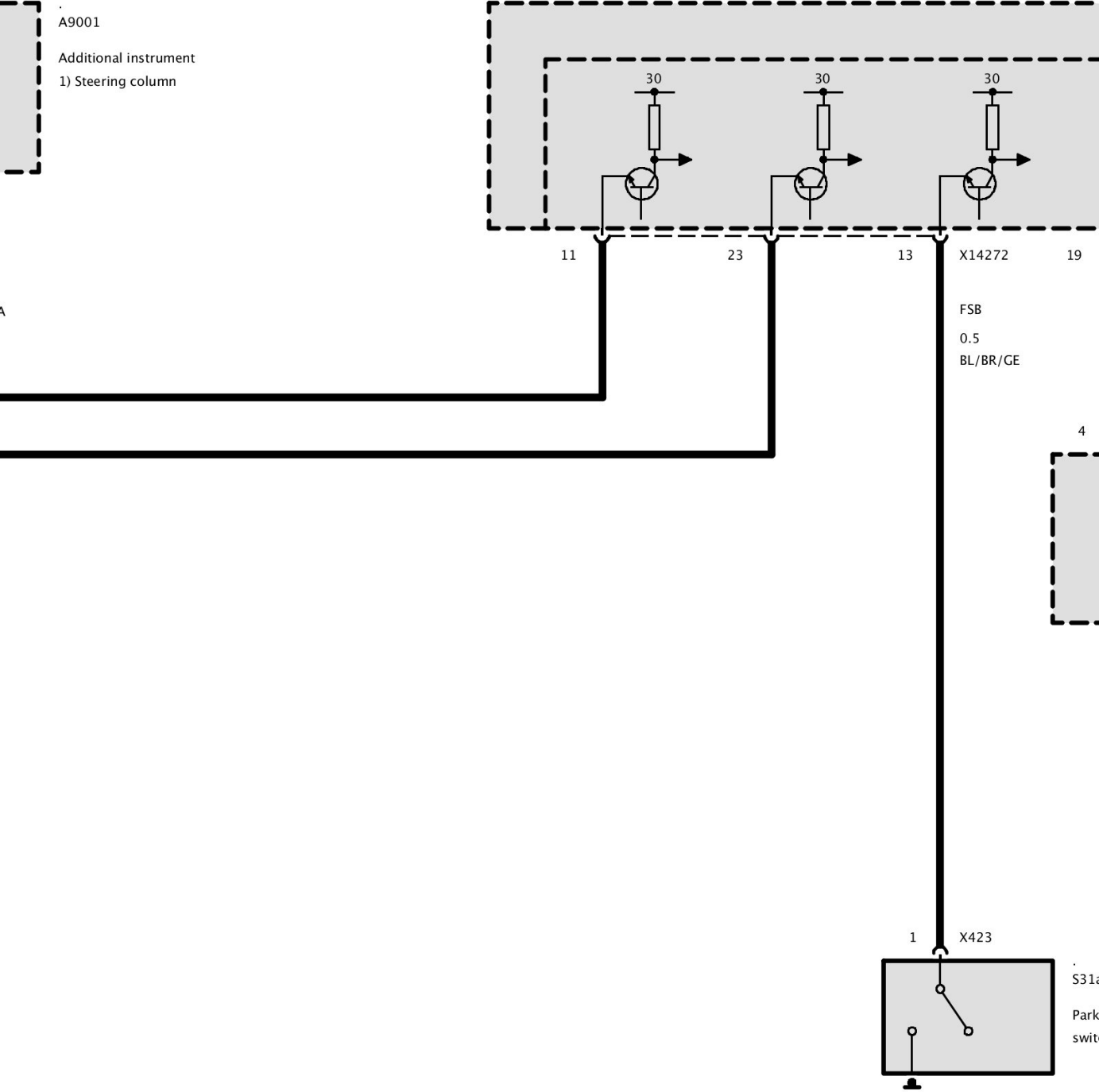
A2a Instrument Cluster Control Module (USA\_LHD)

A2a Instrument Cluster Control Module (USA\_LHD)

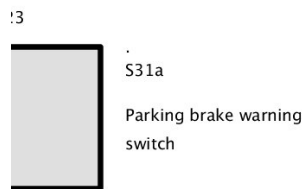
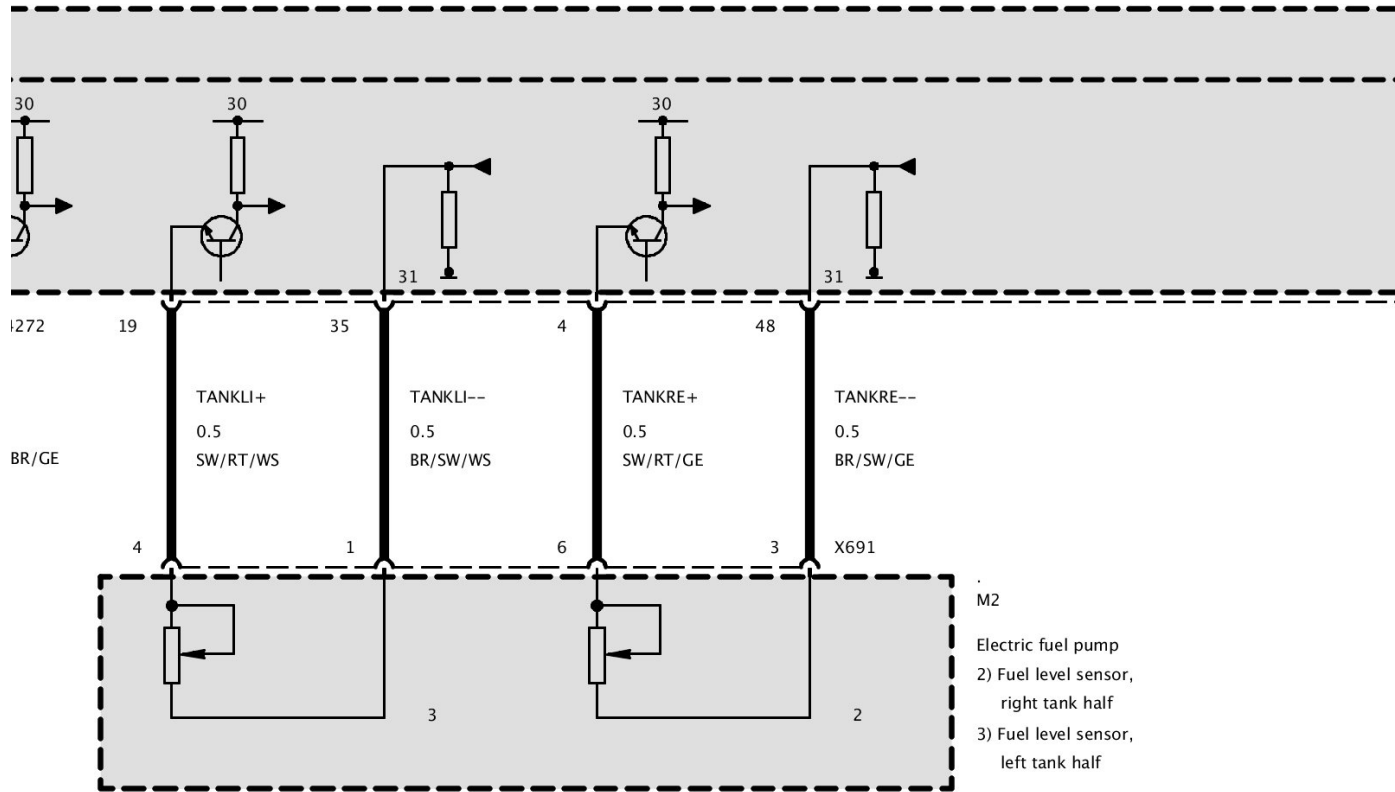


Part 1



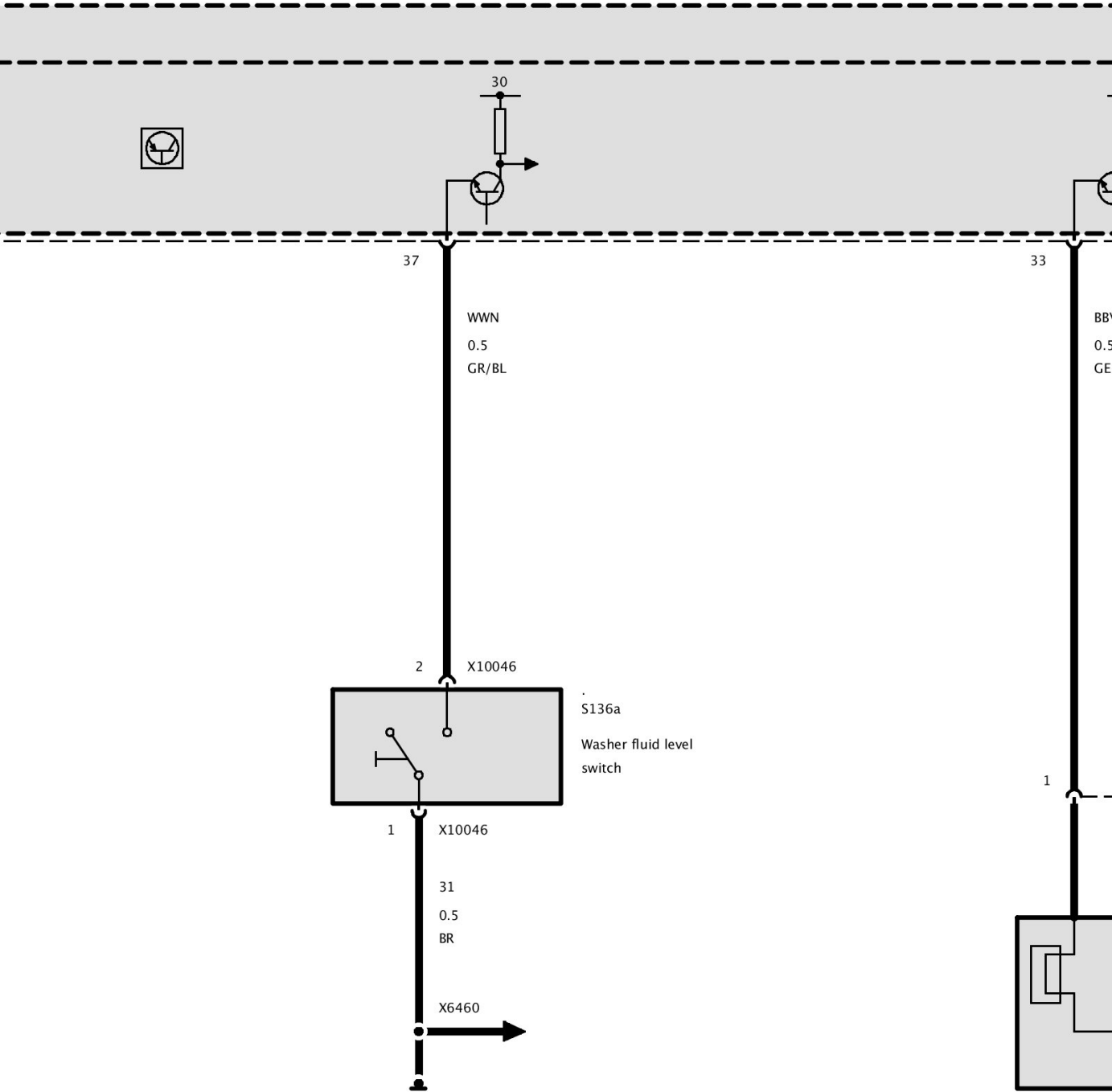


Part 3

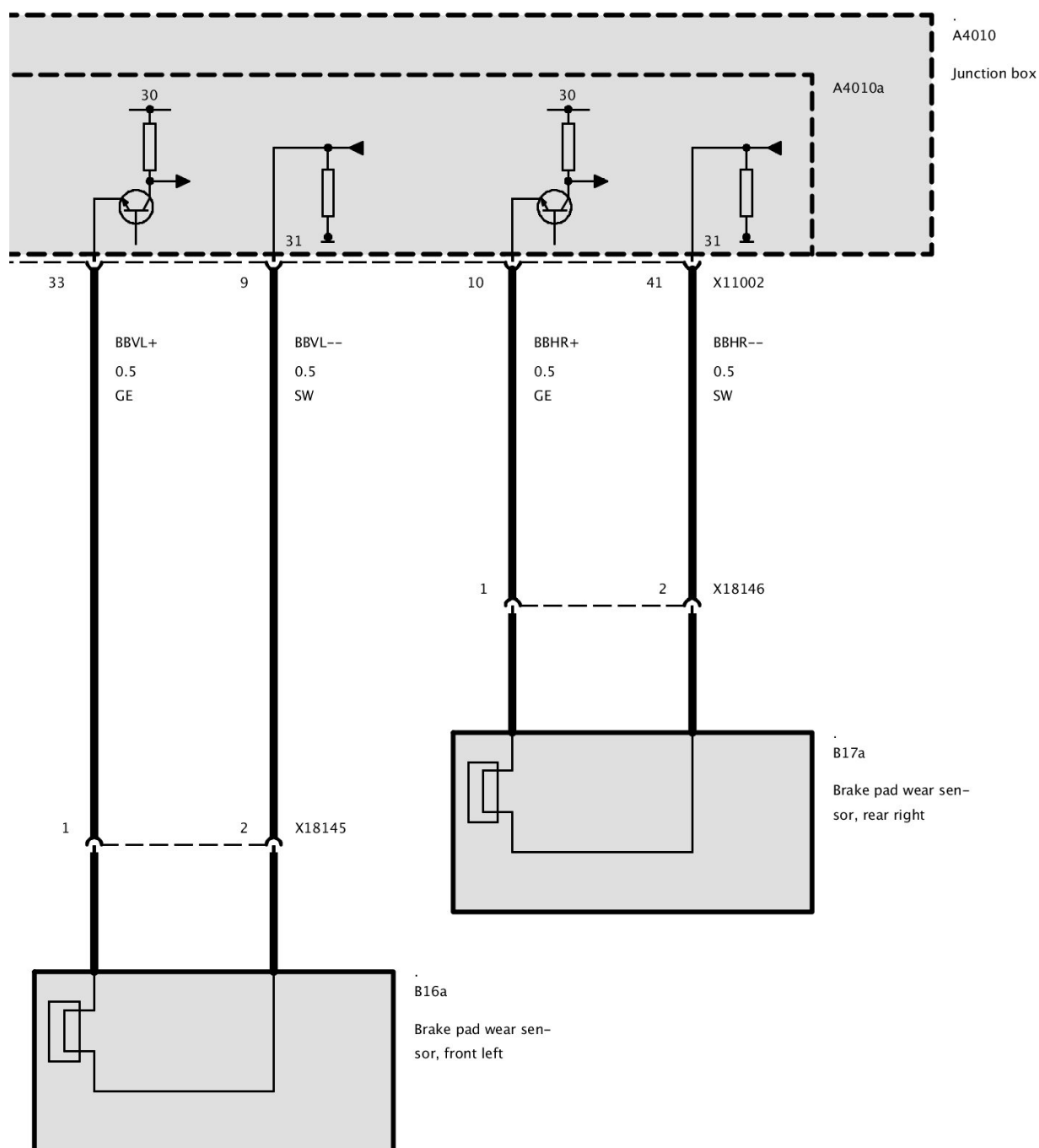


Part 4





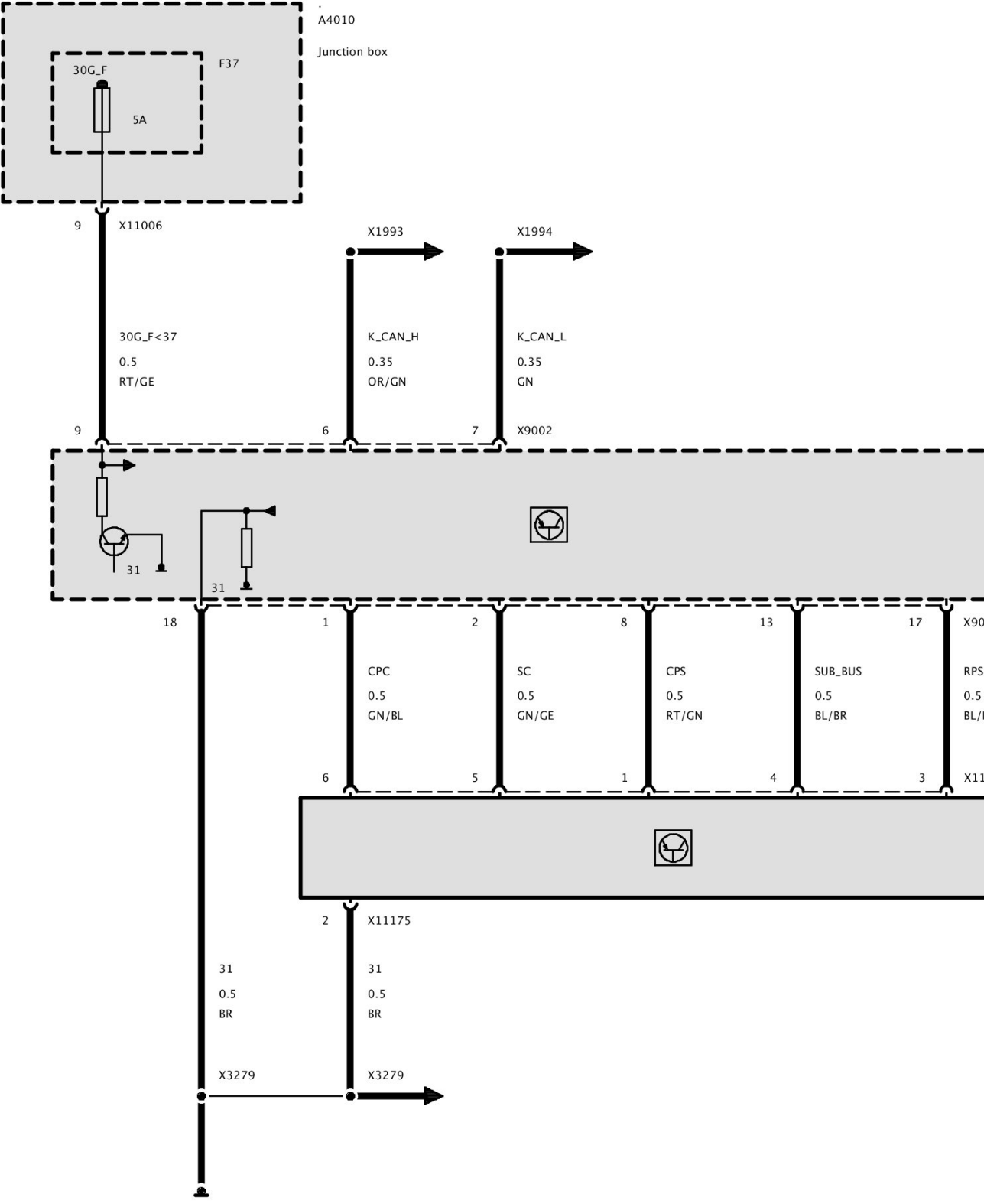
Part 5



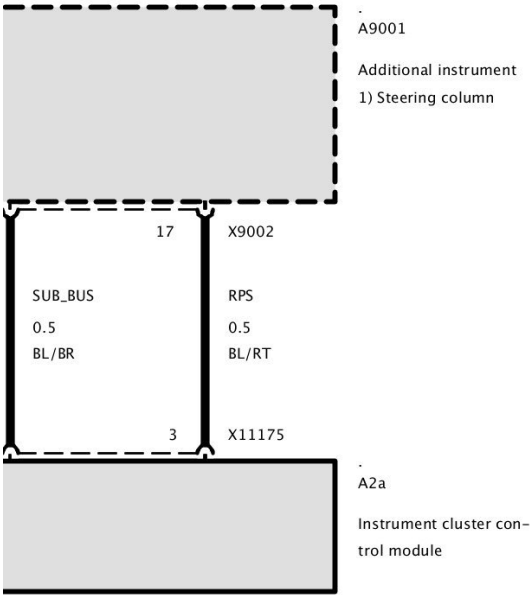
### Part 6

## Power Supply, Instrument Cluster KOMBI (Up To 12/08)

### Power Supply, Instrument Cluster KOMBI (Up To 12/08)



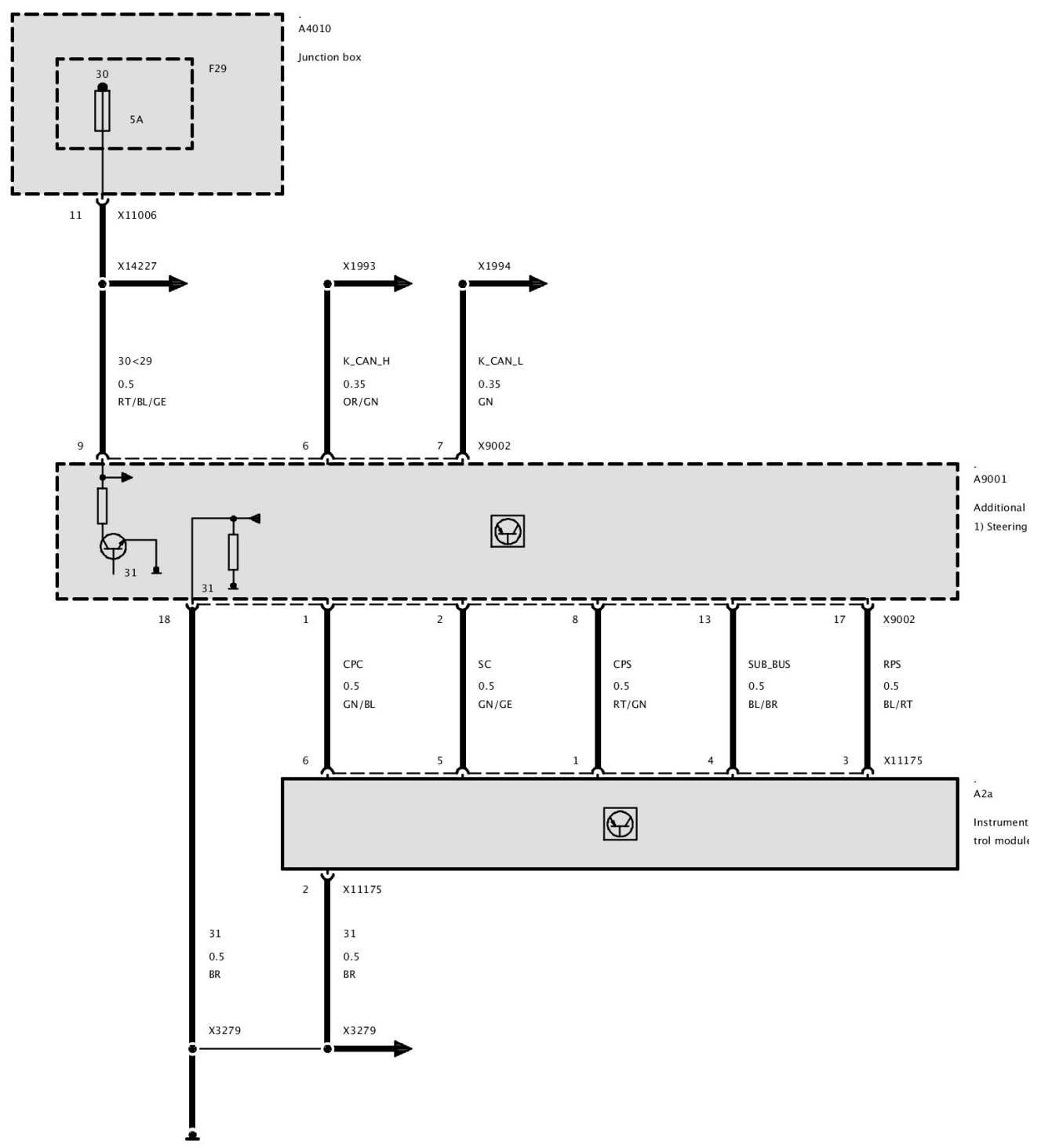
Part 1



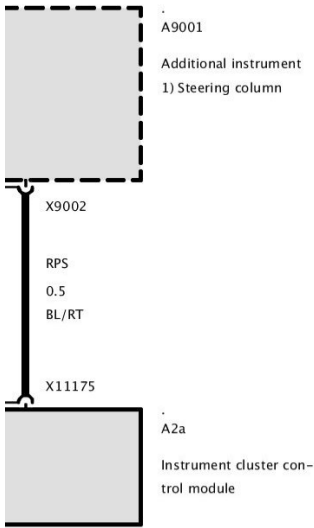
**Part 2**

**Power Supply, Instrument Cluster KOMBI (As Of 12/08)**

Power Supply, Instrument Cluster KOMBI (As Of 12/08)



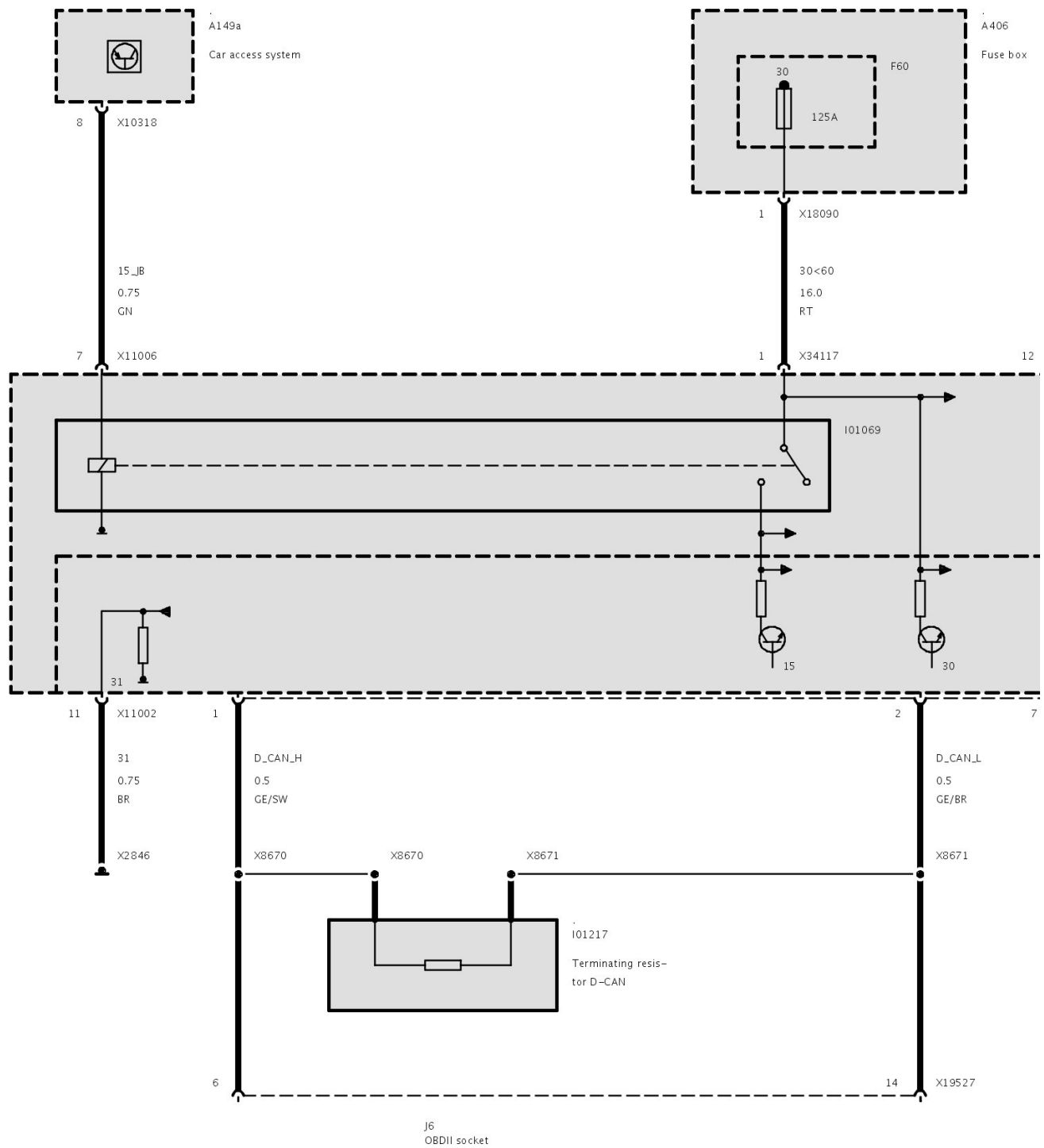
Part 1



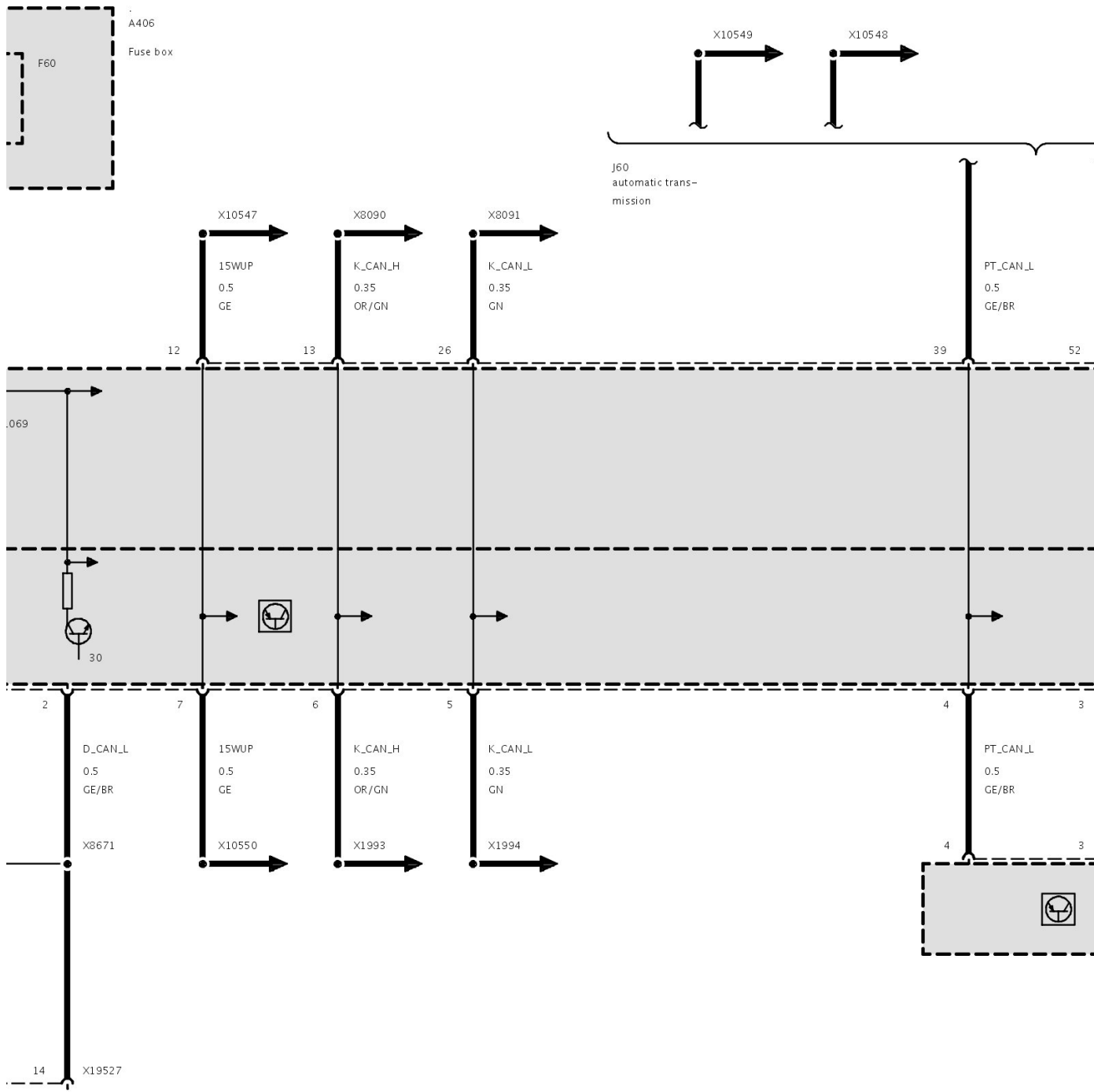
Part 2

Supply, JBE Junction-Box Electronics

Power Supply JBE Junction Box, Electronics

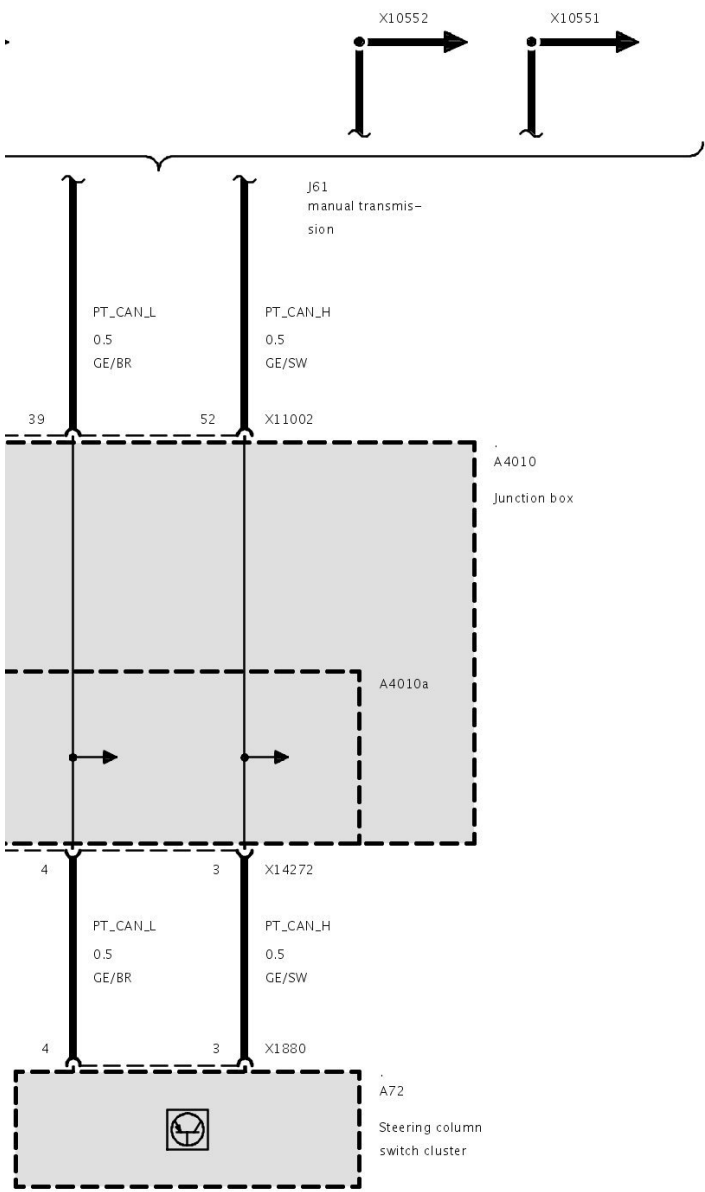


### Part 1



Part 2

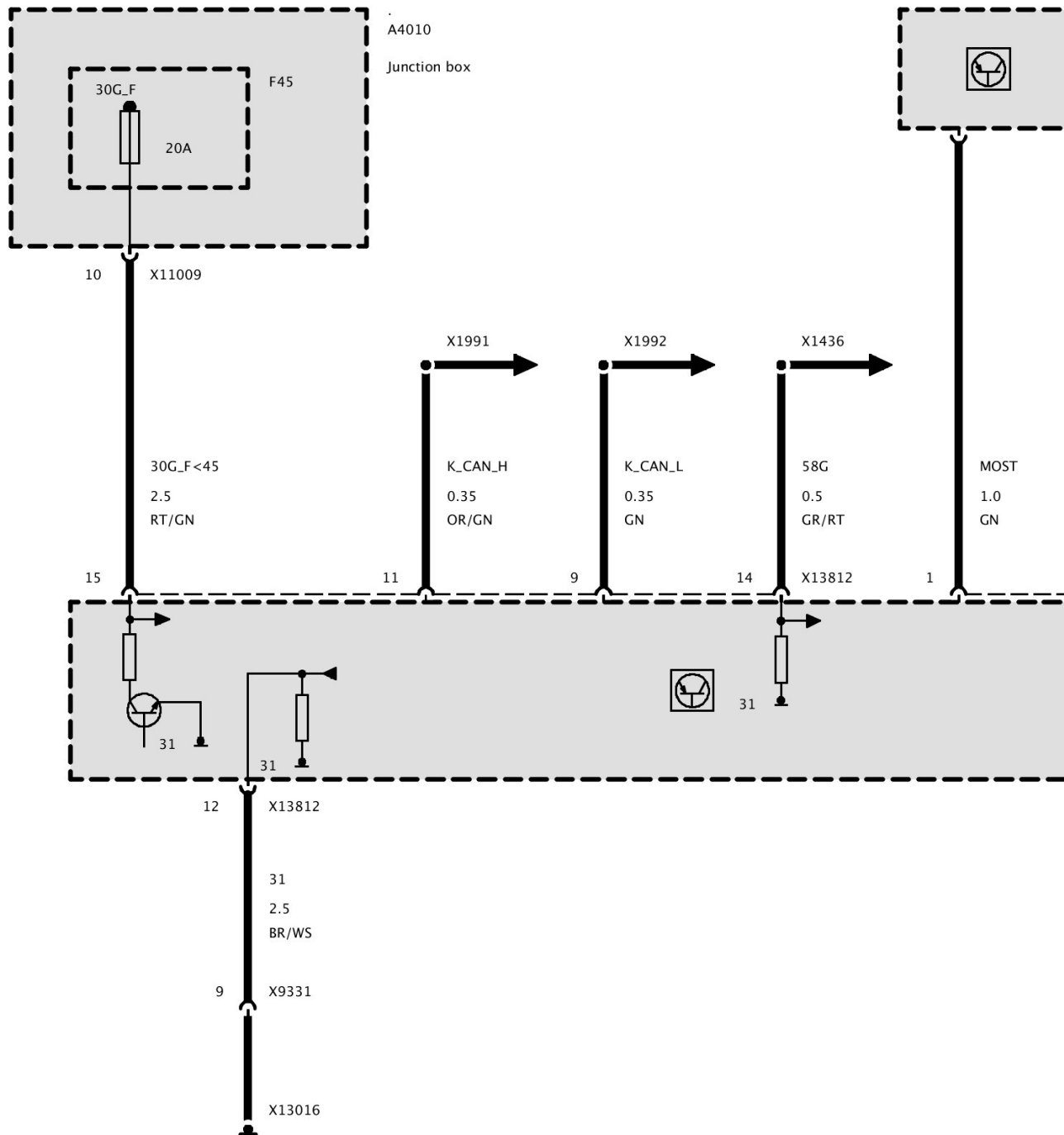




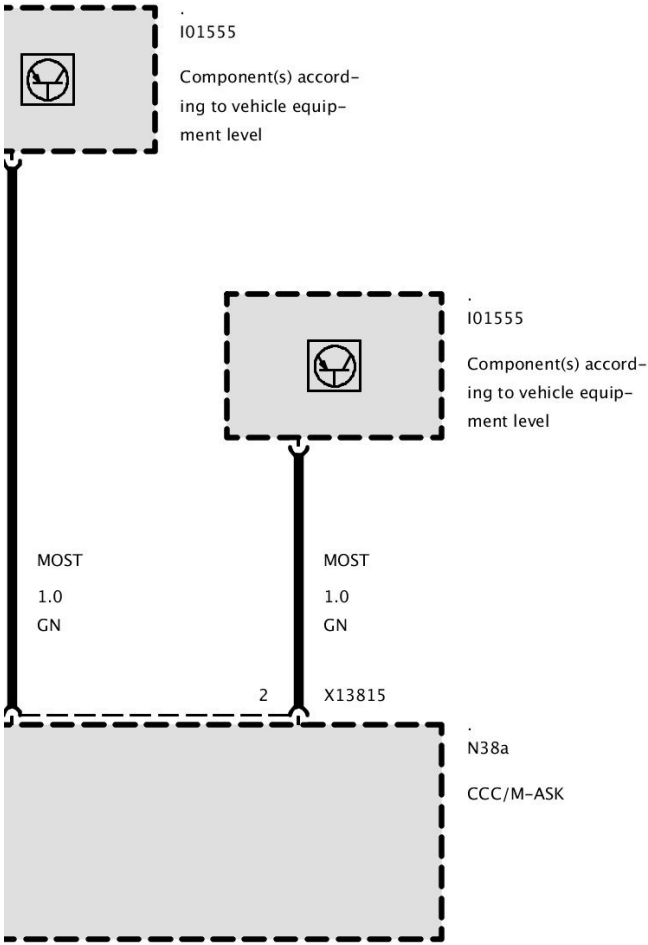
Part 3

Supply, CCC Car Communication Computer (CCC-BO User Interface)

Power Supply CCCM-ASK (As Of 08/07)



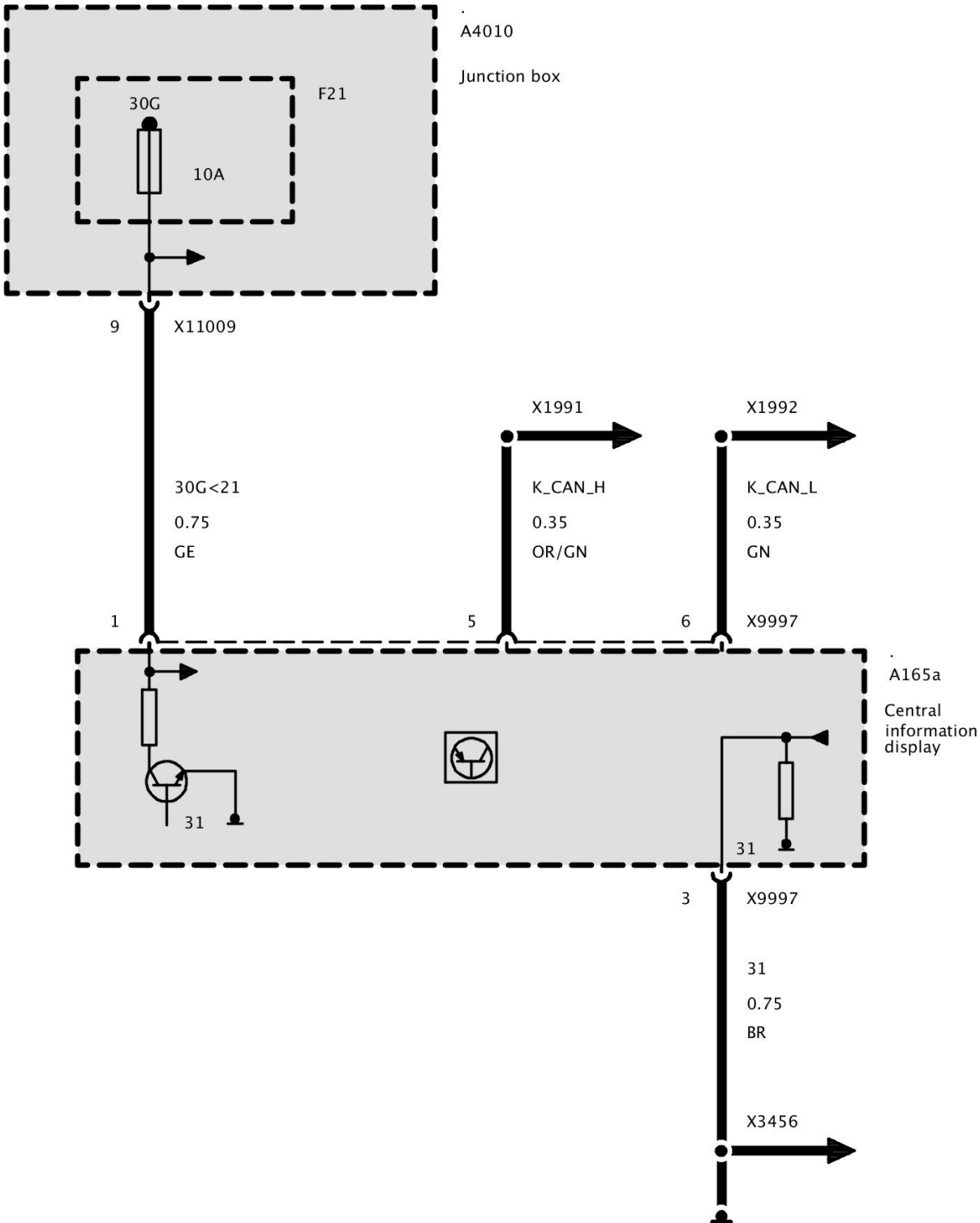
Part 1



Part 2

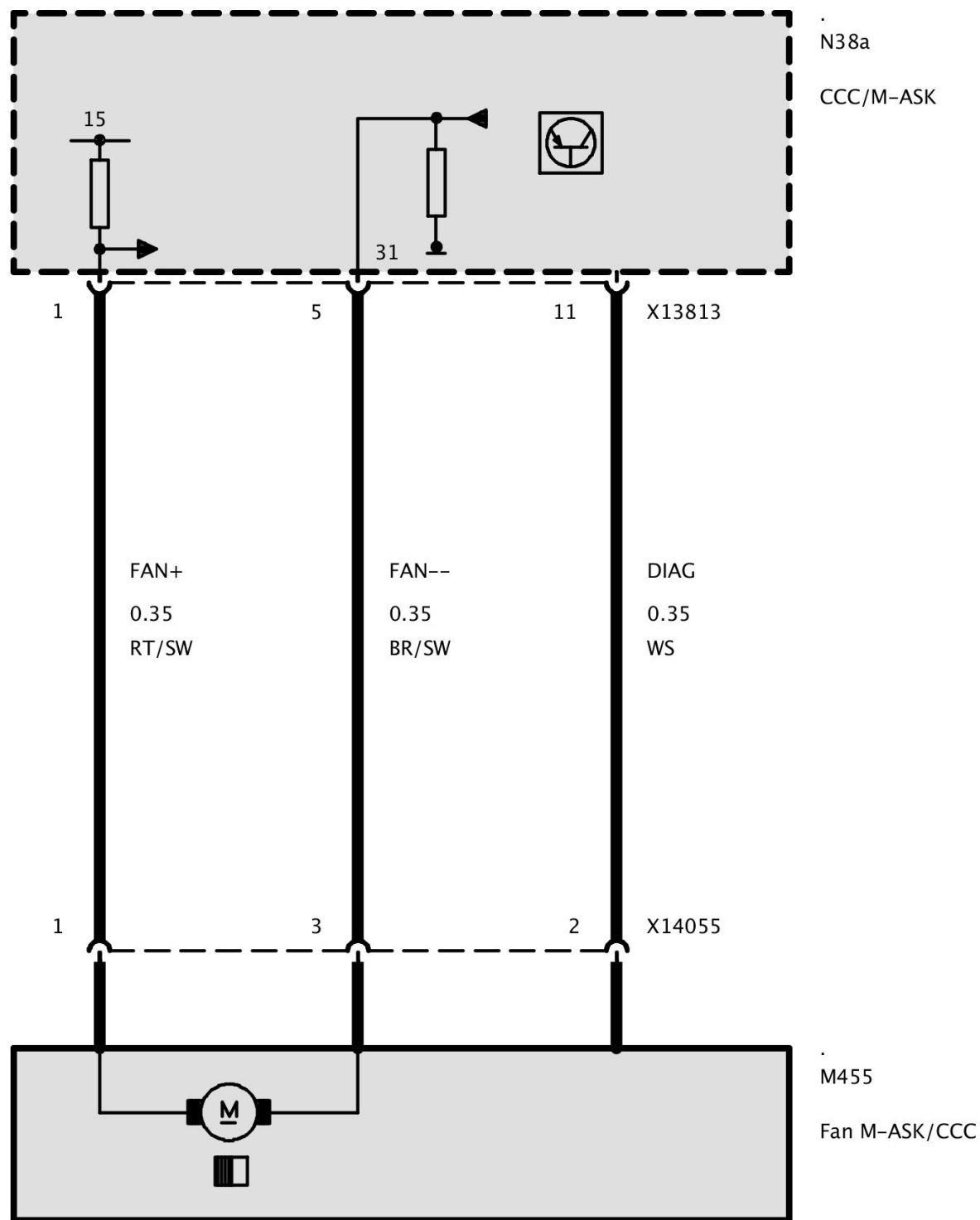
Power Supply, Central Information Display CID

Supply Central Information Display (CID)



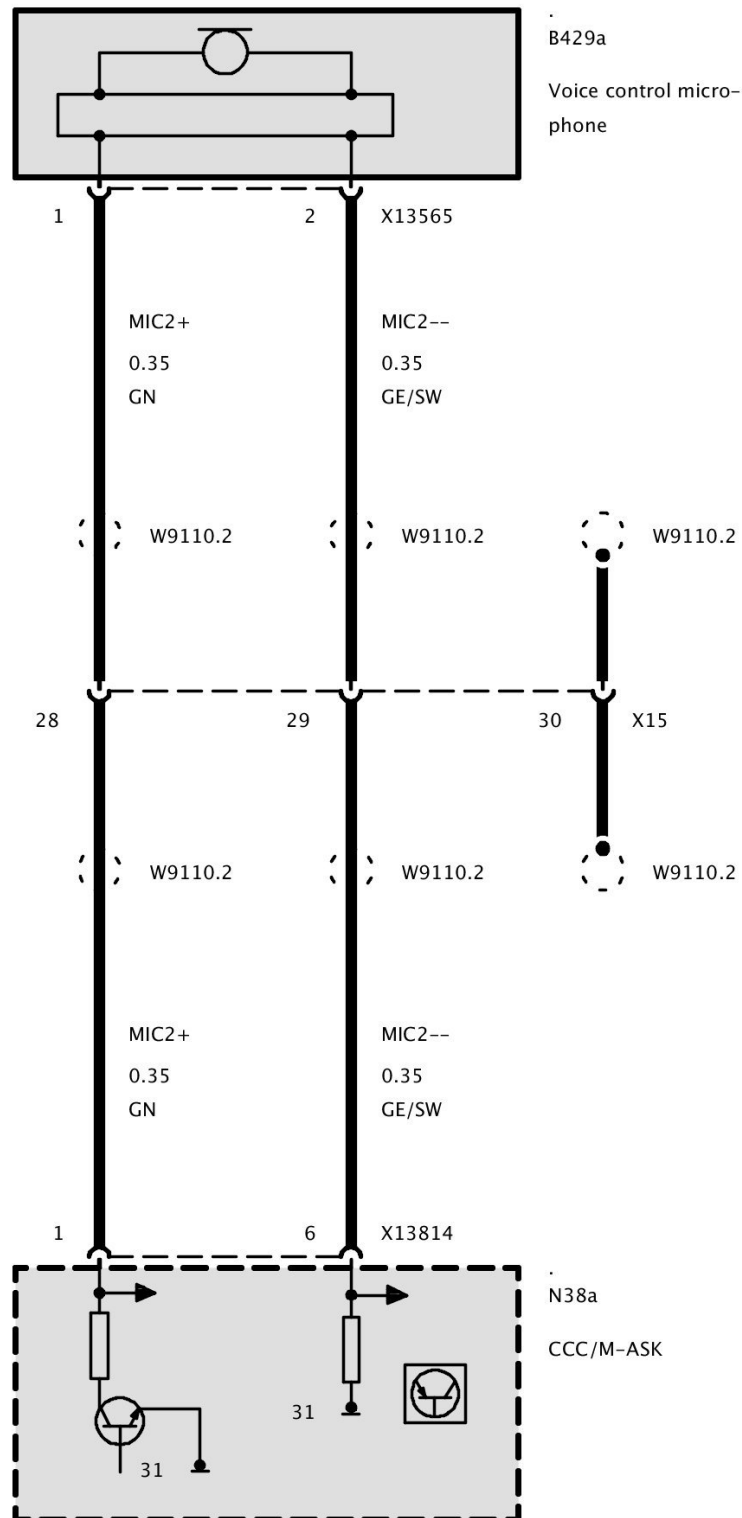
Fan

Fan CCC/M-ASK



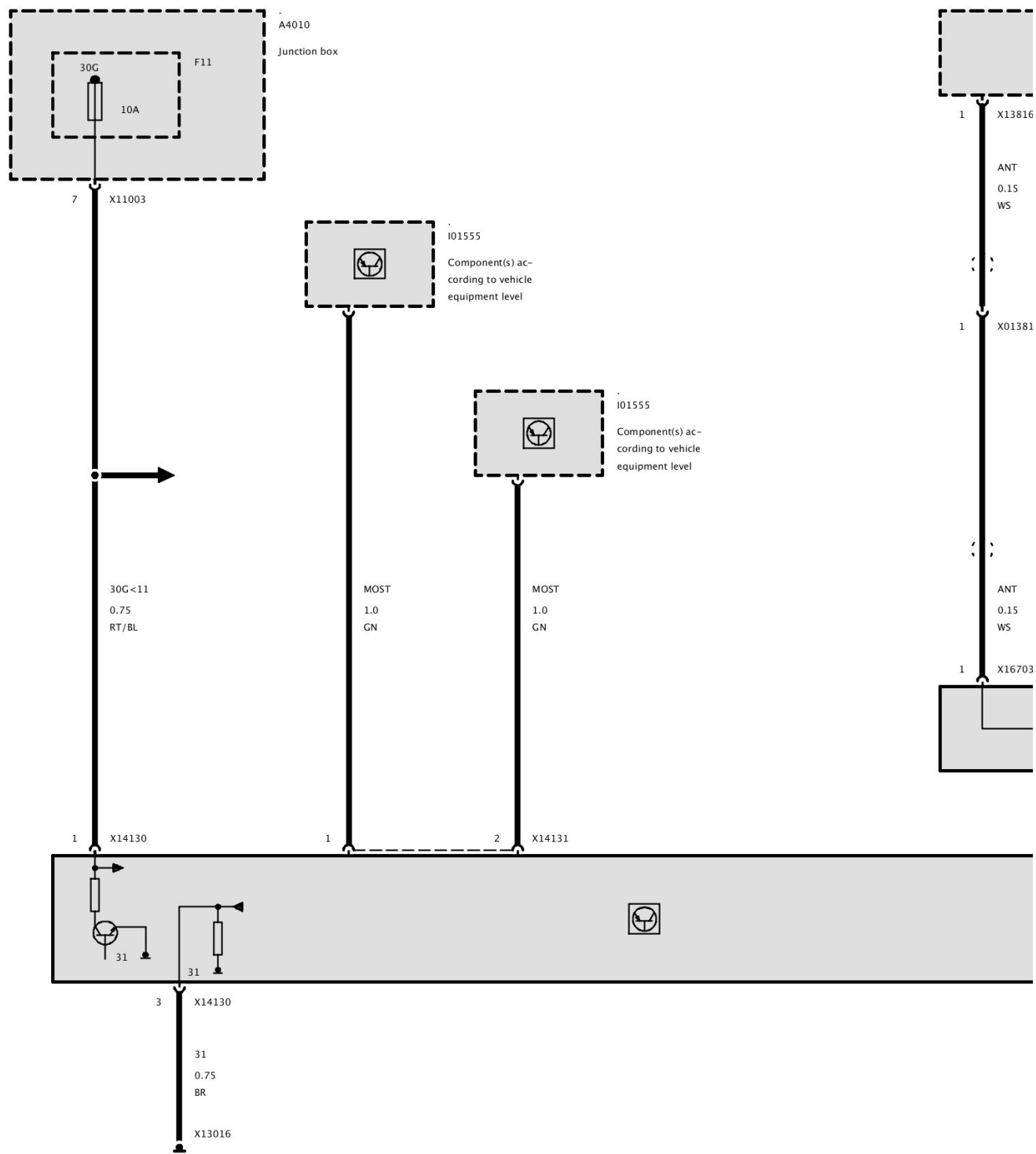
## CCC: Connected Devices

Voice Input

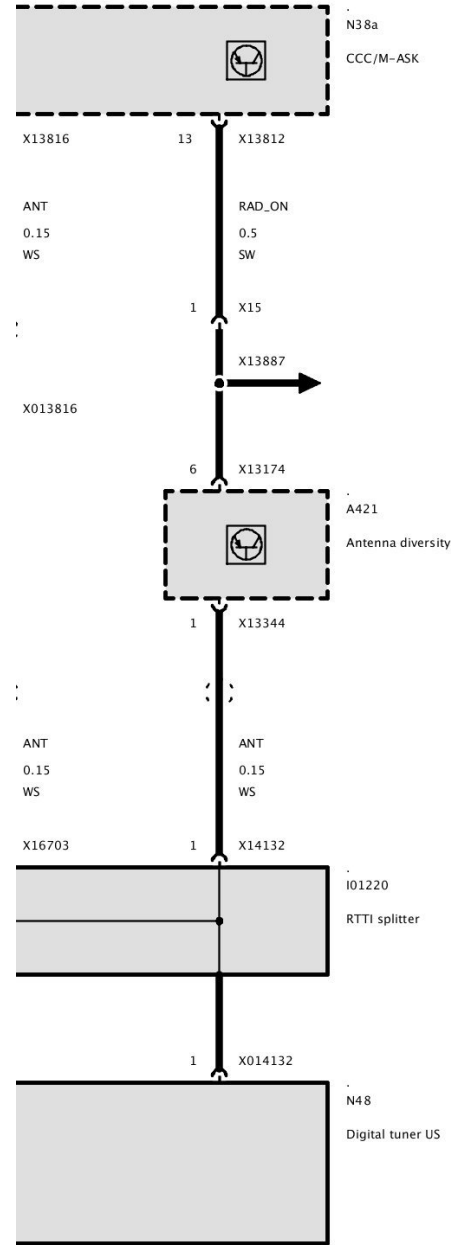


## Navigation (CCC-A Applications)

### Digital Tuner



Part 1

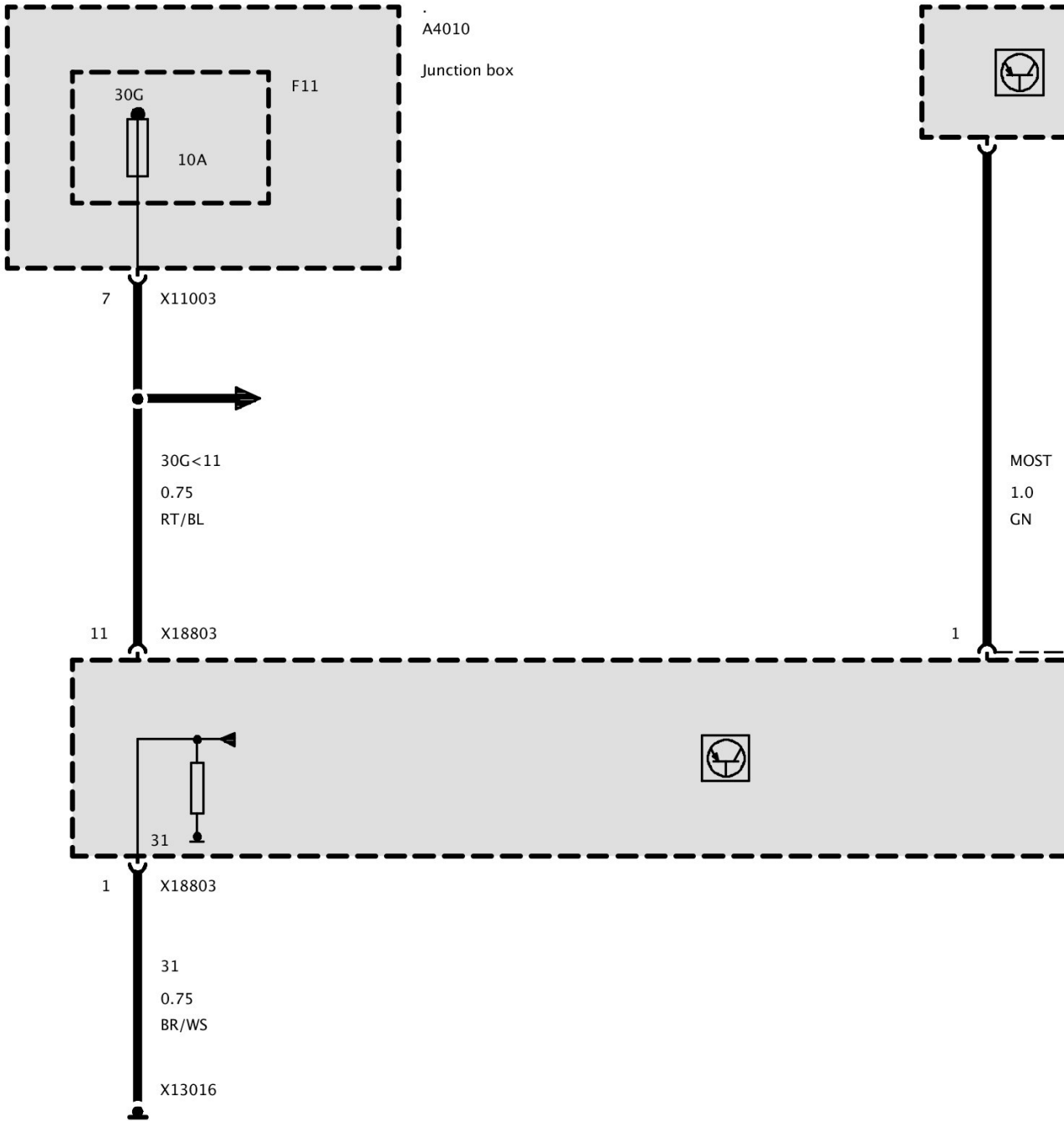


Part 2

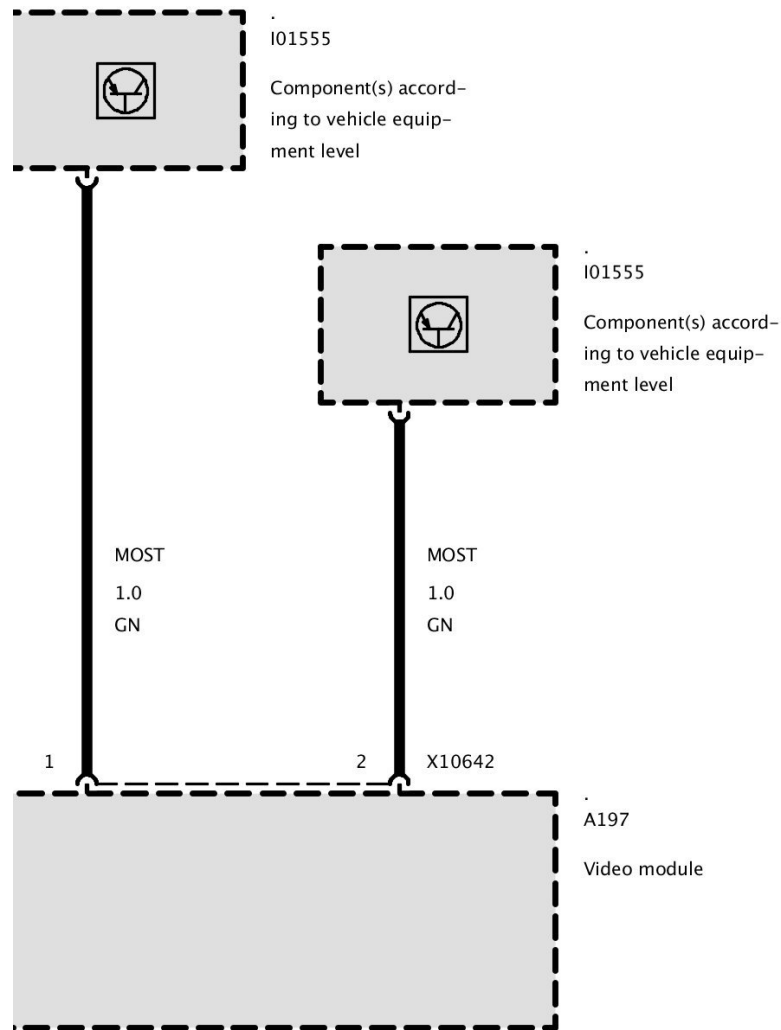
Power Supply VM Video Module (As Of 08/07 Up To 12/08)

Power Supply VM Video Module (As Of 08/07 Up To 12/08)





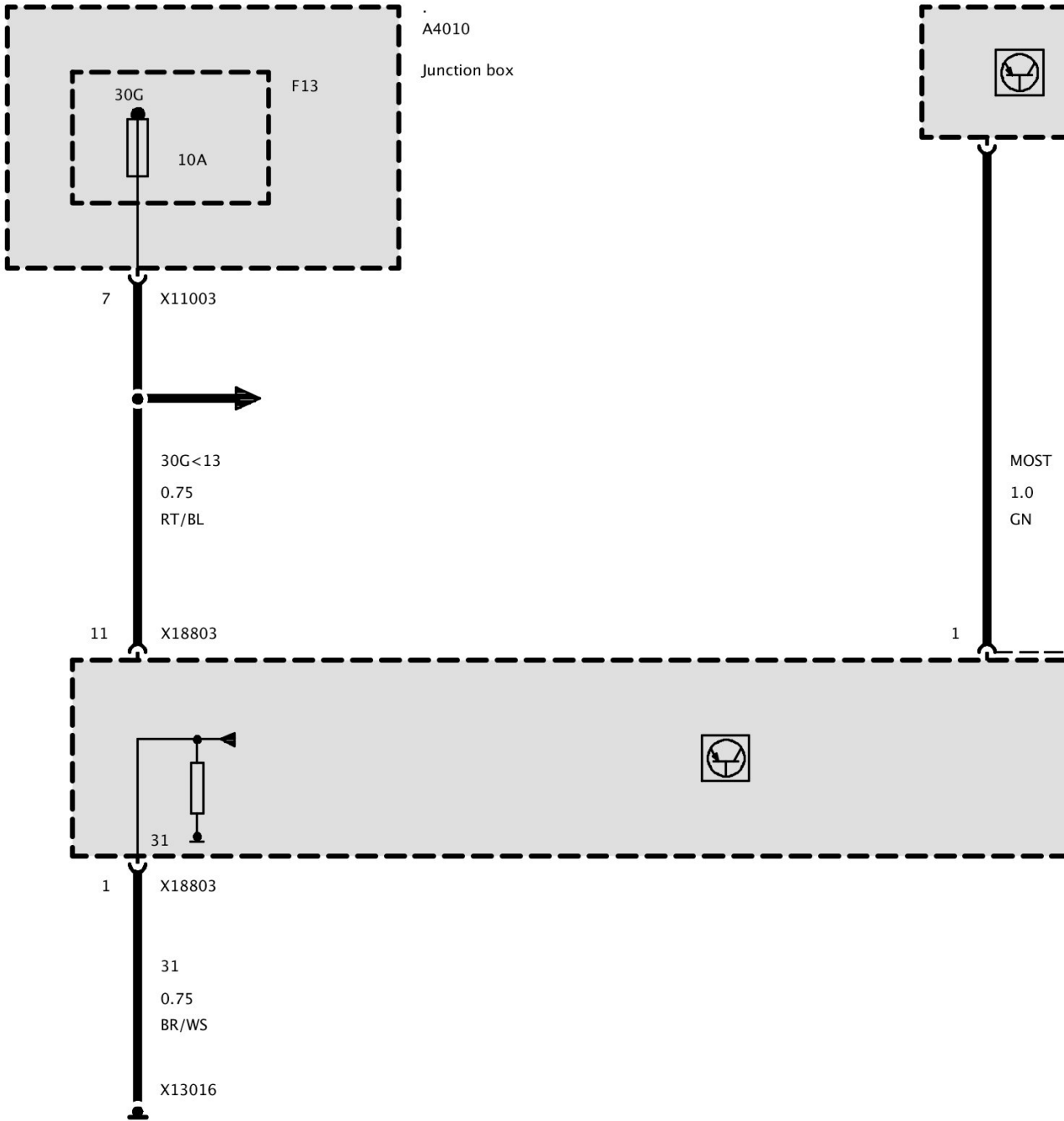
Part 1



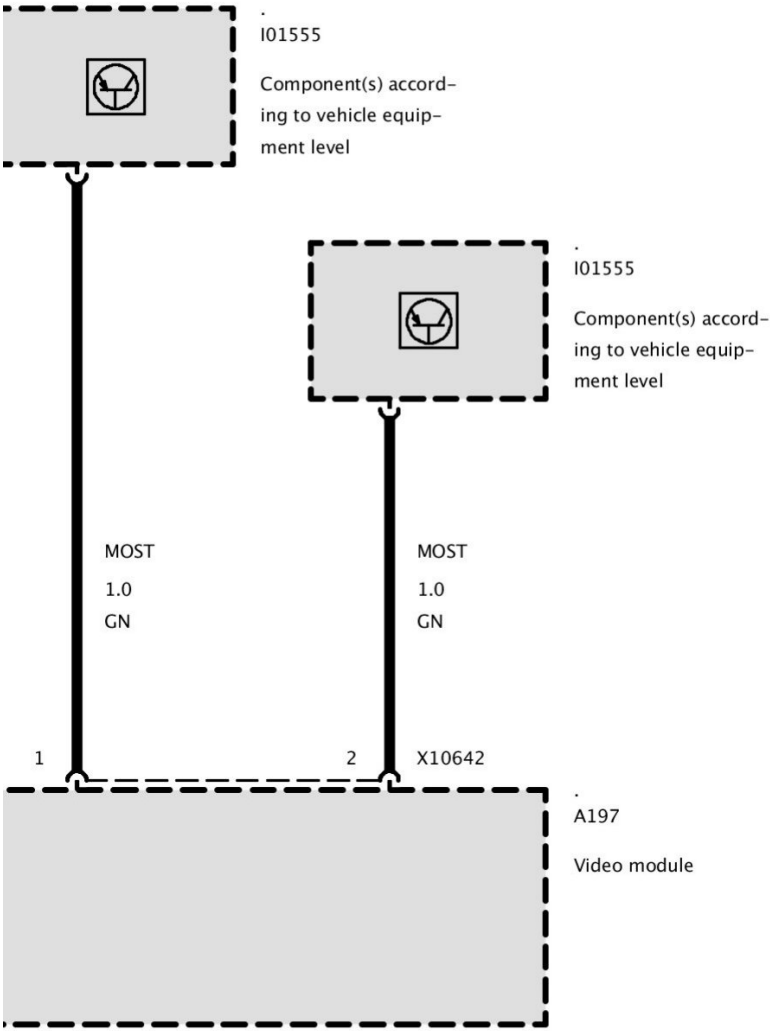
Part 2

Power Supply VM Video Module (As Of 12/08)

Power Supply VM Video Module (As Of 12/08)



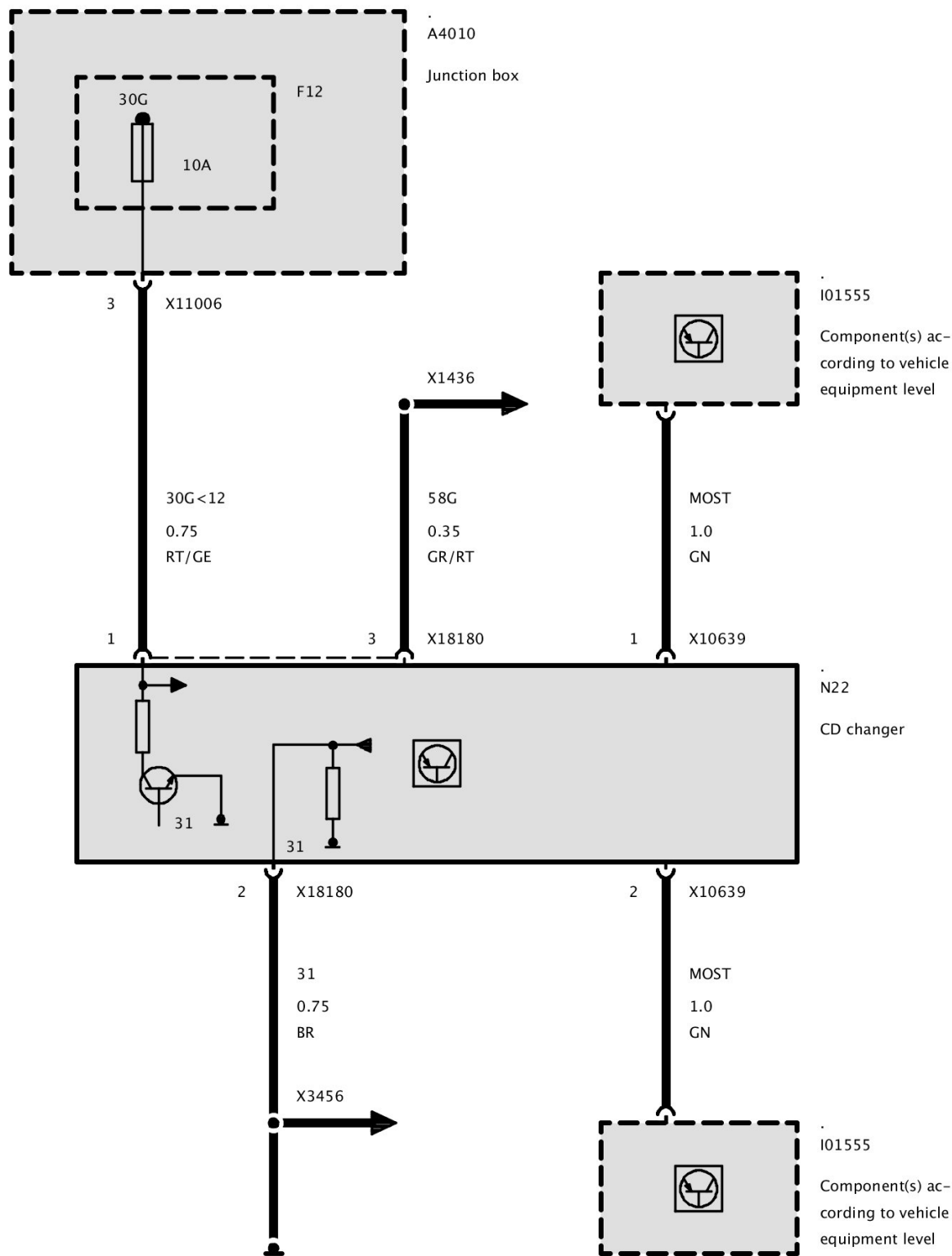
Part 1



Part 2

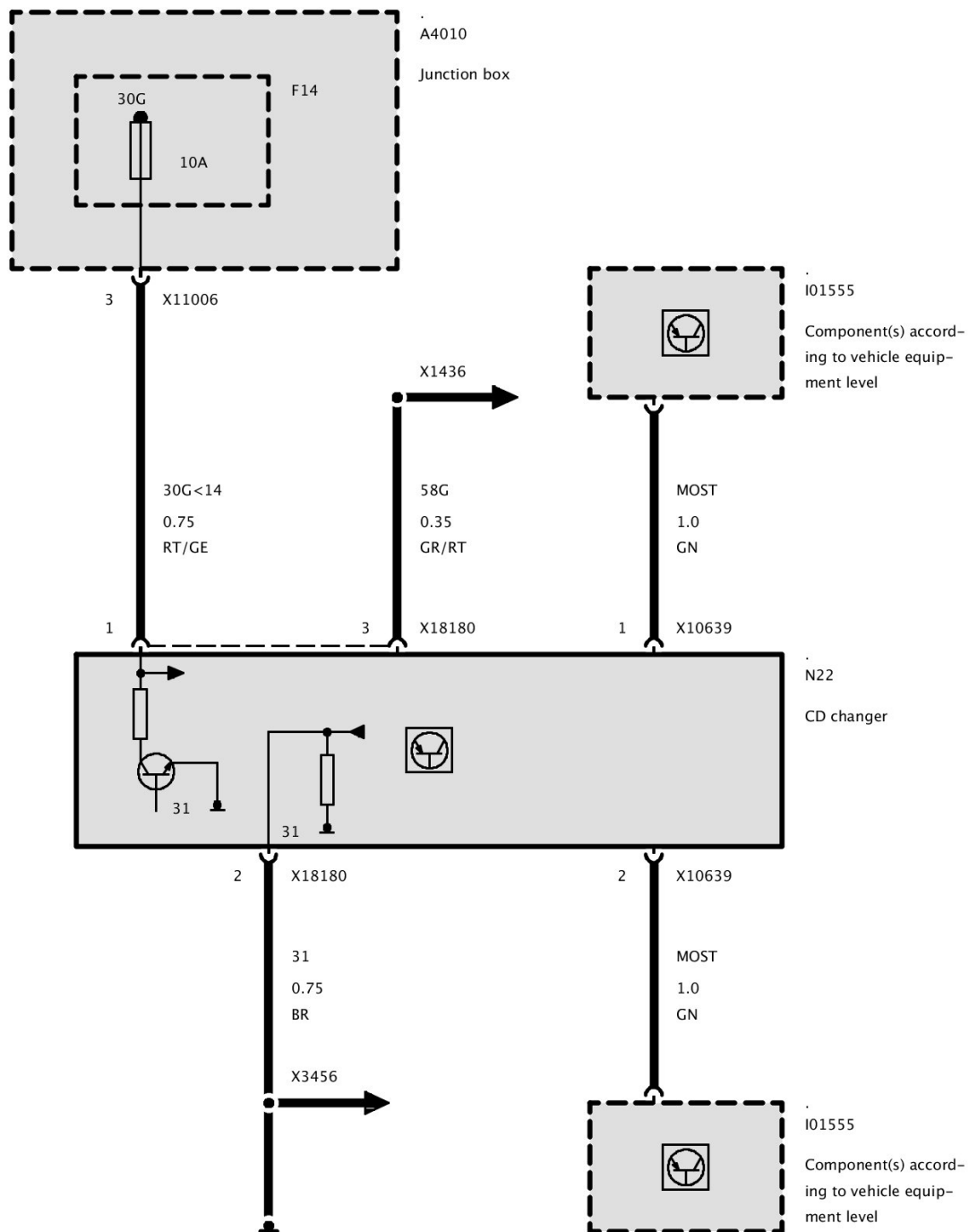
CD Changer Supply (Up To 12/08)

CD Changer Supply (Up To 12/08)



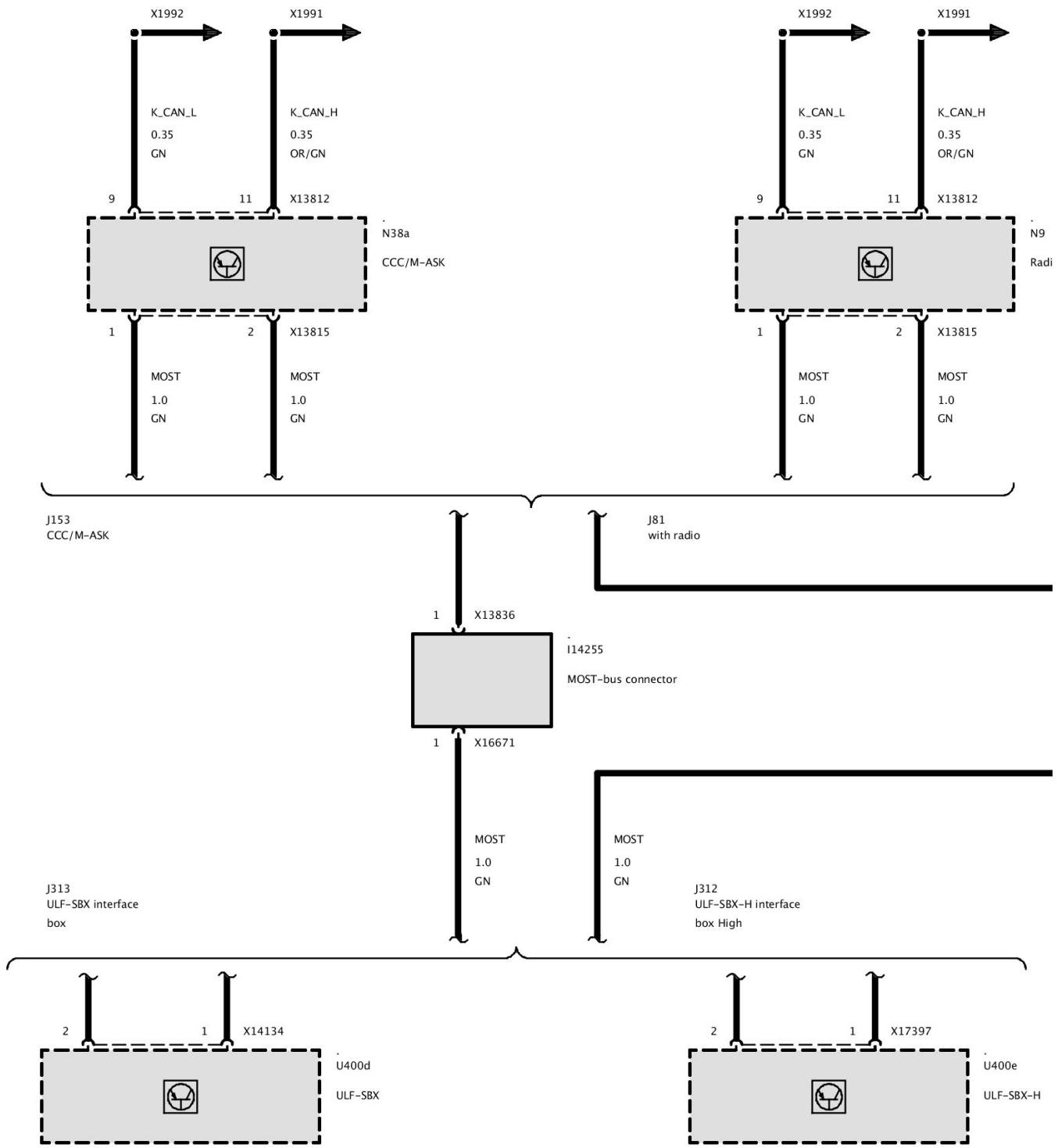
## CD Changer Supply (As Of 12/08)

CD Changer Supply (As Of 12/08)

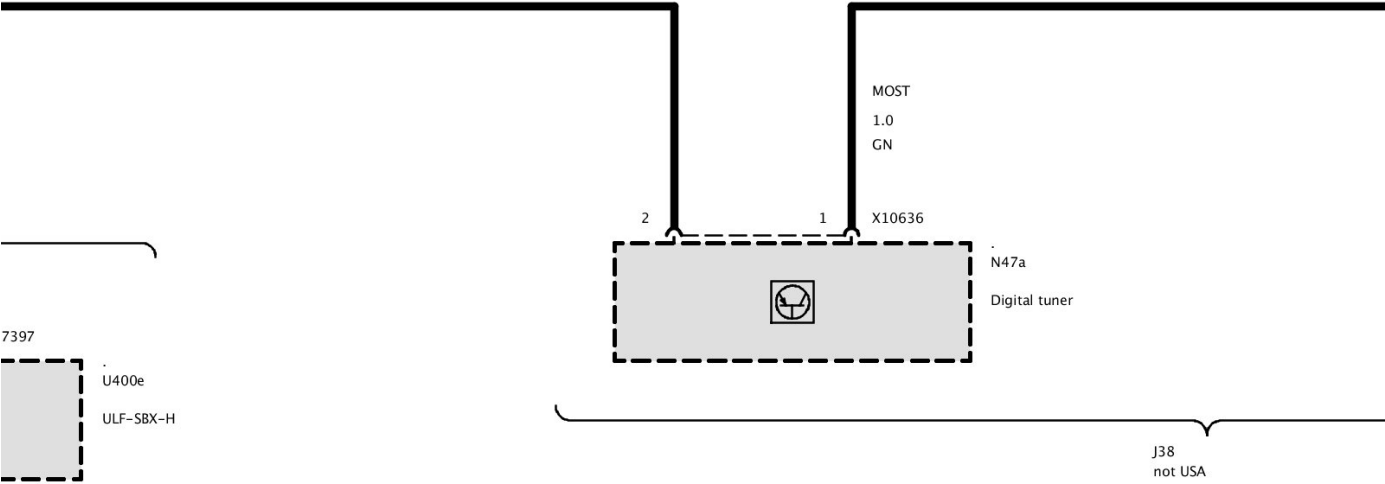
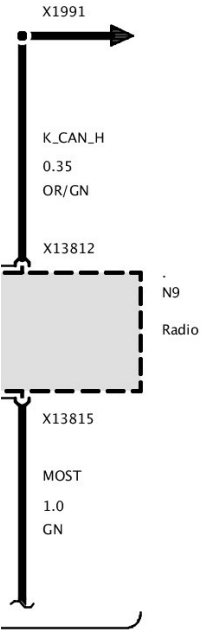


## MOST Functions (Without RAD Radio)

### MOST-Bus Network

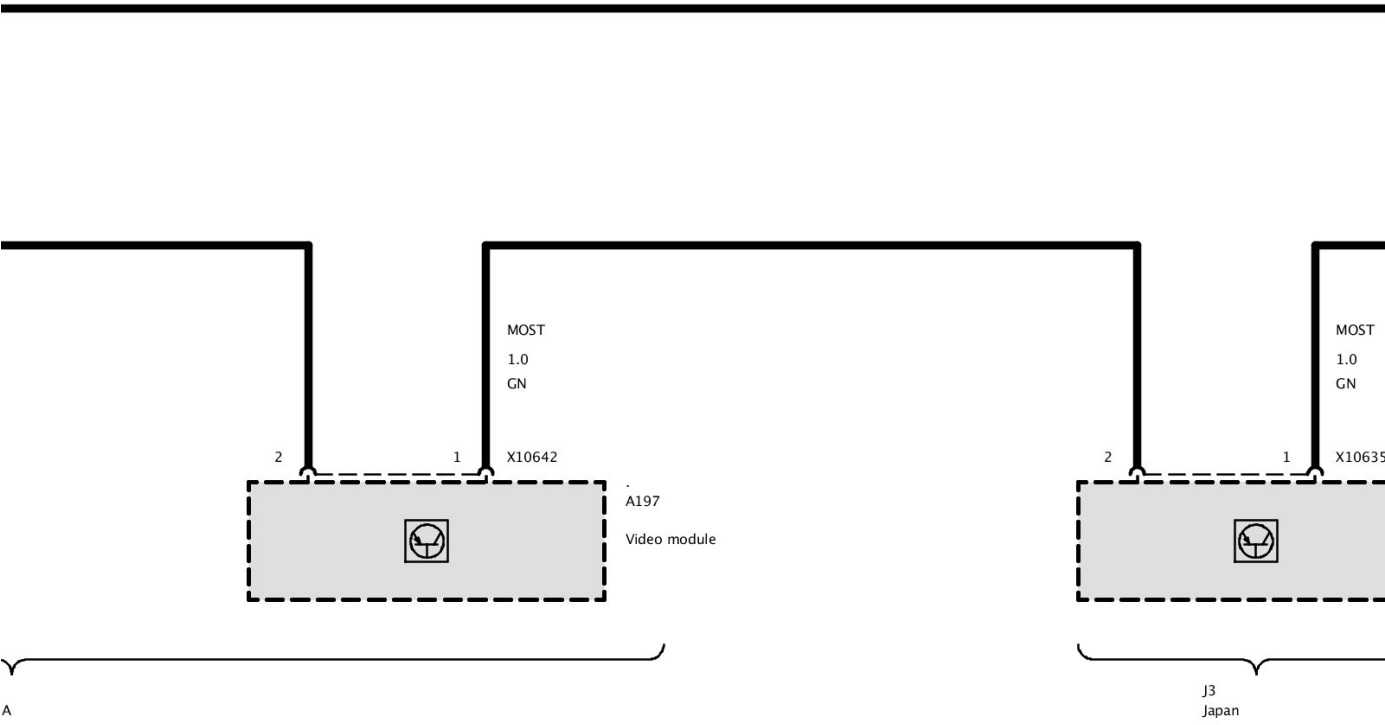


Part 1

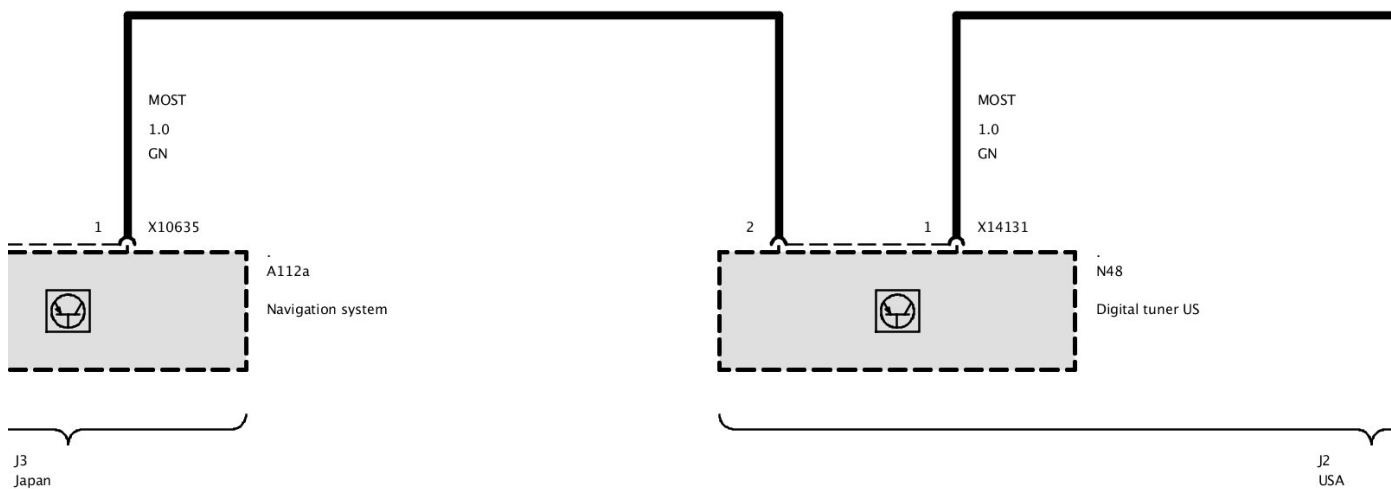


Part 2

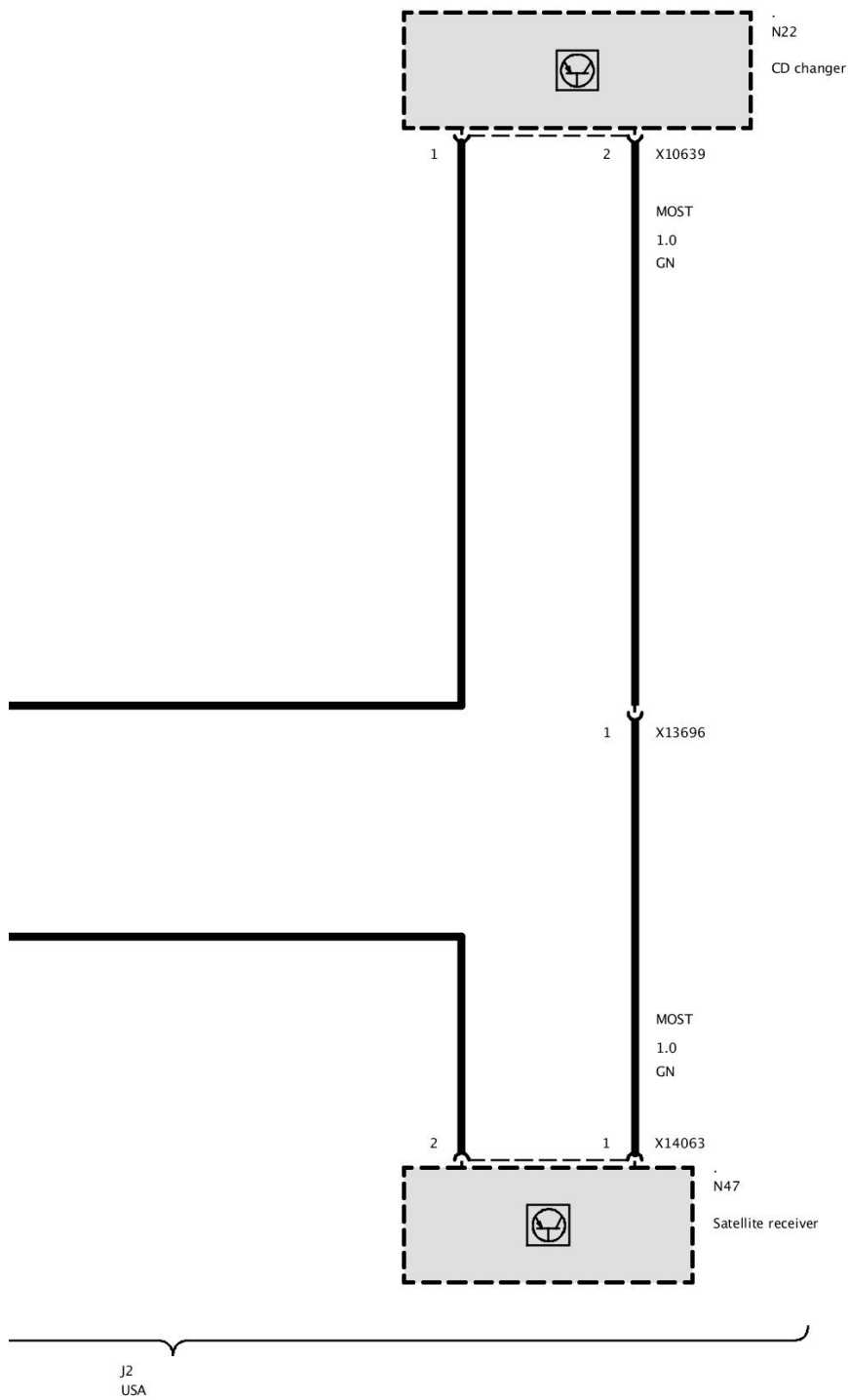




Part 3



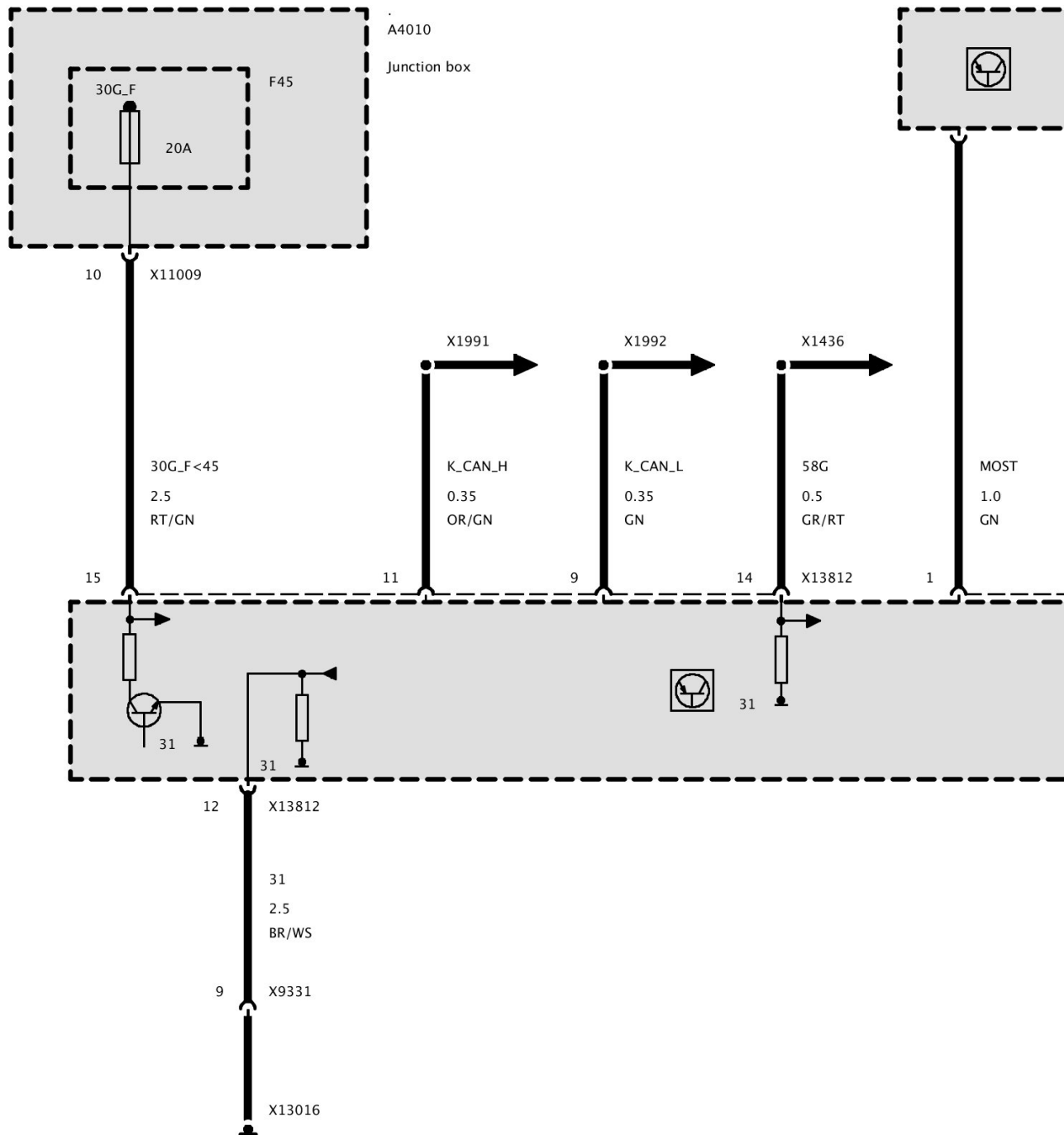
**Part 4**



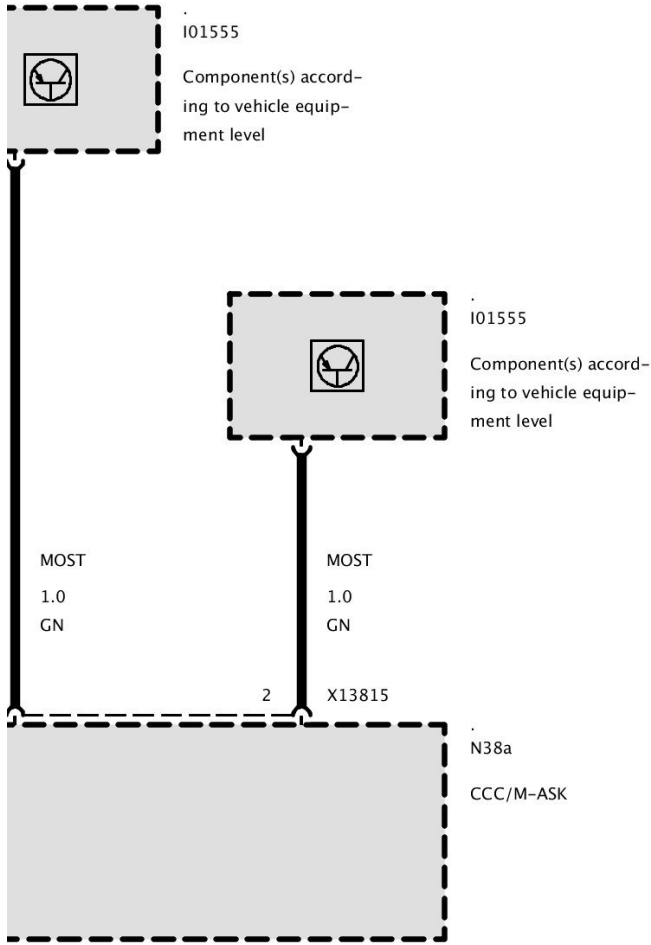
Part 5

Supply, CCC Car Communication Computer (CCC-BO User Interface)

Power Supply CCCM-ASK (As Of 08/07)



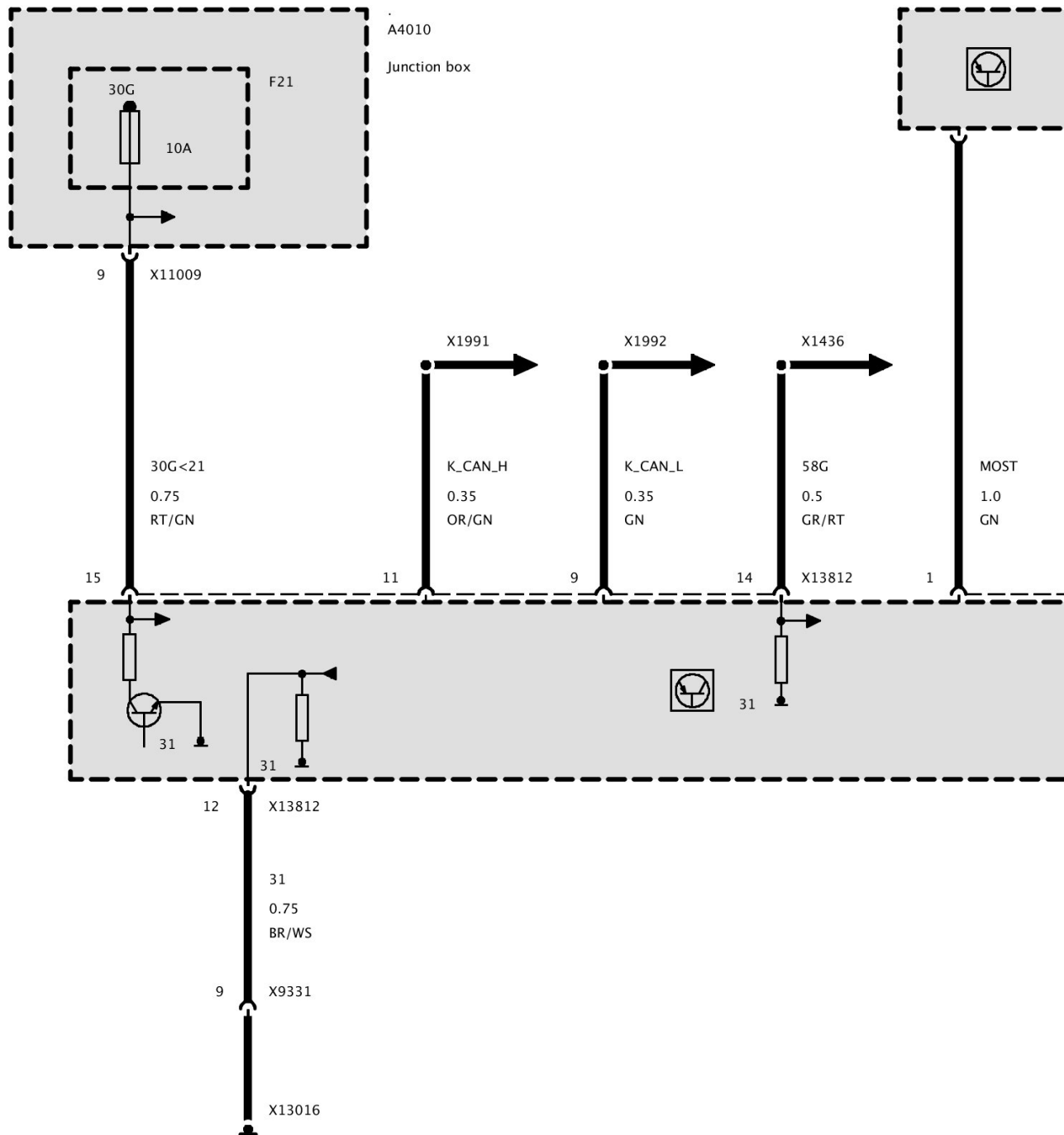
Part 1



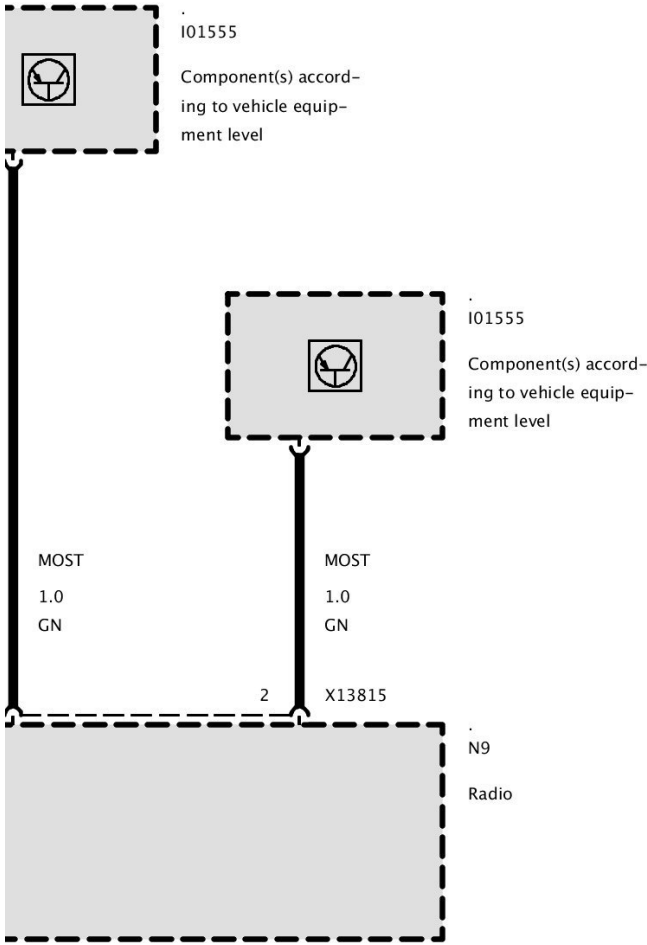
Part 2

Radio Supply (As Of 08/07 Up To 12/08)

Radio Supply (As Of 08/07 Up To 12/08)



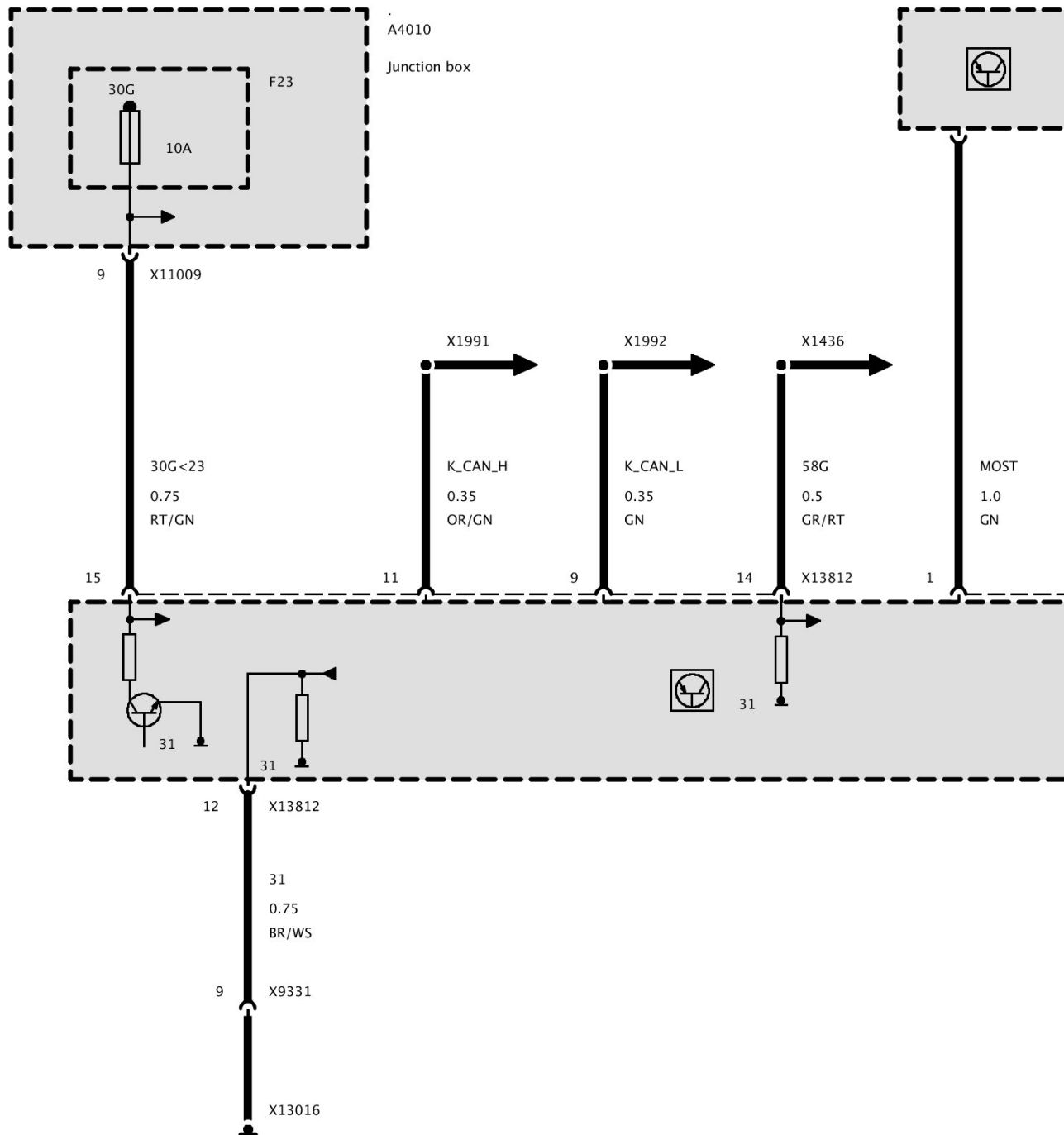
Part 1



Part 2

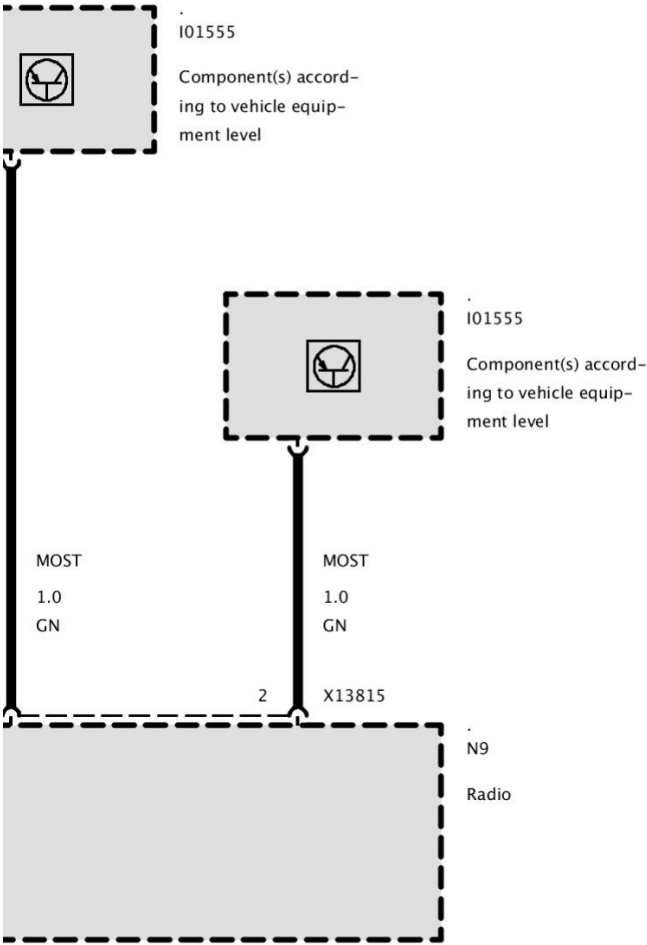
Radio Supply (As Of 12/08)

Radio Supply (As Of 12/08)



Part 1

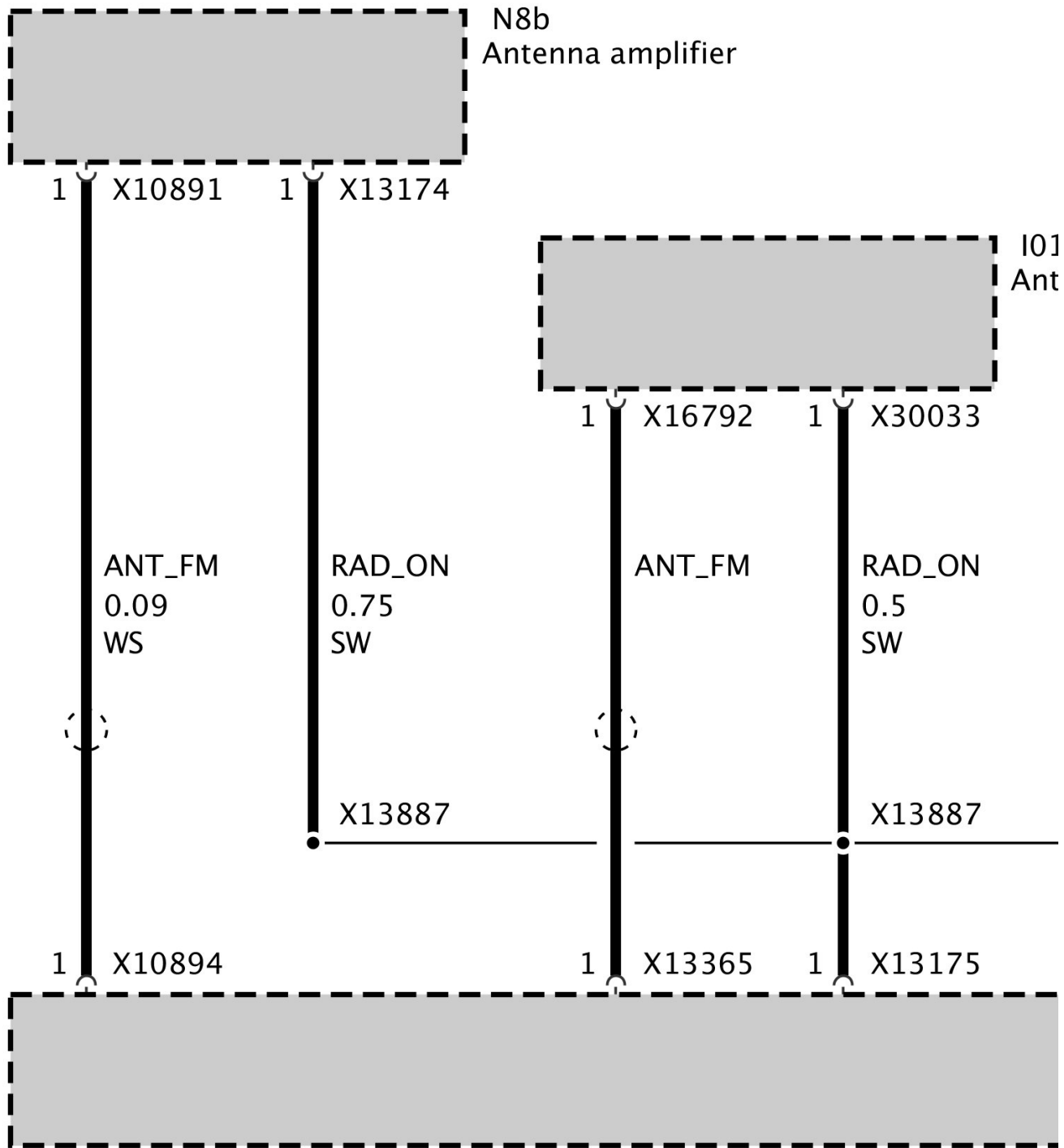




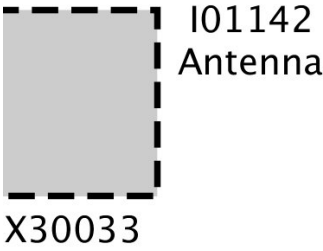
Part 2

Antenna

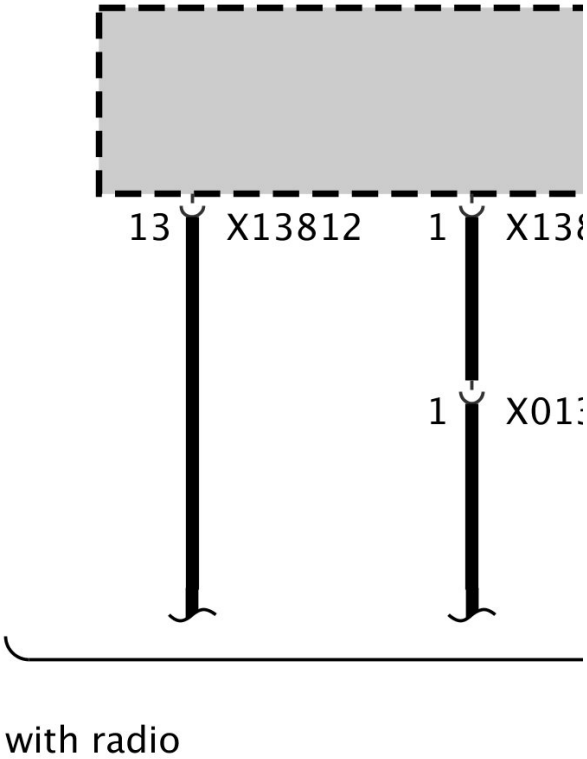
Radio Reception (Convertible)



Part 1



RAD\_ON  
0.5  
5W

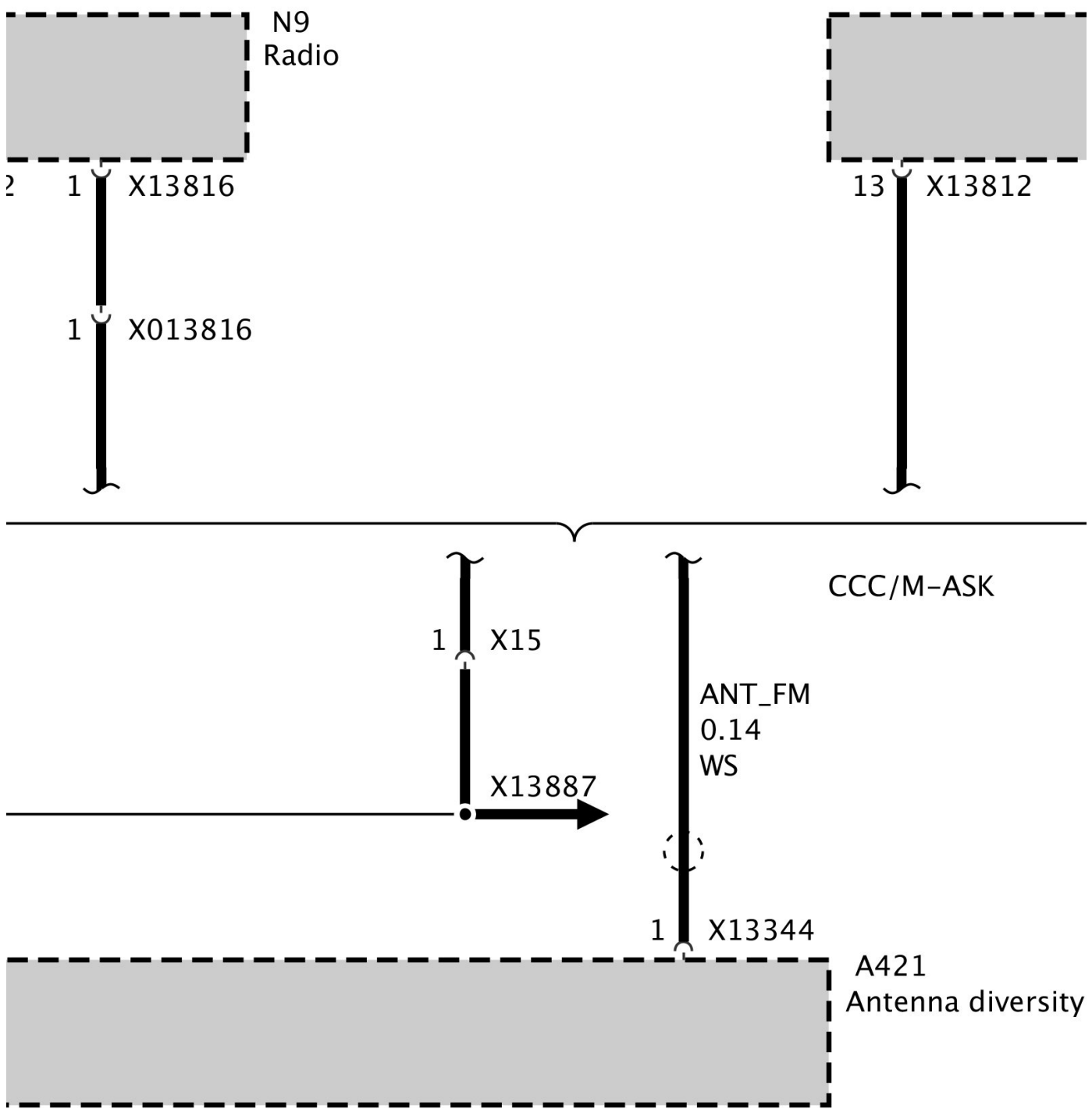


X13887

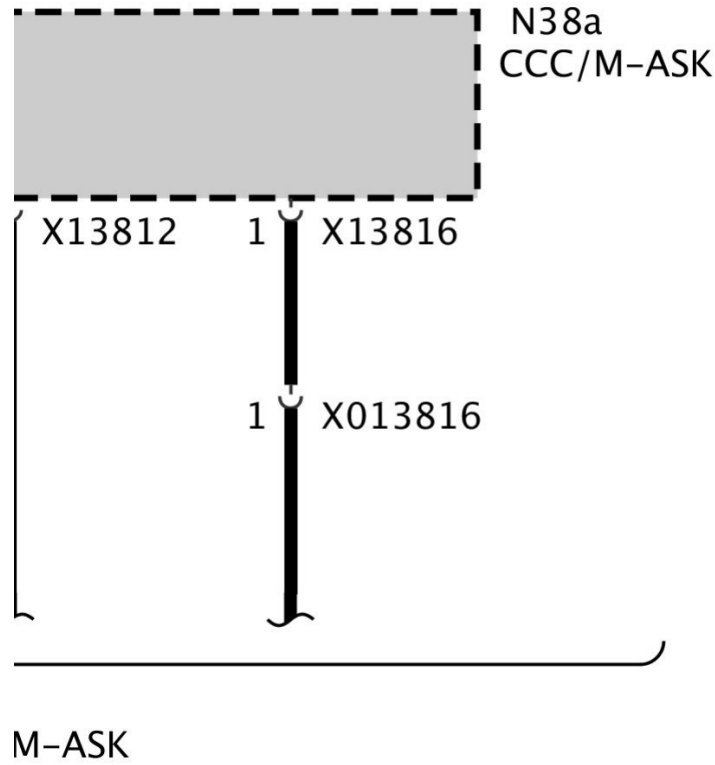
X13175



Part 2



Part 3

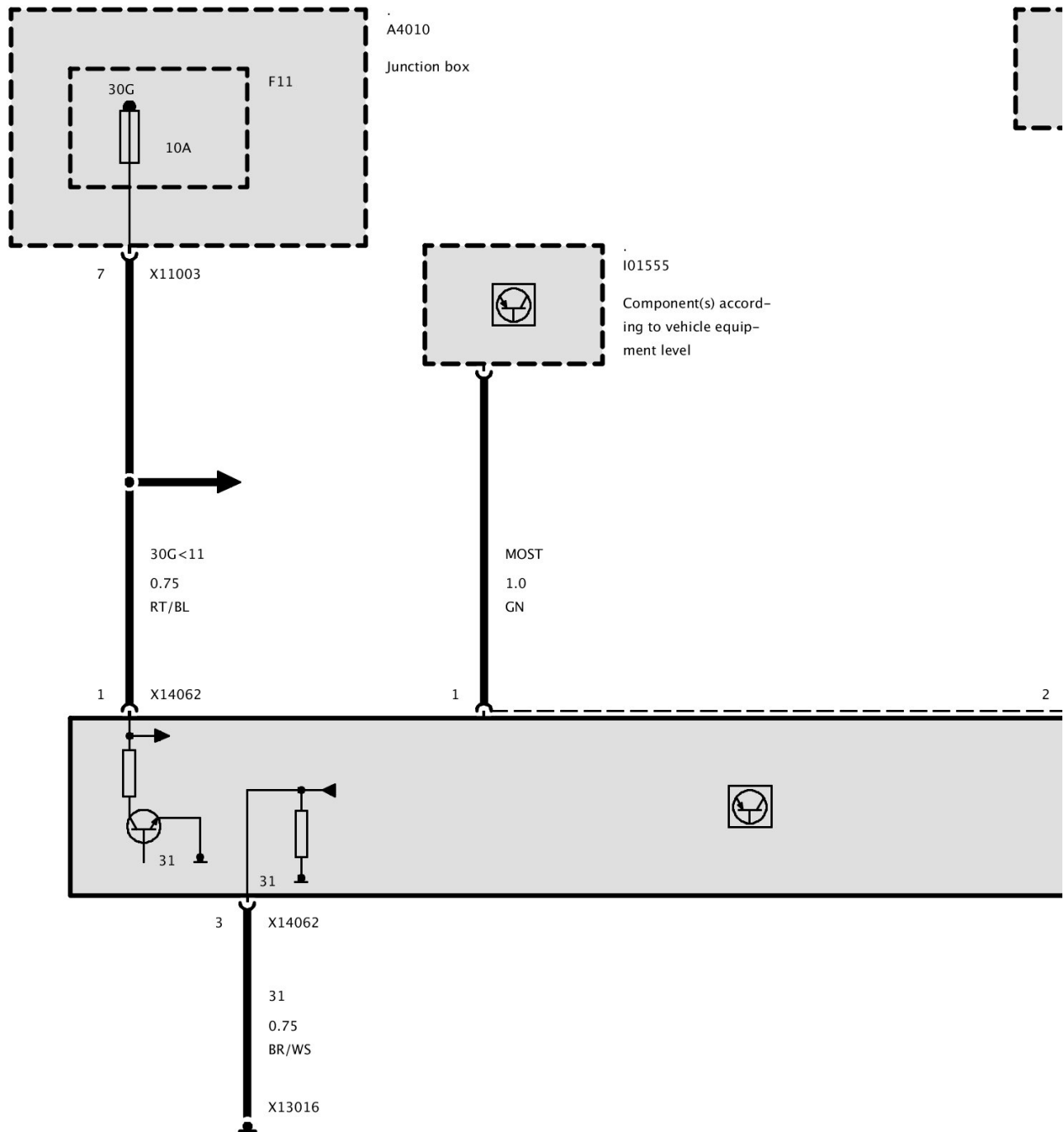


1  
enna diversity

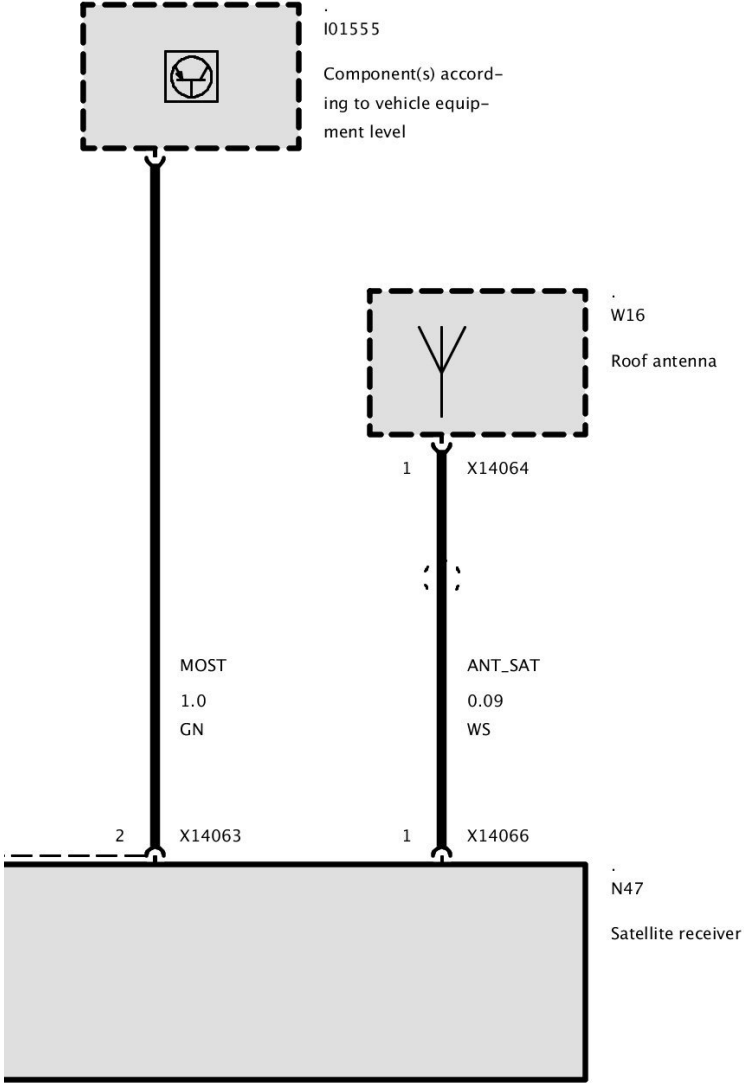
Part 4

Satellite Tuner (USA\_LHD With SDARS Satellite Tuner)

Satellite Receiver (As Of 08/07 Up To 12/08)



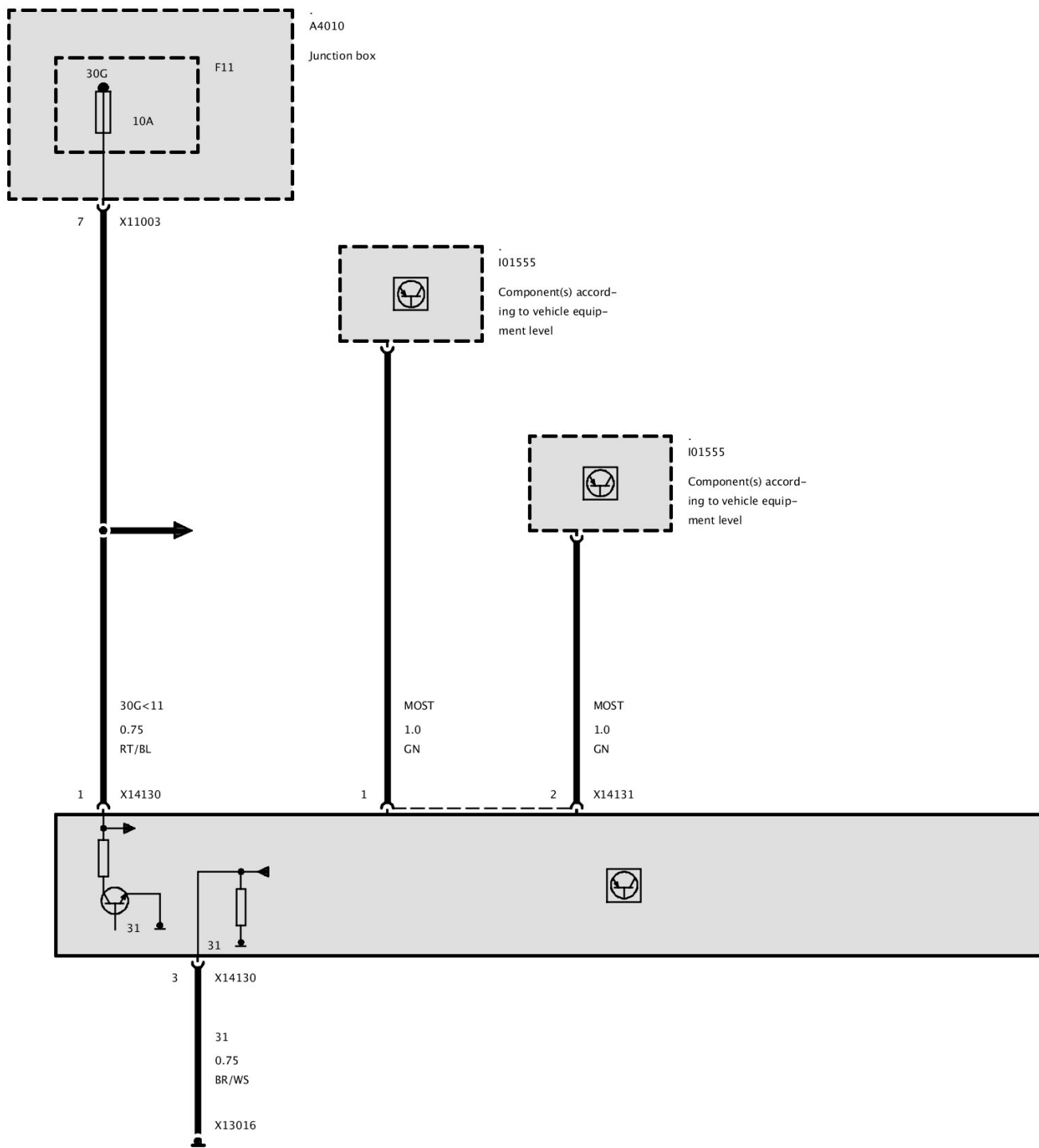
Part 1



Part 2

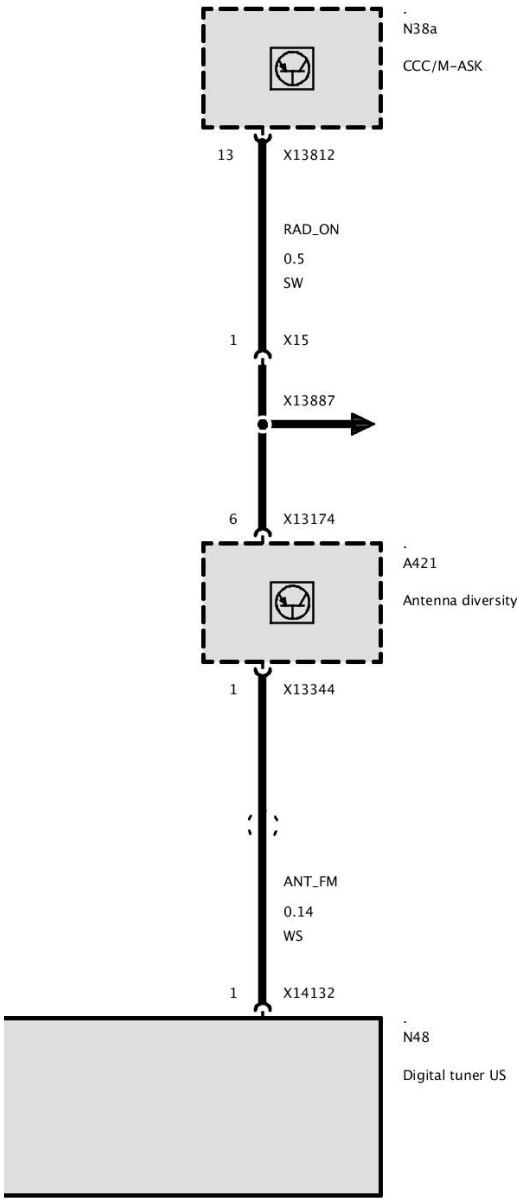
Digital Tuner (Without CCC-BO User Interface As Of 08/07 Up To 12/08)

Digital Tuner (Without CCC-BO User Interface As Of 08/07 Up To 12/08)



Part 1

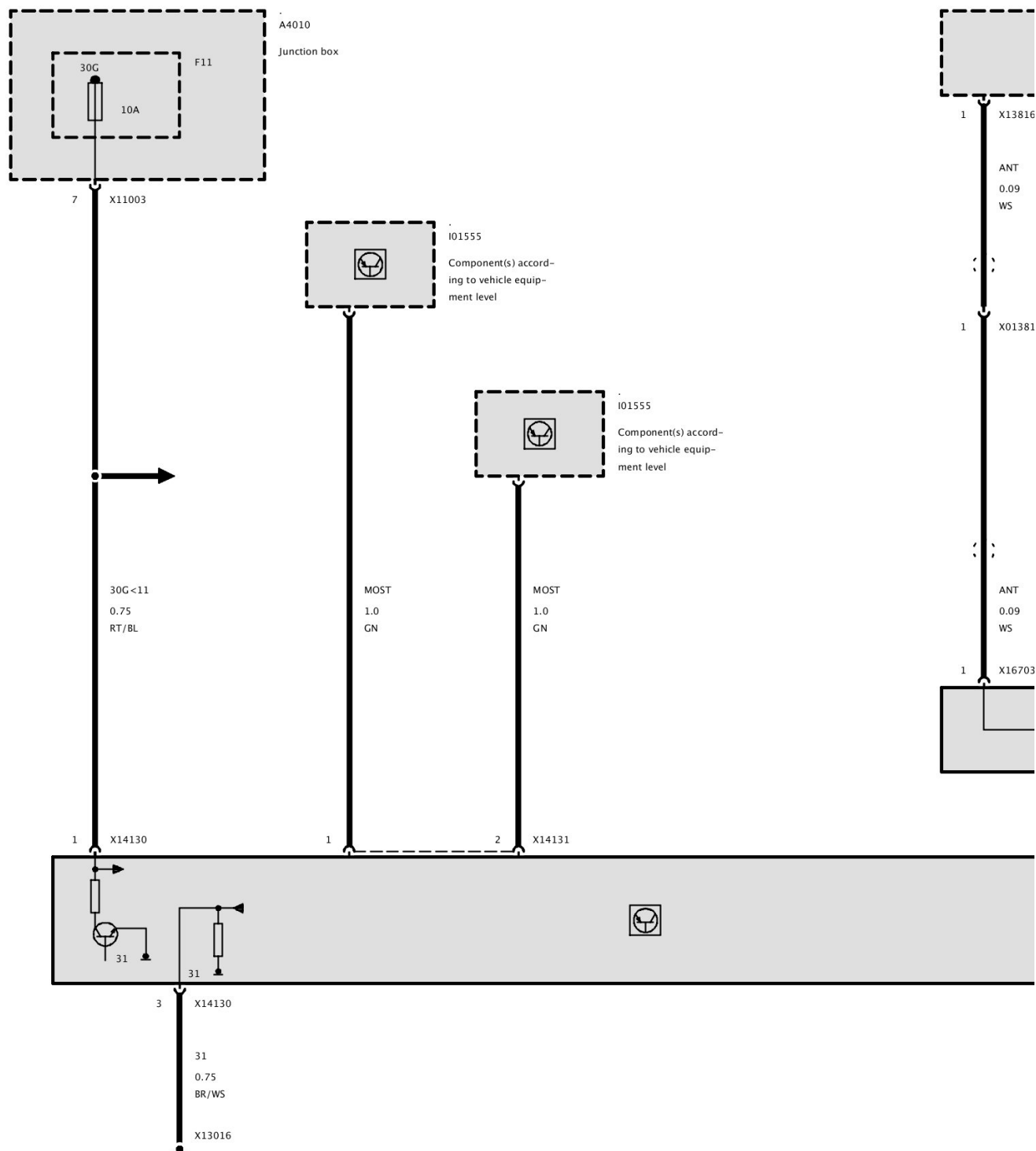




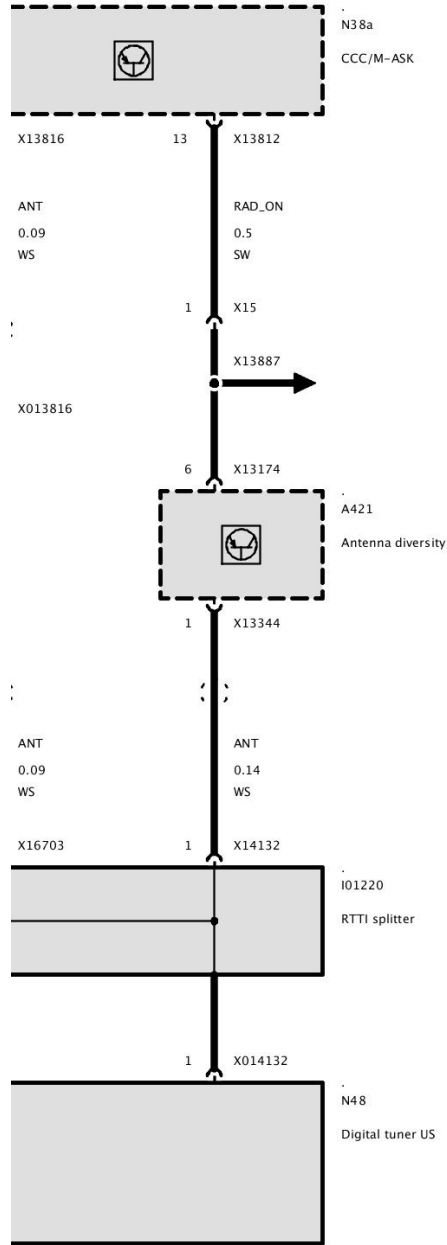
Part 2

Digital Tuner (CCC-BO User Interface As Of 08/07 Up To 12/08)

Digital Tuner (CCC-BO User Interface As Of 08/07 Up To 12/08)



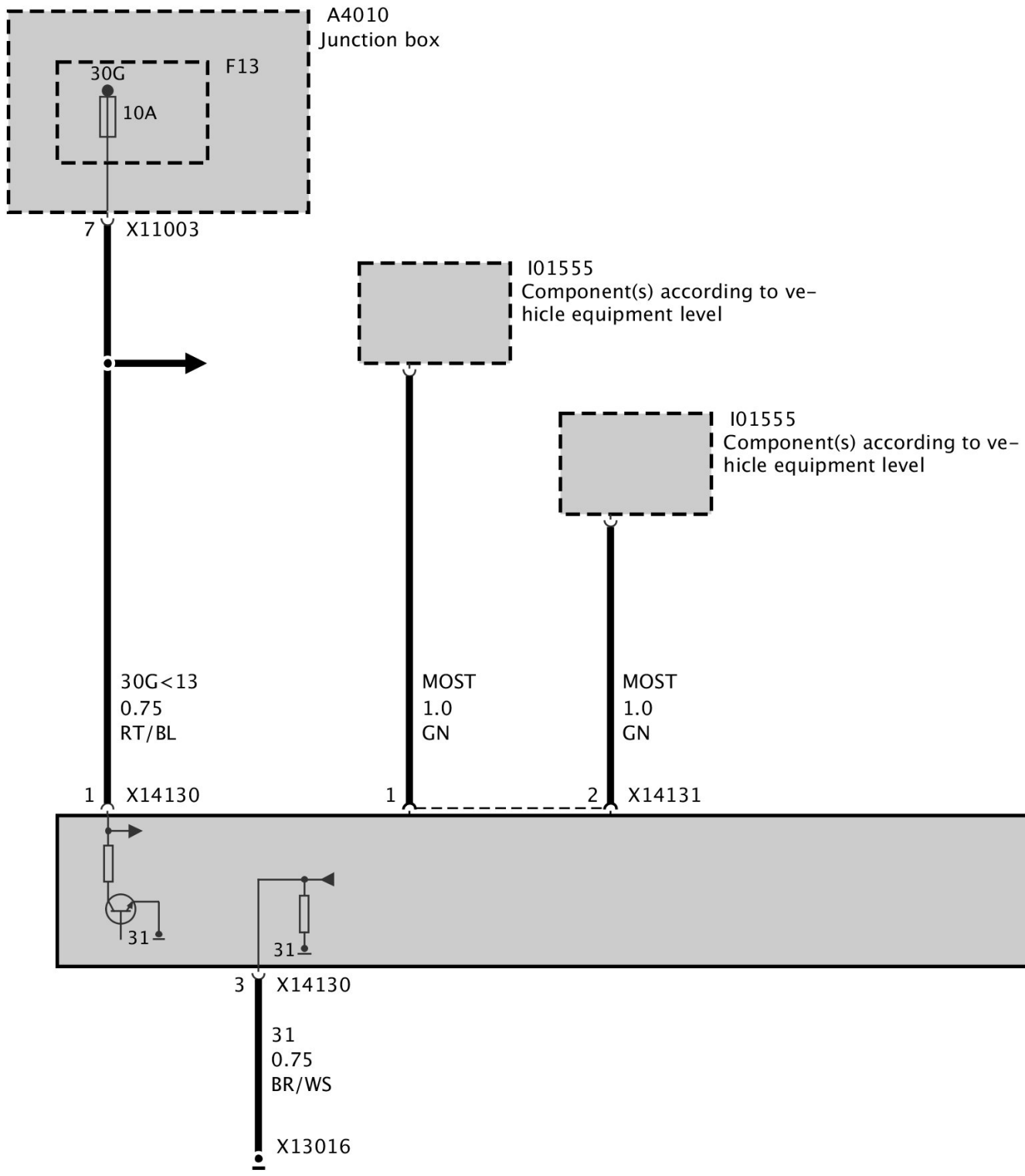
jmoraflores@hotmail.cl



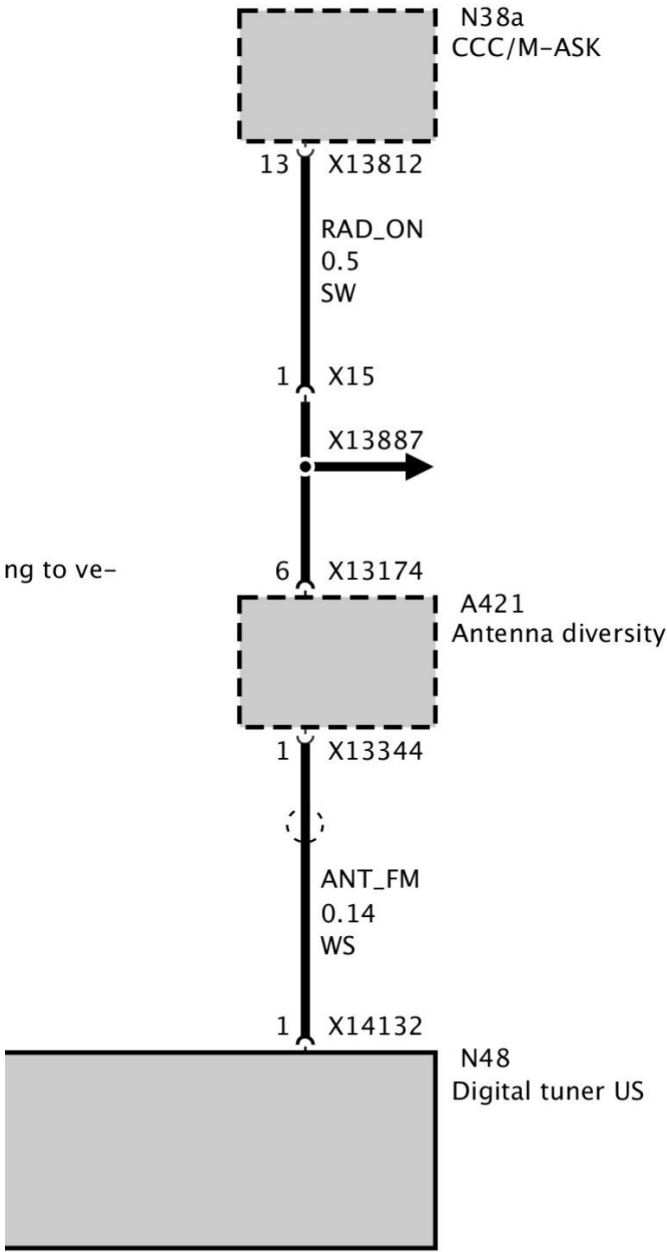
Part 2

Digital Tuner (Without CCC-BO User Interface As Of 12/08)

Digital Tuner (Without CCC-BO User Interface As Of 12/08)



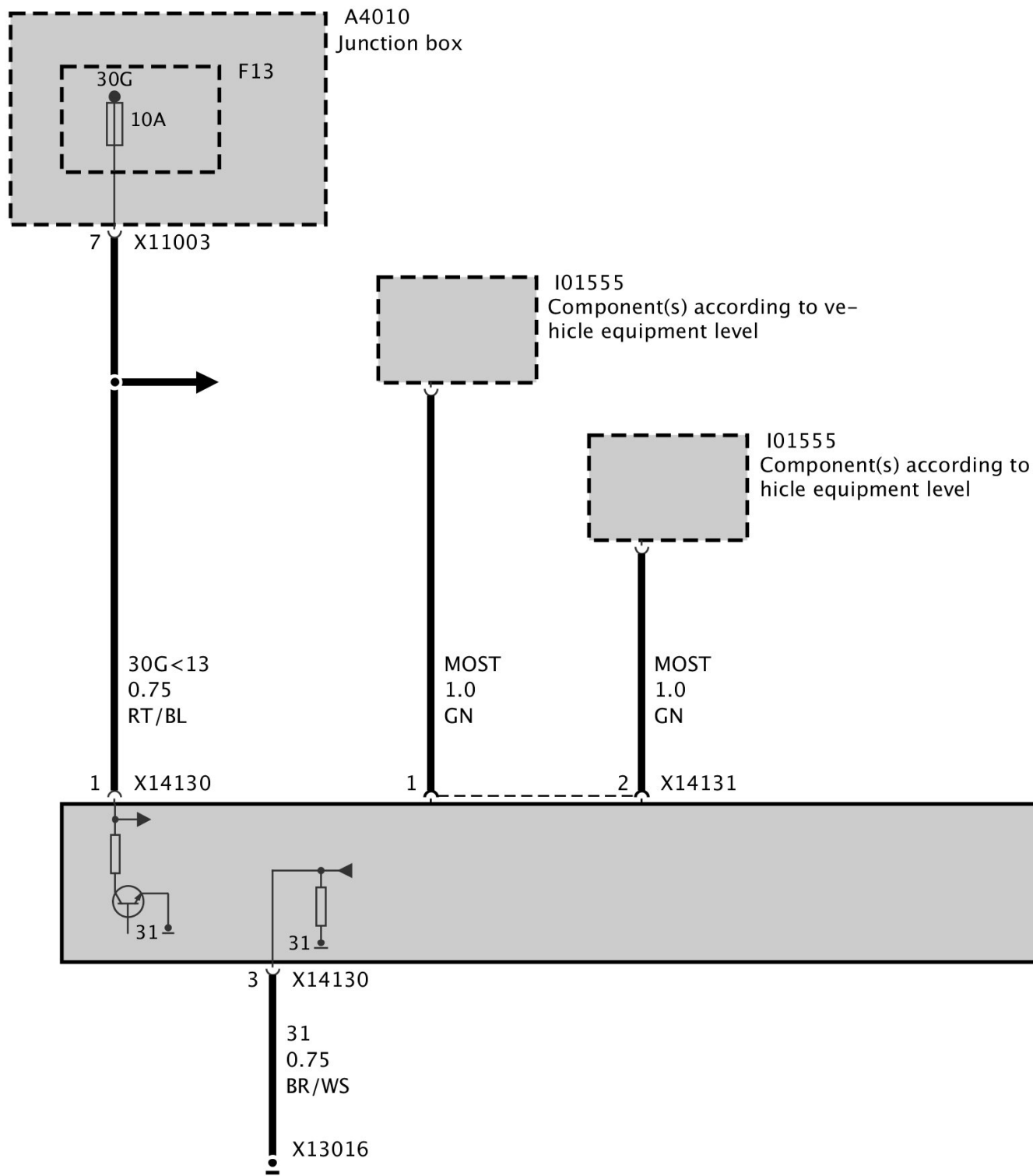
Part 1



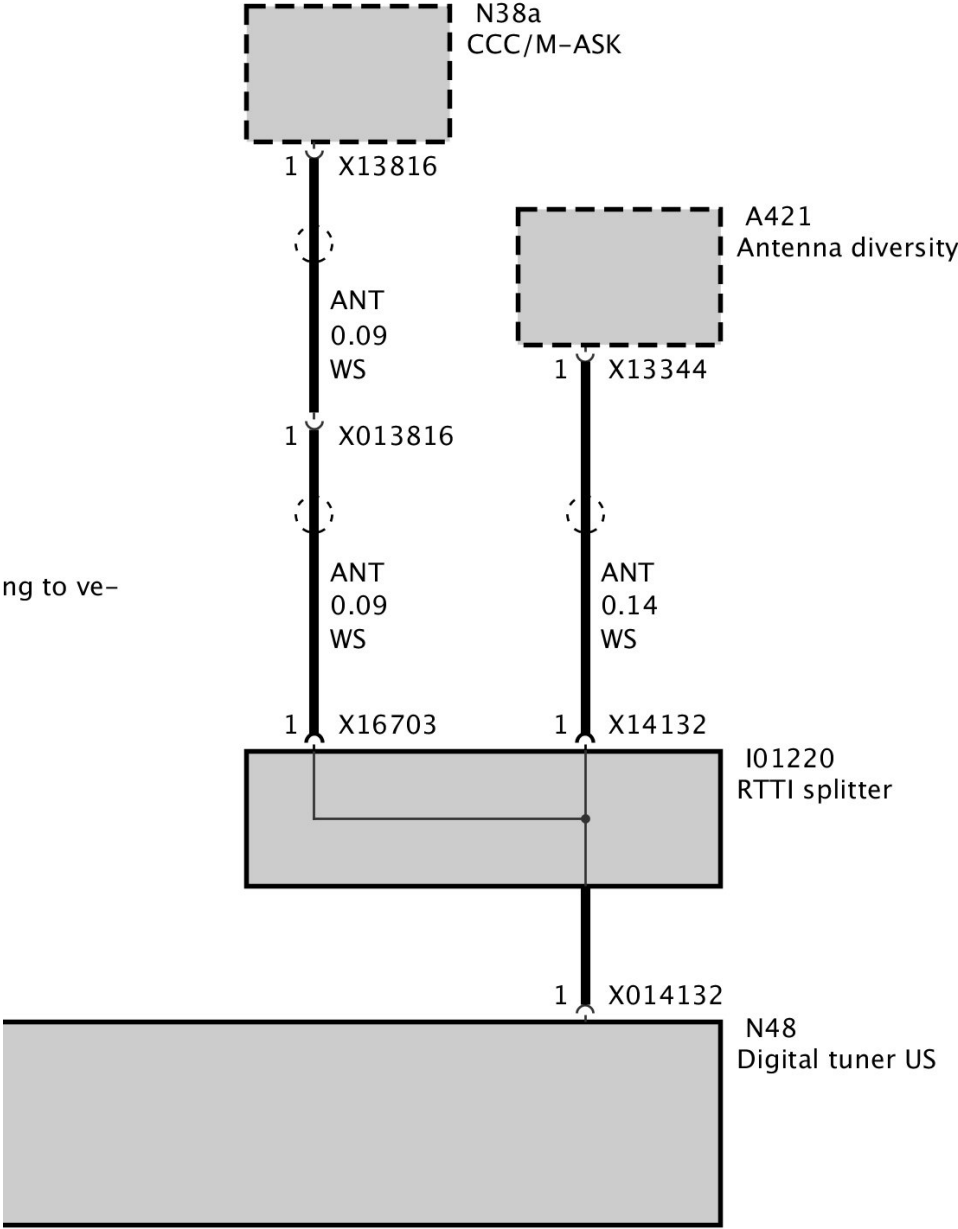
Part 2

Digital Tuner (CCC-BO User Interface As Of 12/08)

Digital Tuner (CCC-BO User Interface As Of 12/08)



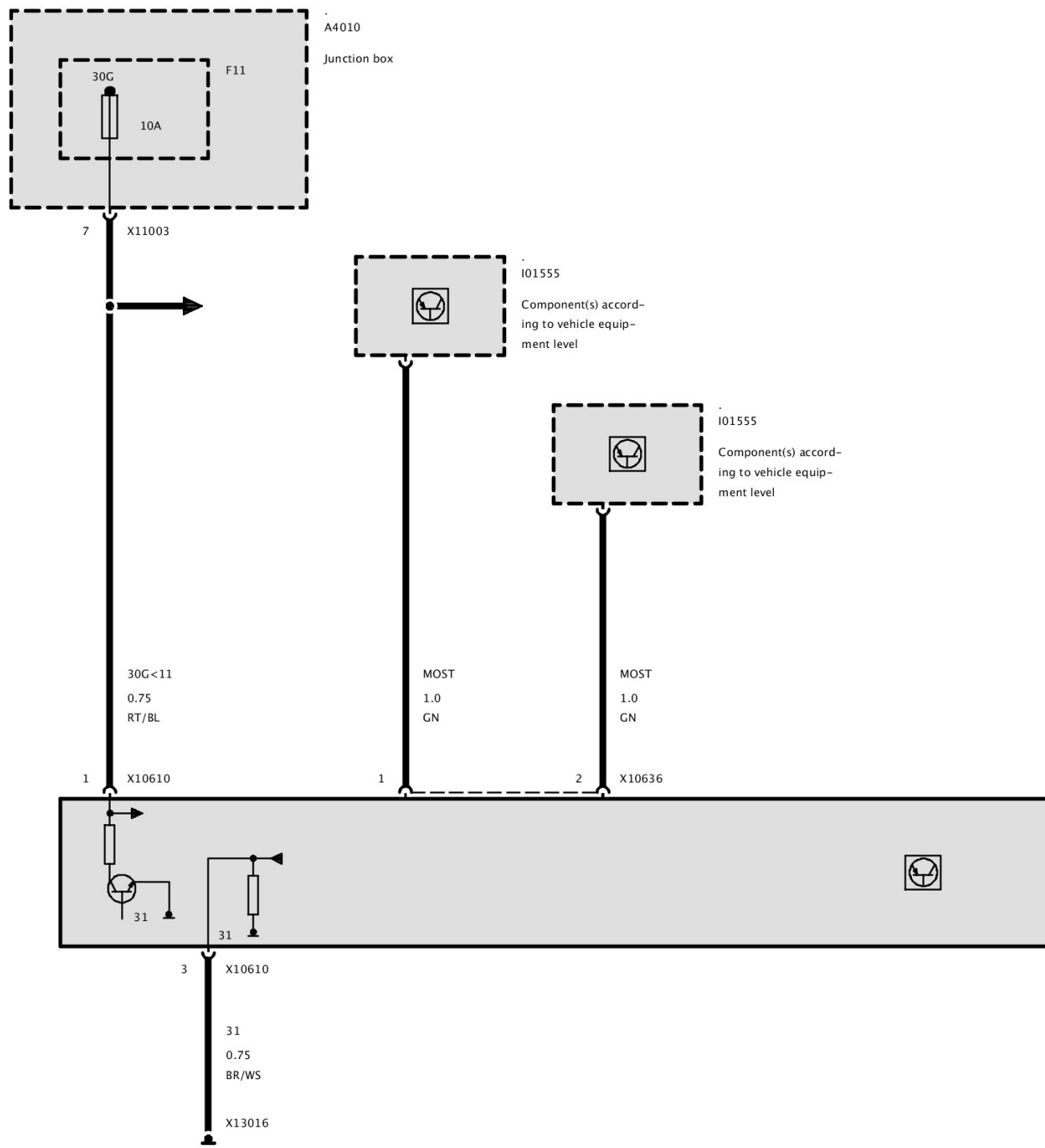
Part 1



Part 2

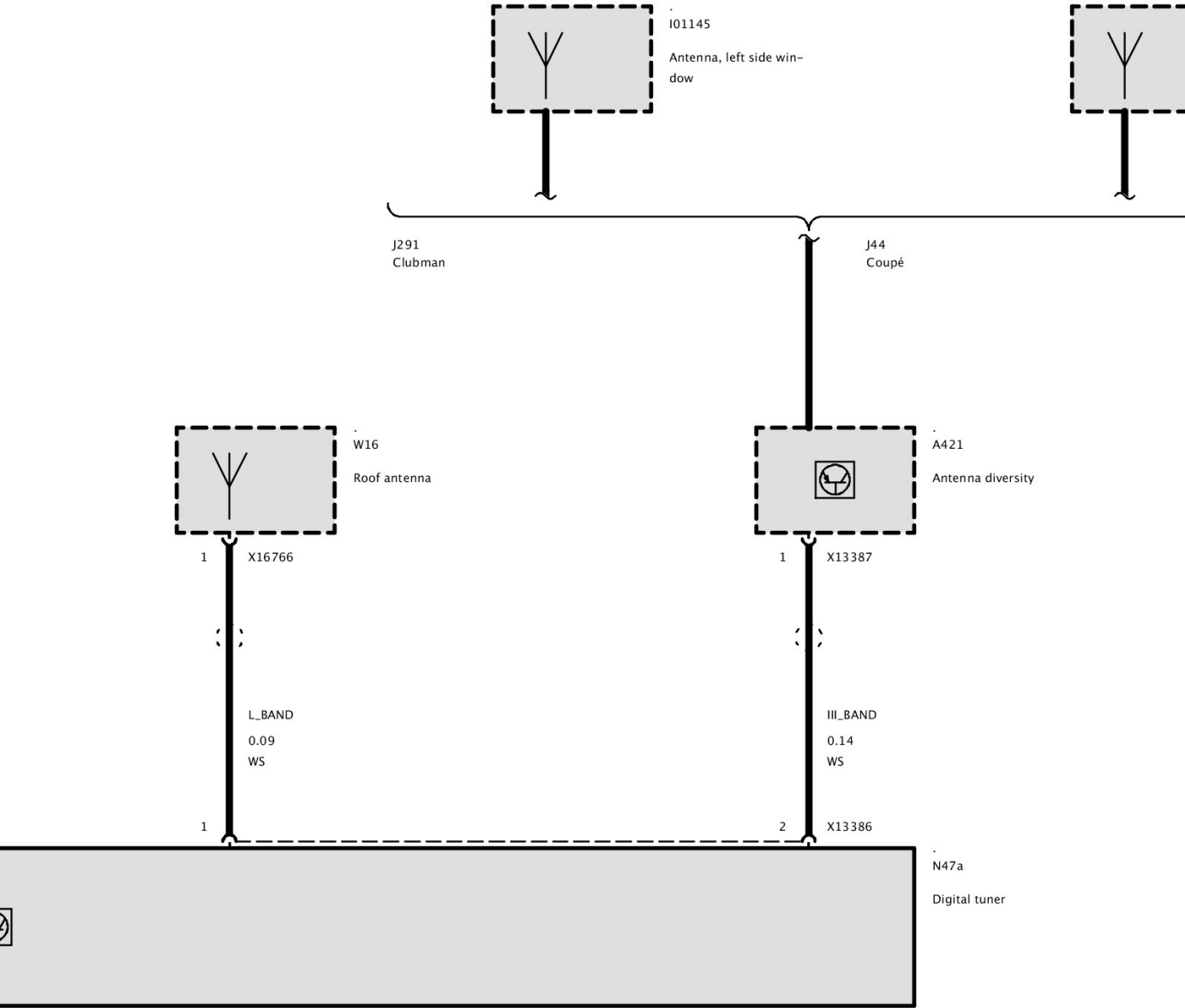
Digital Tuner (DAB Digital Tuner)

Digital Tuner (As Of 08/07 Up To 12/08)

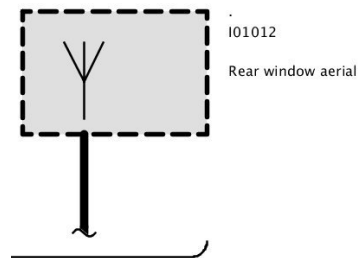


Part 1





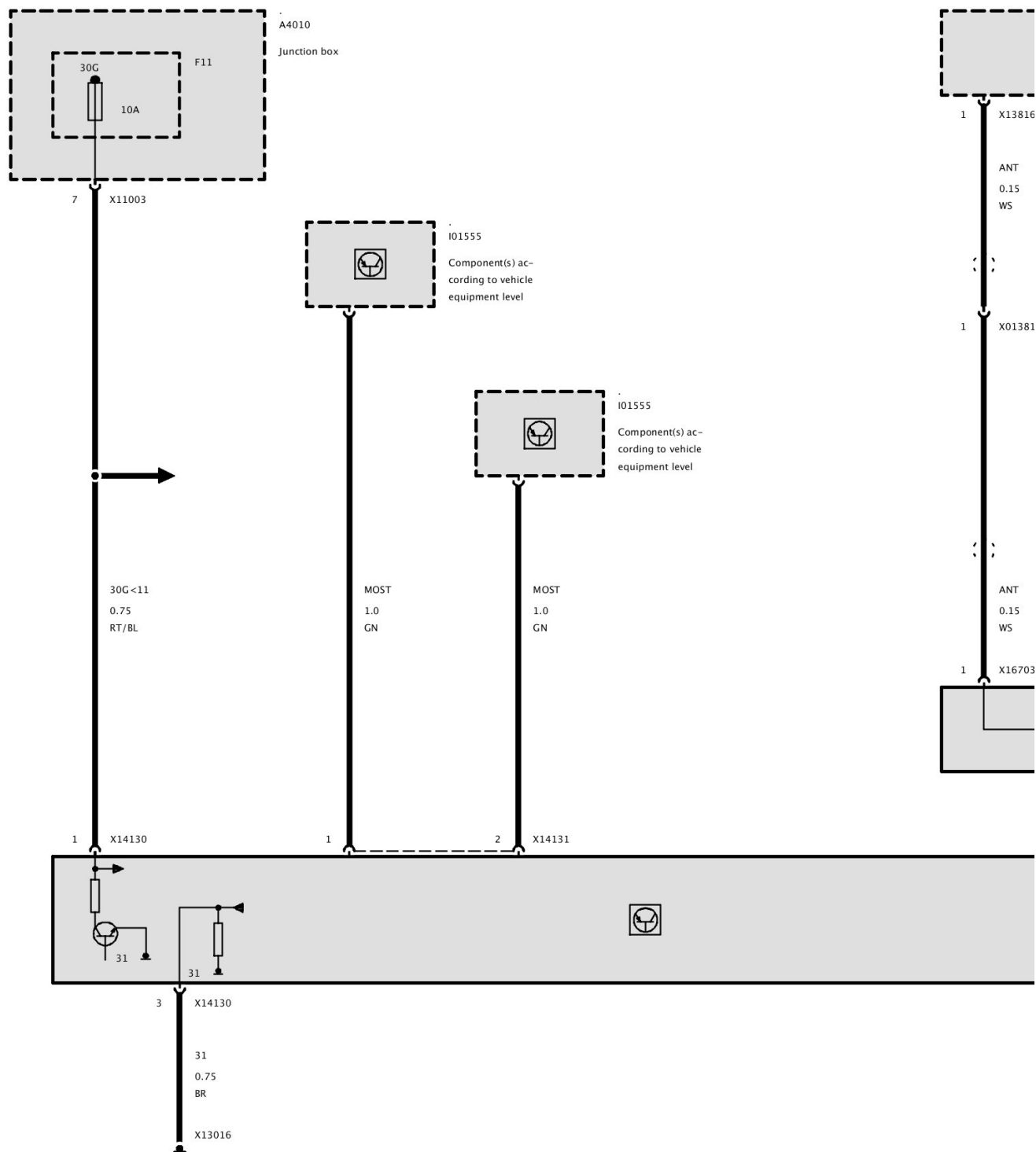
Part 2



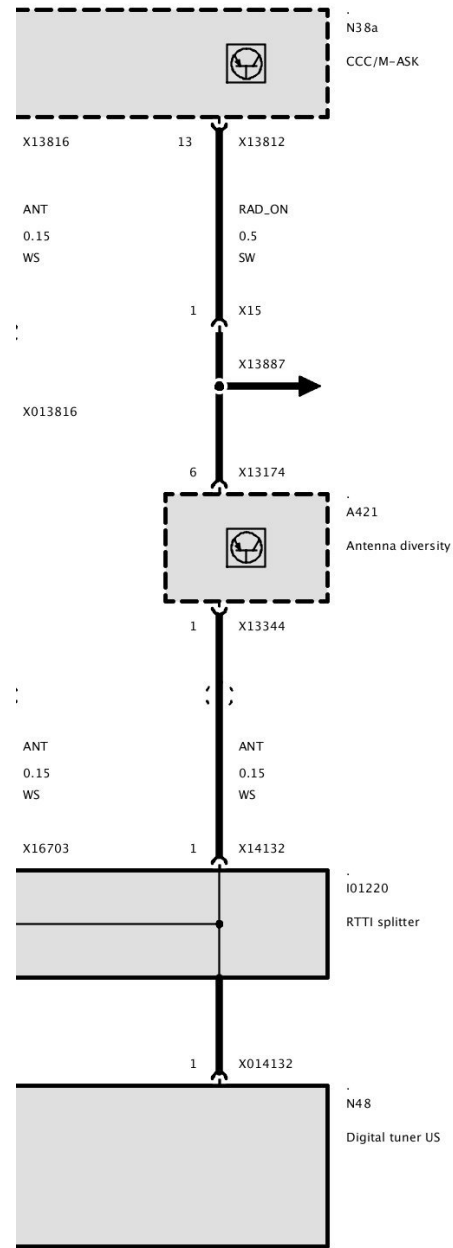
### Part 3

**RTTI Real Time Traffic Information (As Of 03/07 With USA\_LHD With CCC-BO User Interface With IBOC Digital tuner US)**

**Digital Tuner**



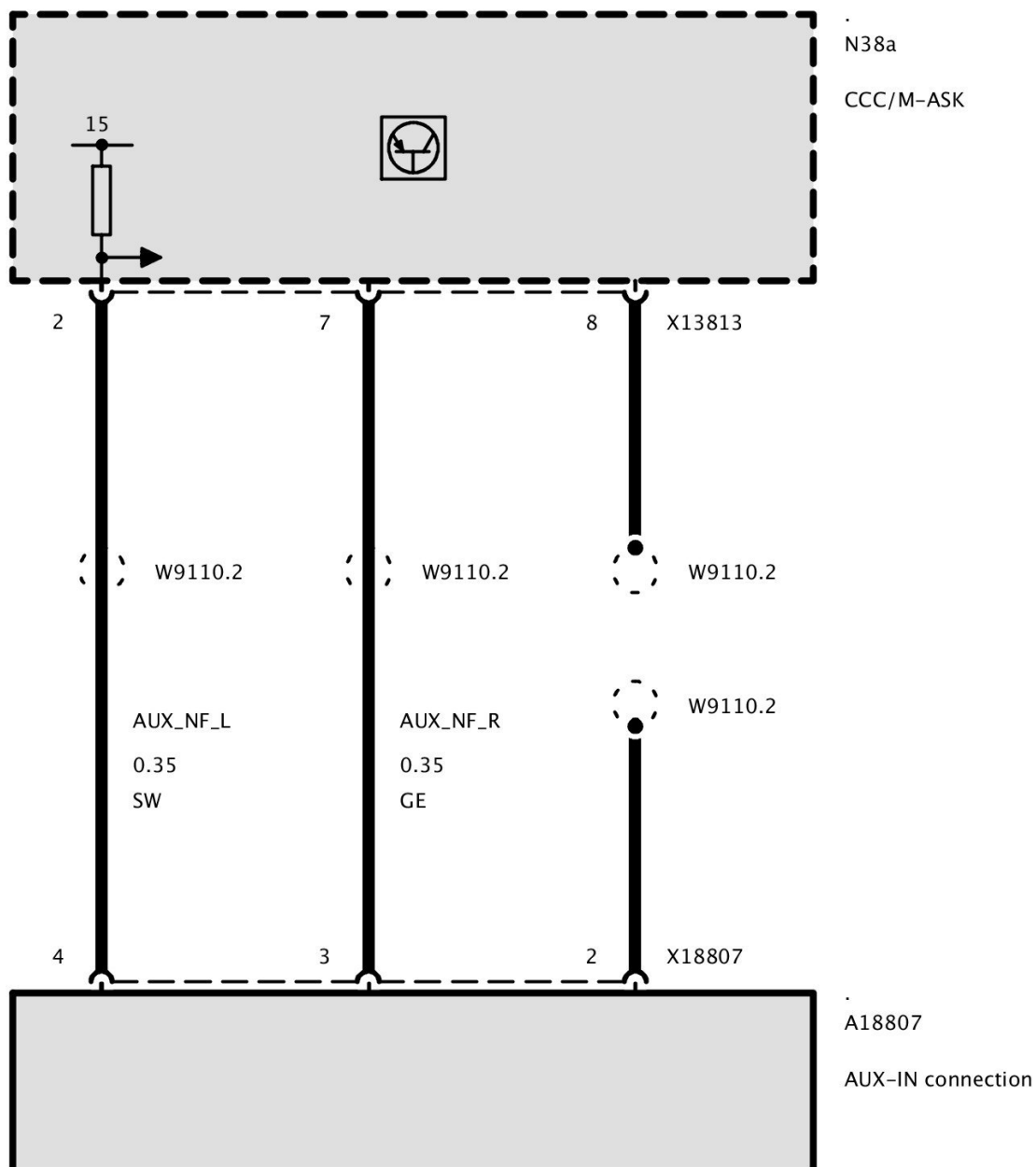
Part 1



Part 2

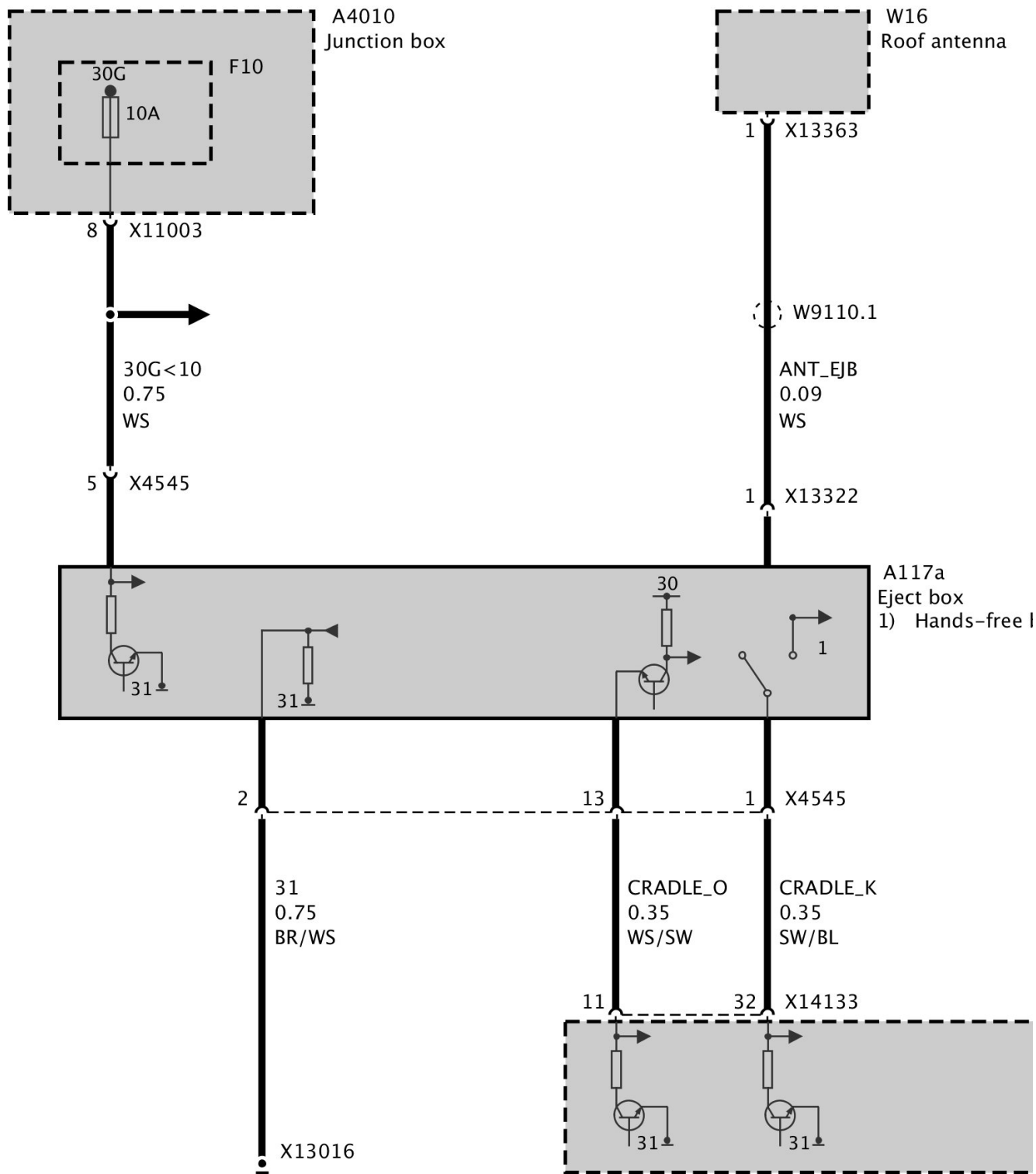
AUX-IN Connection

AUX-IN Connection



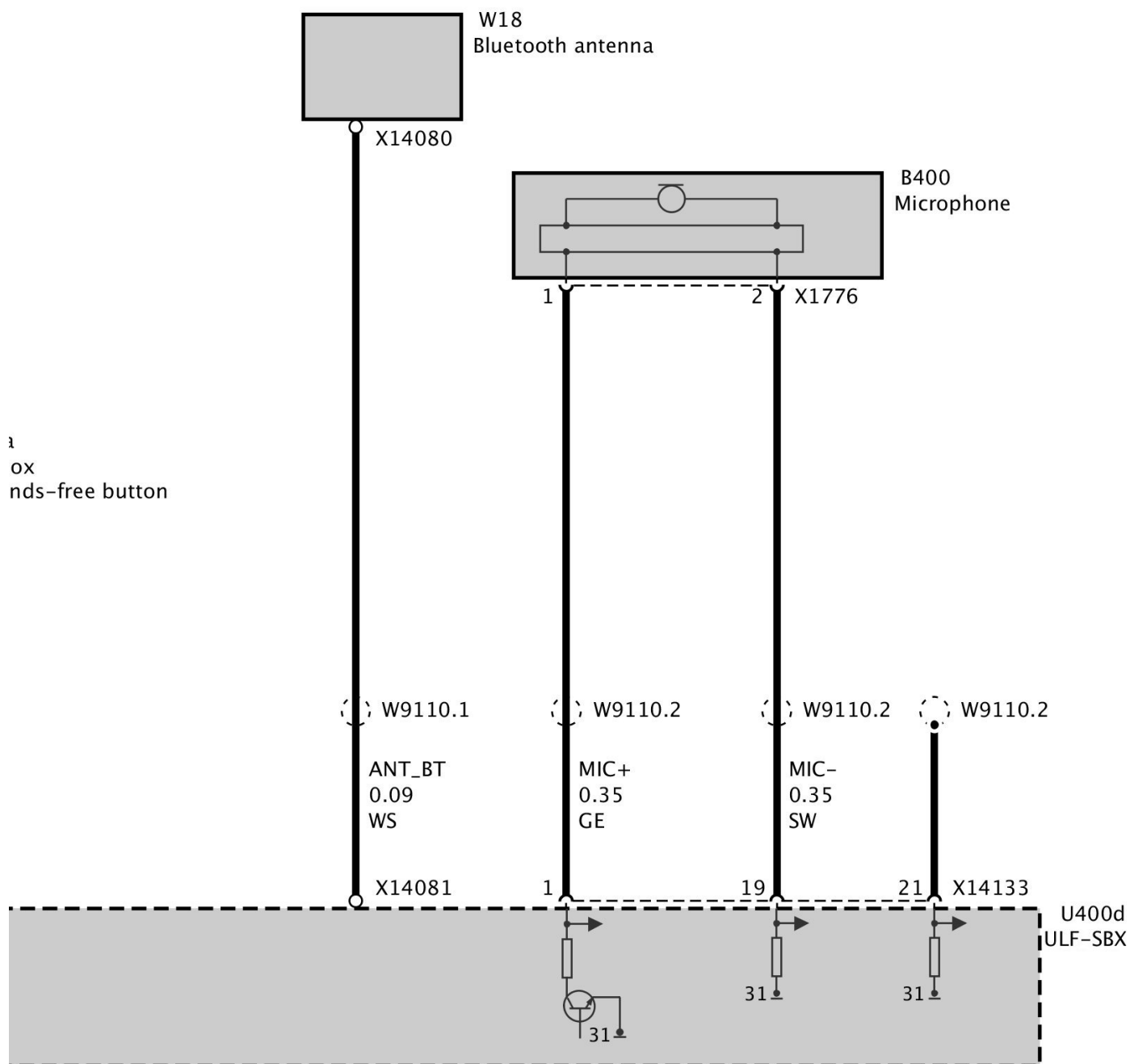
**Interface Box (ULF-SBX) (As Of 08/07 Up To 12/08)**

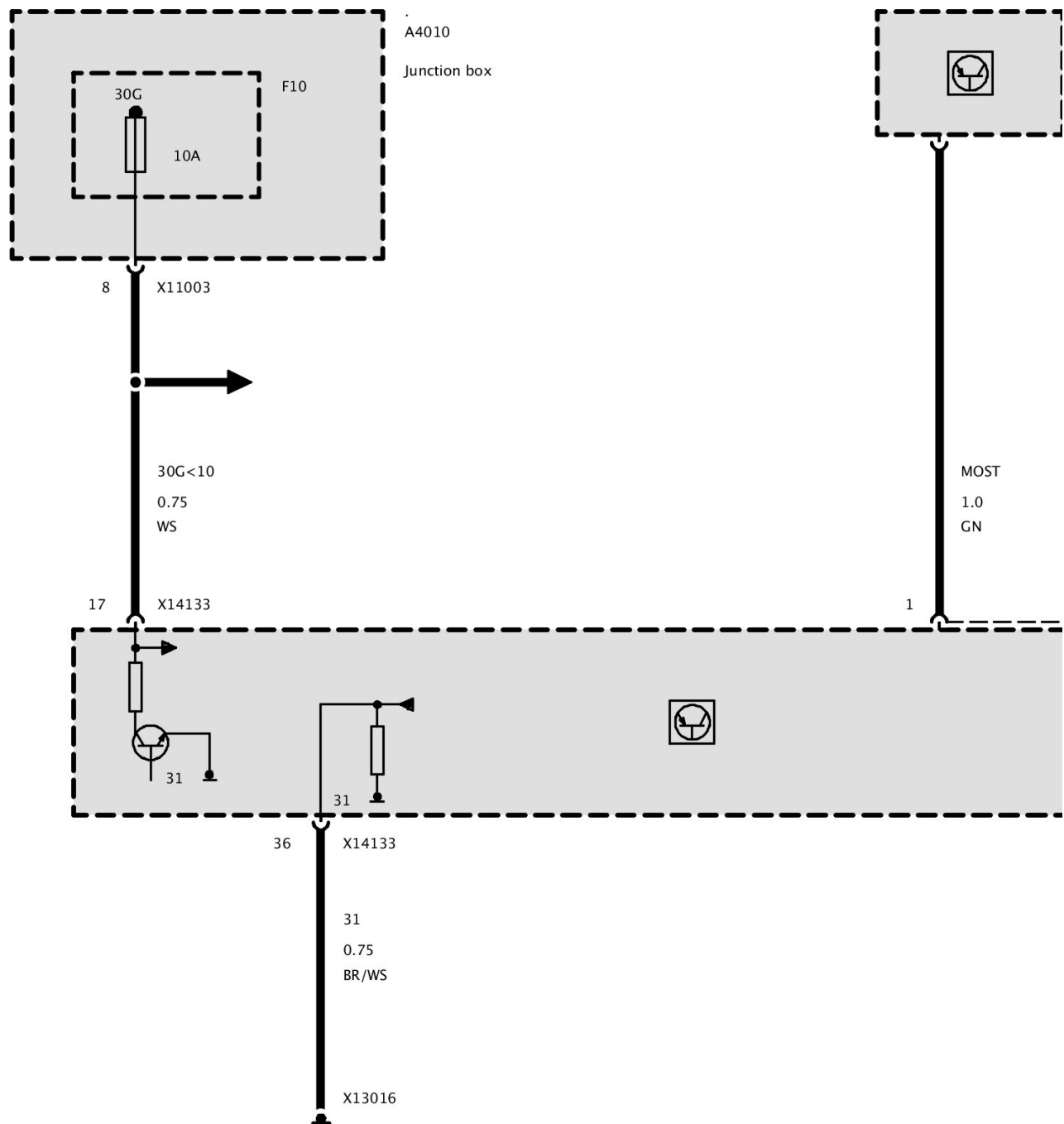
**Interface Box (ULF-SBX) (As Of 08/07 Up To 12/08)**



Part 1

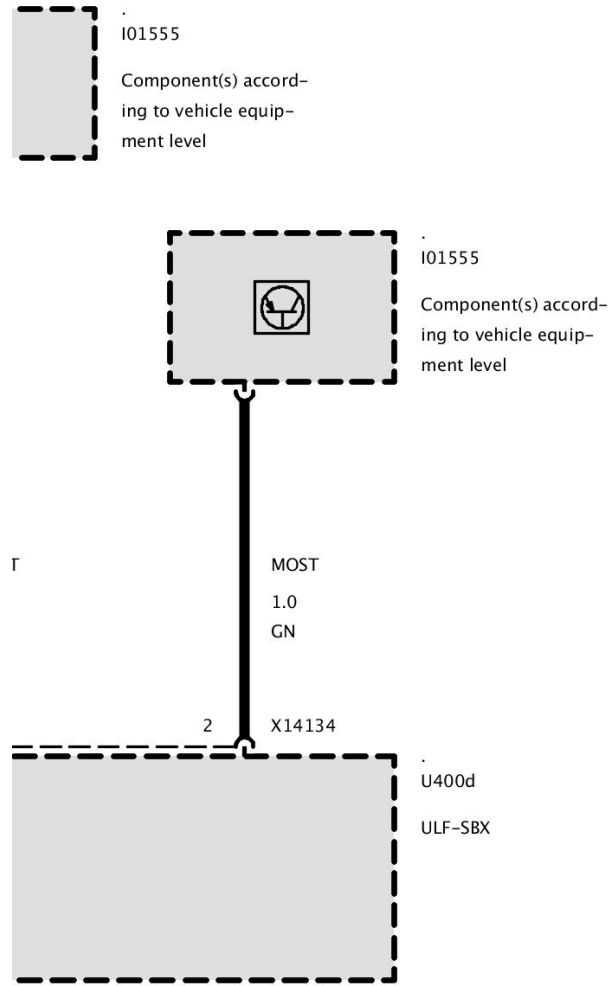
1  
OX  
nds-free button





Part 1

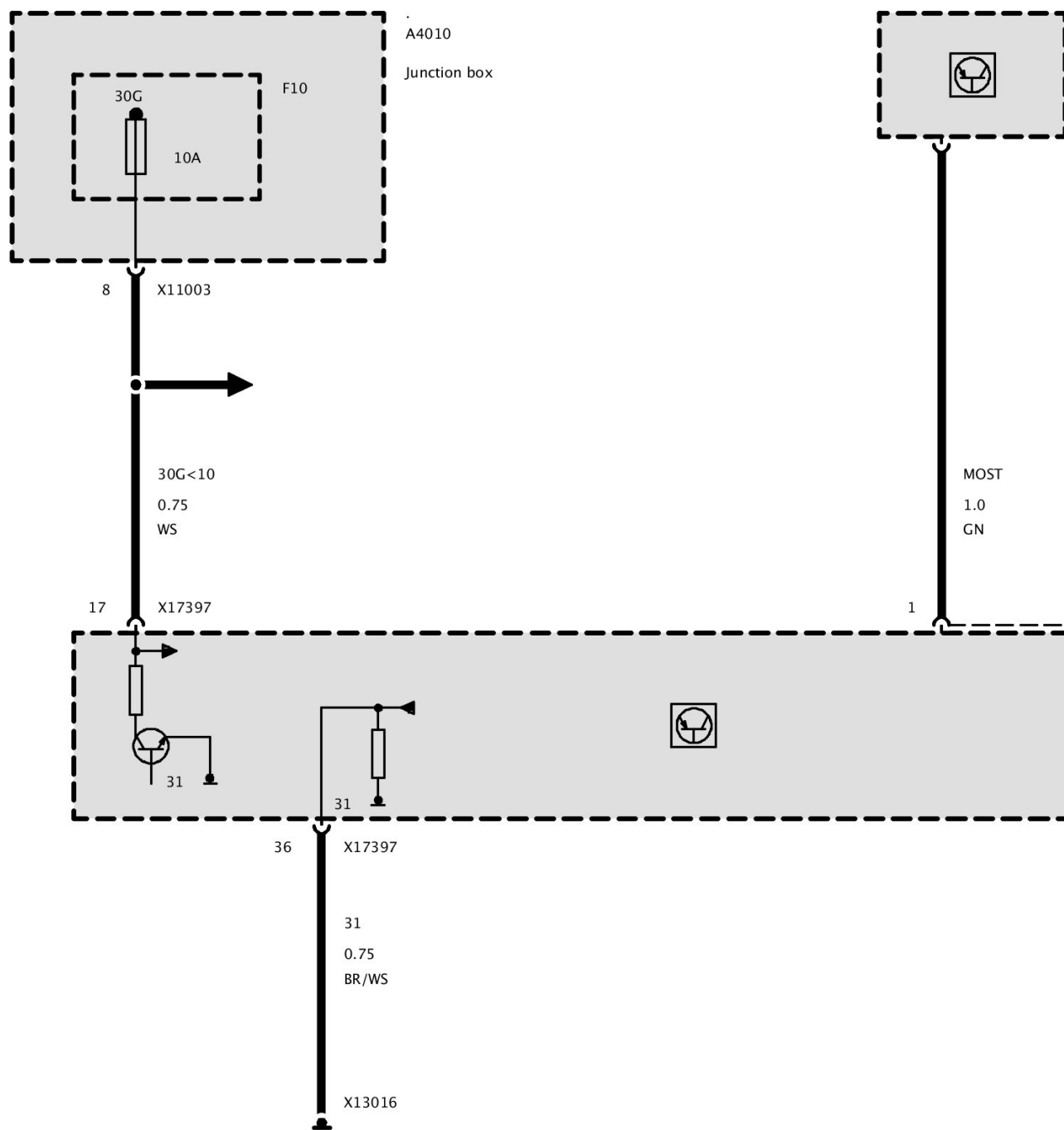




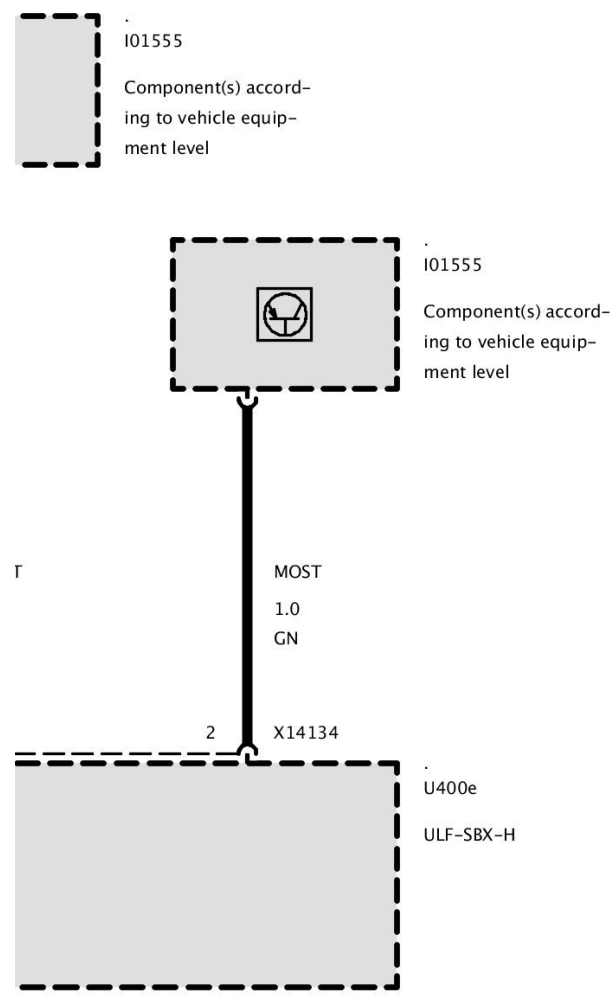
Part 2

Power Supply, ULF-SBX-H Interface Box High (ULF-SBX-H Interface Box High As Of 08/07 Up to 12/08)

Power Supply, ULF-SBX-H Interface Box High (ULF-SBX-H Interface Box High As Of 08/07 Up to 12/08)



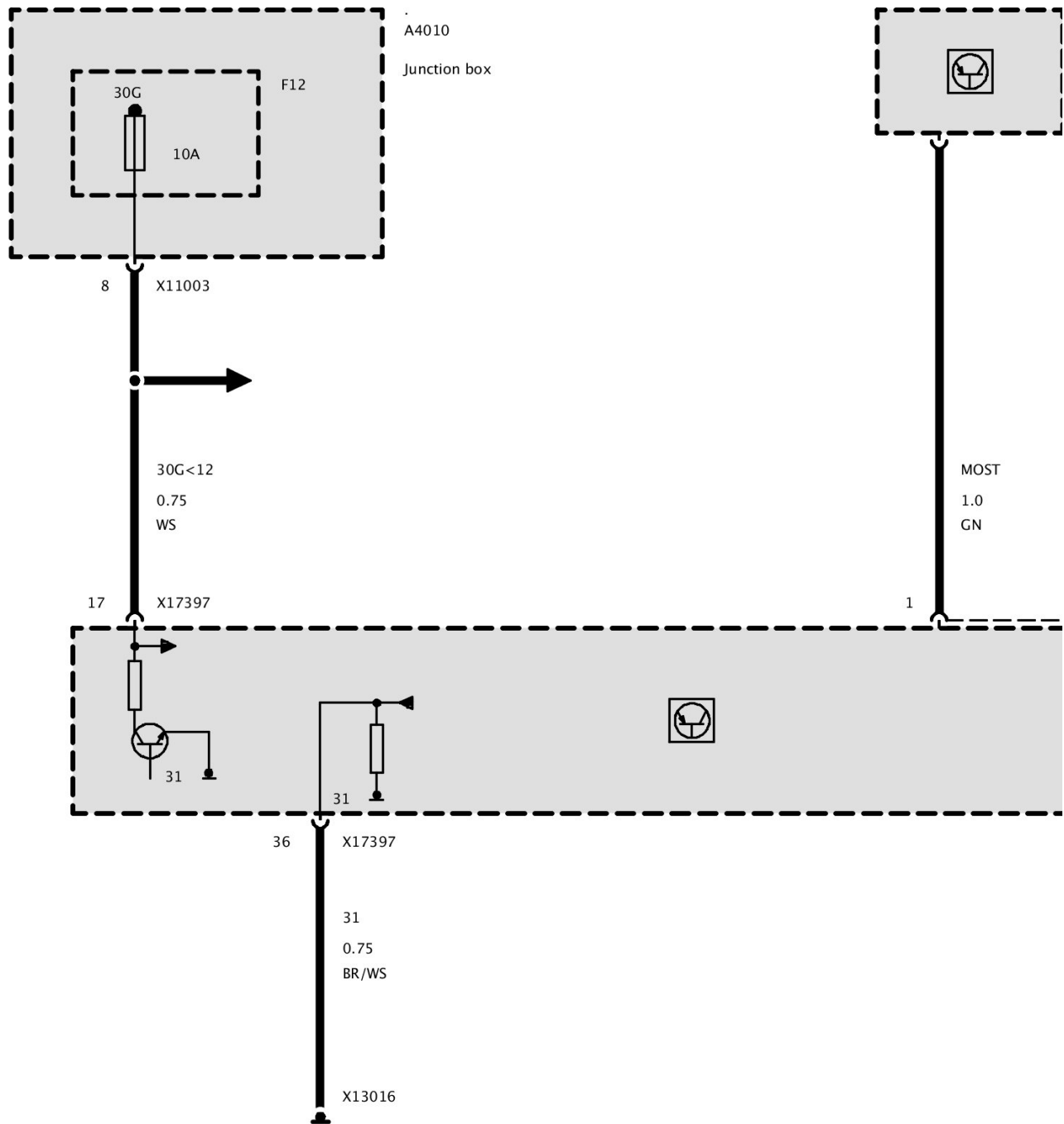
Part 1



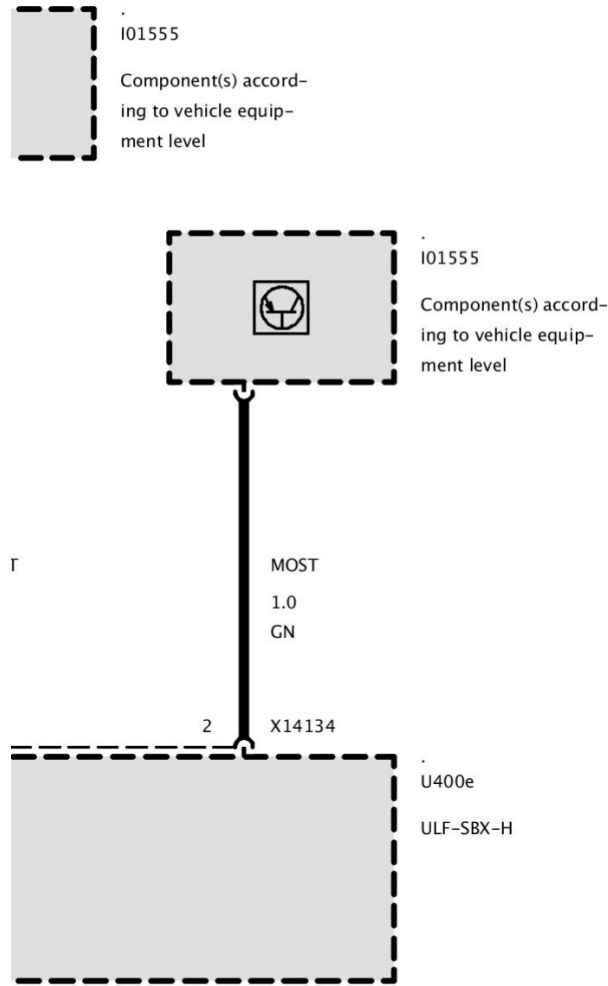
Part 2

Power Supply, ULF-SBX-H Interface Box High (ULF-SBX-H Interface Box High As Of 12/08)

Power Supply, ULF-SBX-H Interface Box High (ULF-SBX-H Interface Box High As Of 12/08)



Part 1

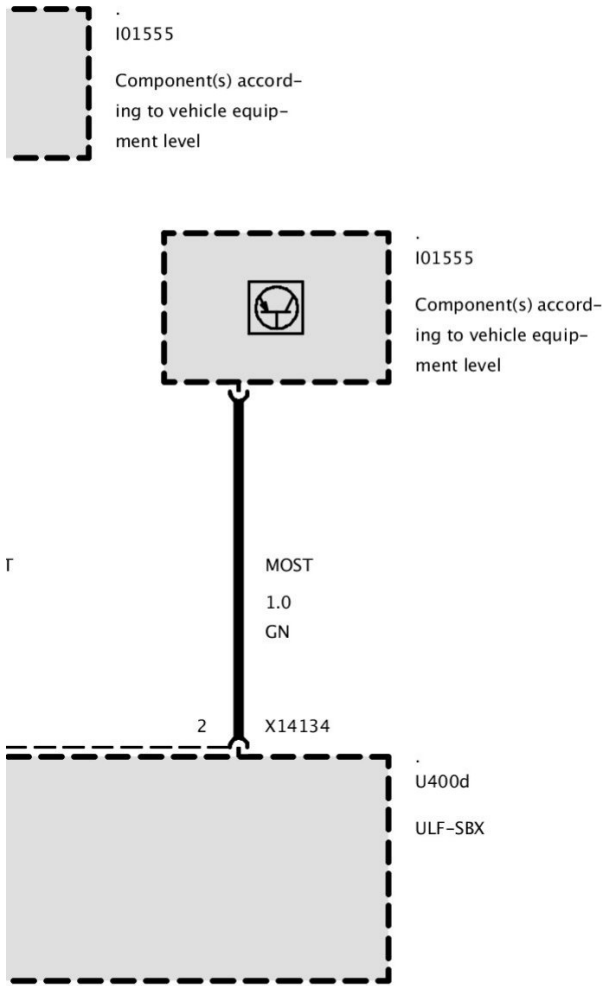


Part 2

Power Supply, ULF Interface Box (ULF-SBX Interface Box As Of 12/08)

Power Supply, ULF Interface Box (ULF-SBX Interface Box As Of 12/08)

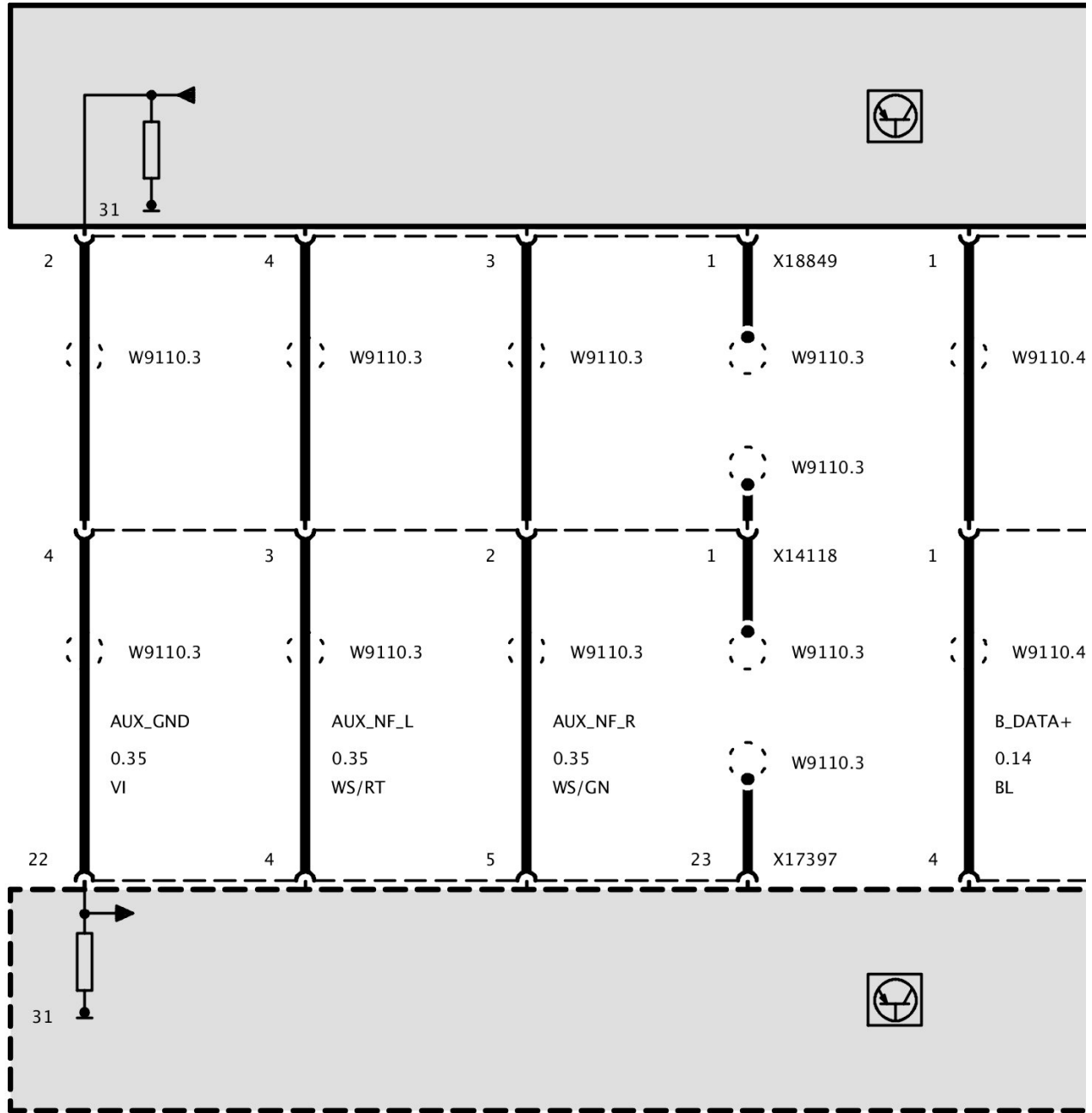




Part 2

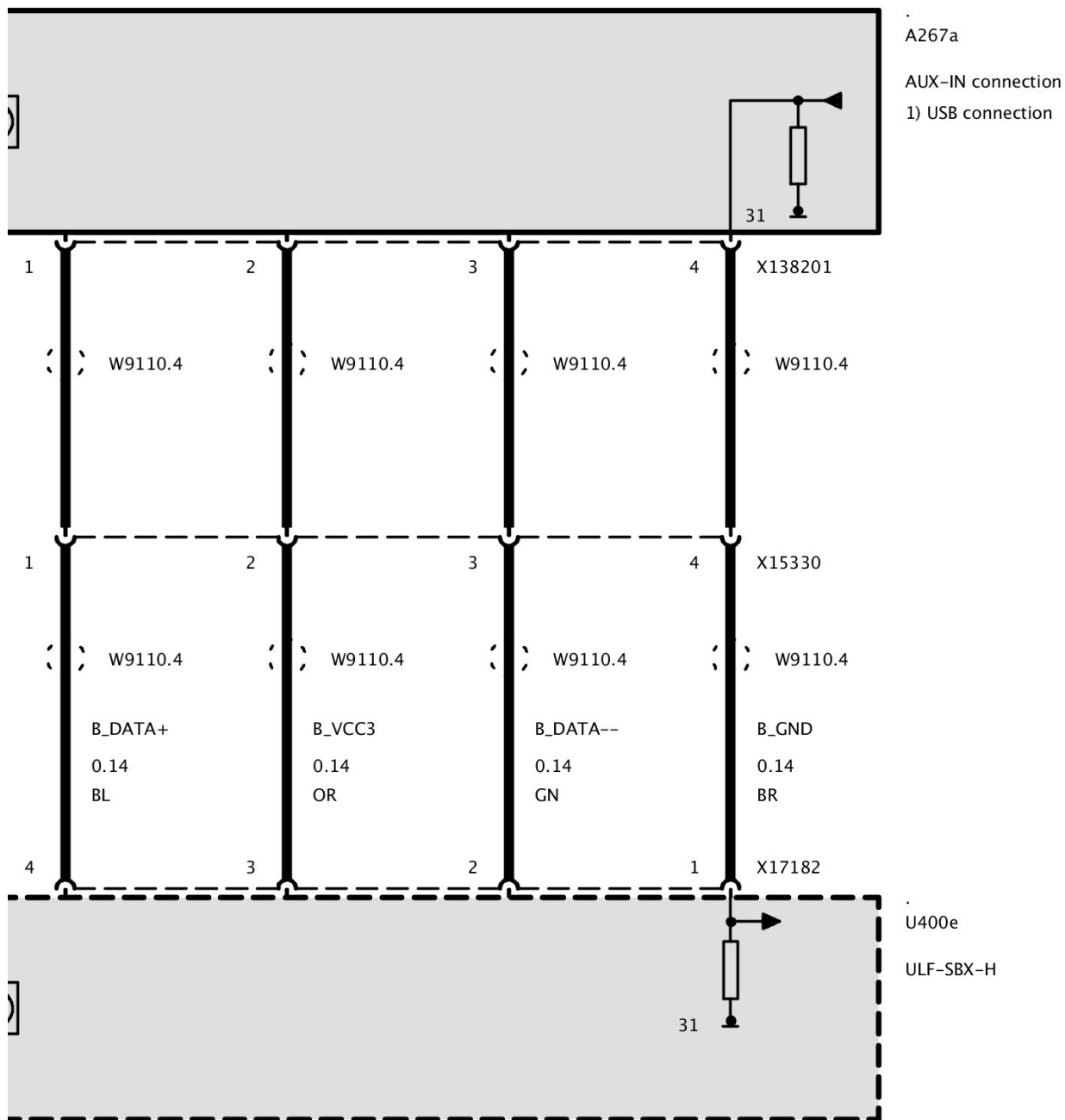
USB Interface (No Telephone Function) (USB Functionality Of ULF-SBX-H)

USB Interface (No Telephone Function) (USB Functionality Of ULF-SBX-H)



Part 1

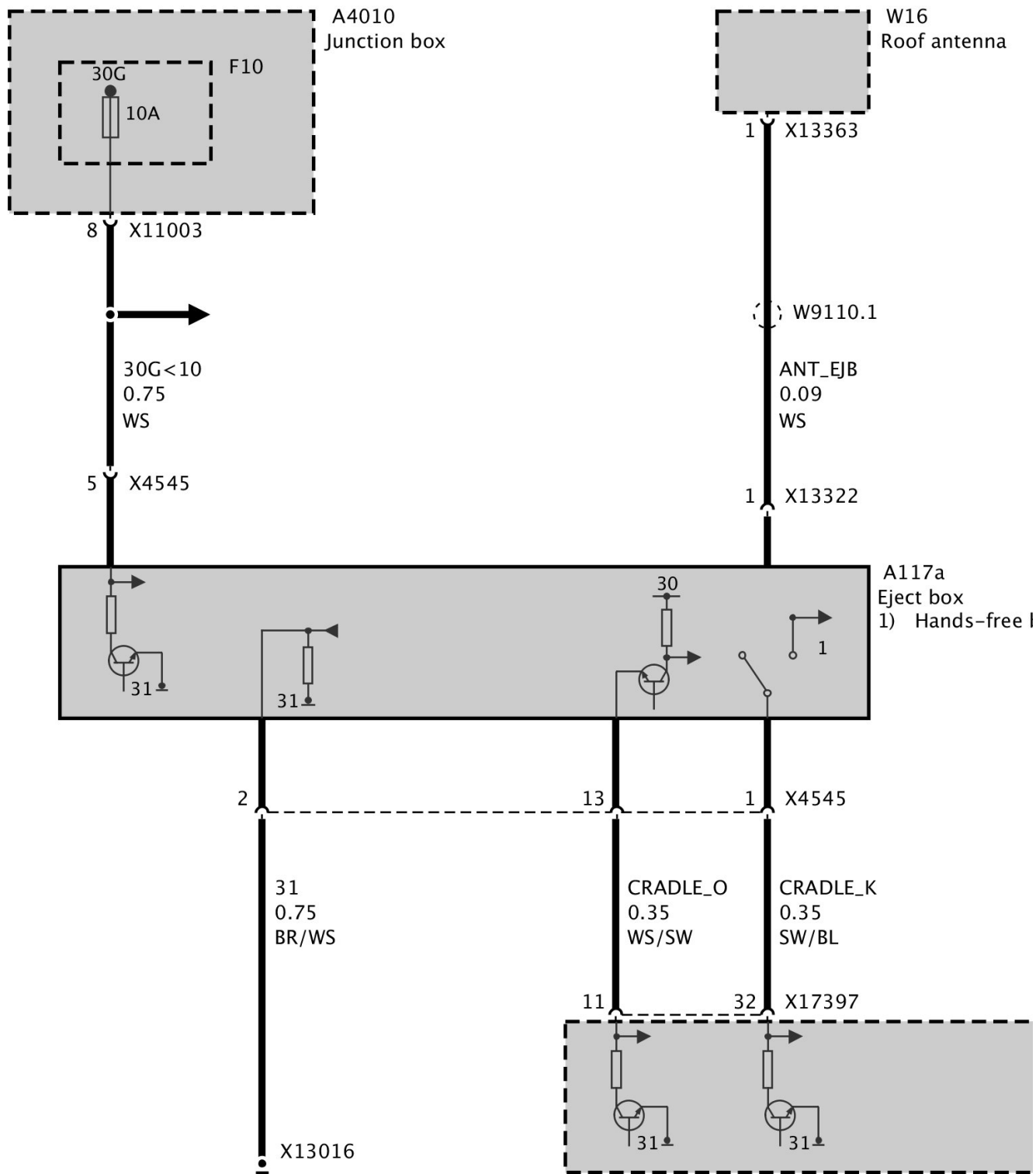




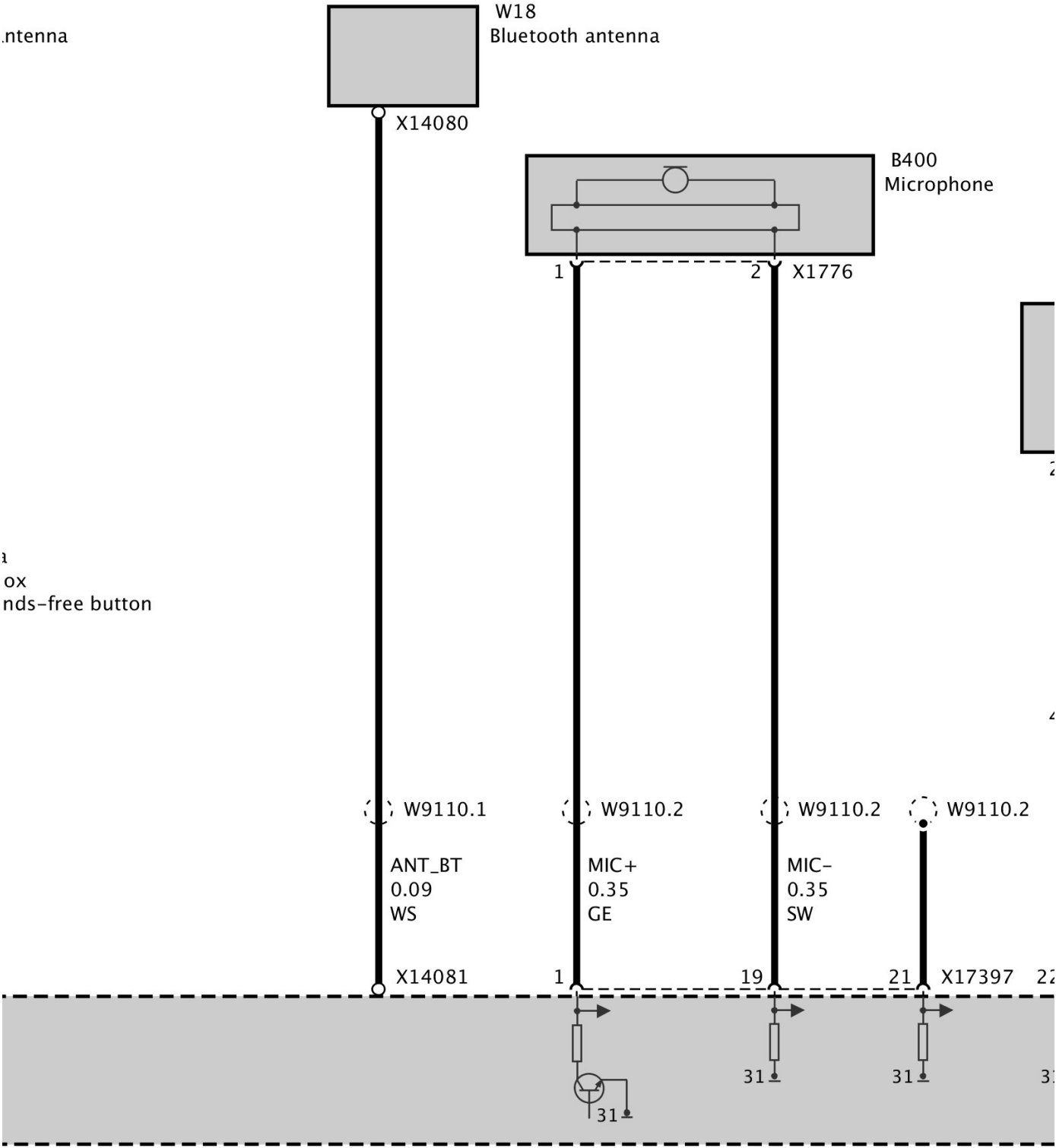
## Part 2

### ULF-SBX-H Interface Box High ((ULF-SBX With Snap-In Adapter Or Option SA 644 Mobile-Phone Preparation With Bluetooth)

ULF-SBX-H Interface Box High ((ULF-SBX With Snap-In Adapter Or Option SA 644 Mobile-Phone Preparation With Bluetooth) up to 12/08

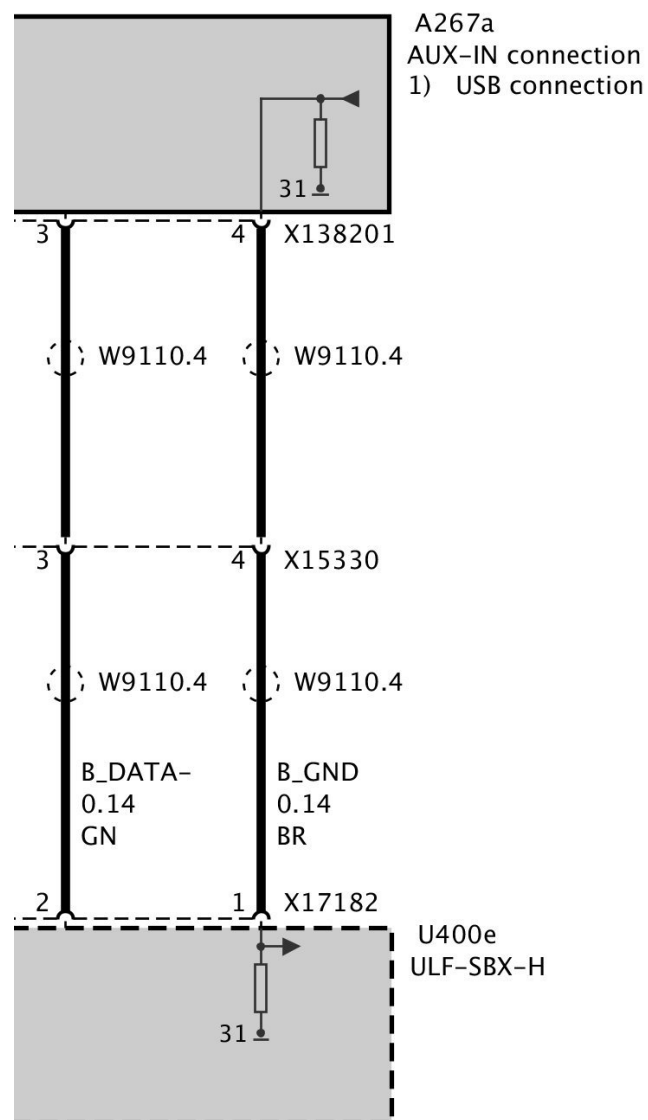


Part 1



Part 2

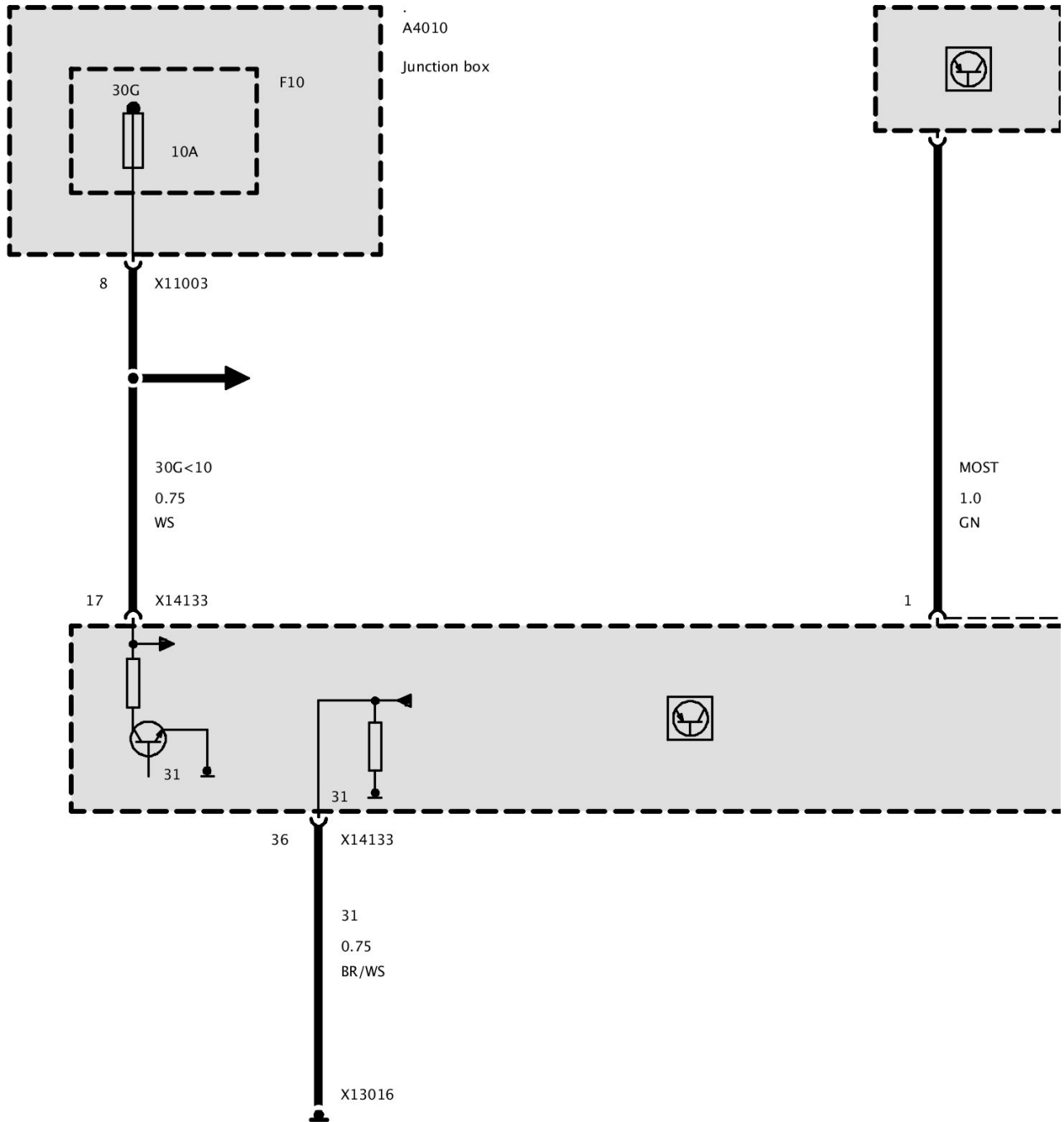
jmoraflores@hotmail.cl



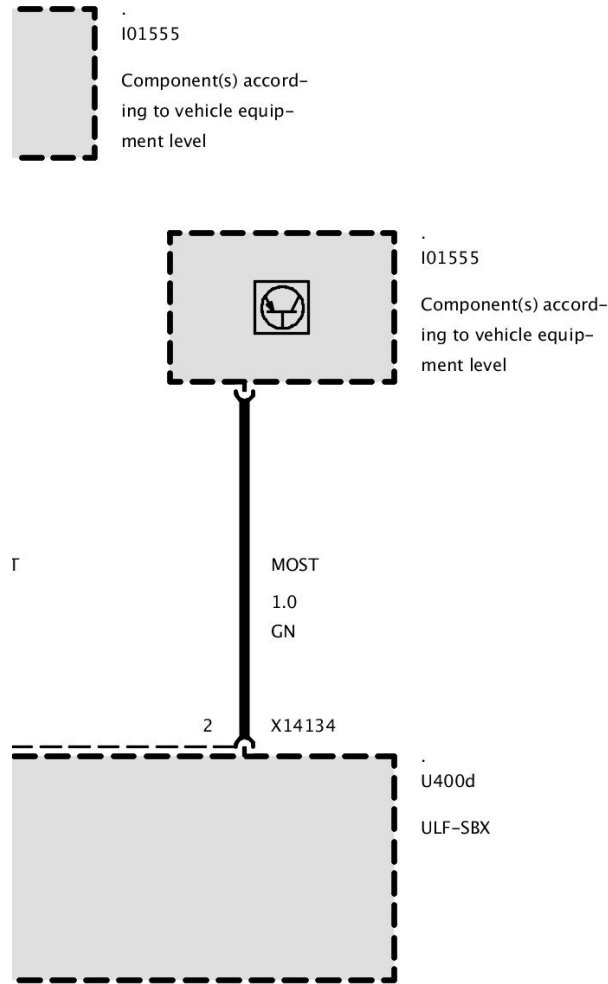
#### Part 4

### Power Supply, ULF Interface Box (ULF-SBX Interface Box As Of 08/07 Up To 12/08)

Power Supply, ULF Interface Box (ULF-SBX Interface Box As Of 08/07 Up To 12/08)



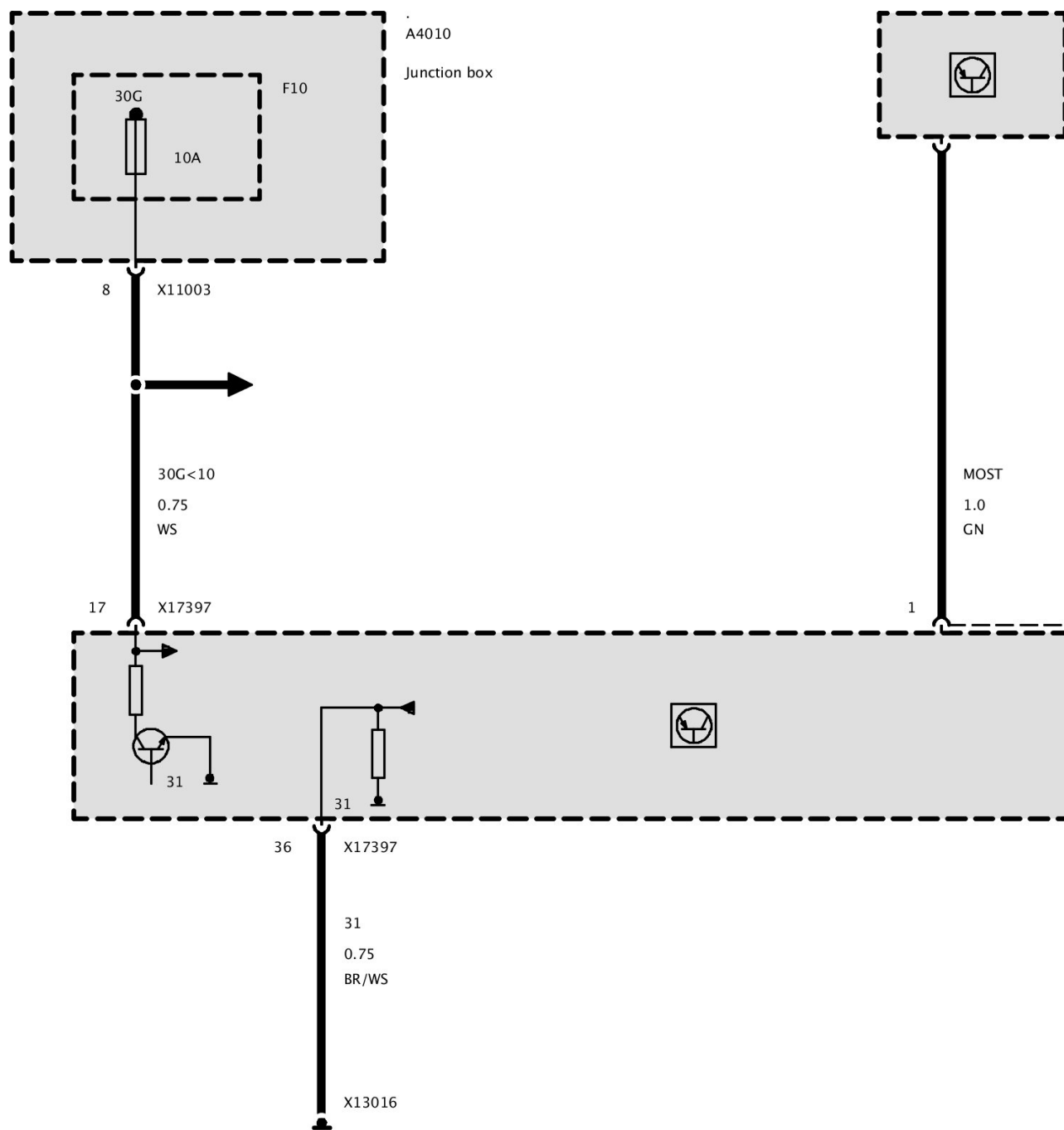
Part 1



Part 2

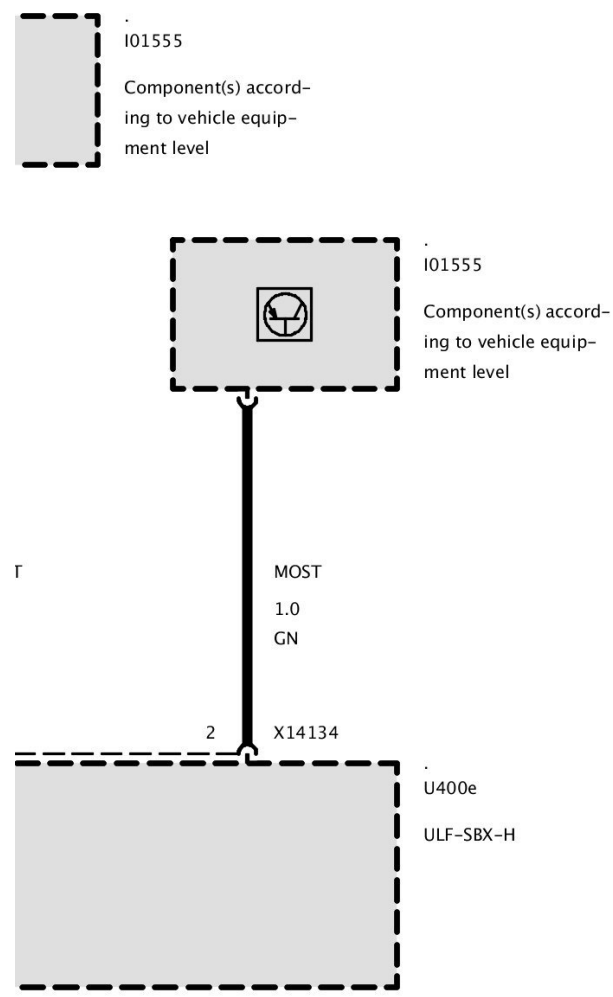
Power Supply, ULF-SBX-H Interface Box High (ULF-SBX-H Interface Box High As Of 08/07 To 12/08)

Power Supply, ULF-SBX-H Interface Box High (ULF-SBX-H Interface Box High As Of 08/07 To 12/08)



Part 1



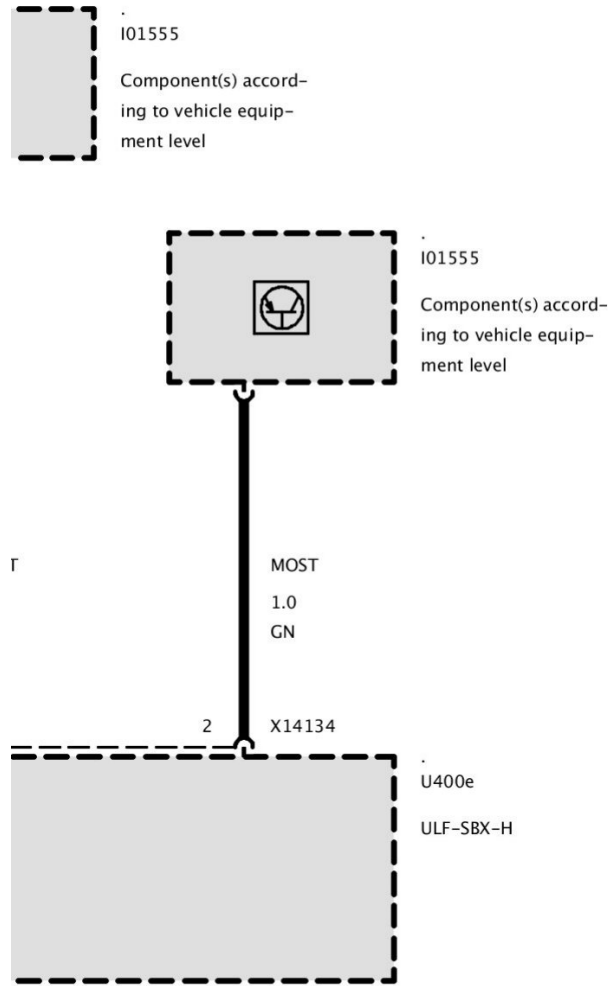


Part 2

Power Supply, ULF-SBX-H Interface Box High (ULF-SBX-H Interface Box High As Of 12/08)

Power Supply, ULF-SBX-H Interface Box High (ULF-SBX-H Interface Box High As Of 12/08)

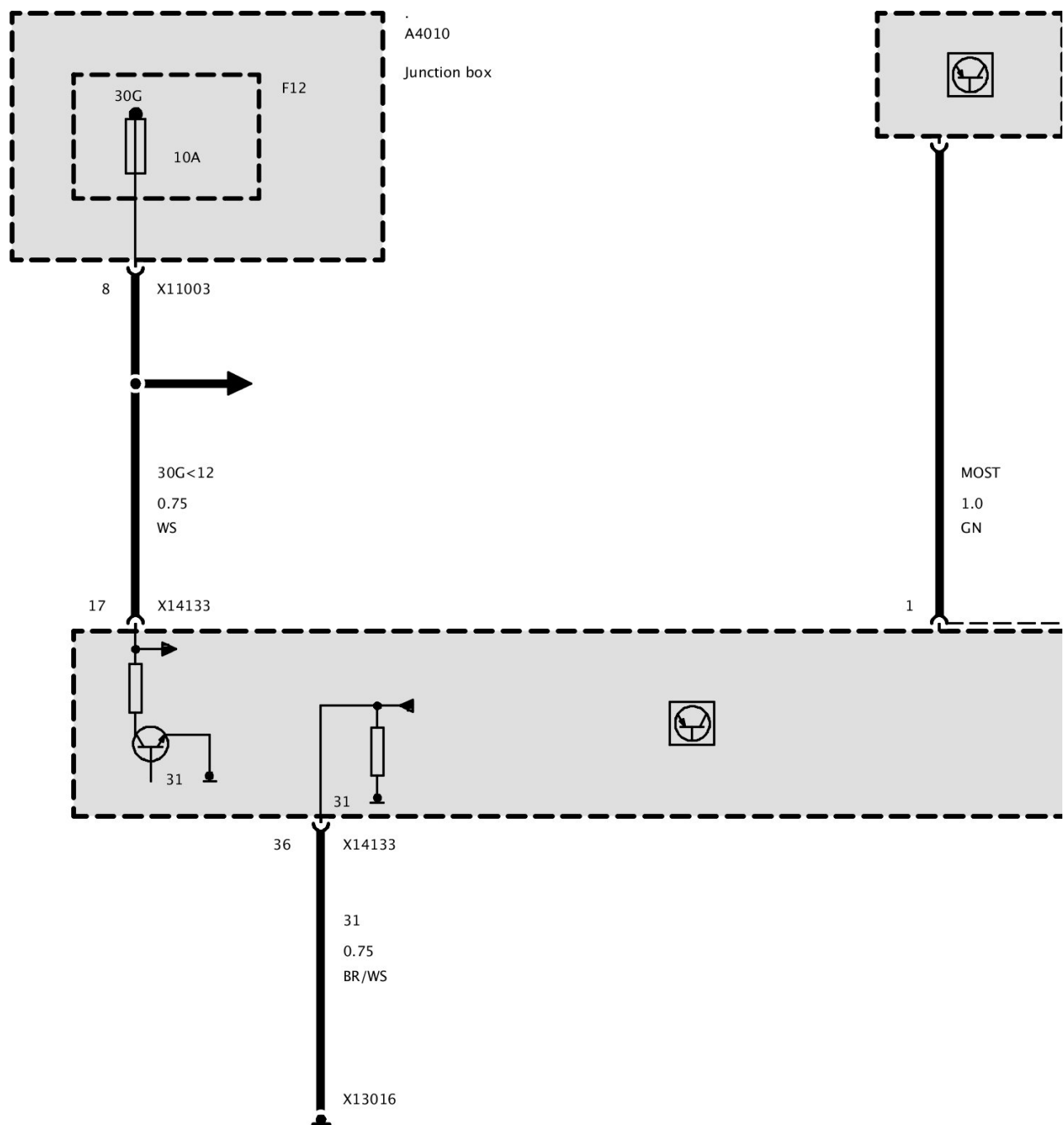




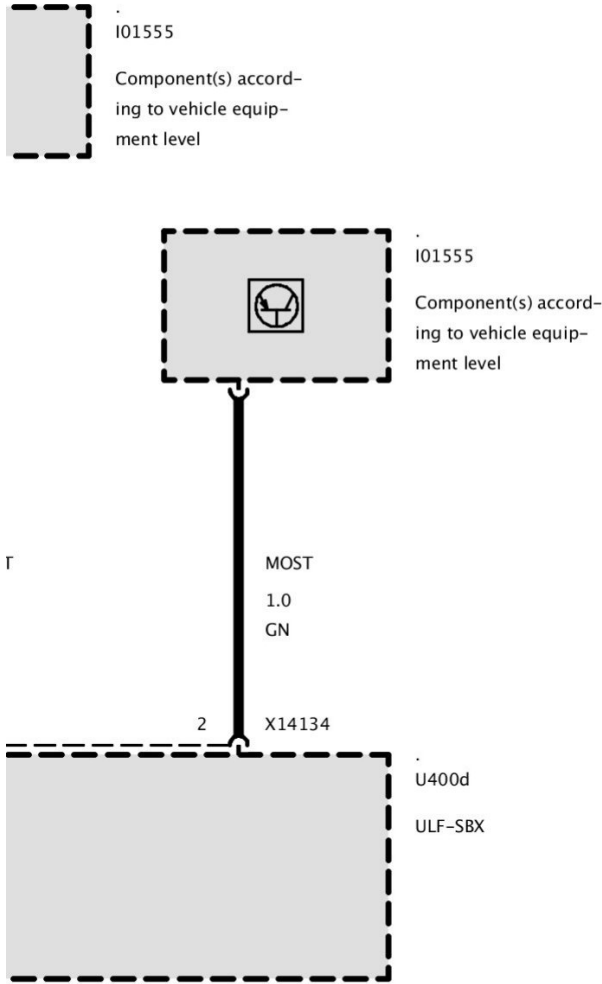
Part 2

Power Supply, ULF Interface Box (ULF-SBX Interface Box As Of 12/08)

Power Supply, ULF Interface Box (ULF-SBX Interface Box As Of 12/08)



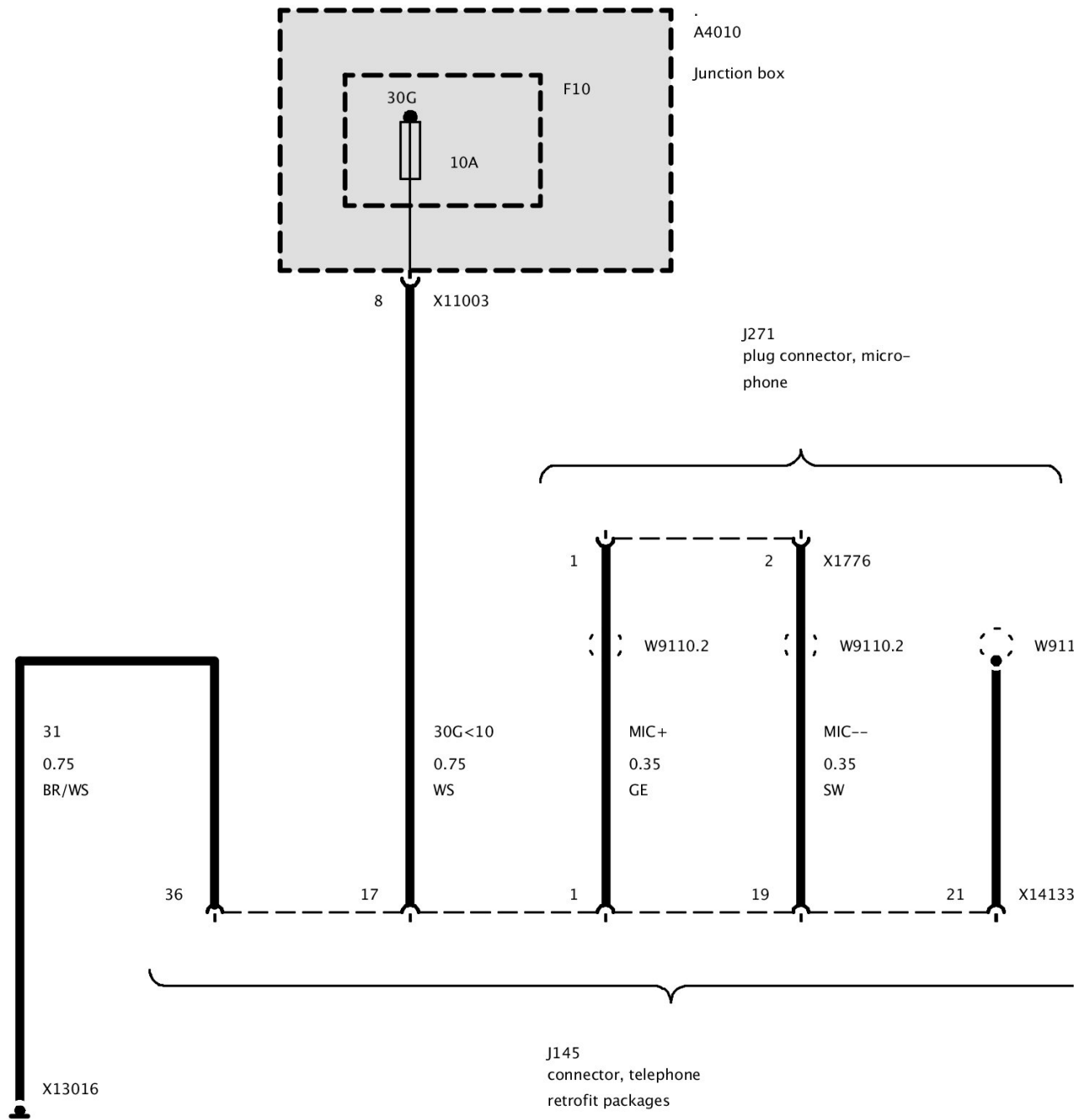
Part 1



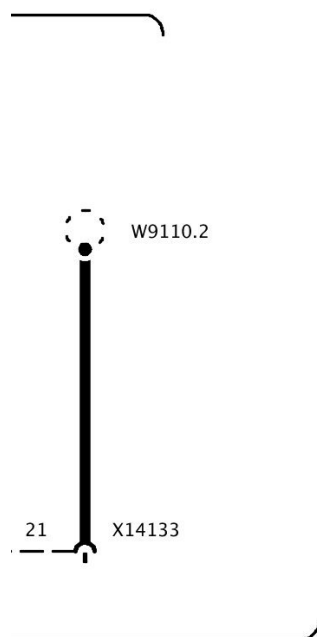
Part 2

Telephone Provisions (USA\_LHD As Of 08/07 Up To 12/08)

Telephone Provisions (USA\_LHD As Of 08/07 Up To 12/08)



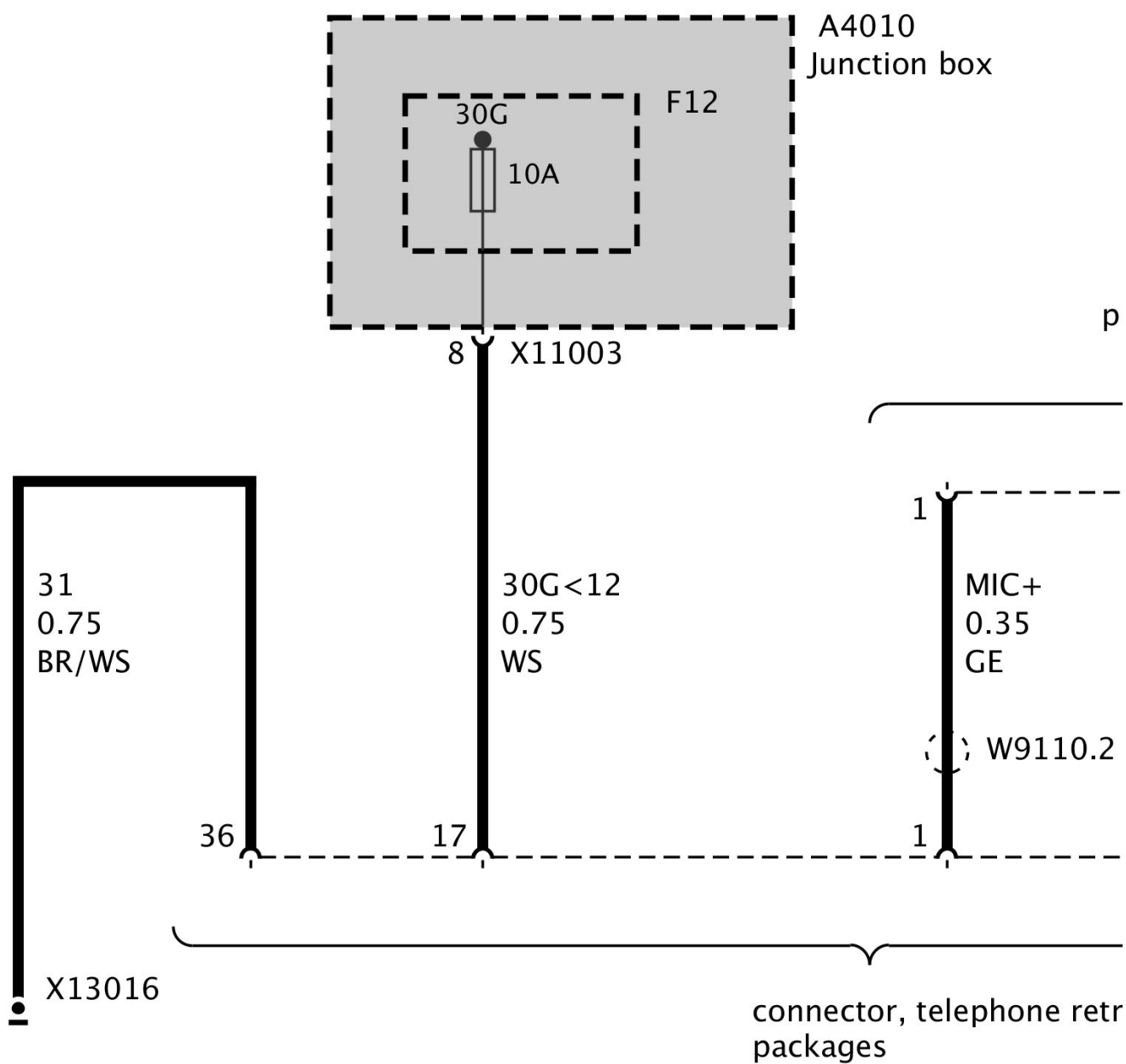
Part 1



## Part 2

### Telephone Provisions (USA\_LHD As Of 12/08)

Telephone Provisions (USA\_LHD As Of 12/08)

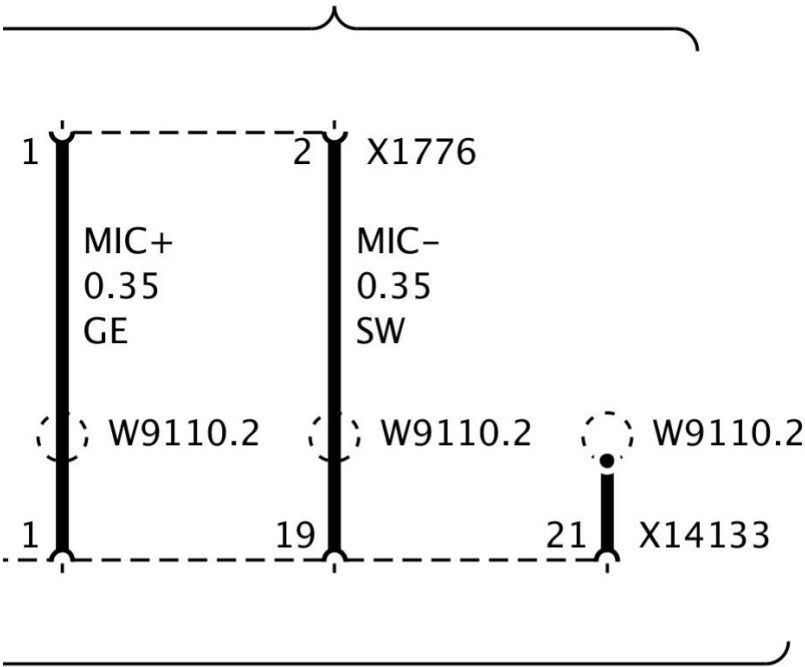


Part 1



0  
on box

plug connector, microphone

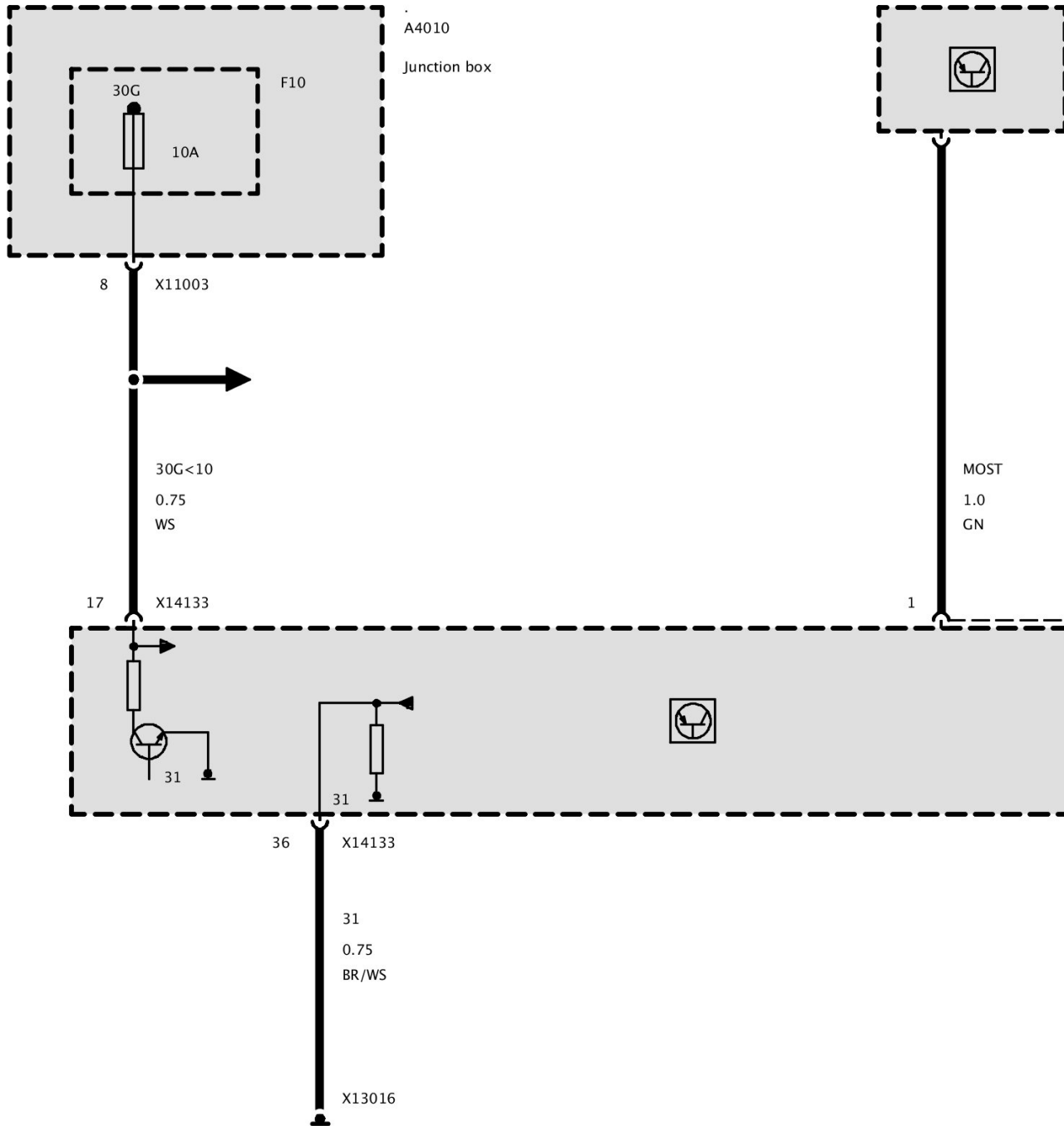


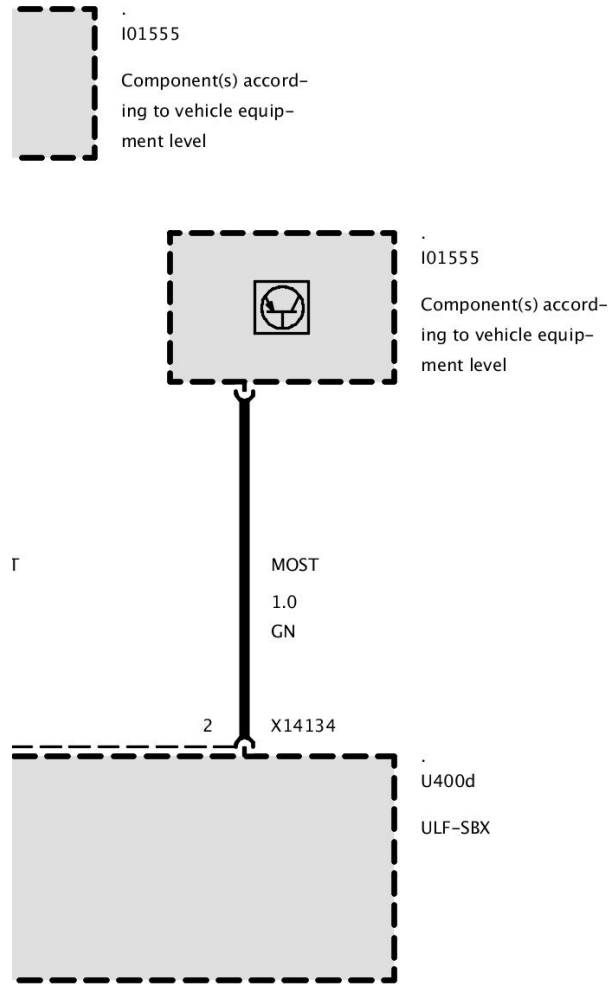
, telephone retrofit

Part 2

Power Supply, ULF Interface Box (ULF-SBX Interface Box As Of 08/07 Up To 12/08)

Power Supply, ULF Interface Box (ULF-SBX Interface Box As Of 08/07 Up To 12/08)

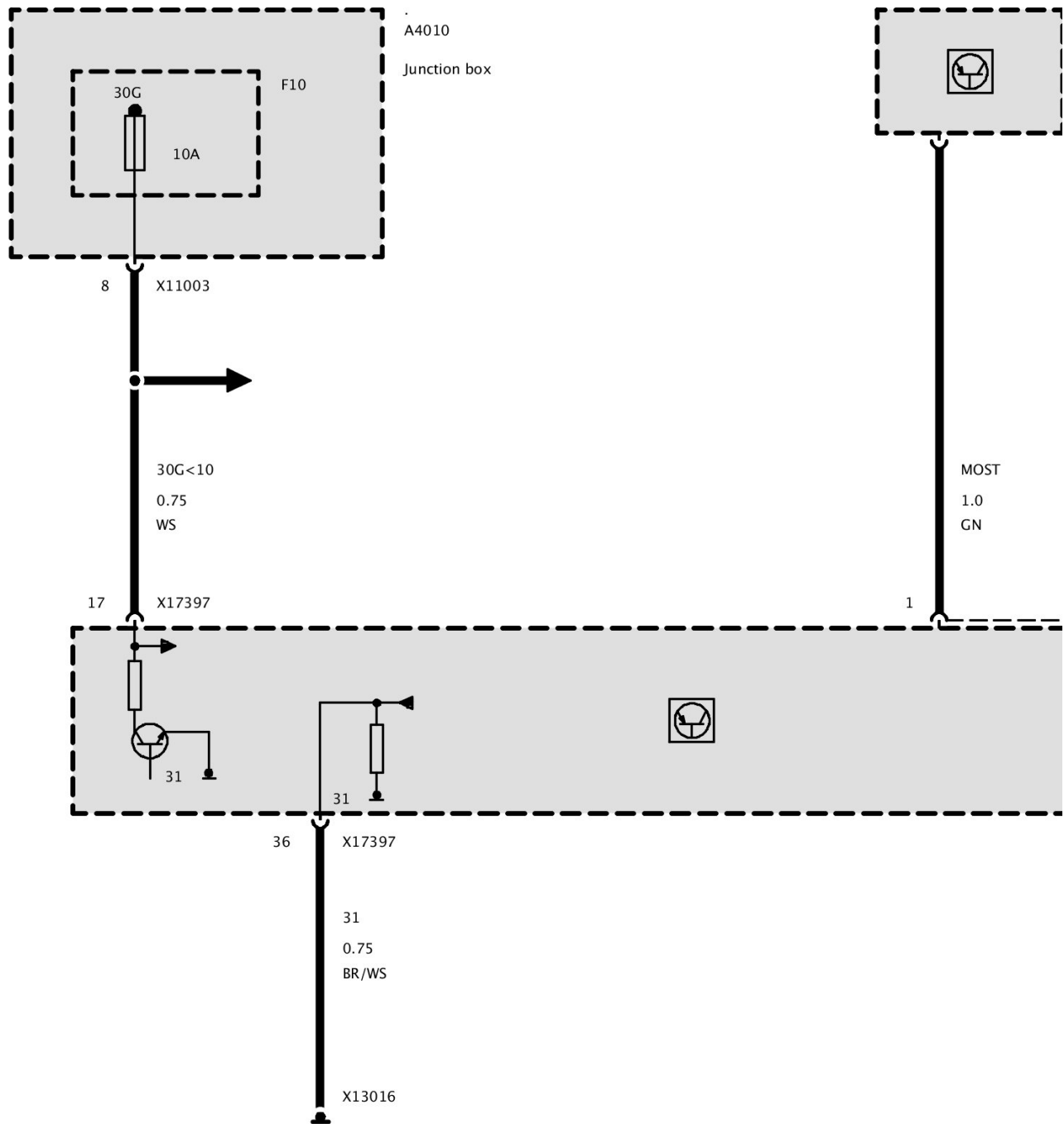




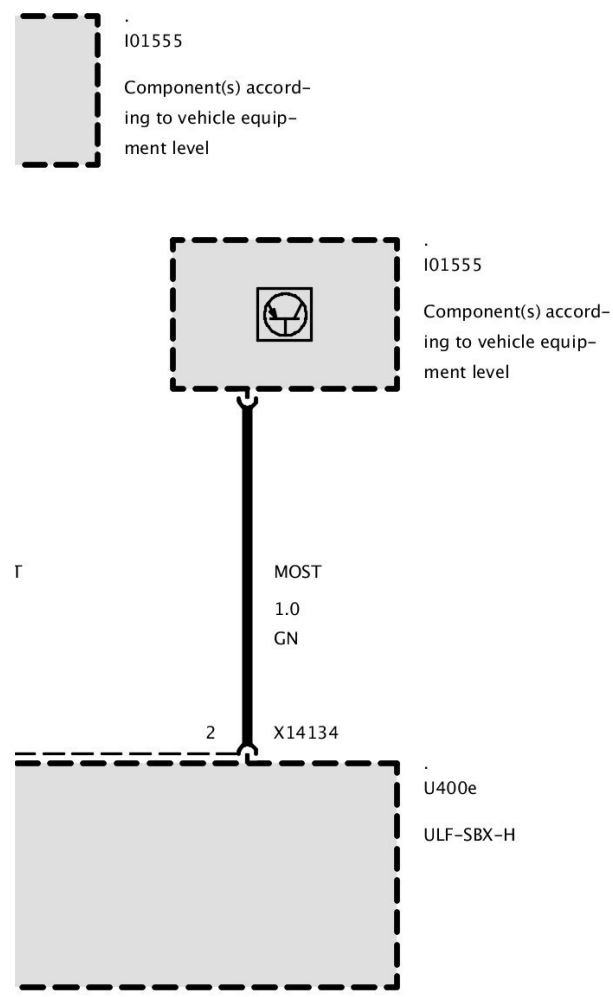
Part 2

Power Supply, ULF-SBX-H Interface Box High (ULF-SBX-H Interface Box High As Of 08/07 Up To 12/08)

Power Supply, ULF-SBX-H Interface Box High (ULF-SBX-H Interface Box High As Of 08/07 Up To 12/08)



Part 1

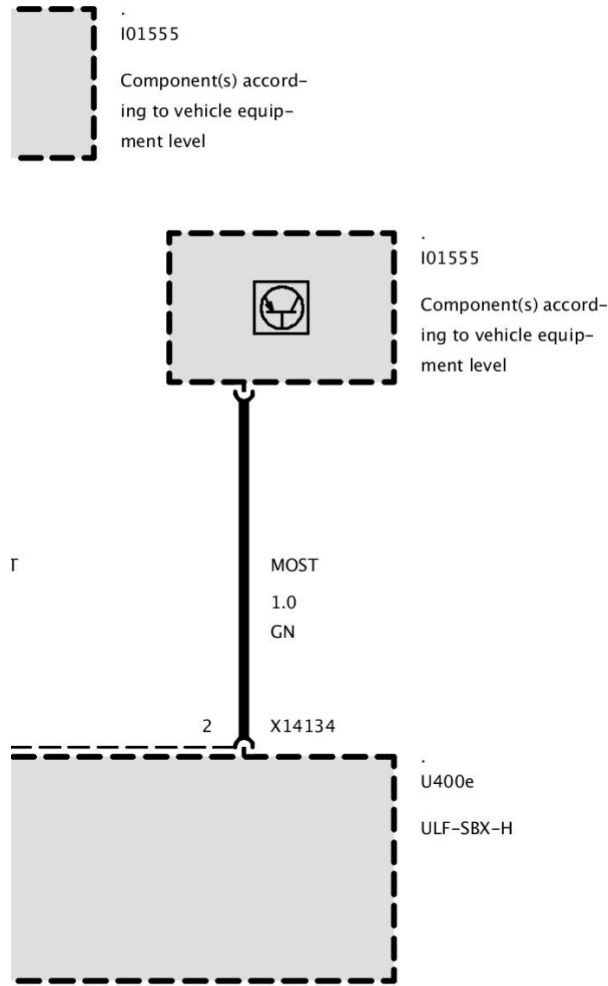


Part 2

Power Supply, ULF-SBX-H Interface Box High (ULF-SBX-H Interface Box High As Of 12/08)

Power Supply, ULF-SBX-H Interface Box High (ULF-SBX-H Interface Box High As Of 12/08)





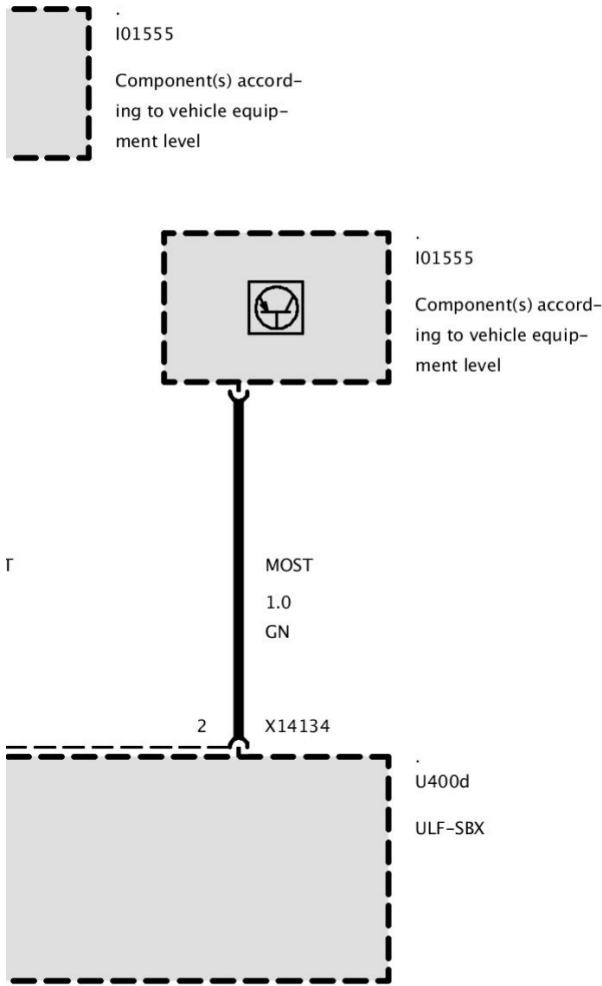
Part 2

Power Supply, ULF Interface Box (ULF-SBX Interface Box As Of 12/08)

Power Supply, ULF Interface Box (ULF-SBX Interface Box As Of 12/08)



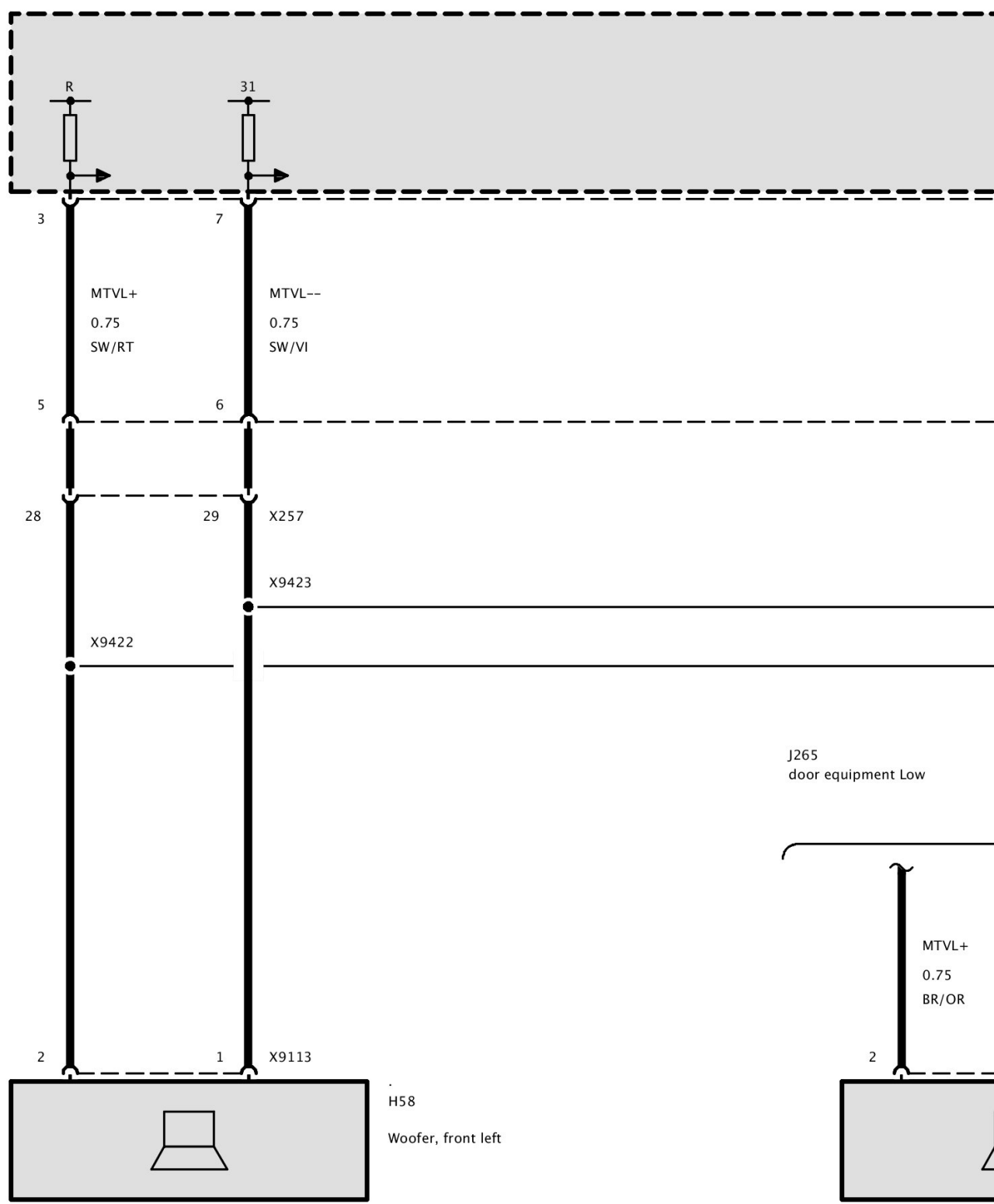




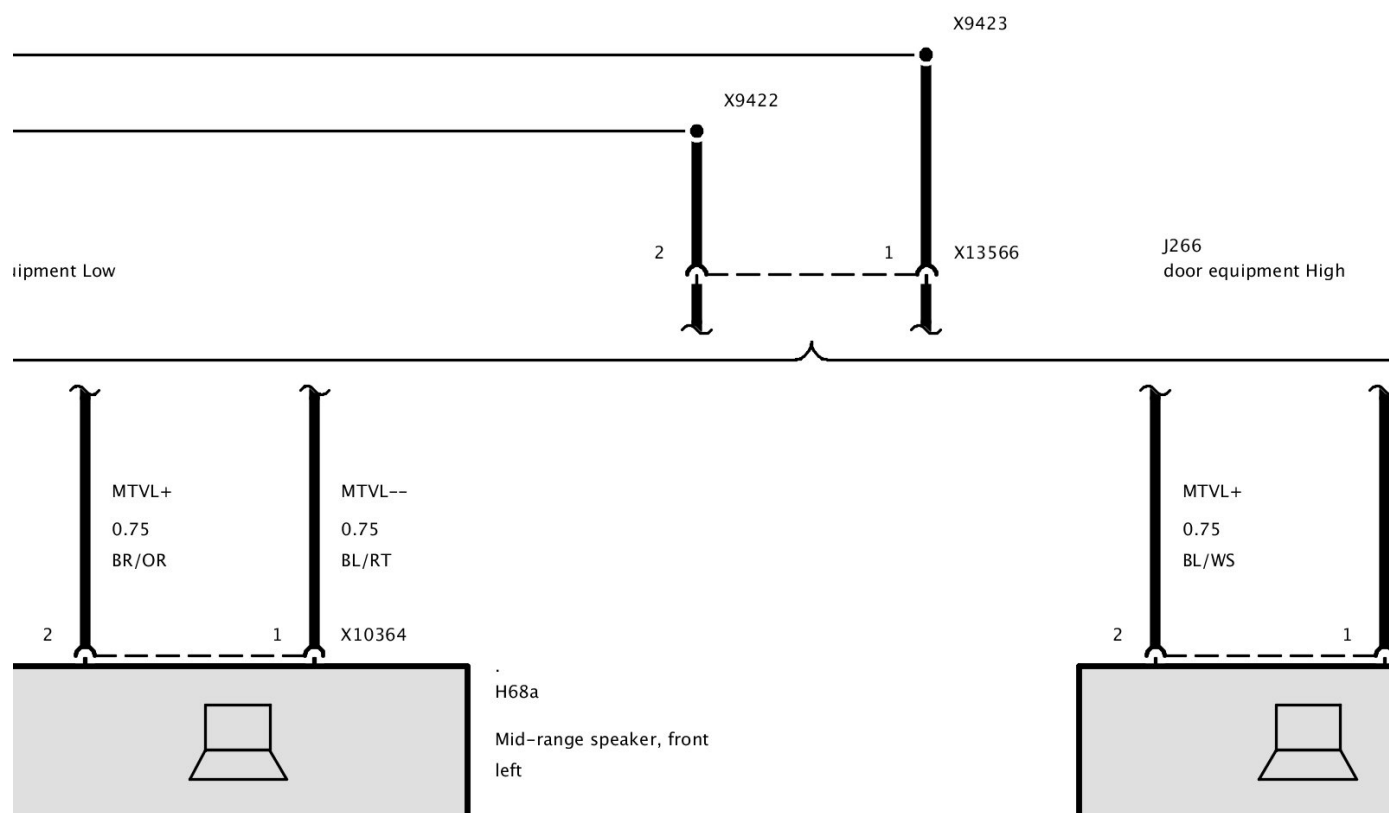
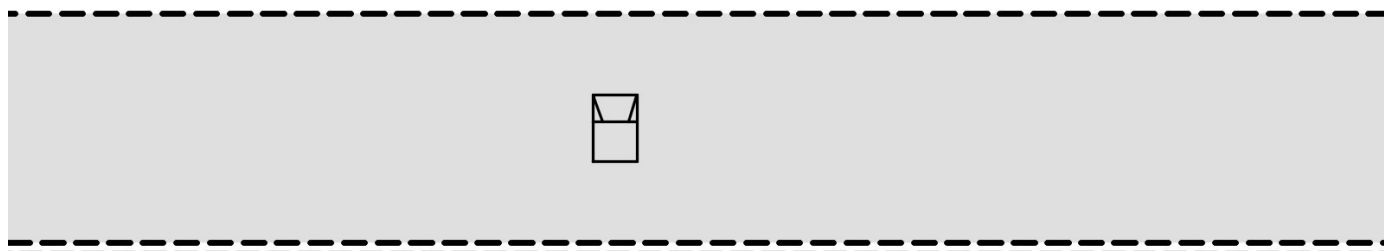
**Part 2**

**Speaker, Stereo System**

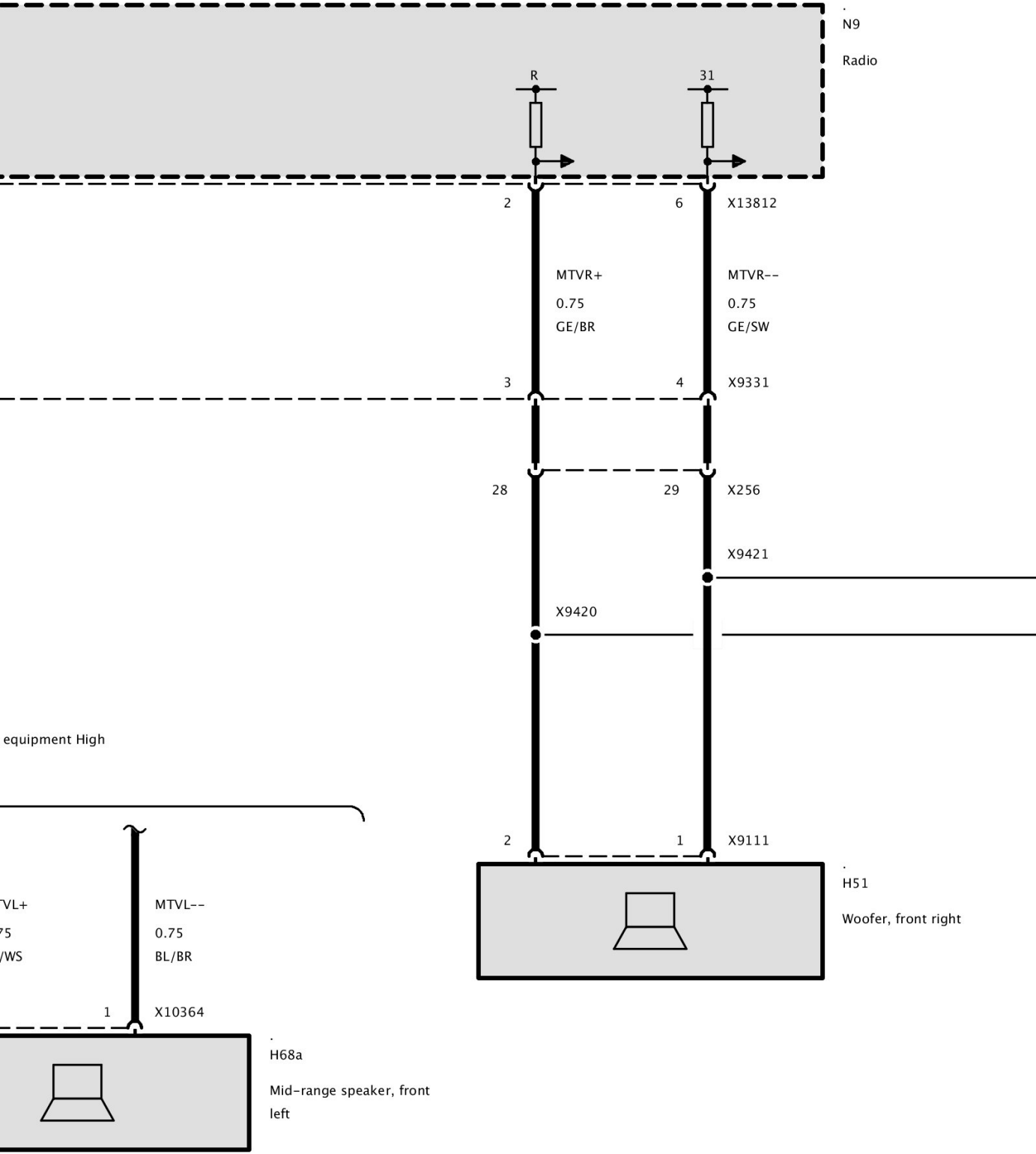
**Audio Output**



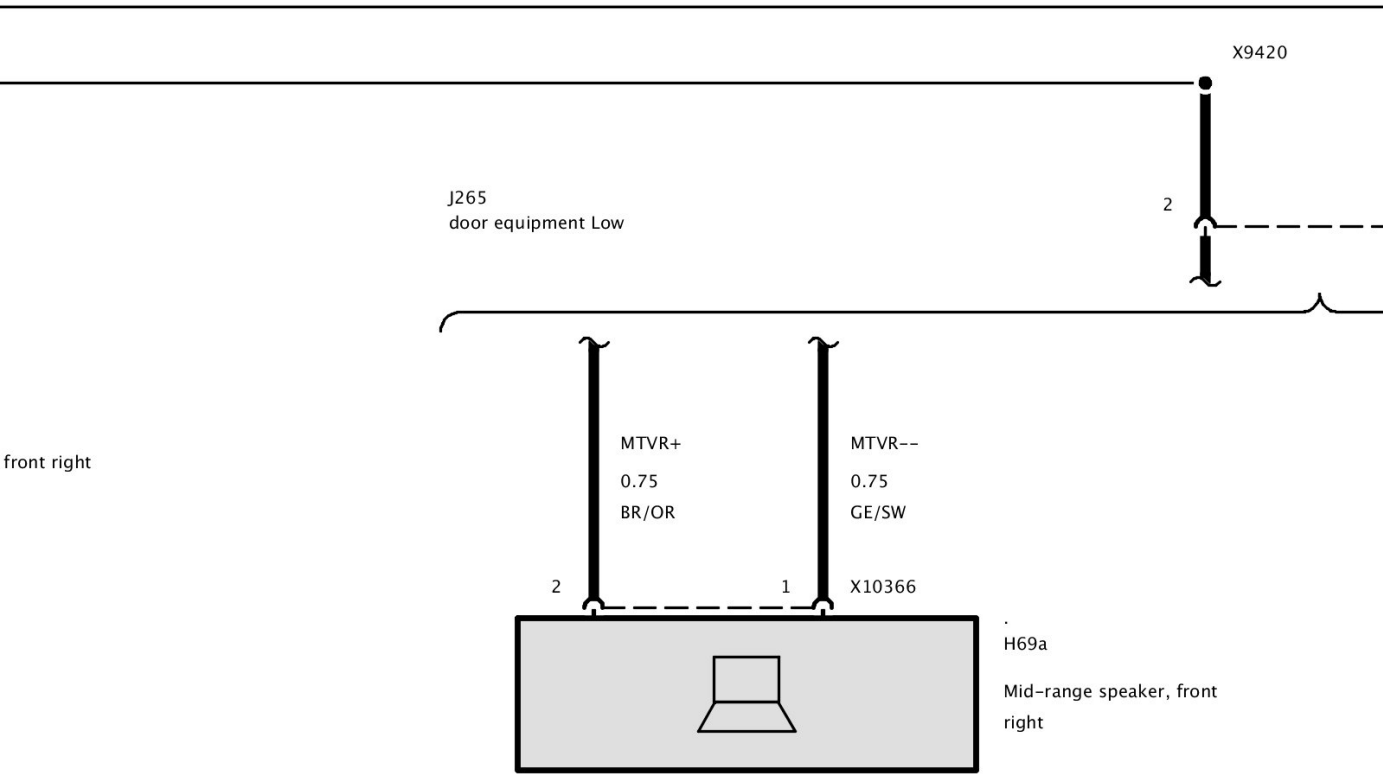
Part 1



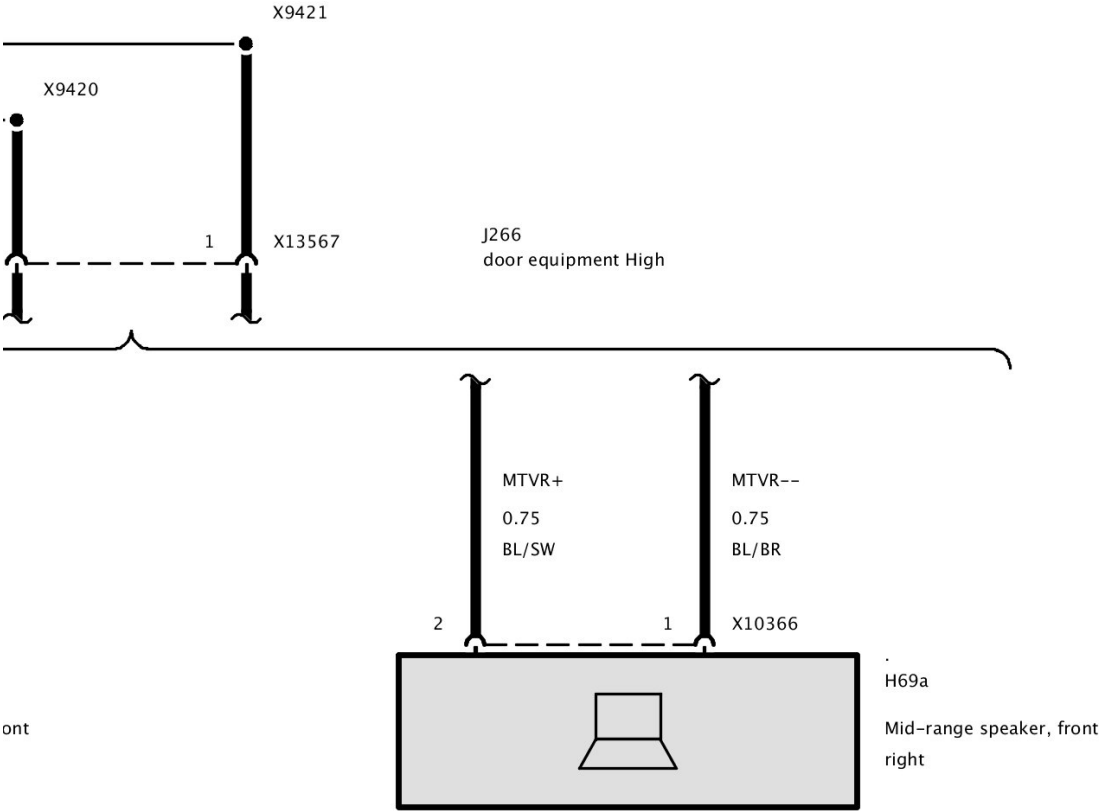
jmoraflores@hotmail.cl



Part 3



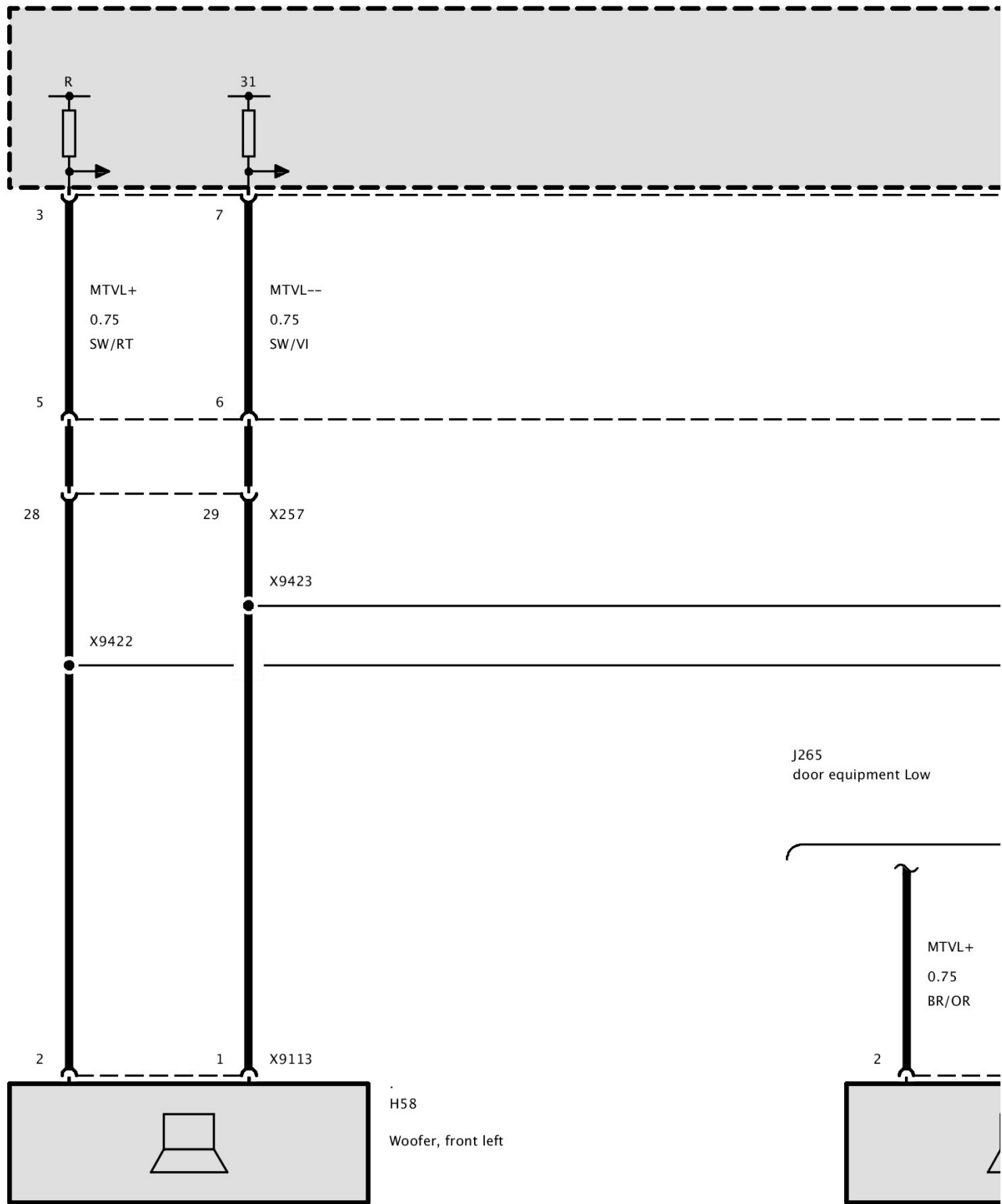
Part 4



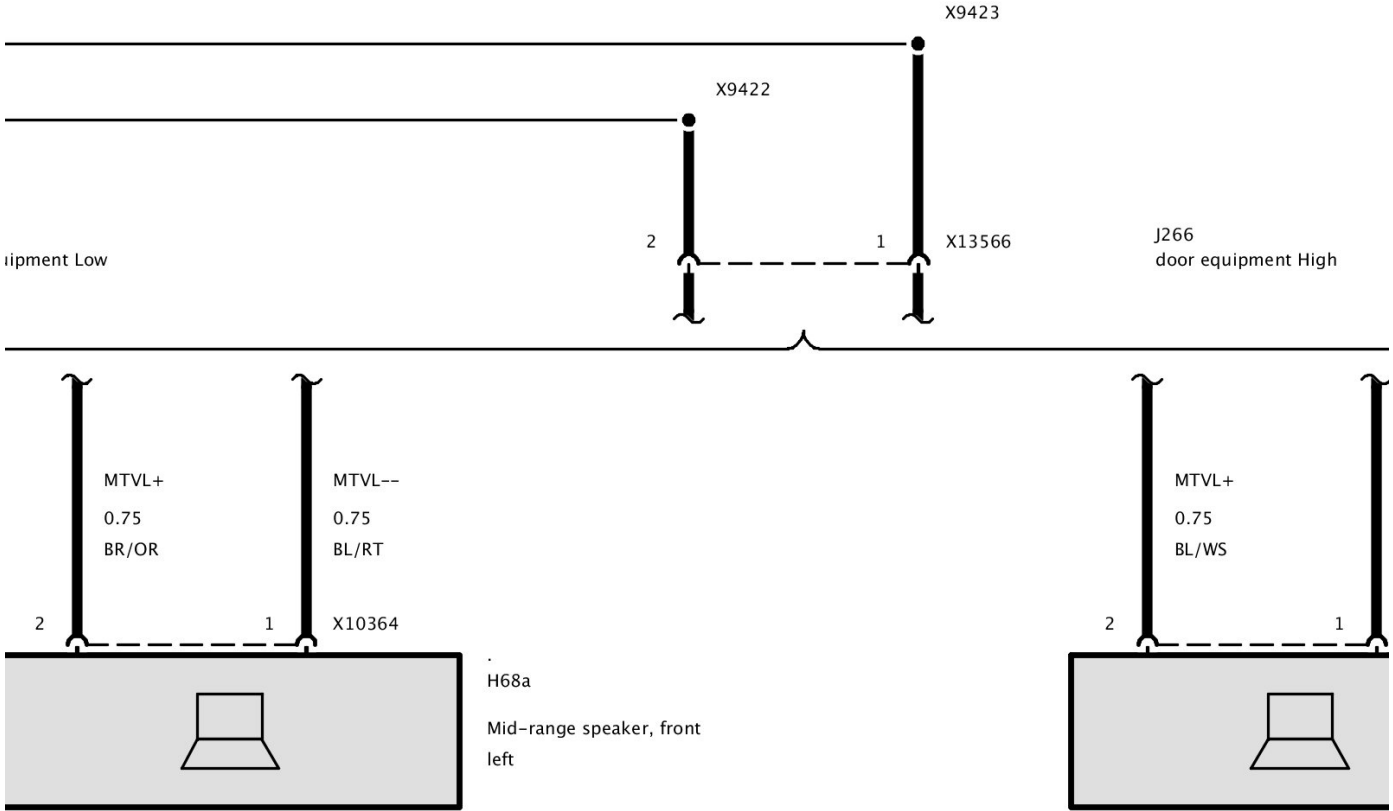
Part 5

Audio Output (CCC-BO User Interface)

Audio Output (CCC-BO User Interface)

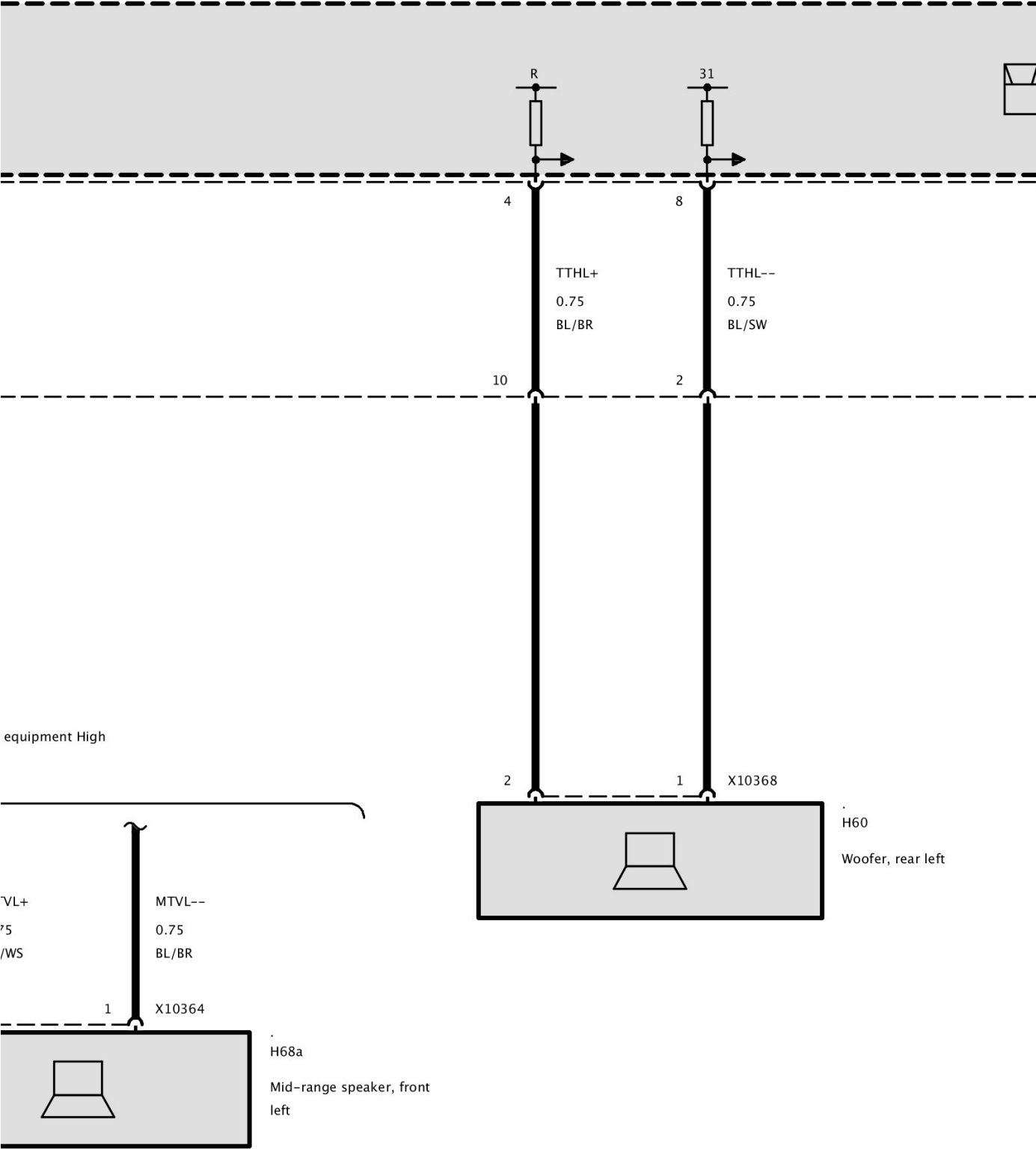


Part 1

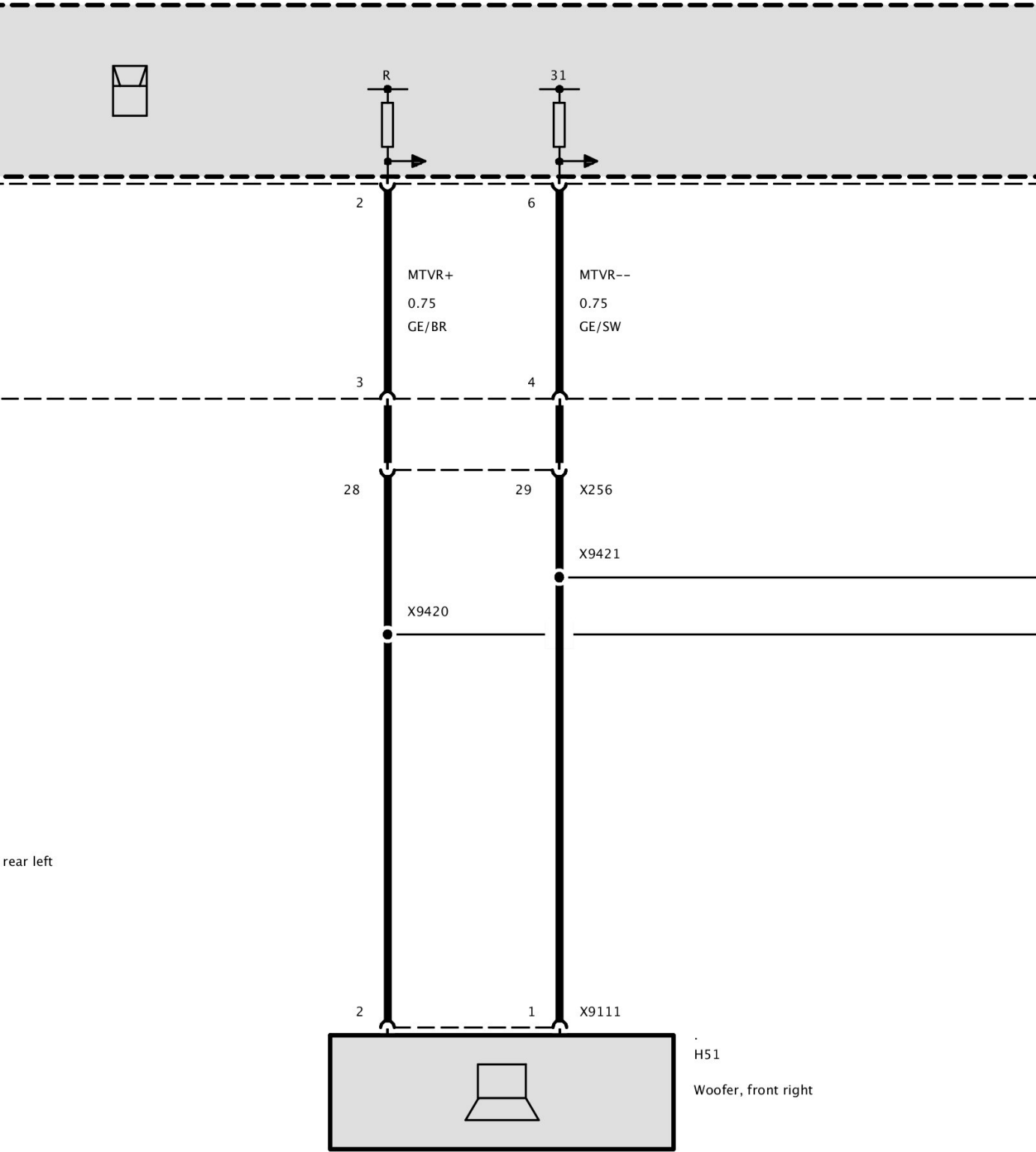


Part 2

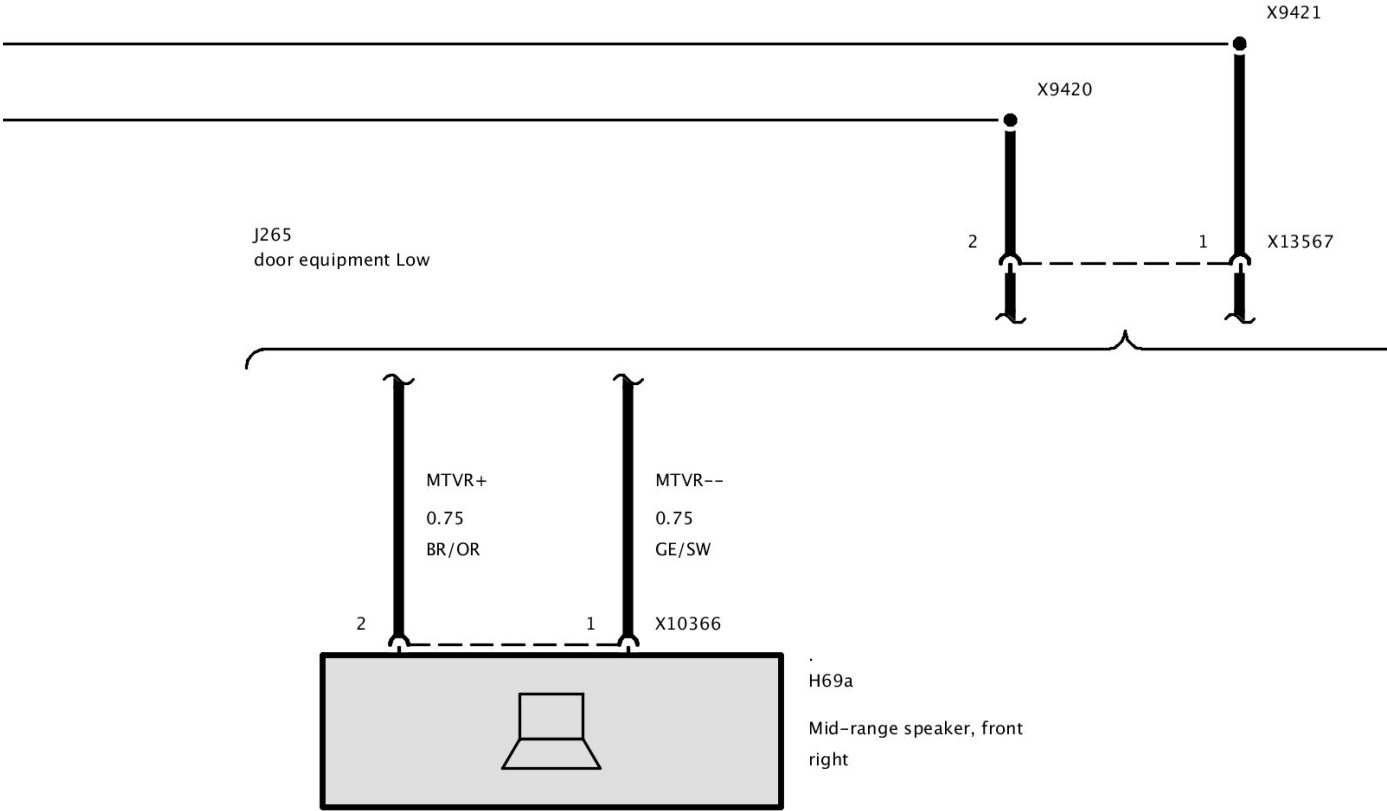




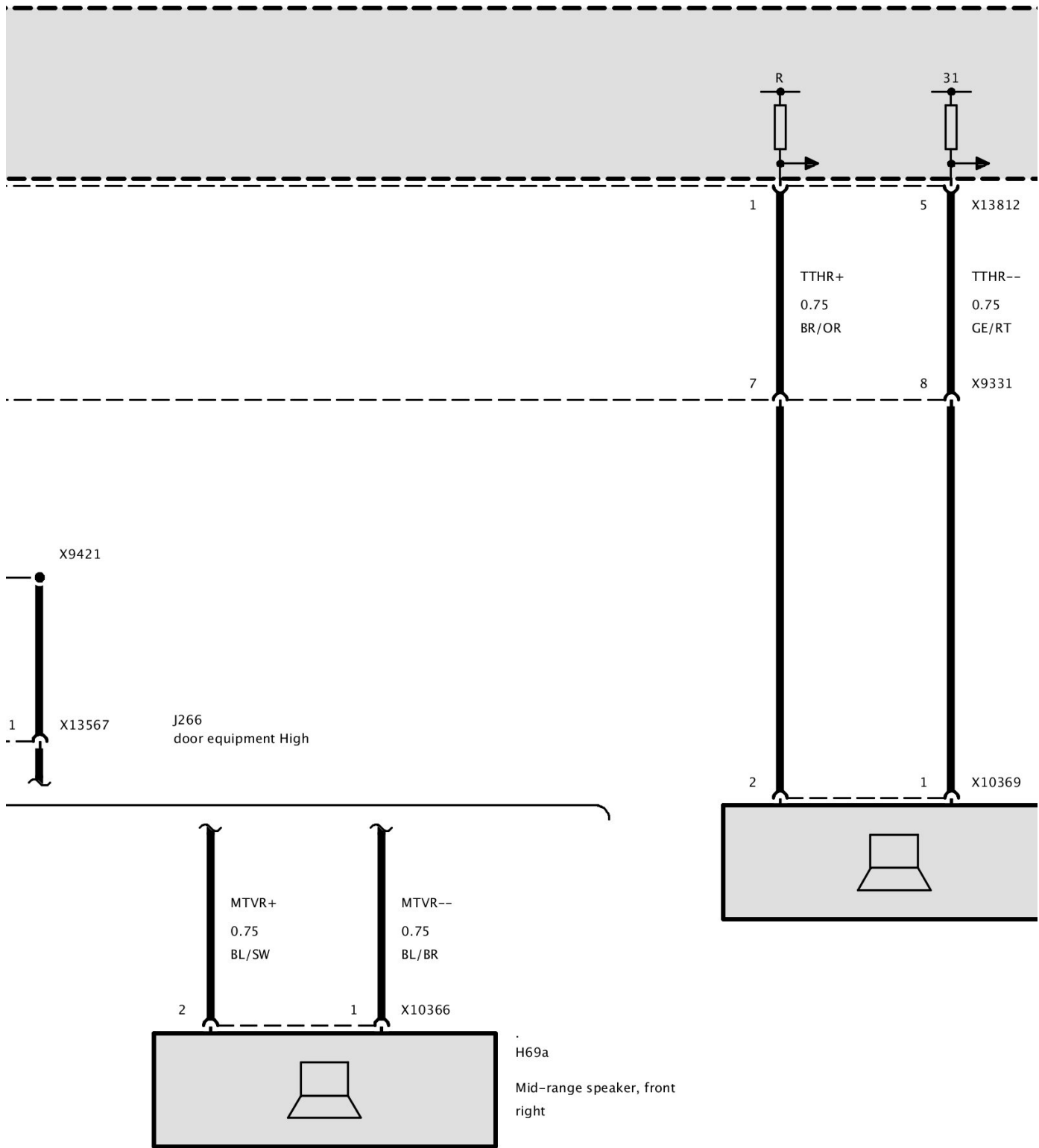
Part 3



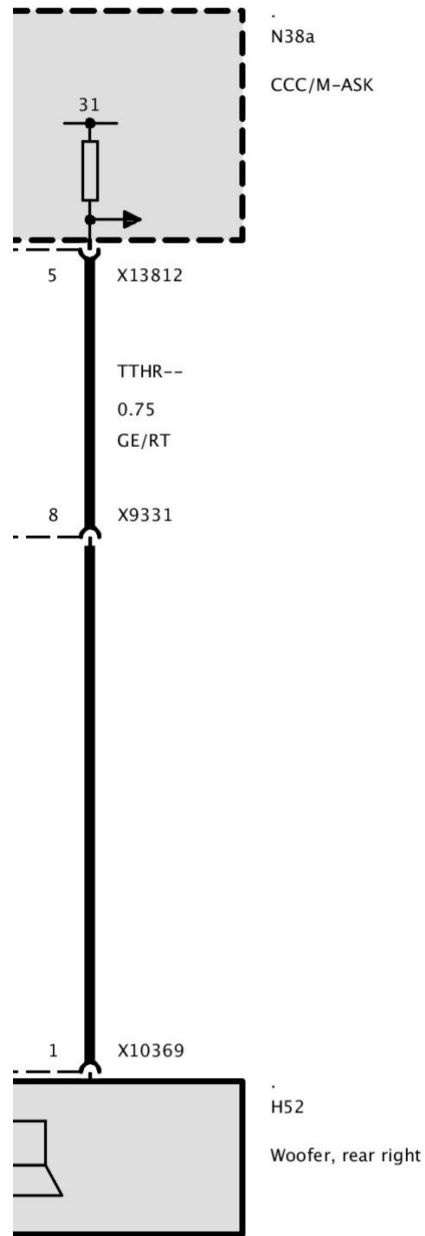
Part 4



Part 5



Part 6

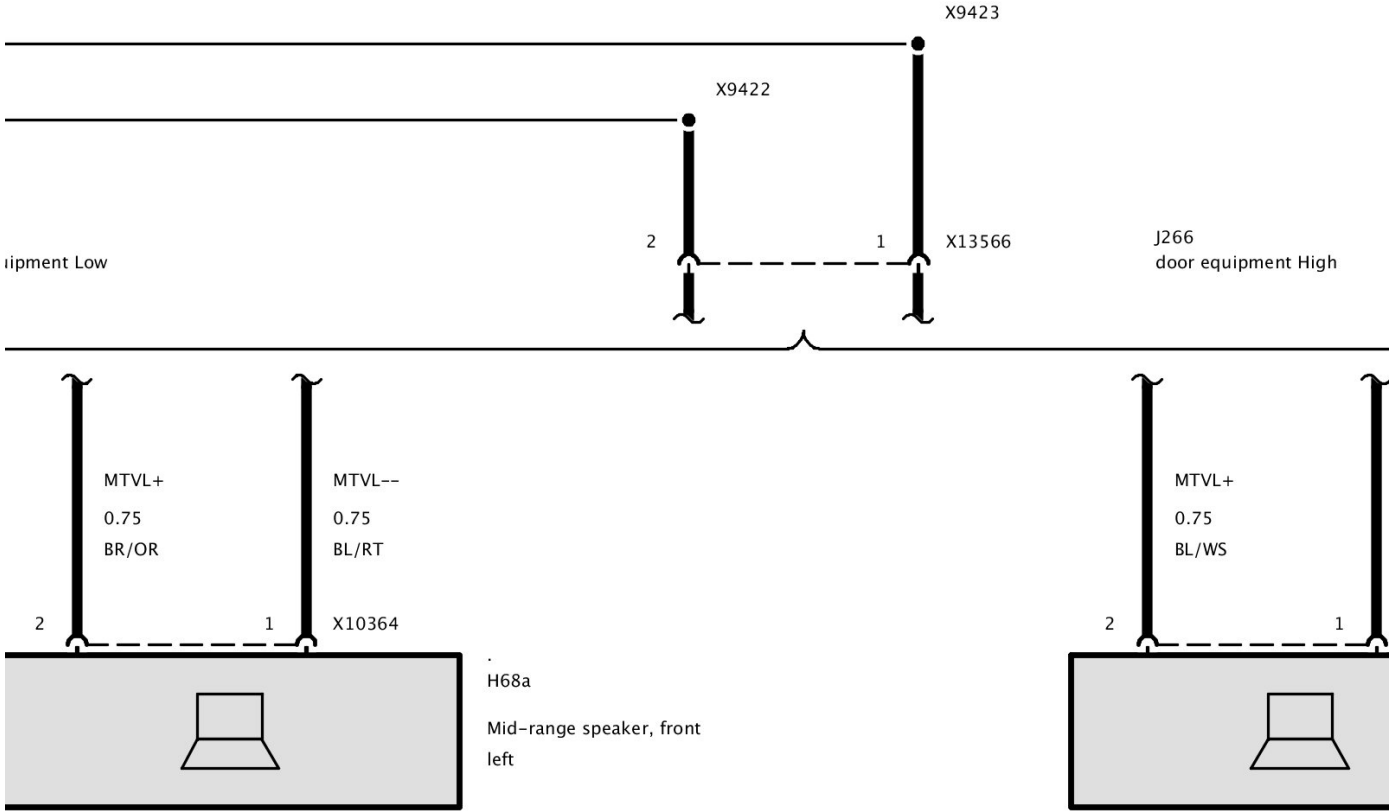


**Part 7**

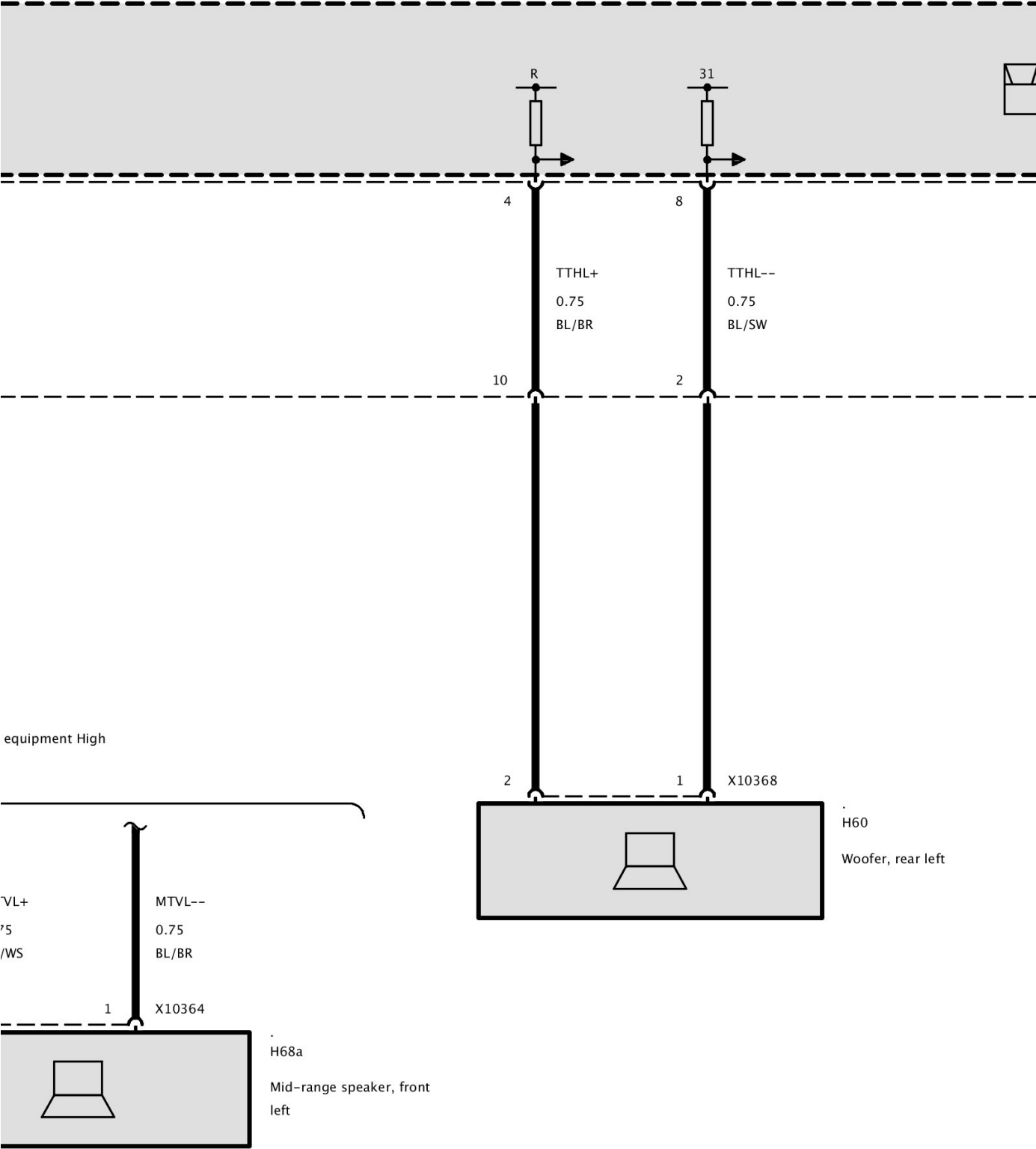
**Audio Output (Without CCC-BO User Interface)**

Audio Output (Without CCC-BO User Interface)



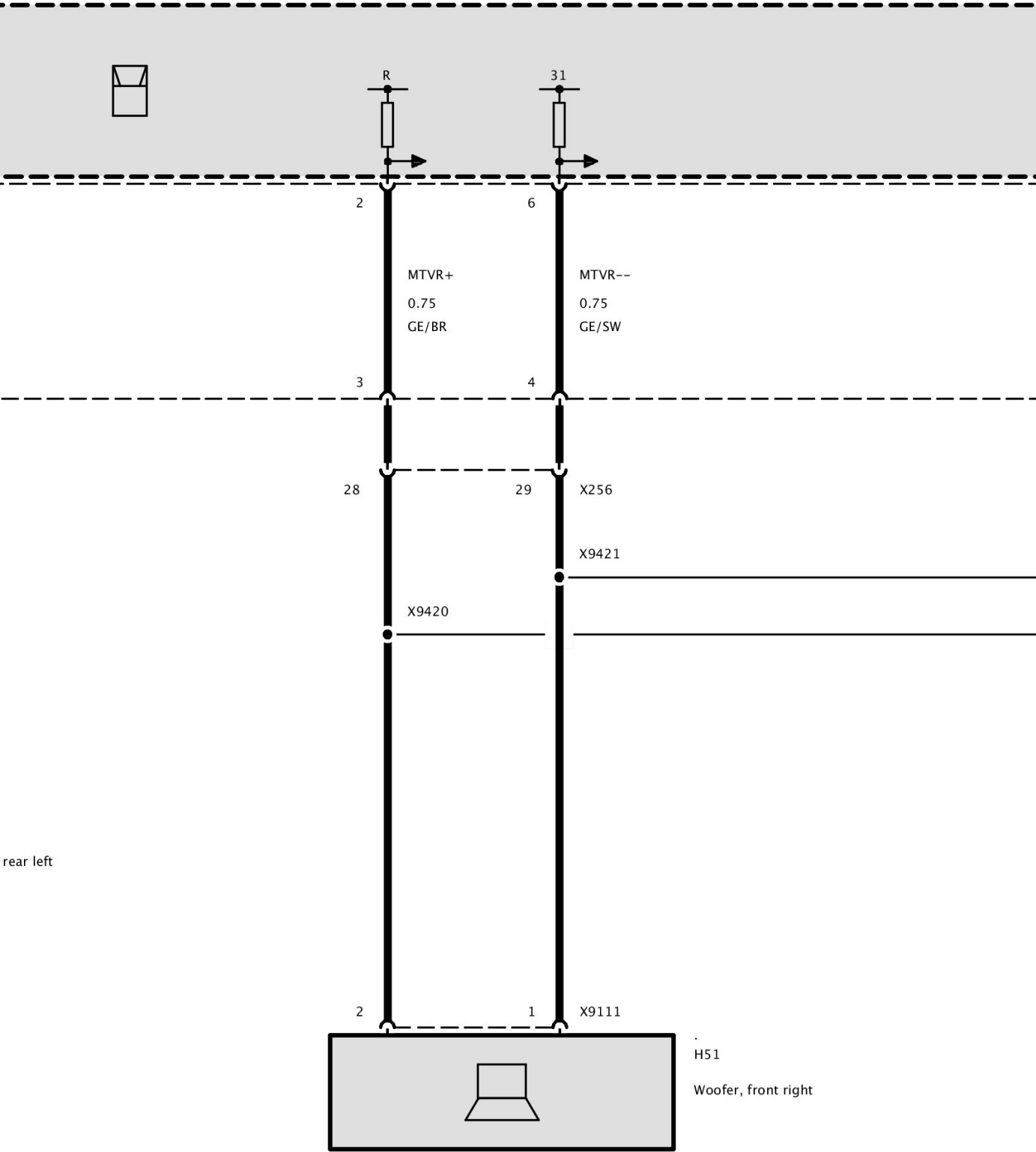


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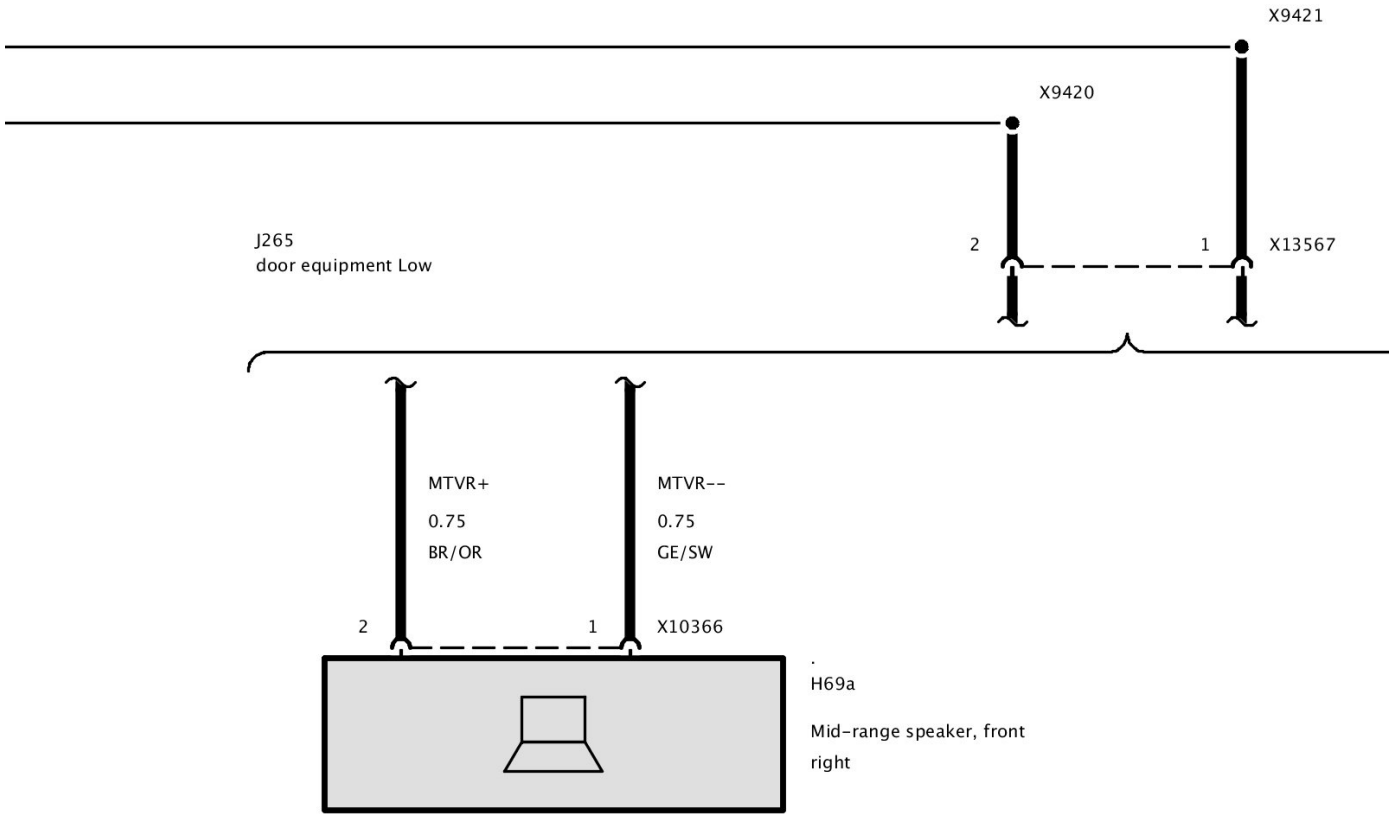


Part 3

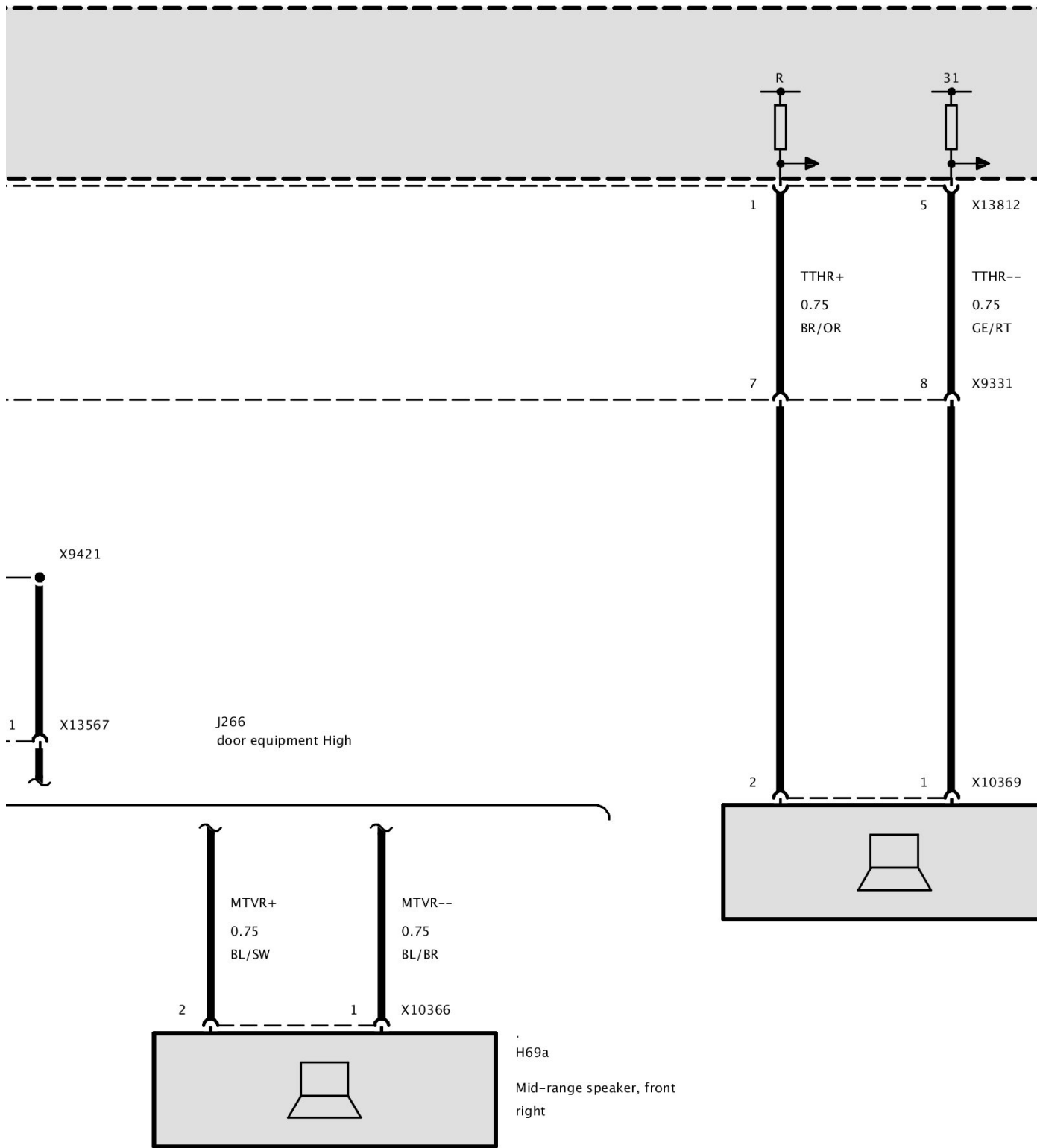




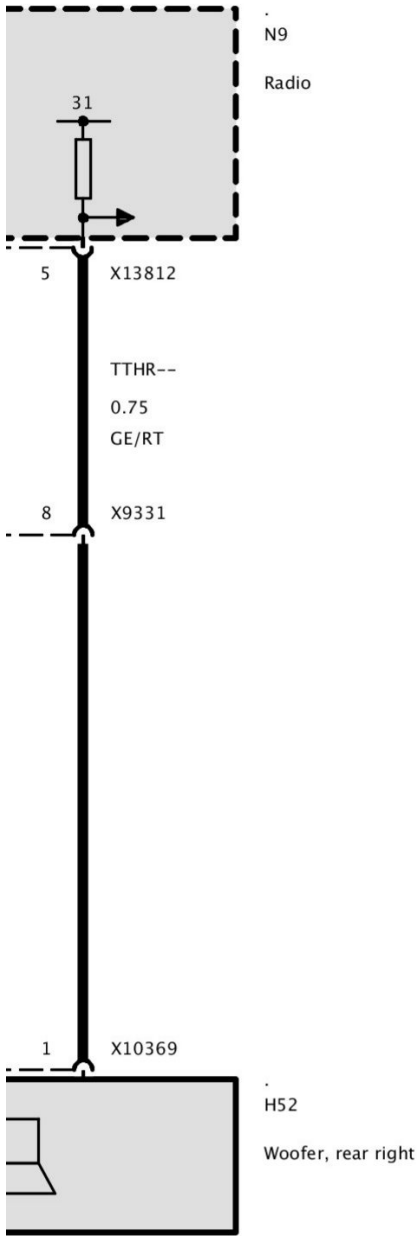
Part 4



Part 5



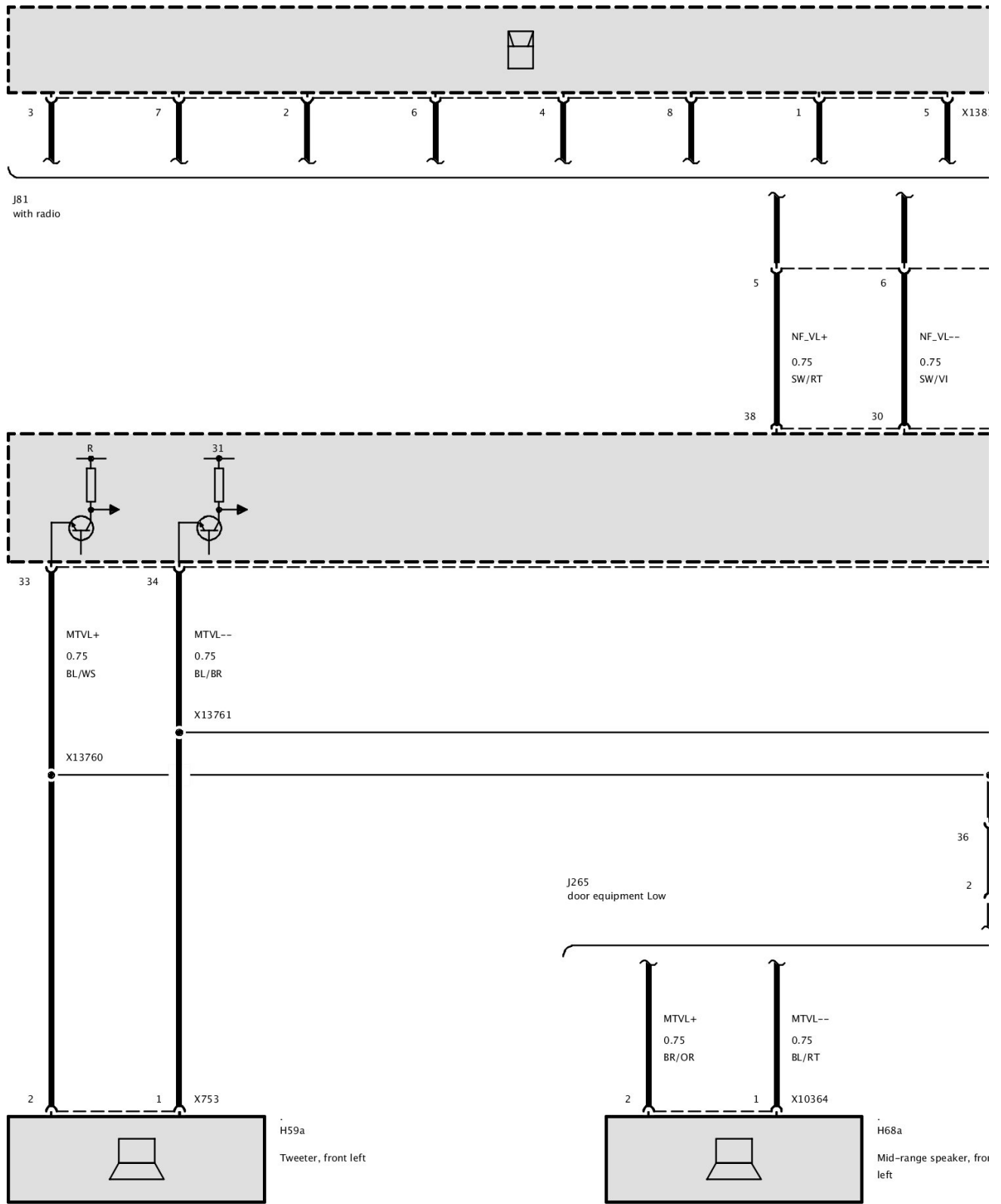
Part 6



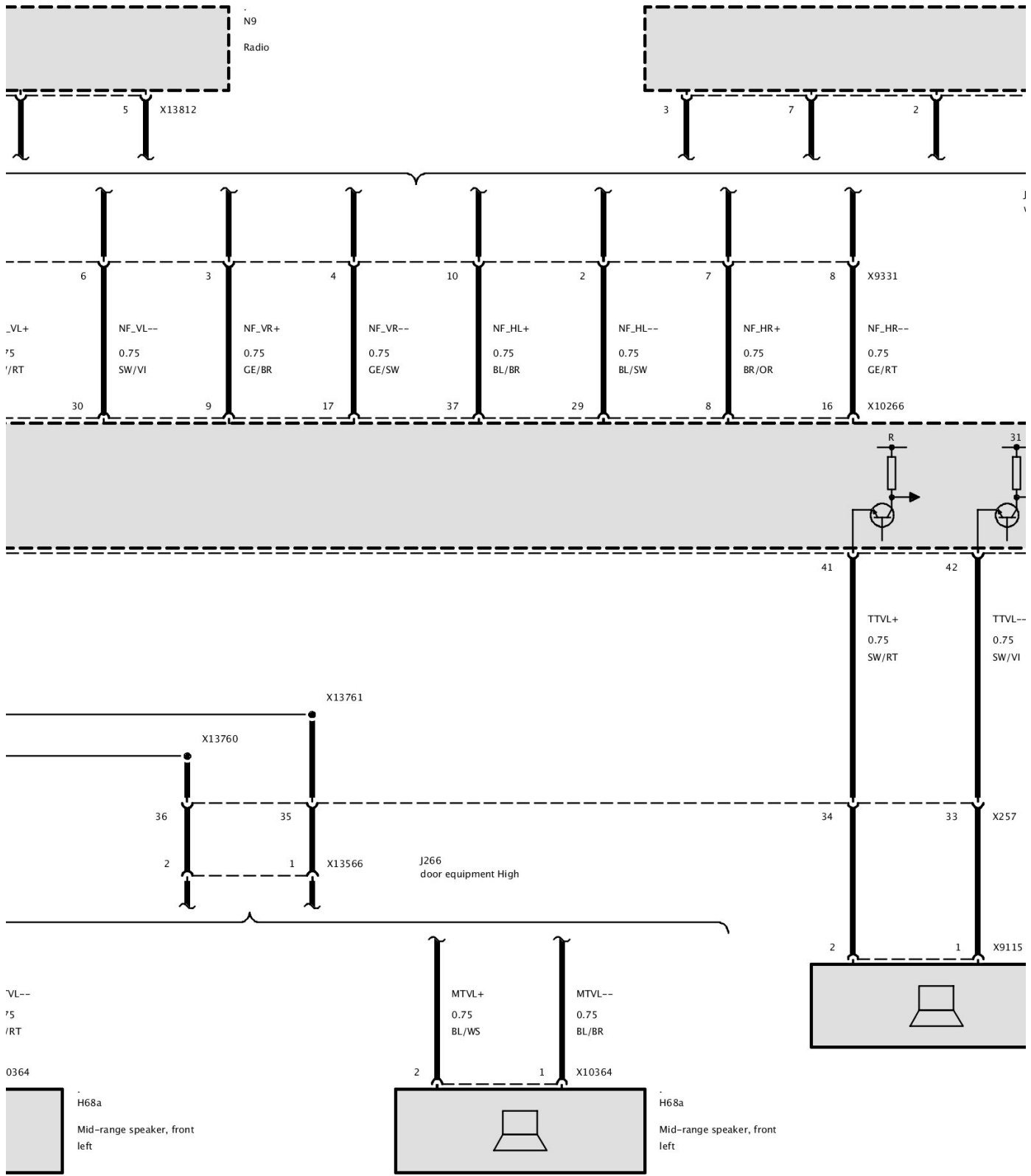
Part 7

Audio Output (Left-Hand Drive)

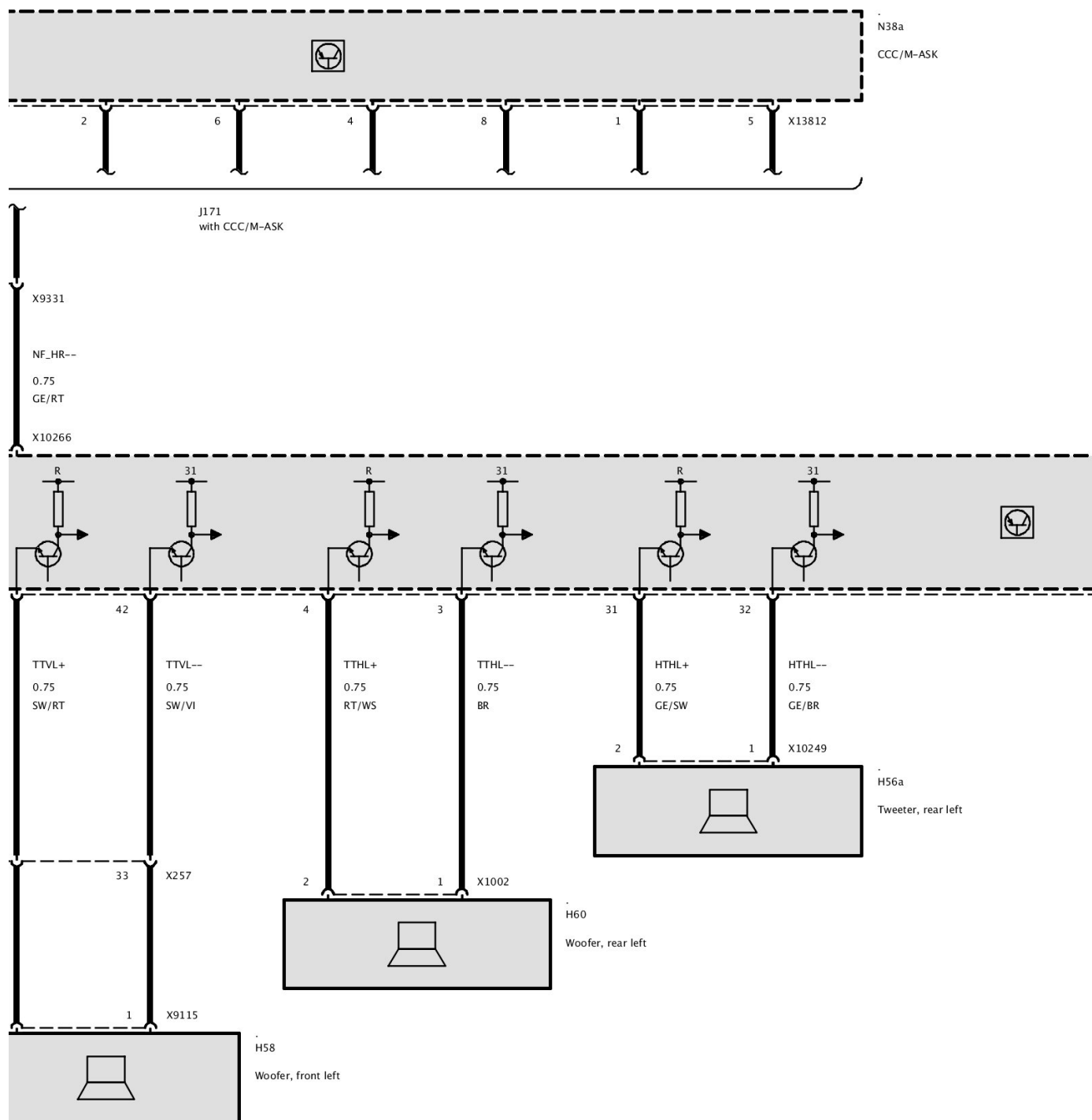
Audio Output (Left-Hand Drive)



Part 1

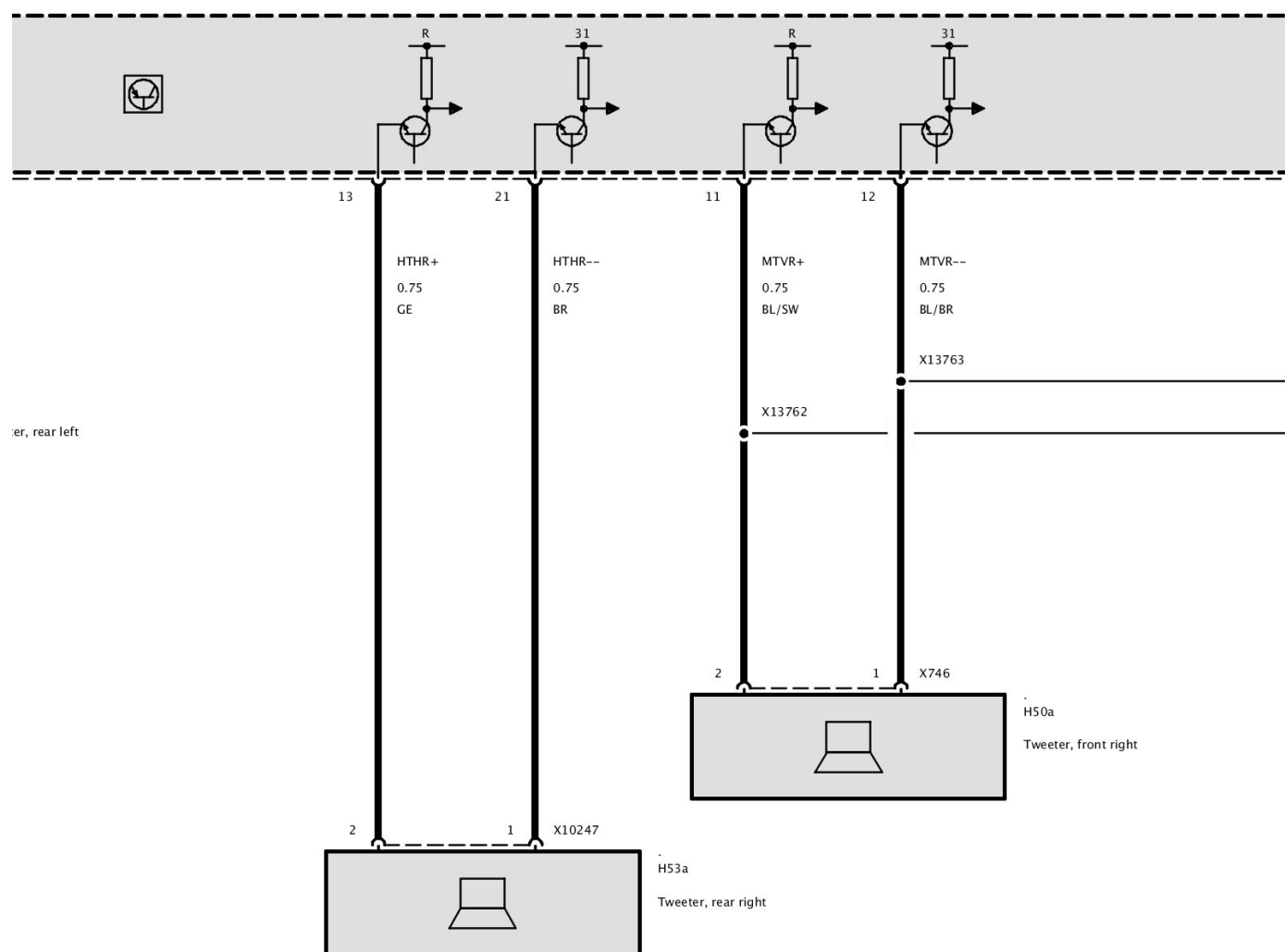


Part 2



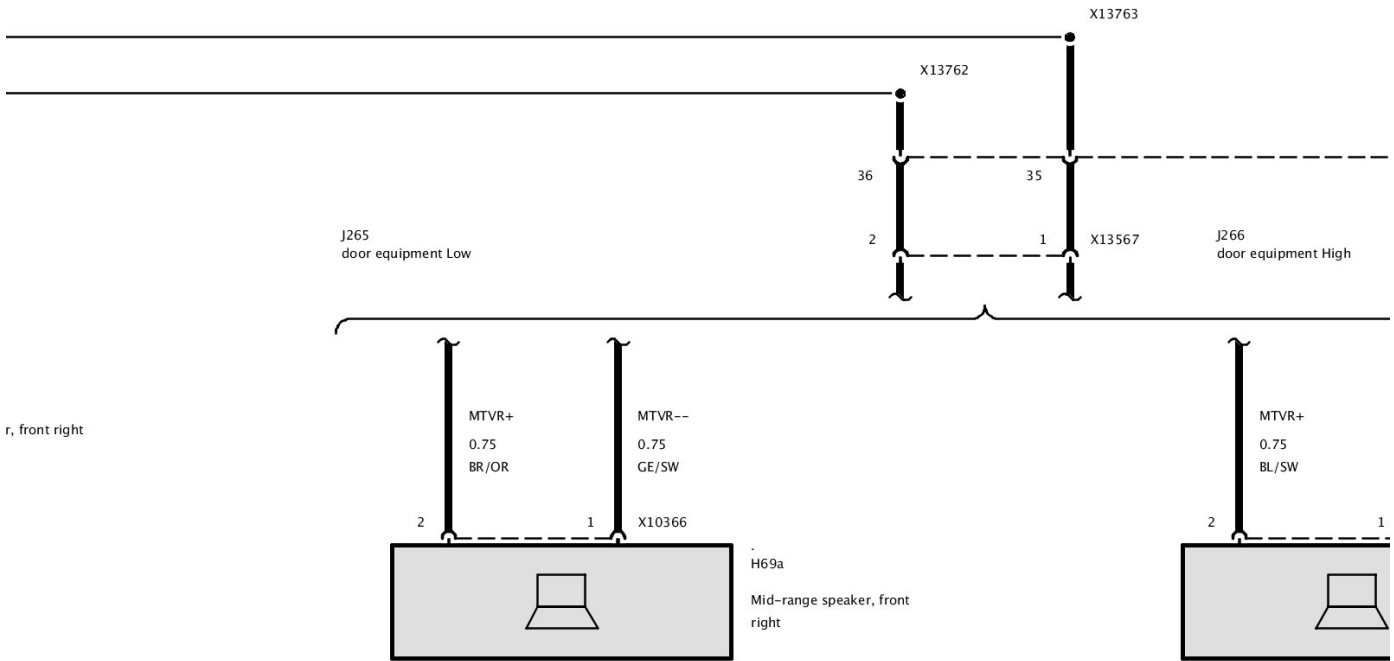
### Part 3

er, rear left



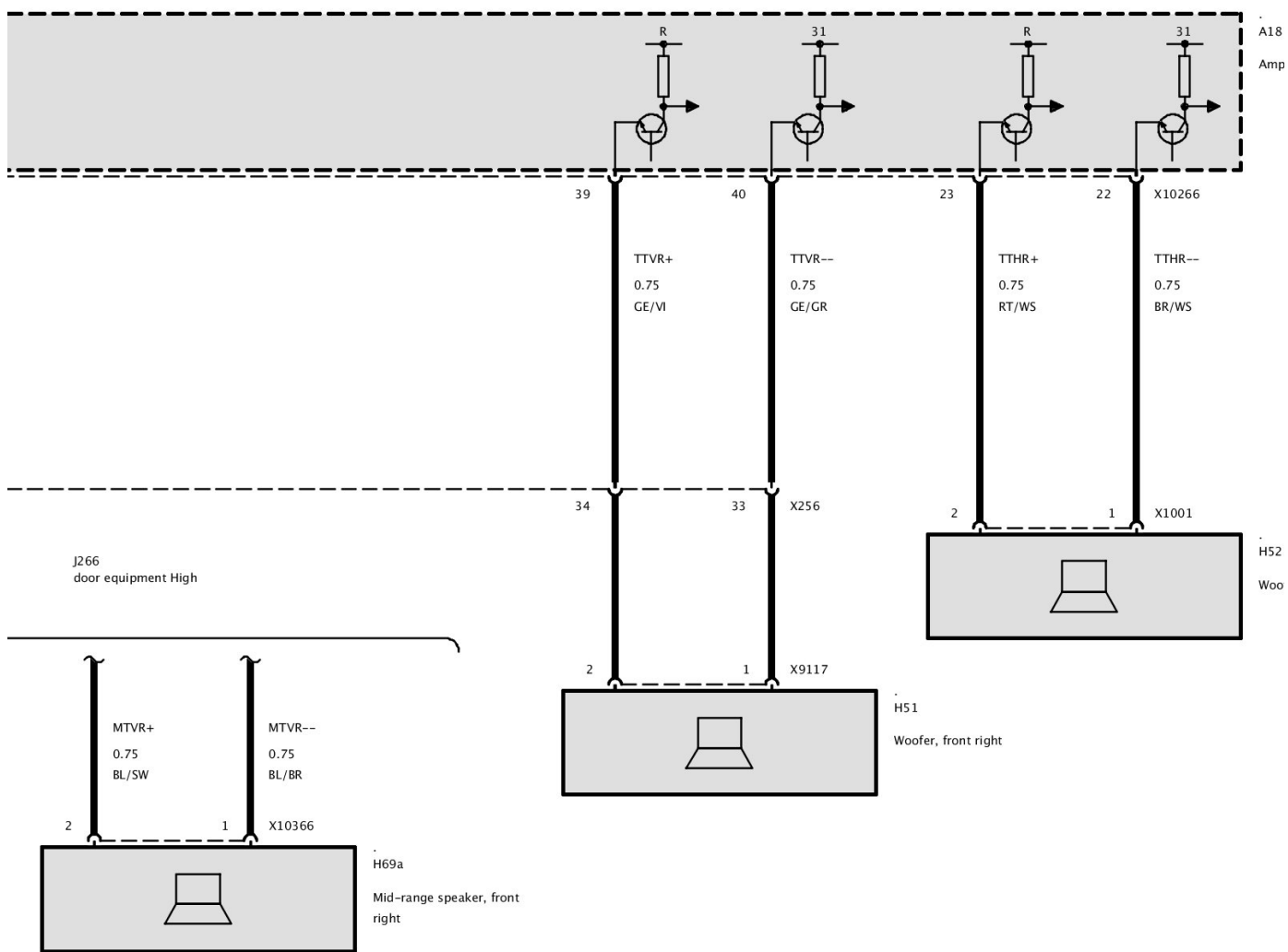
## Part 4



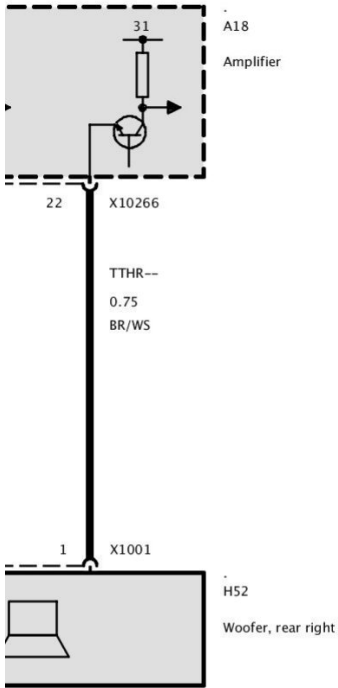


r, front right

Part 5



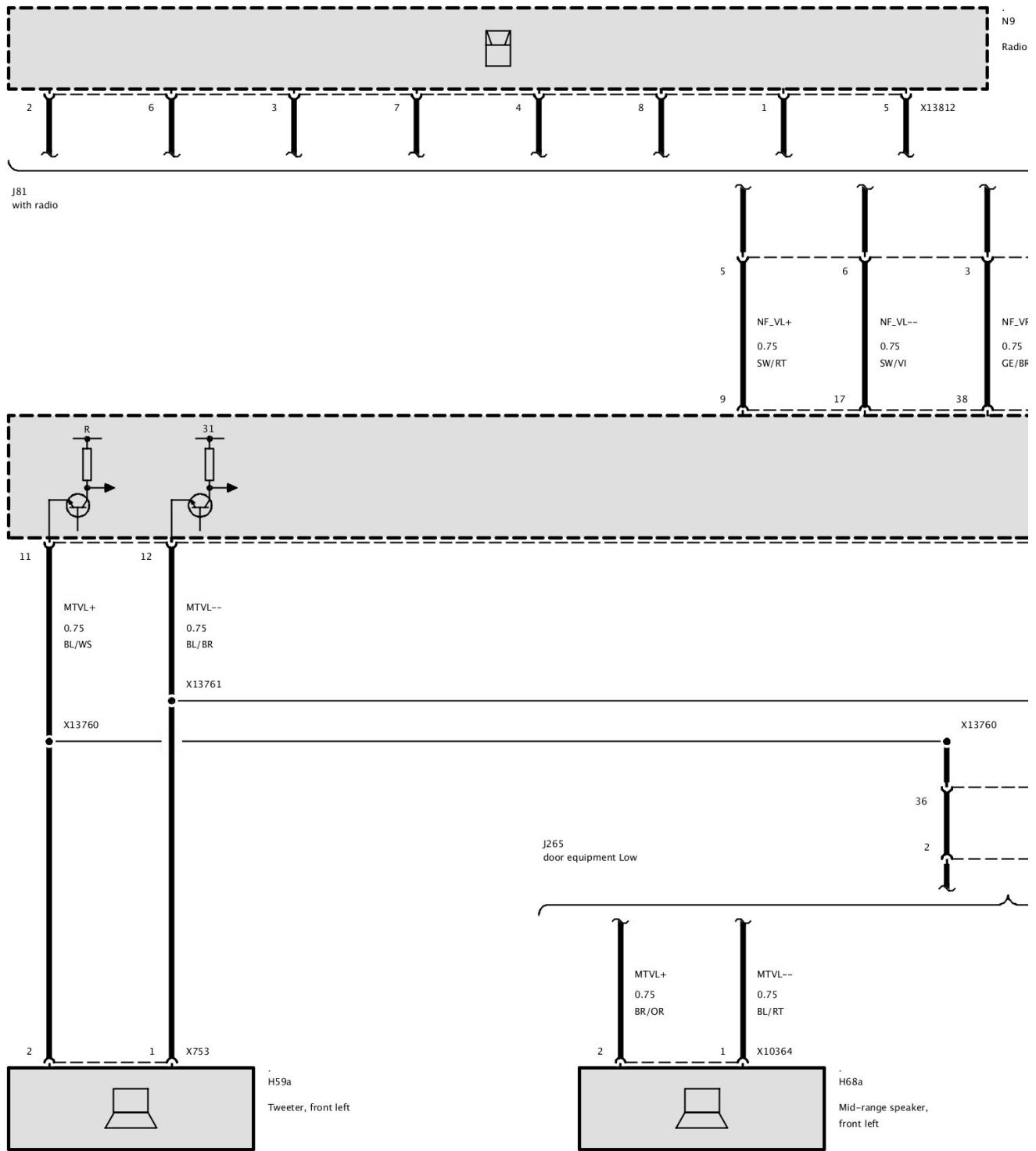
Part 6



**Part 7**

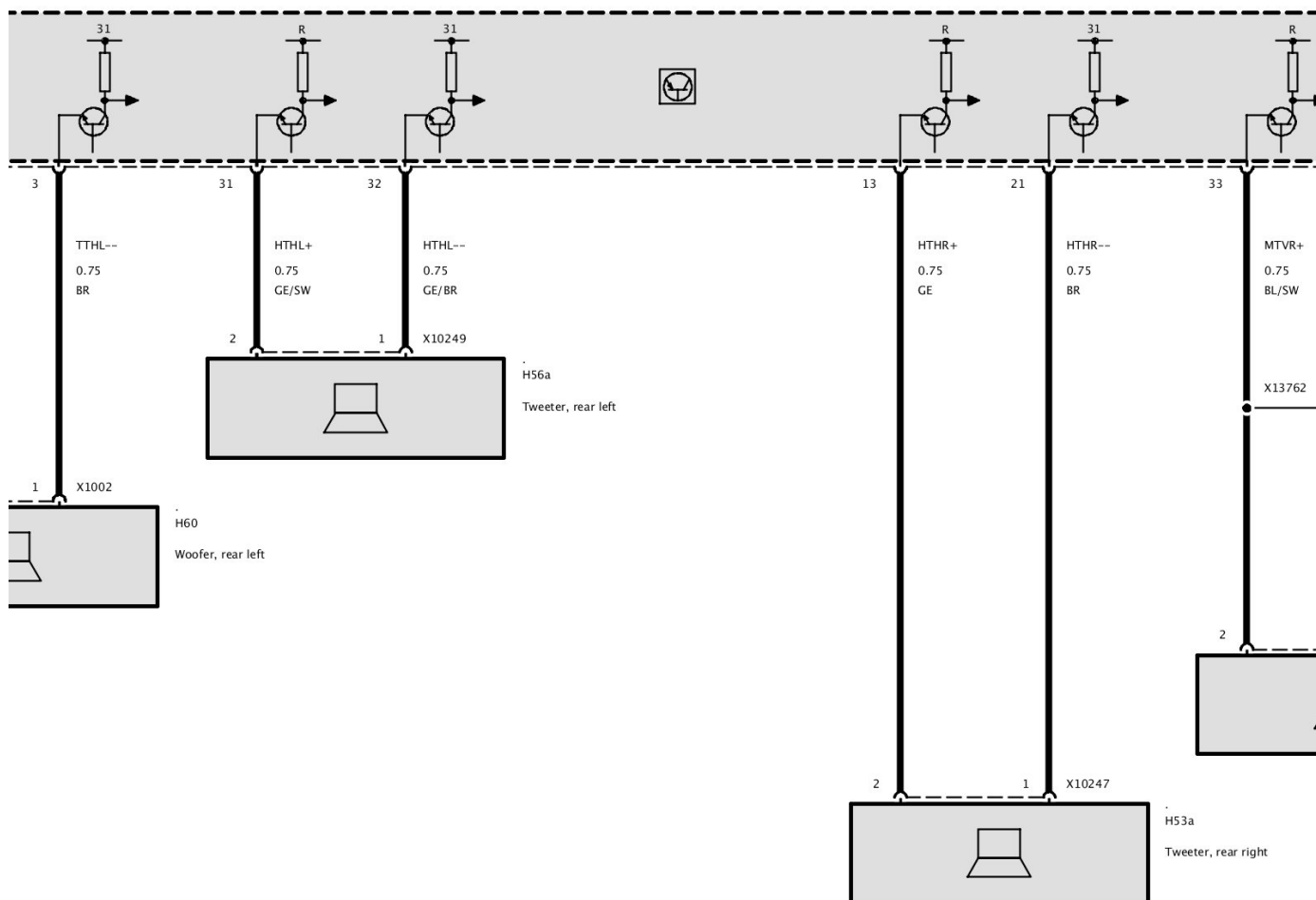
**Audio Output (Right-Hand Drive)**

Audio Output (Right-Hand Drive)

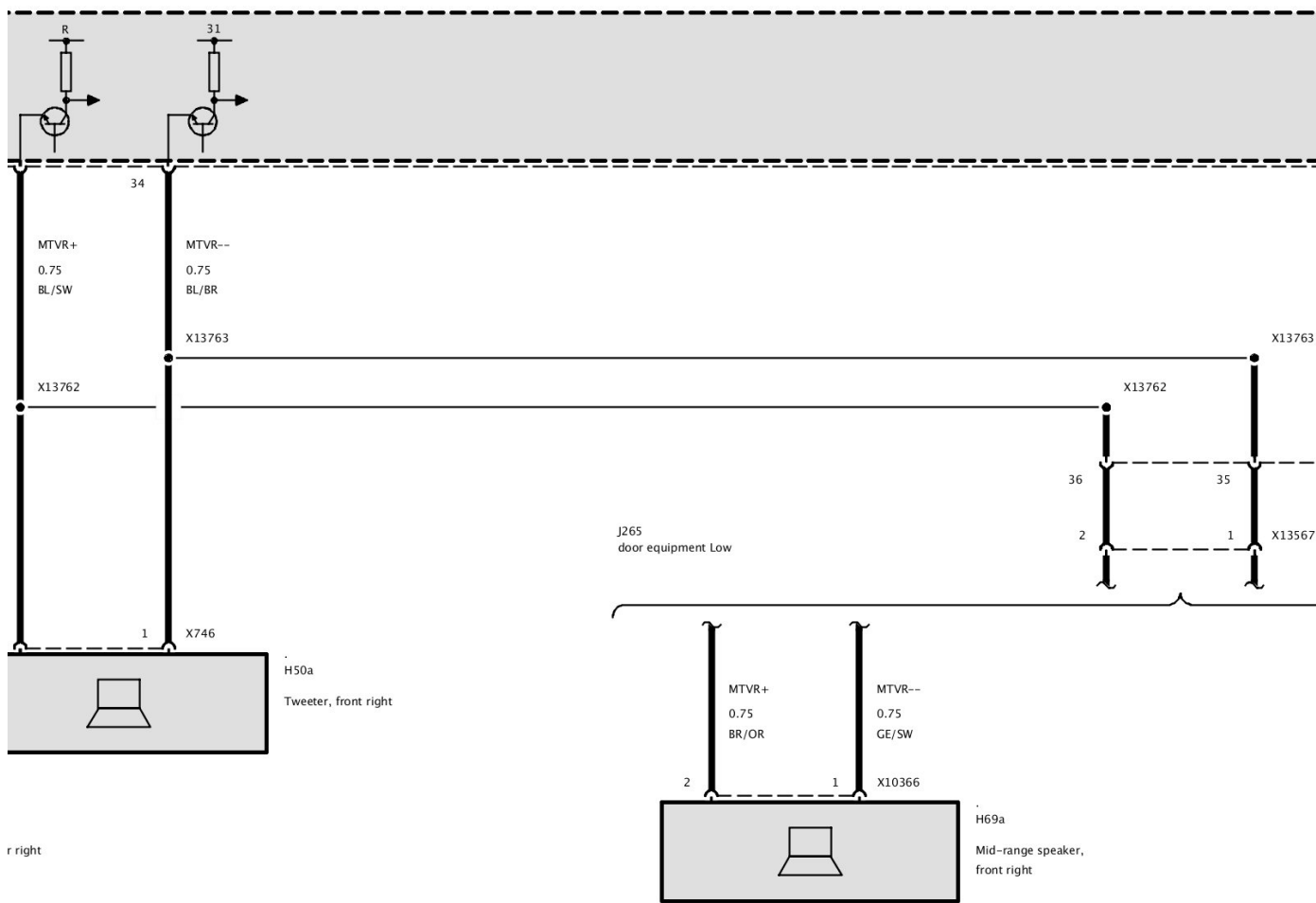


Part 1

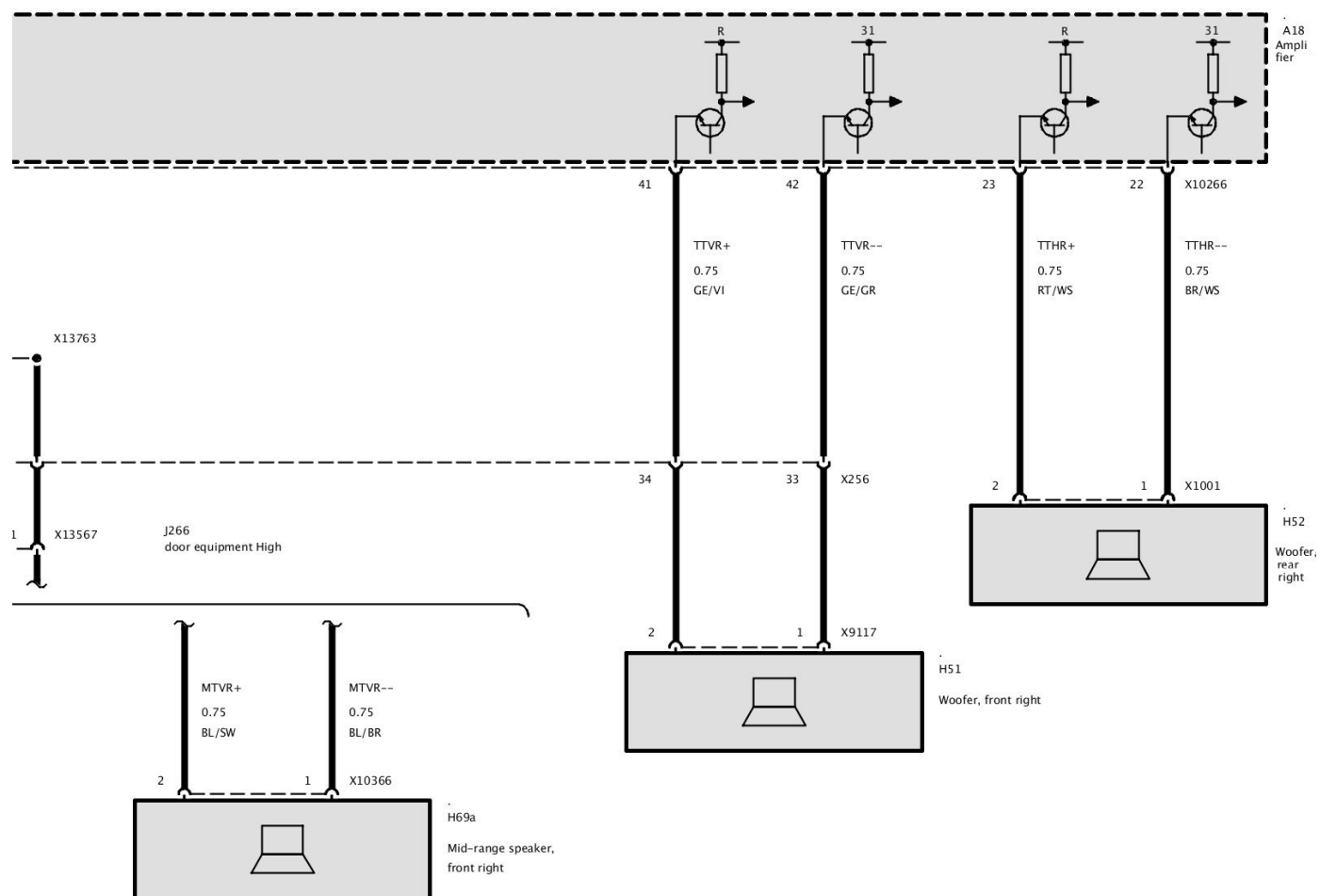




jmoraflores@hotmail.cl



Part 4

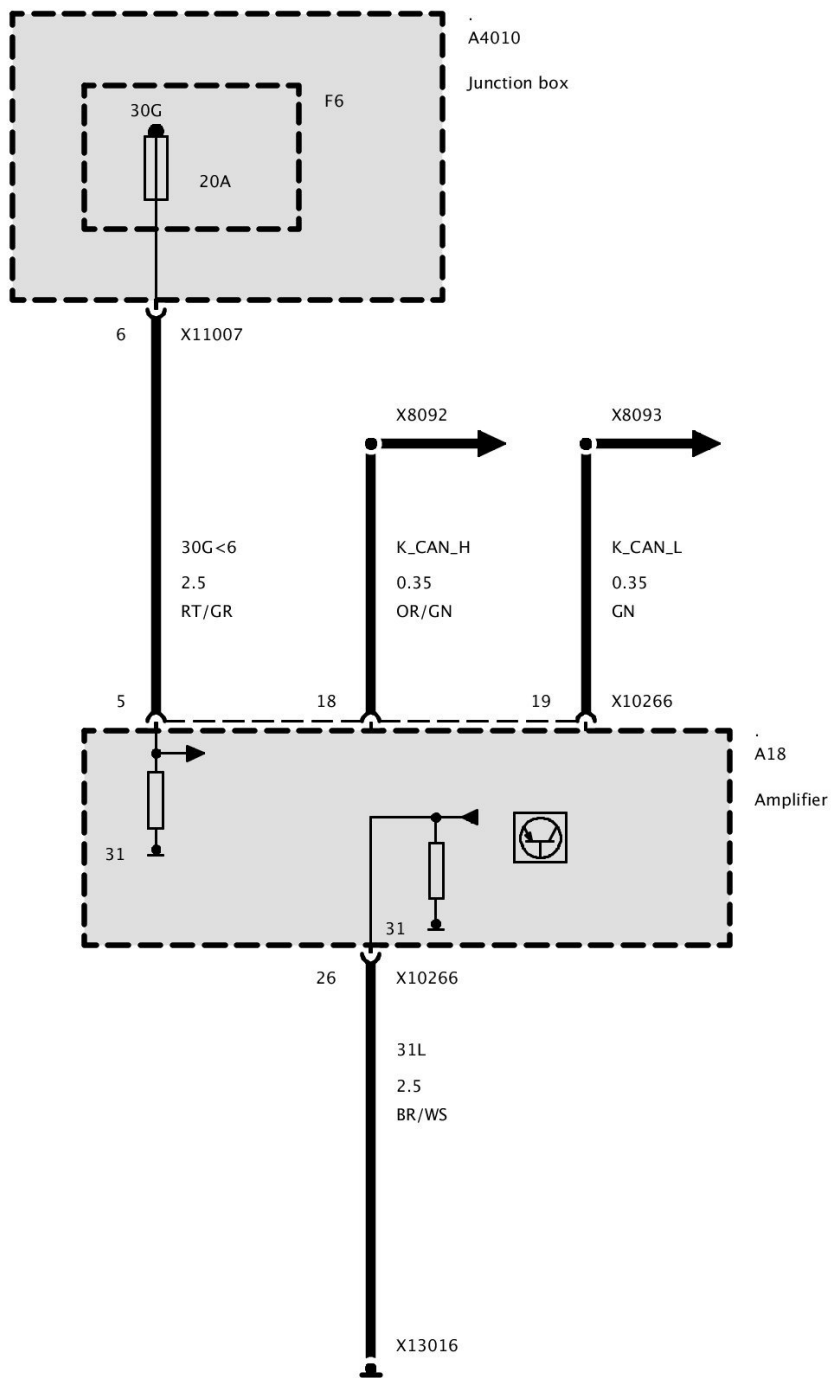


### Part 5

Supply, Hifi Amplifier (As Of 08/07 Up To 12/08)

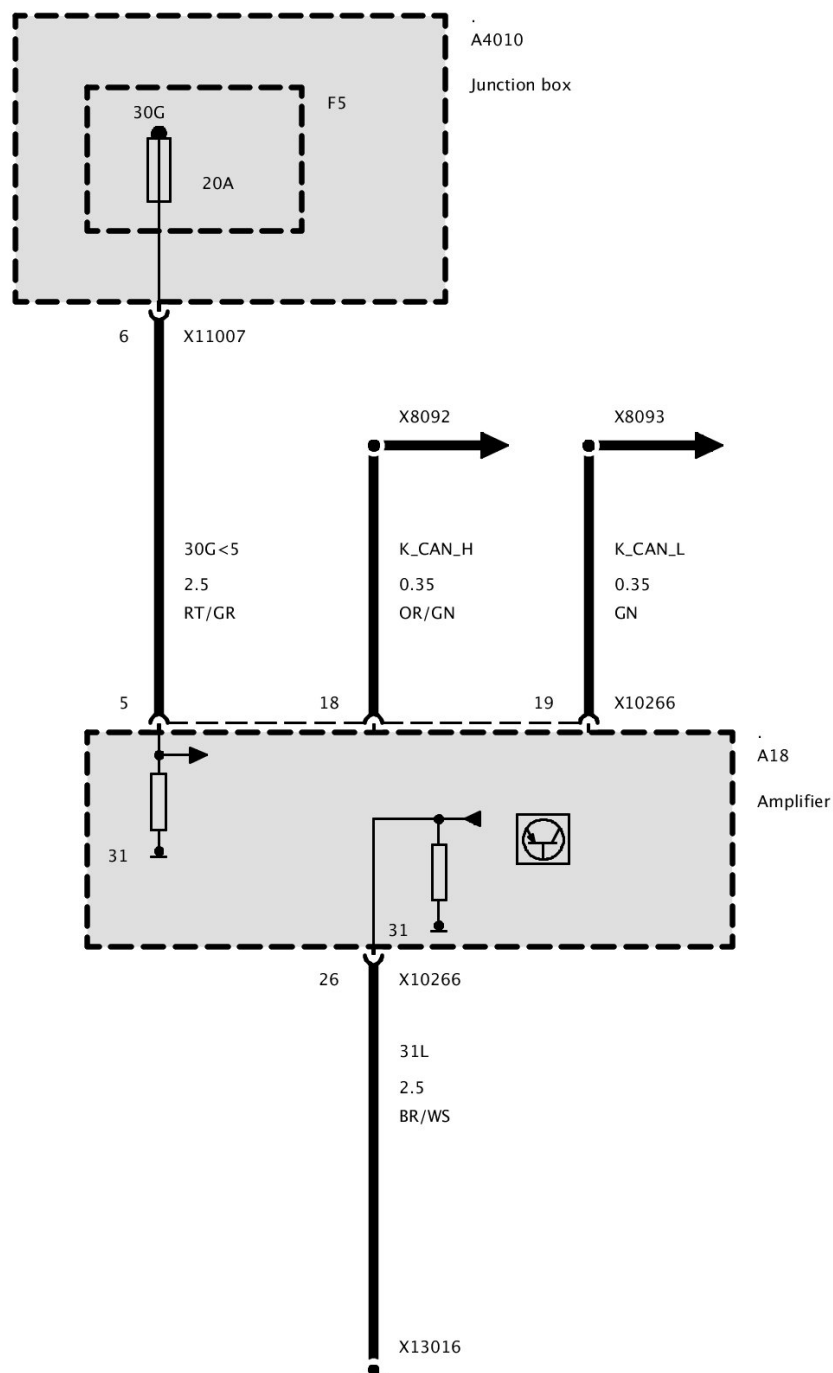
Supply, Hifi Amplifier (As Of 08/07 Up To 12/08)



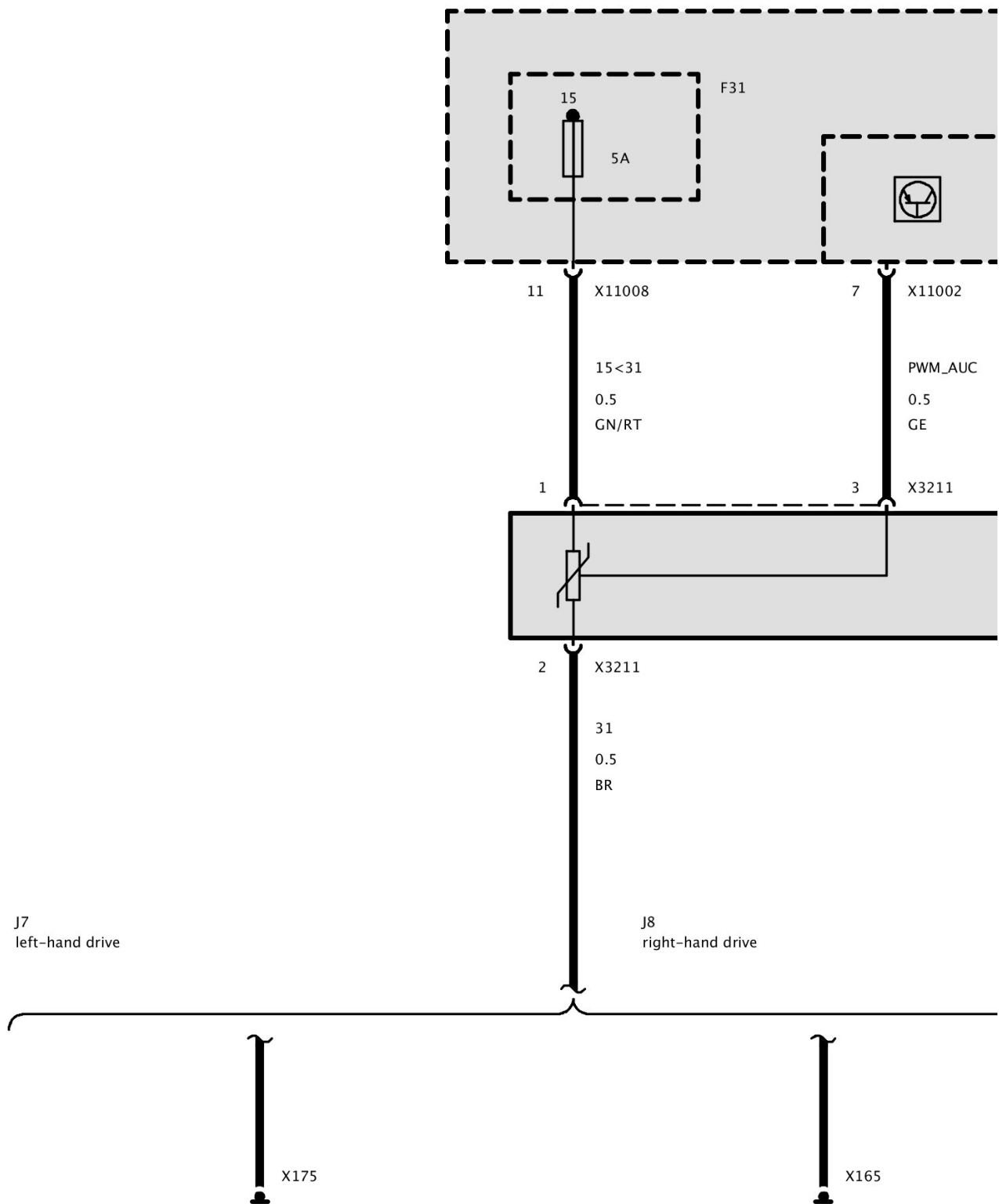


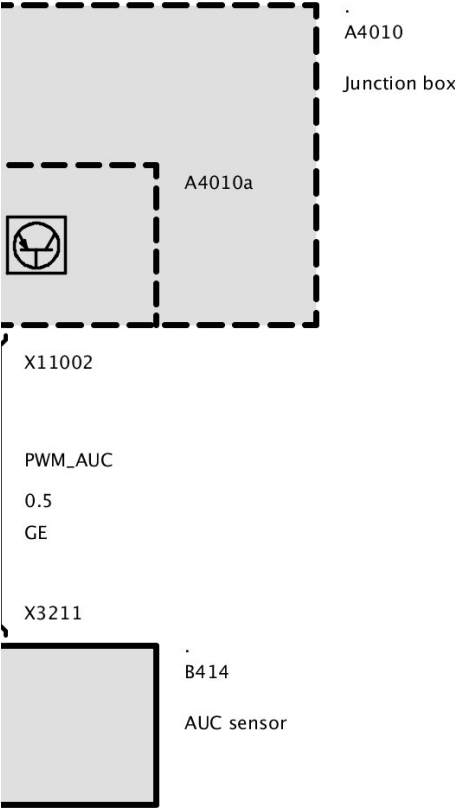
Supply, Hifi Amplifier (As Of 12/08)

Supply, Hifi Amplifier (As Of 12/08)

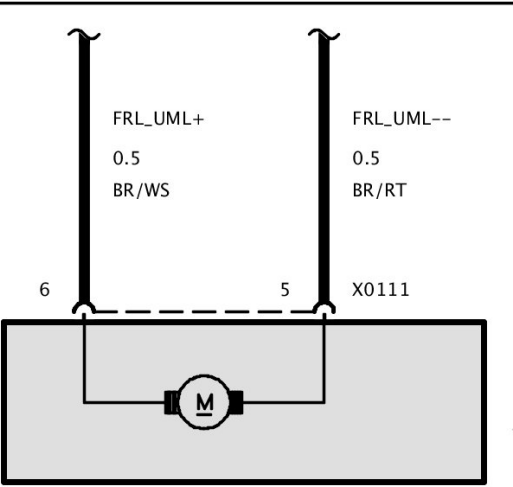


### Automatic Recirculated Air Control (AUC)

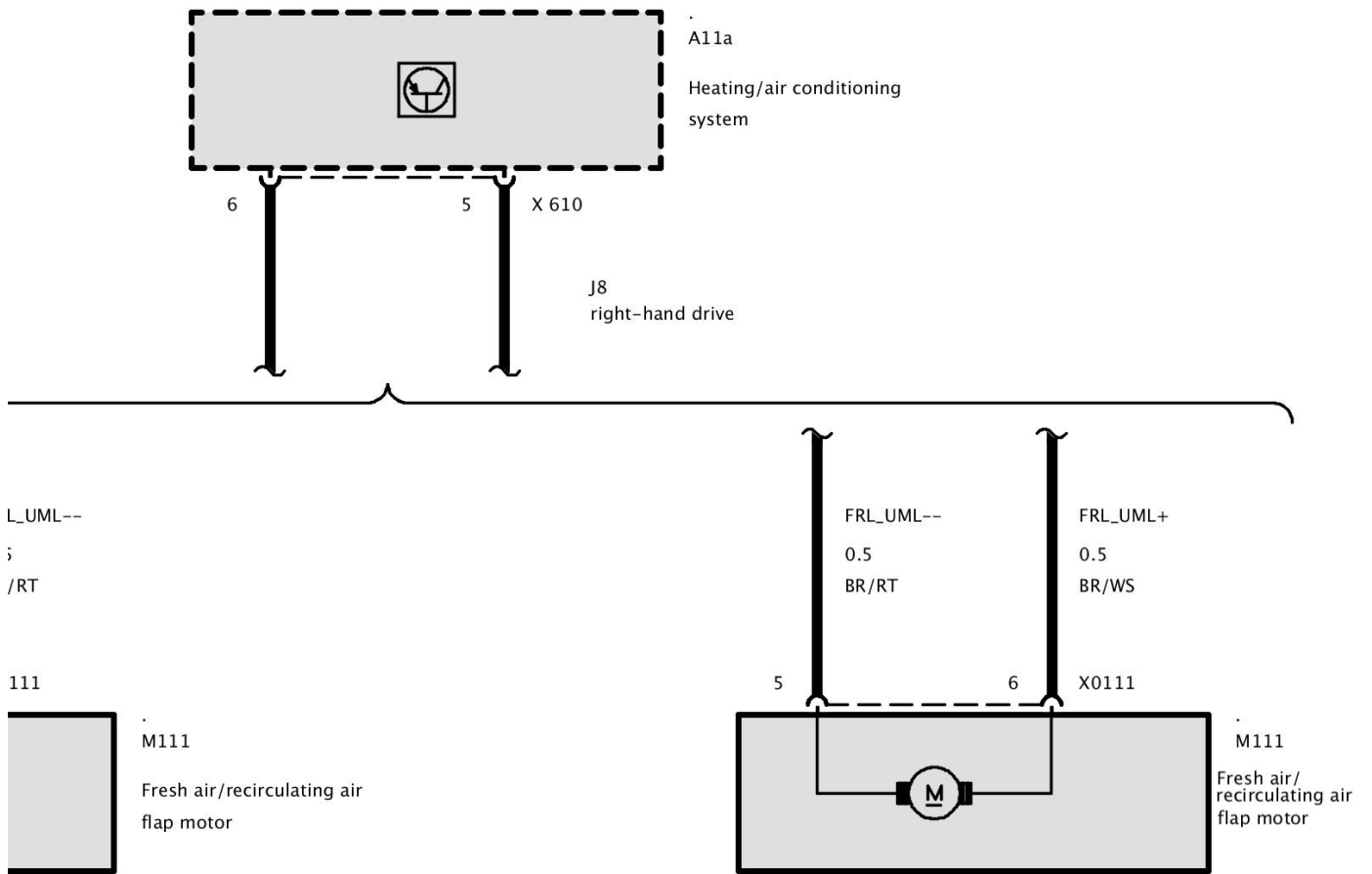




J7  
left-hand drive



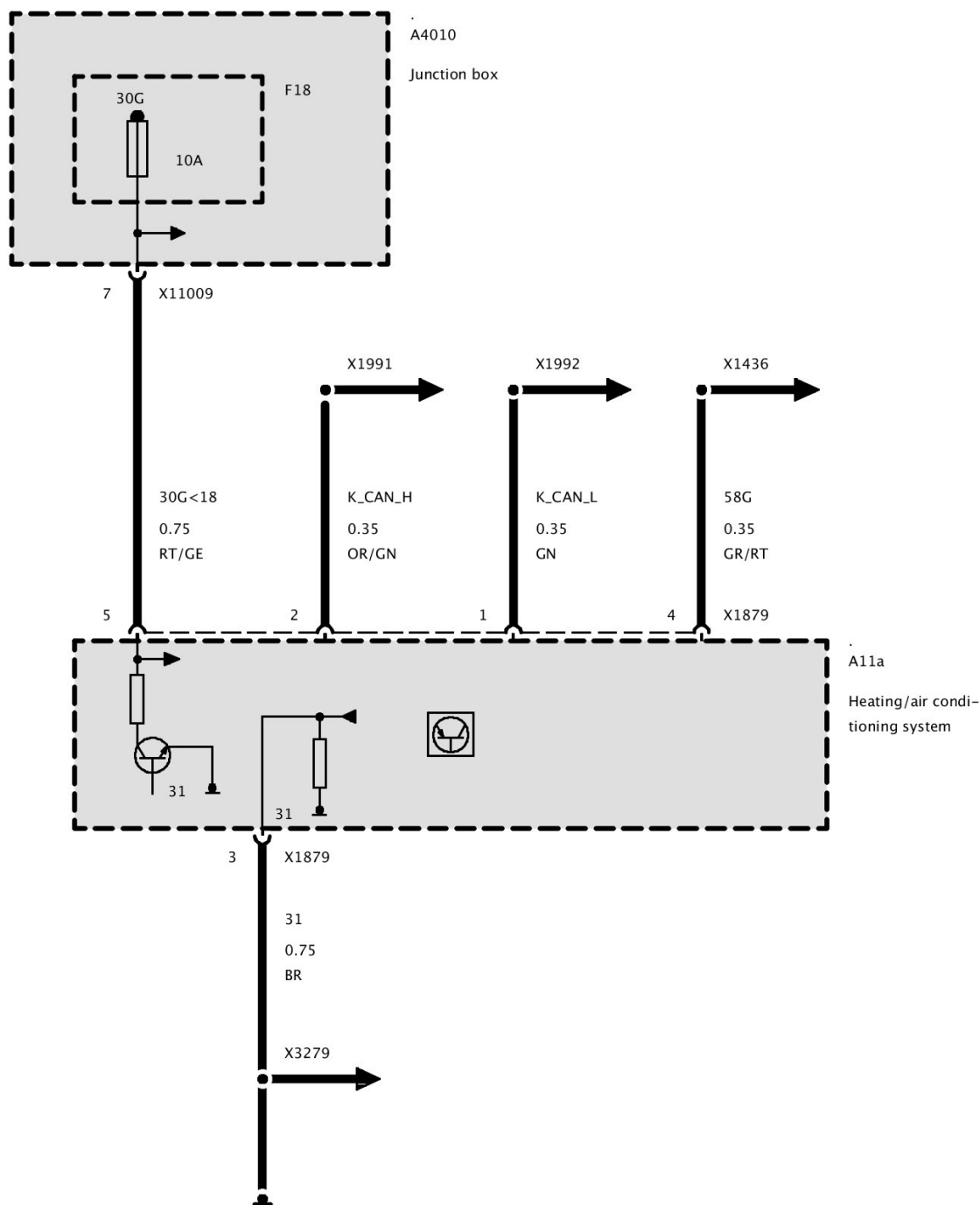
Part 2



**Part 3**

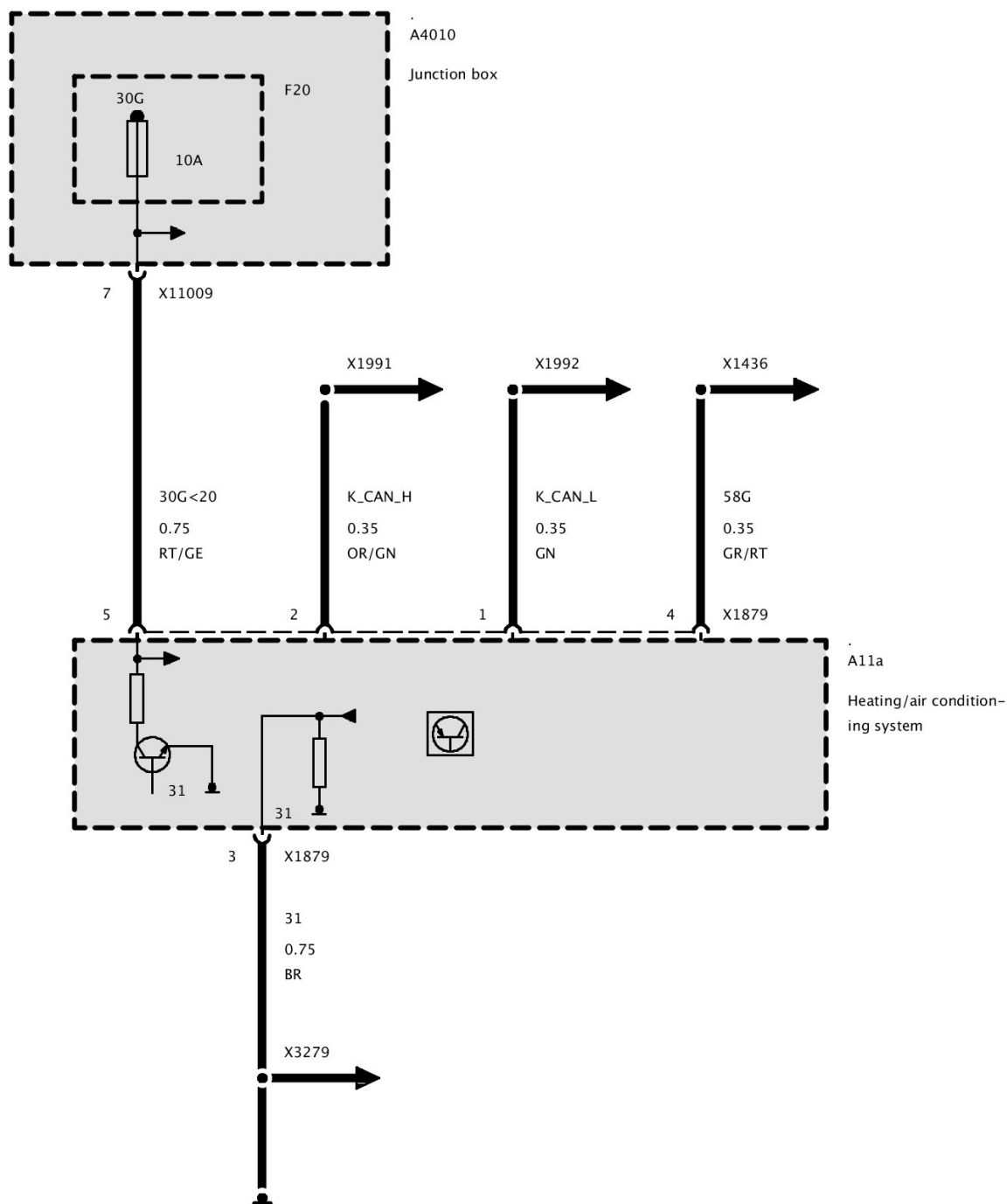
**Supply, Heating And Air Conditioning Control Unit (Up To 12/08)**

Supply, Heating And Air Conditioning Control Unit (Up To 12/08)



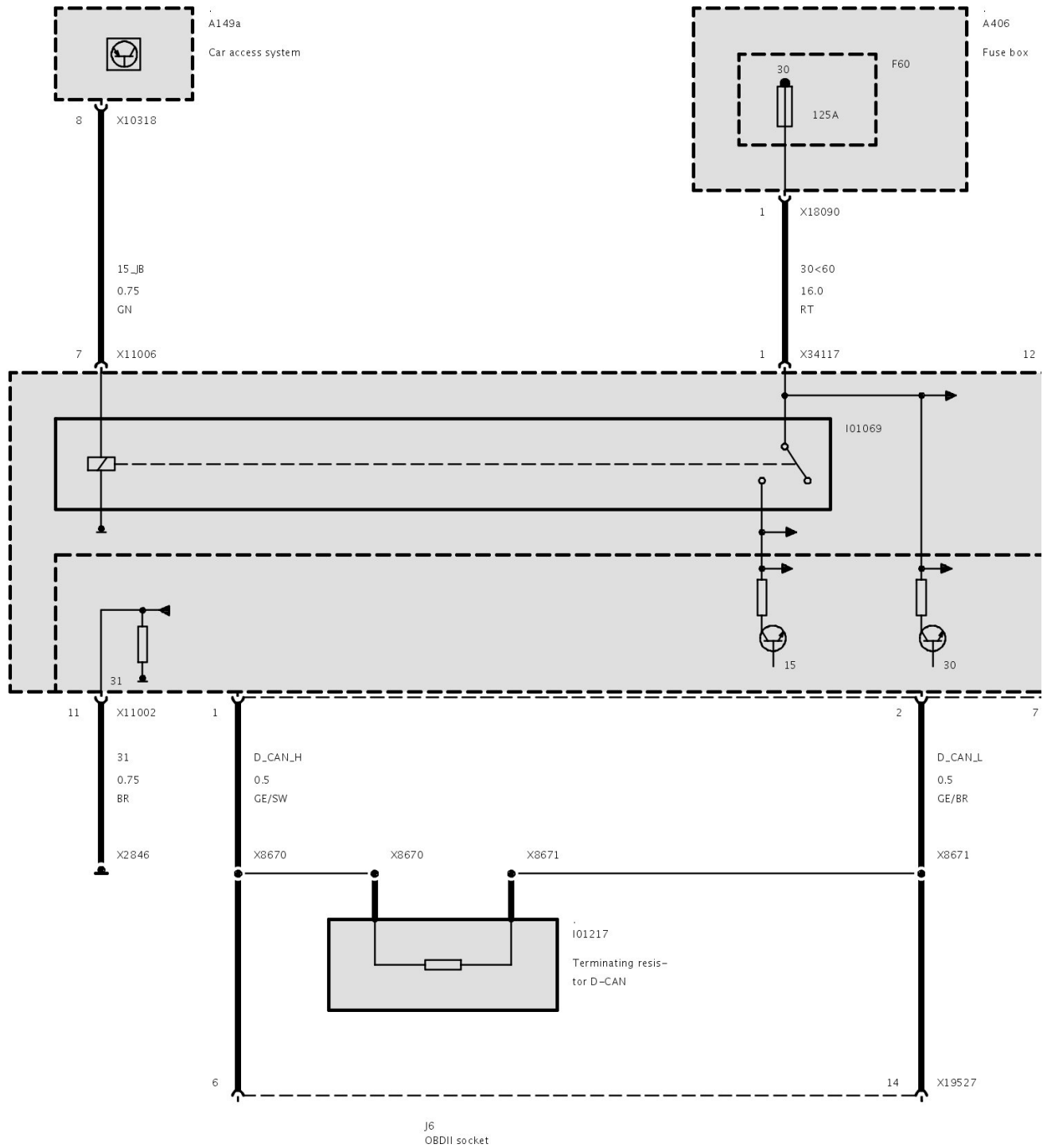
Supply, Heating And Air Conditioning Control Unit (As Of 12/08)

Supply, Heating And Air Conditioning Control Unit (As Of 12/08)



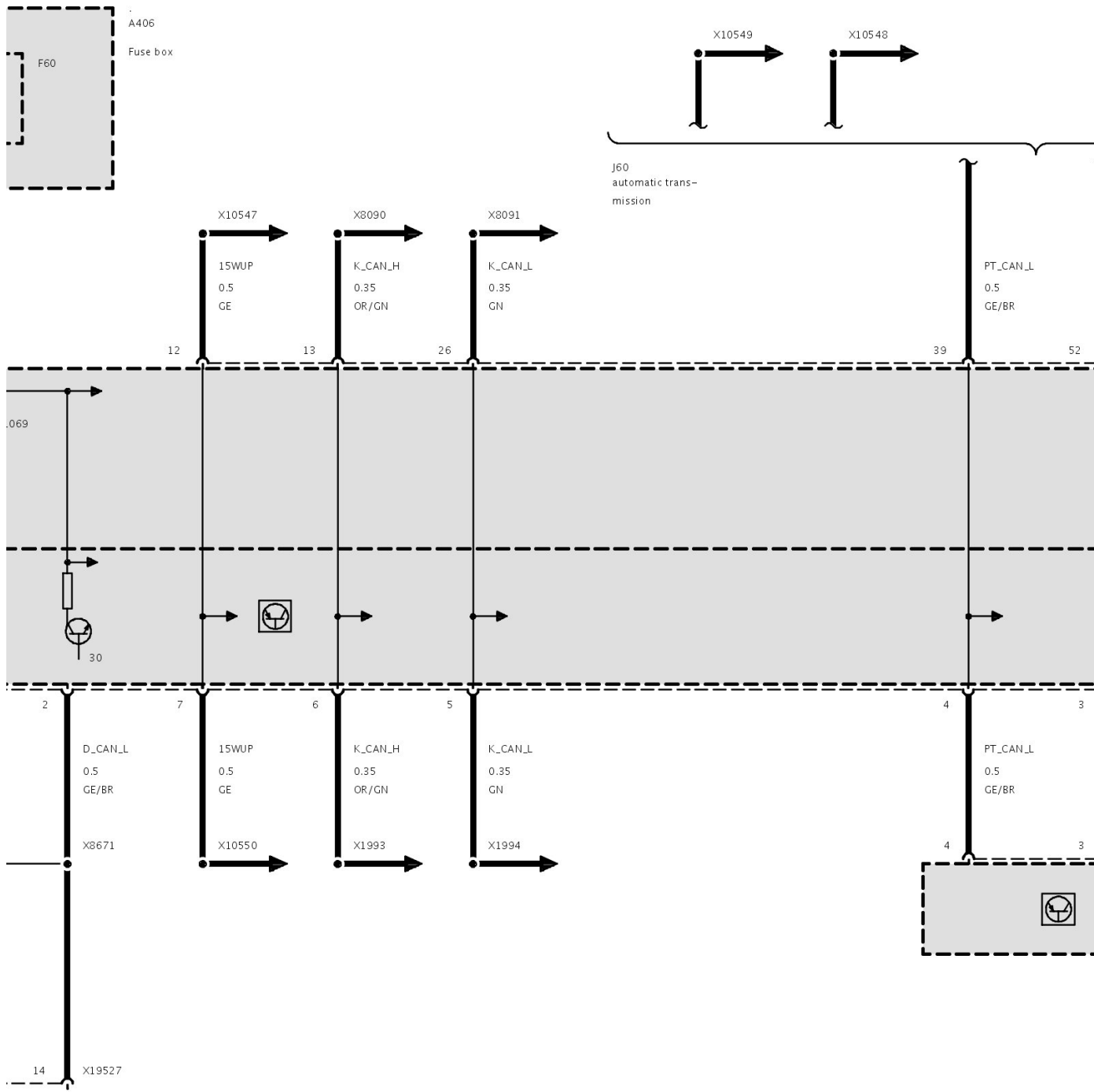
## Supply, JBE Junction-Box Electronics

Power Supply JBE Junction Box, Electronics

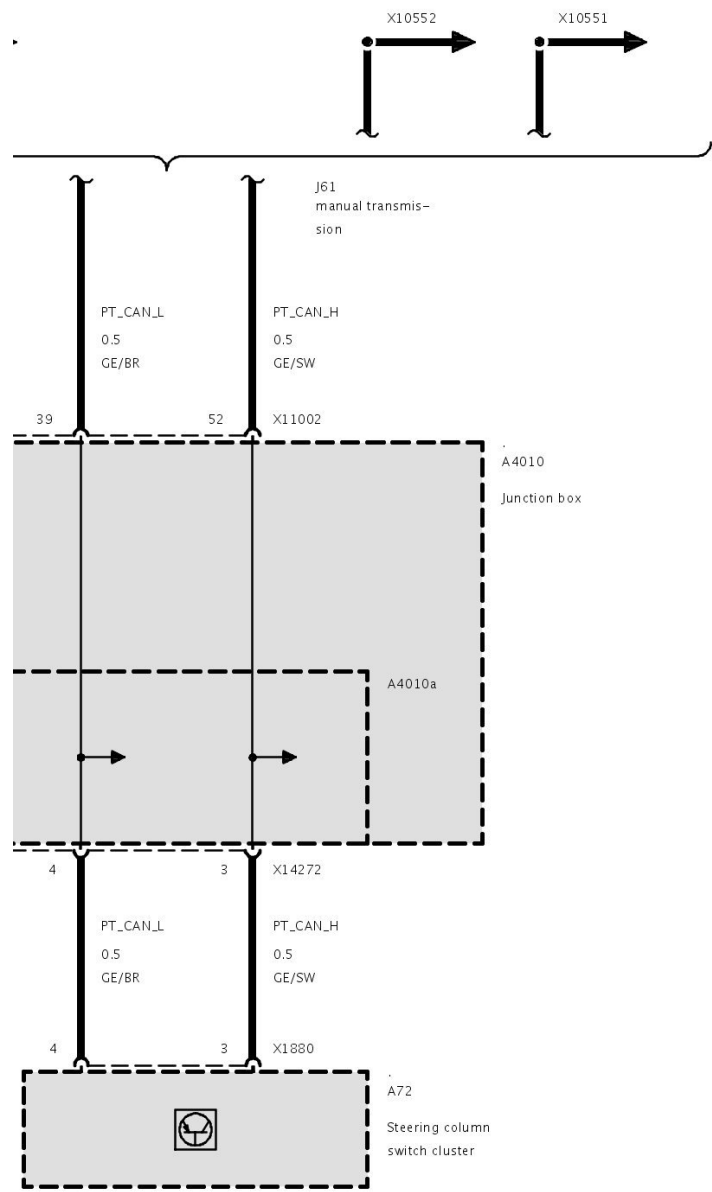


Part 1





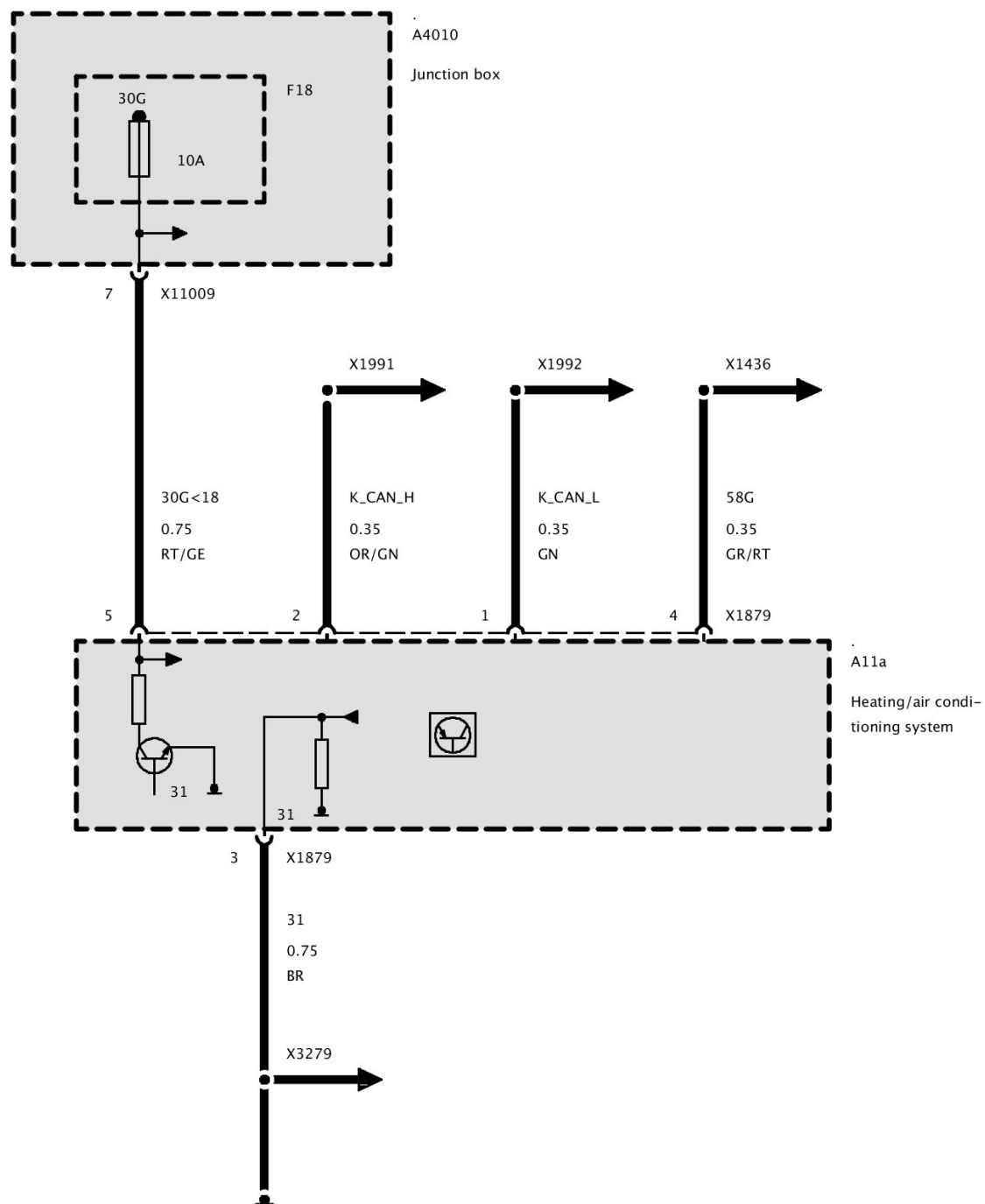
Part 2



Part 3

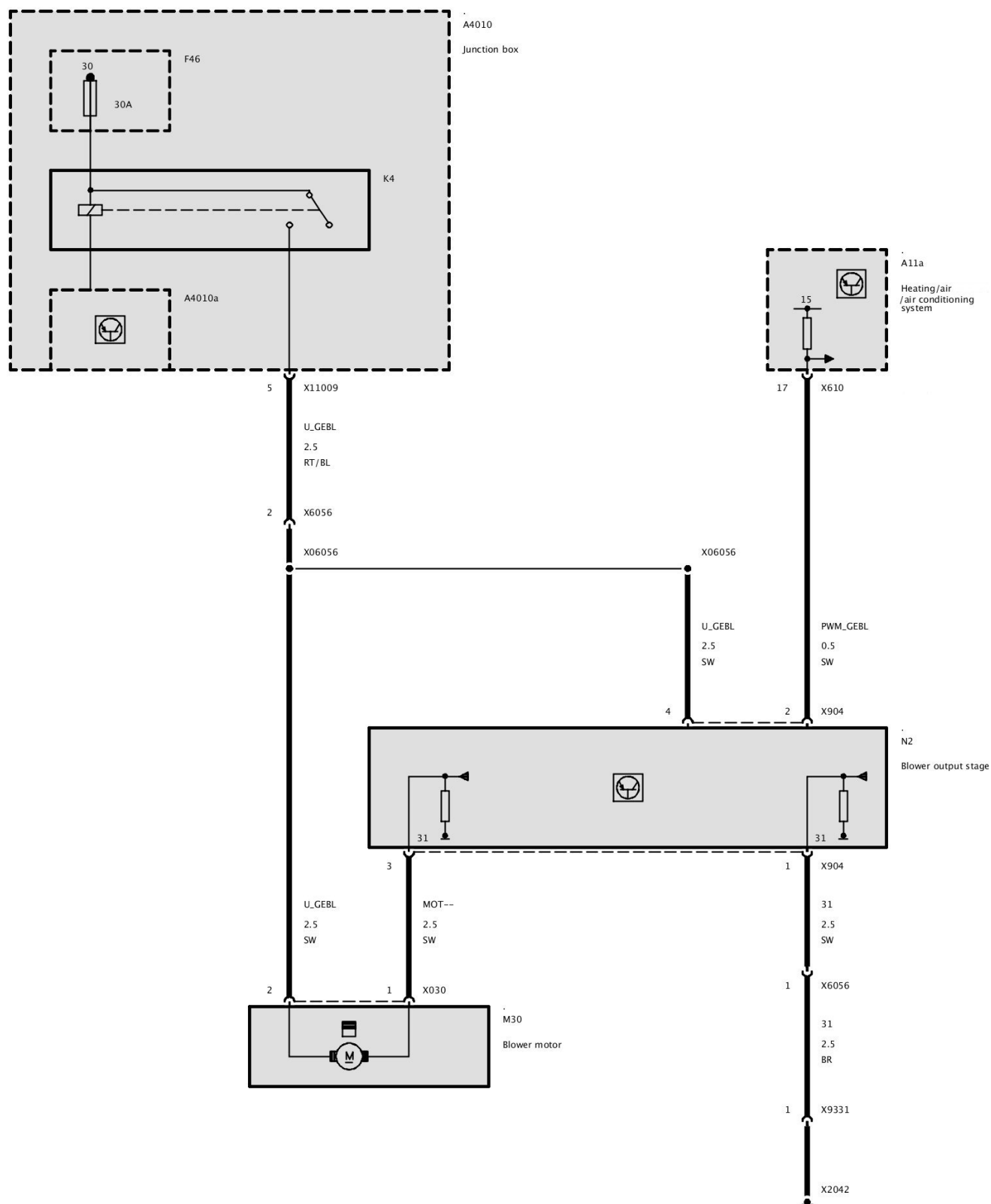
Buttons, Heating/Air-Conditioning System

Supply, Heating And Air Conditioning Control Unit



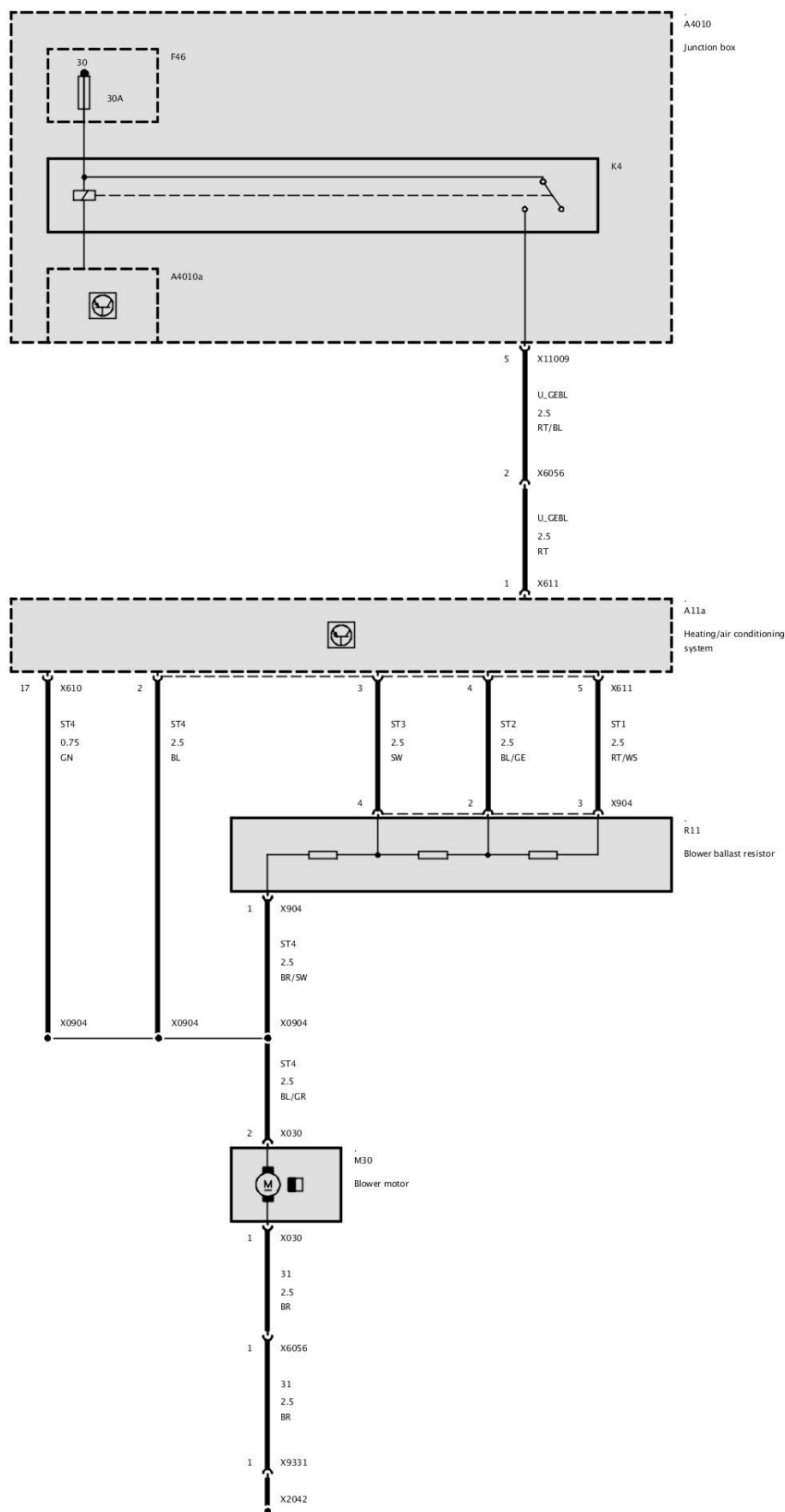
## Blower Control (IHKA Integrated Automatic Heating/Air Conditioning)

Blower Control (IHKA Integrated Automatic Heating/Air Conditioning)



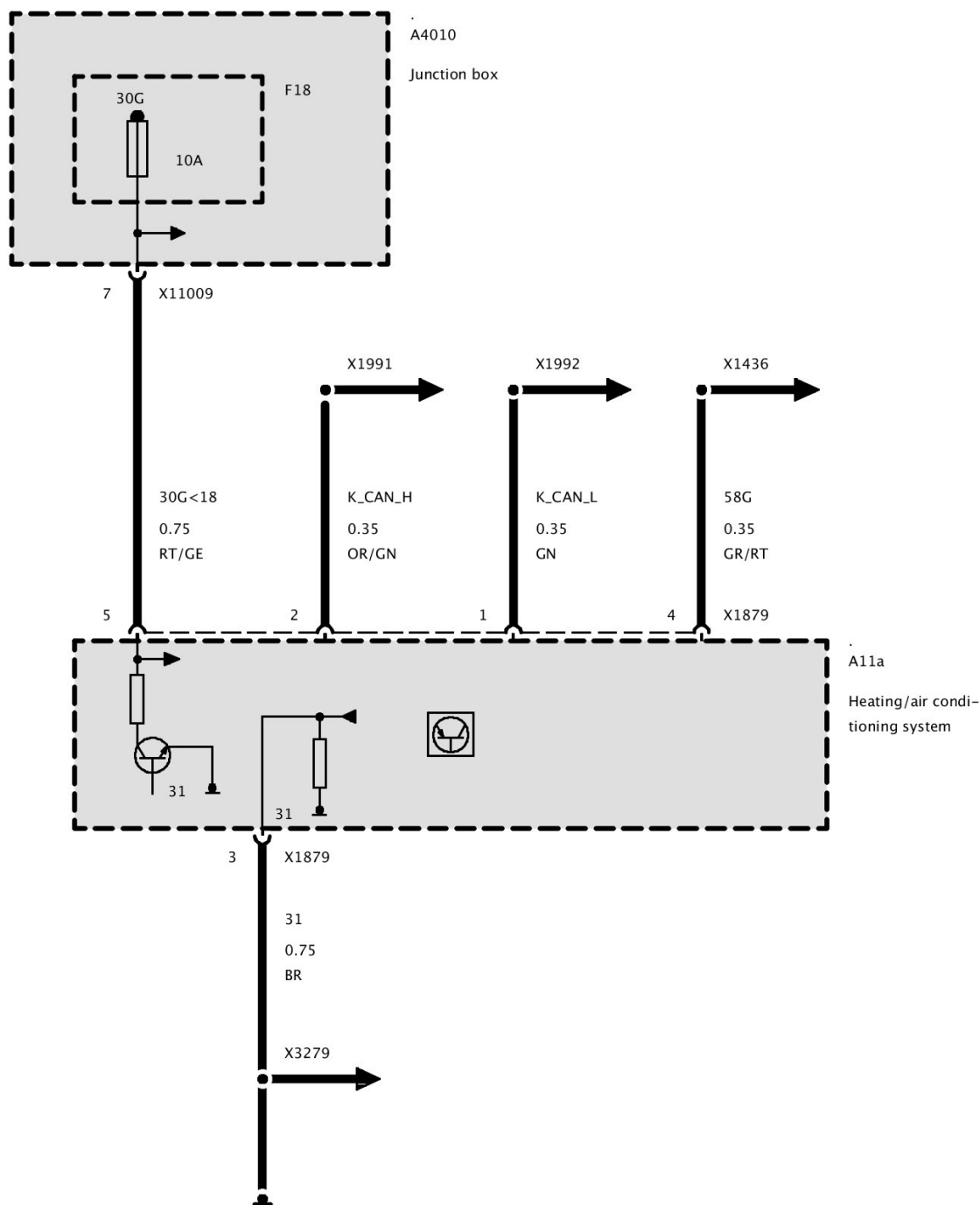
## Blower Control (Without IHKA Integrated Automatic Heating/Air Conditioning)

Blower Control (Without IHKA Integrated Automatic Heating/Air Conditioning)



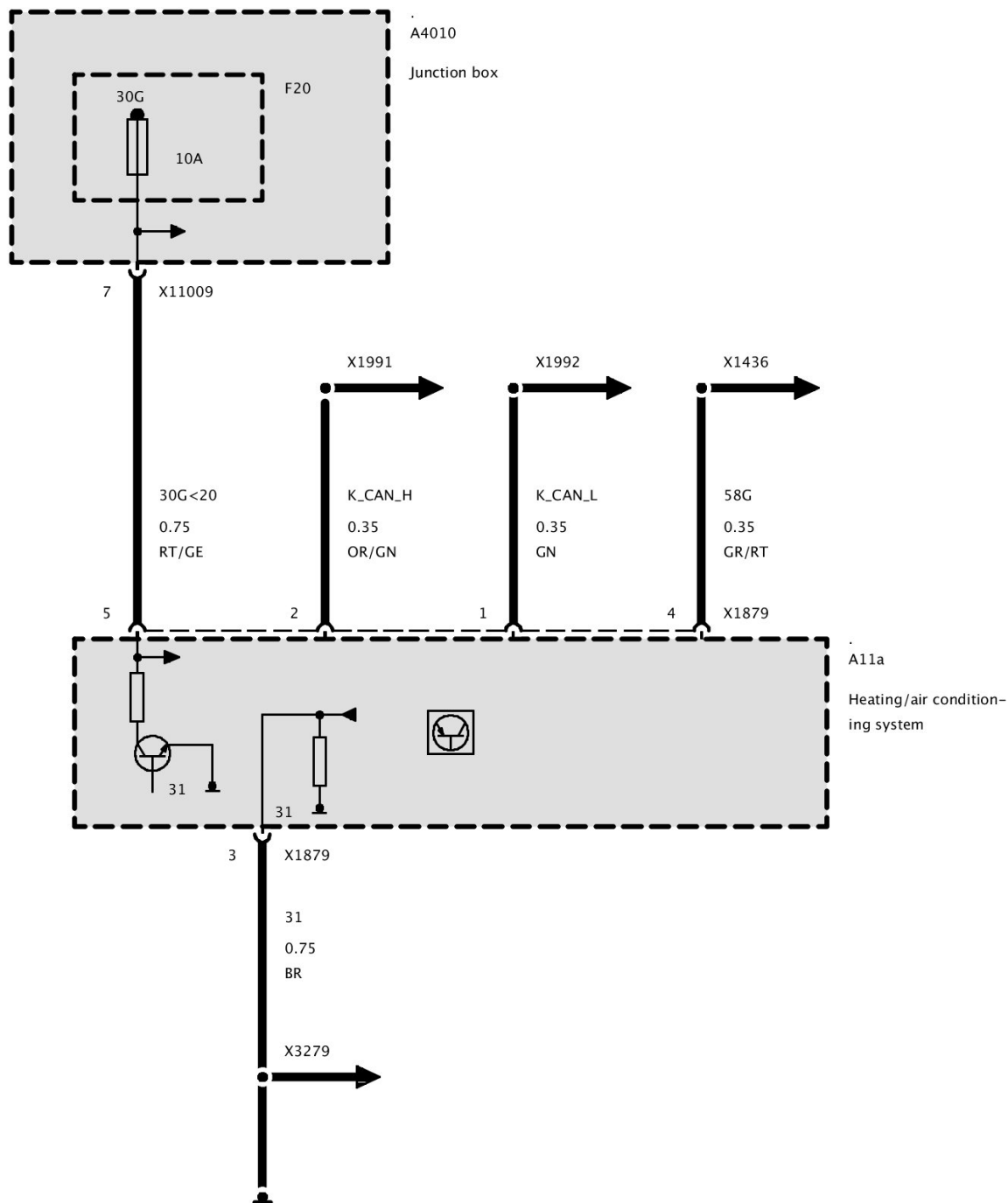
**Supply, Heating And Air Conditioning Control Unit (Up To 12/08)**

**Supply, Heating And Air Conditioning Control Unit (Up To 12/08)**



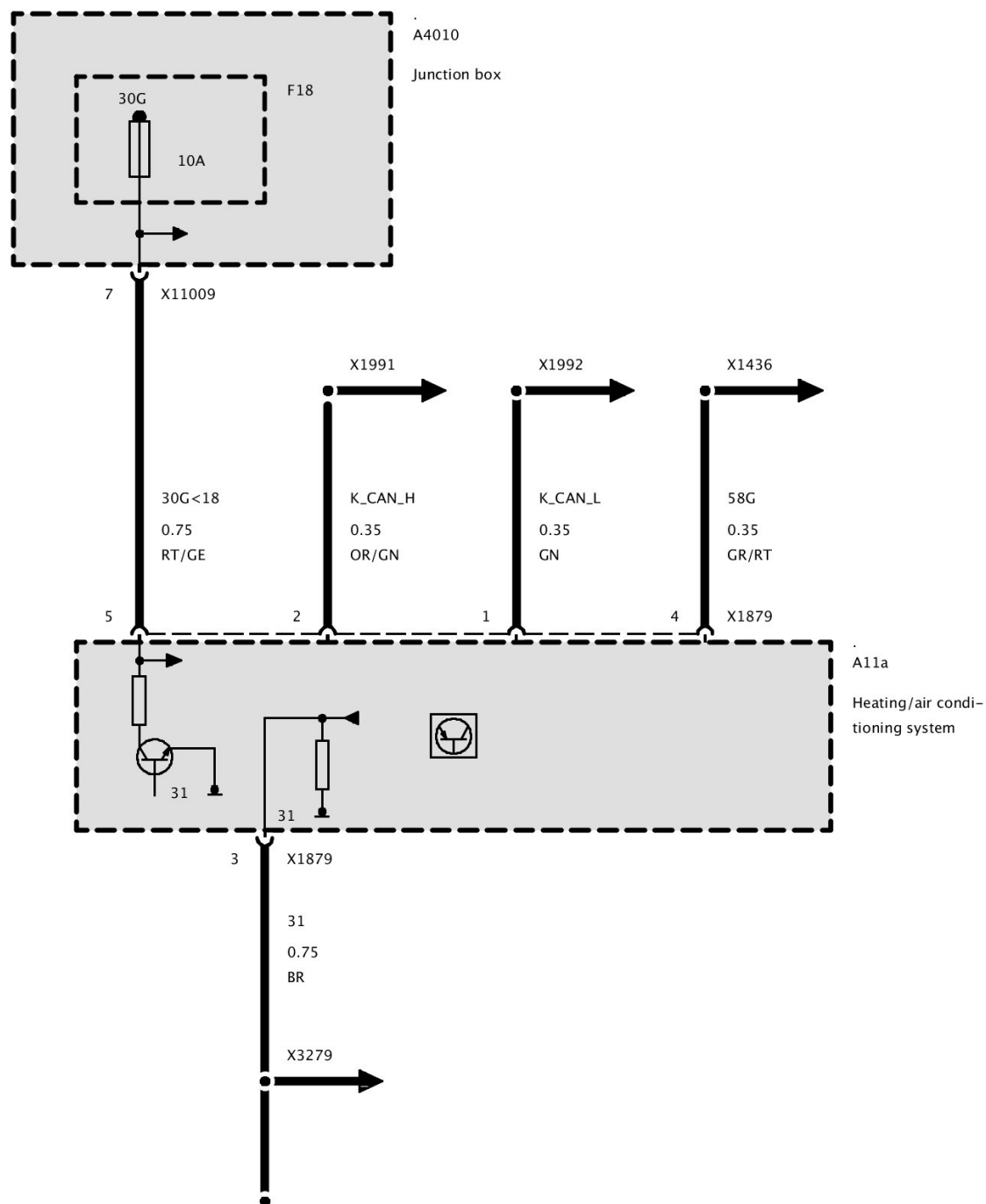
Supply, Heating And Air Conditioning Control Unit (As Of 12/08)

Supply, Heating And Air Conditioning Control Unit (As Of 12/08)



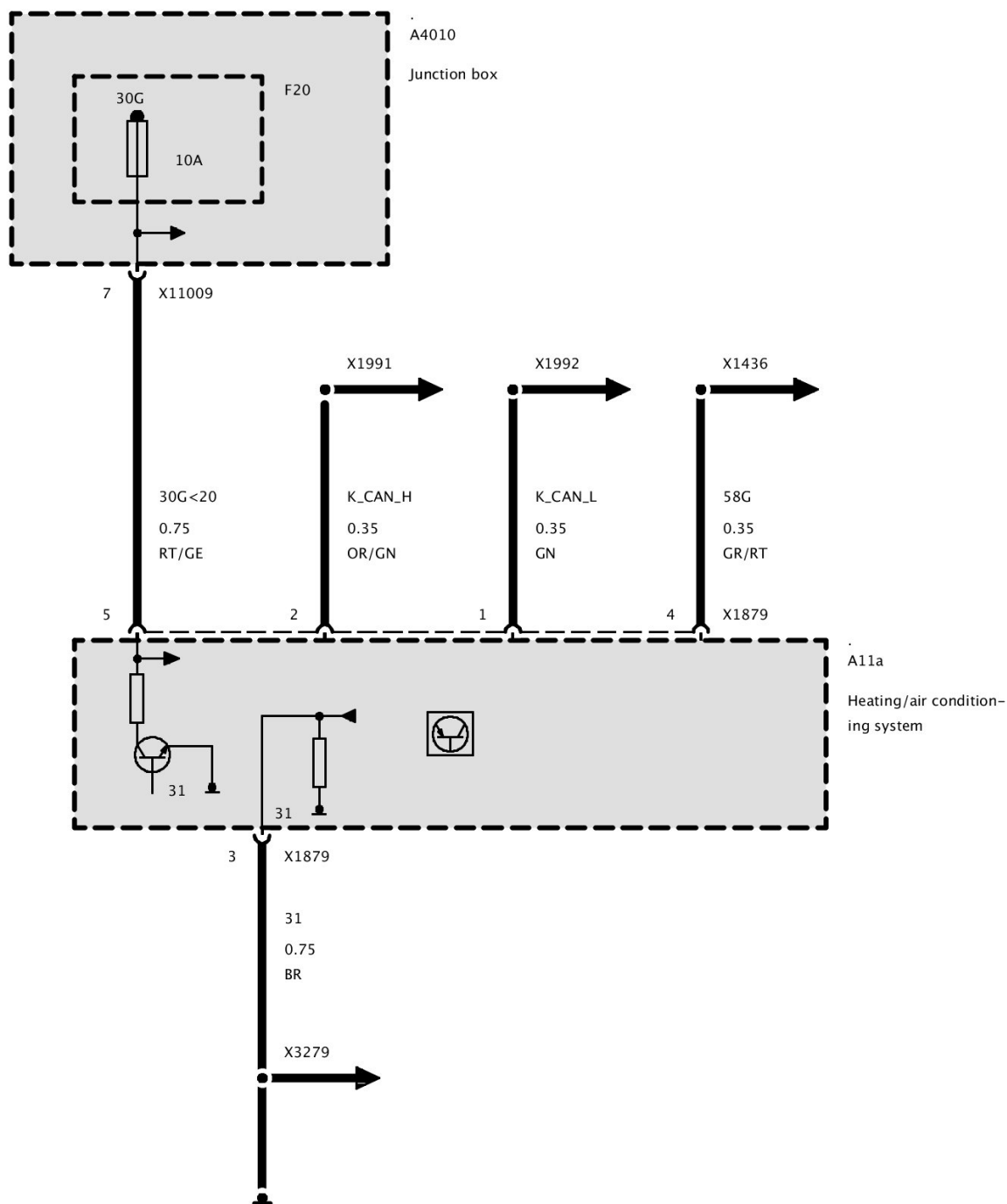
Supply, Heating And Air Conditioning Control Unit (Up To 12/08)

Supply, Heating And Air Conditioning Control Unit (Up To 12/08)



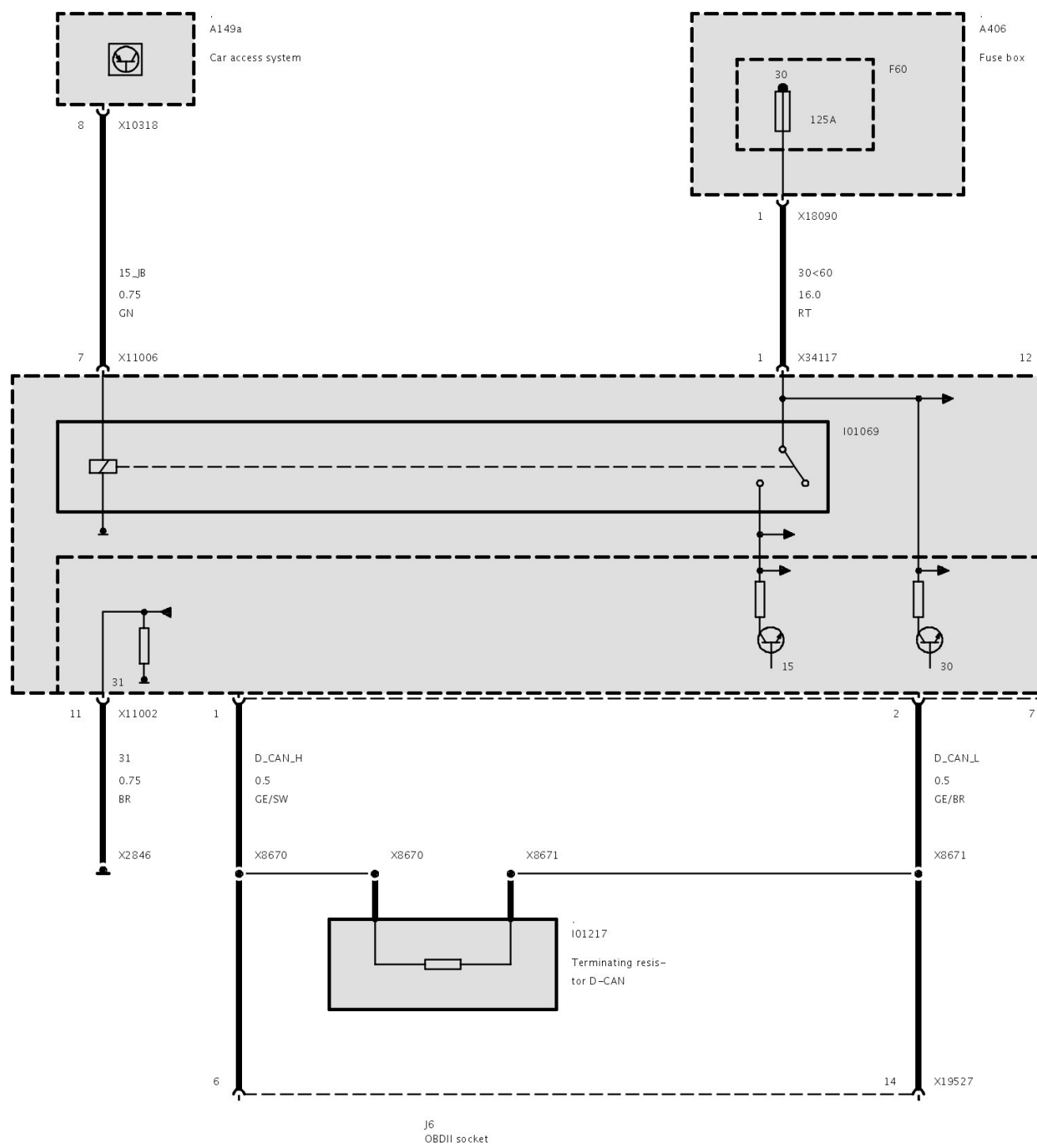
### Supply, Heating And Air Conditioning Control Unit (As Of 12/08)



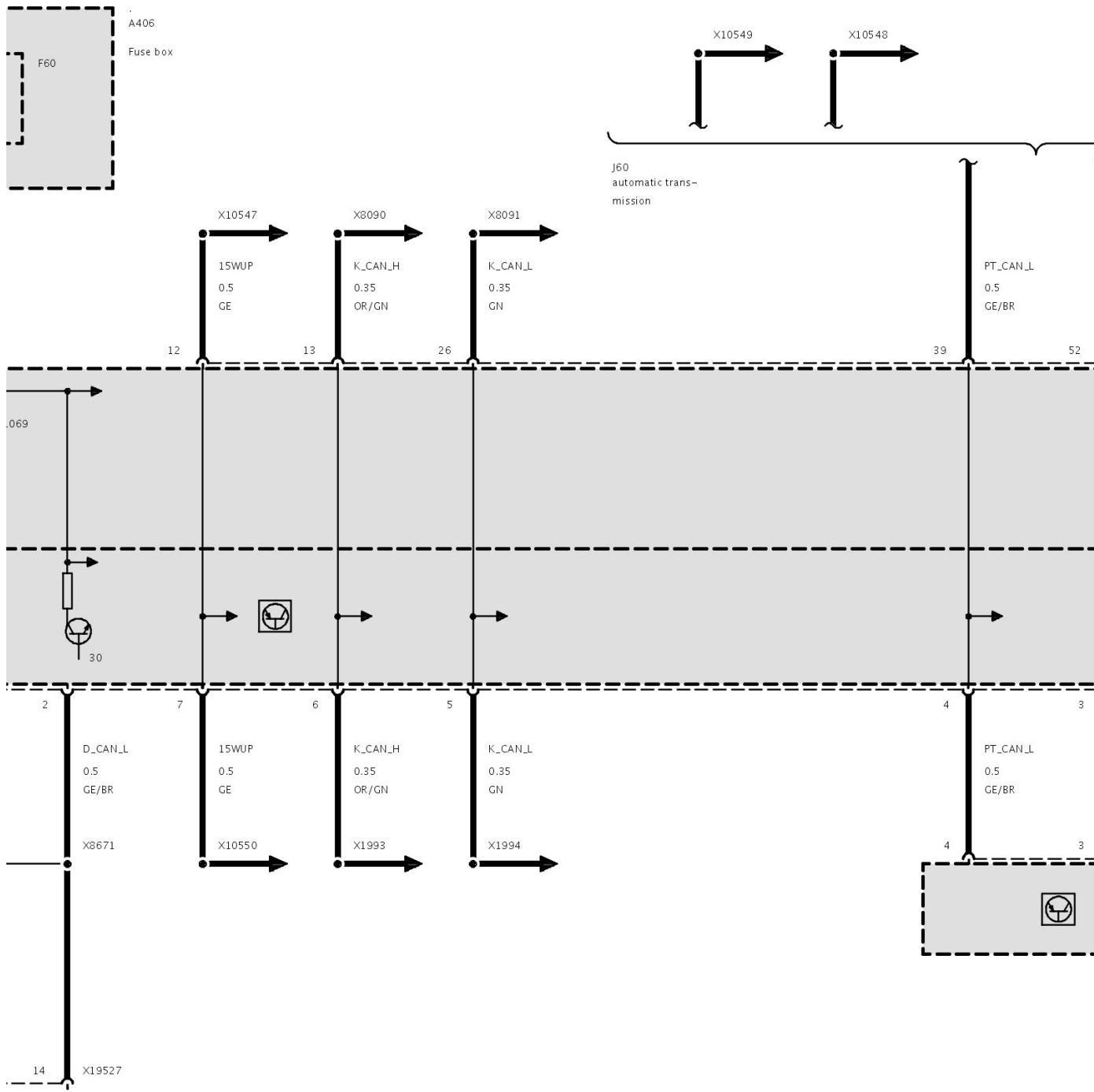


## Supply, JBE Junction-Box Electronics

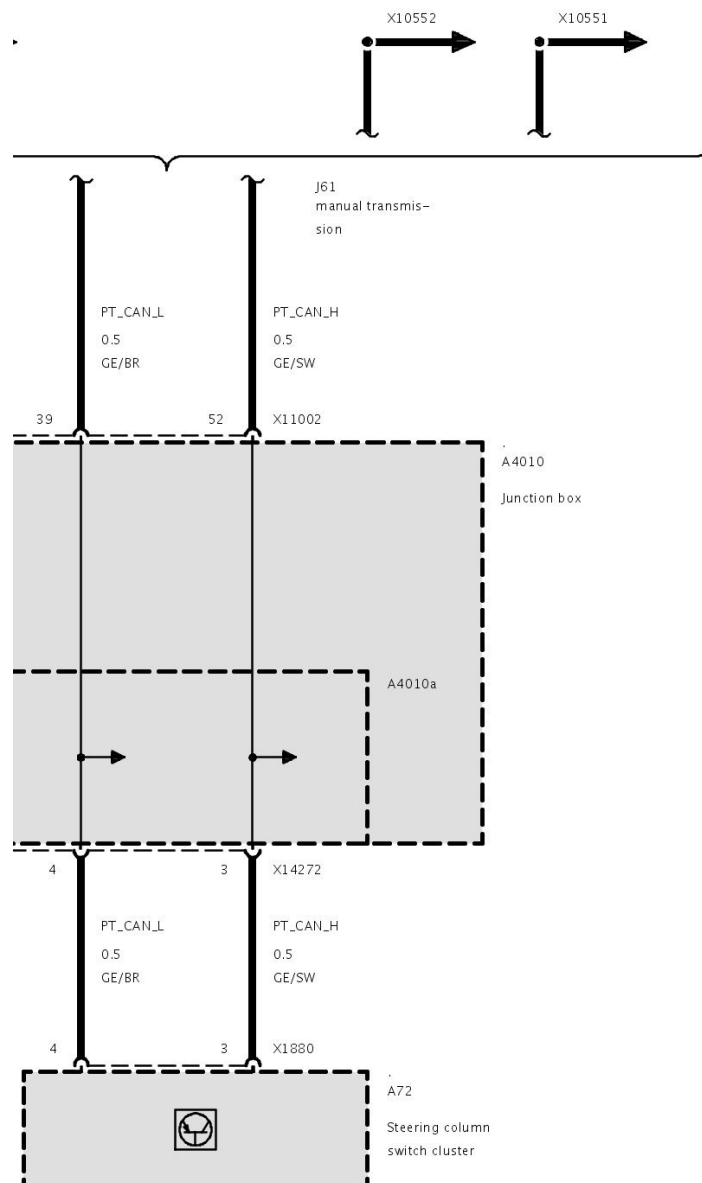
Power Supply JBE Junction Box, Electronics



Part 1

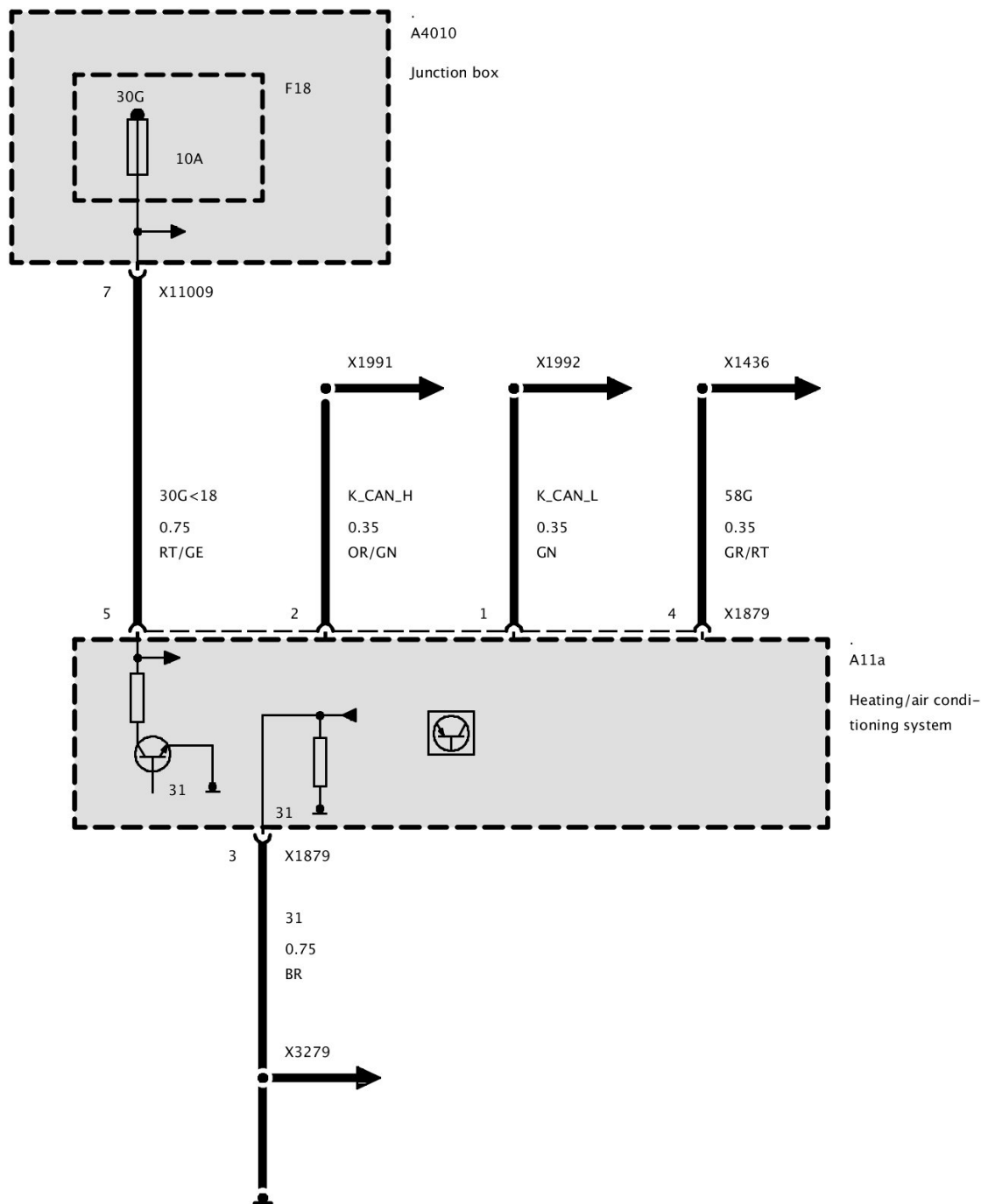


Part 2



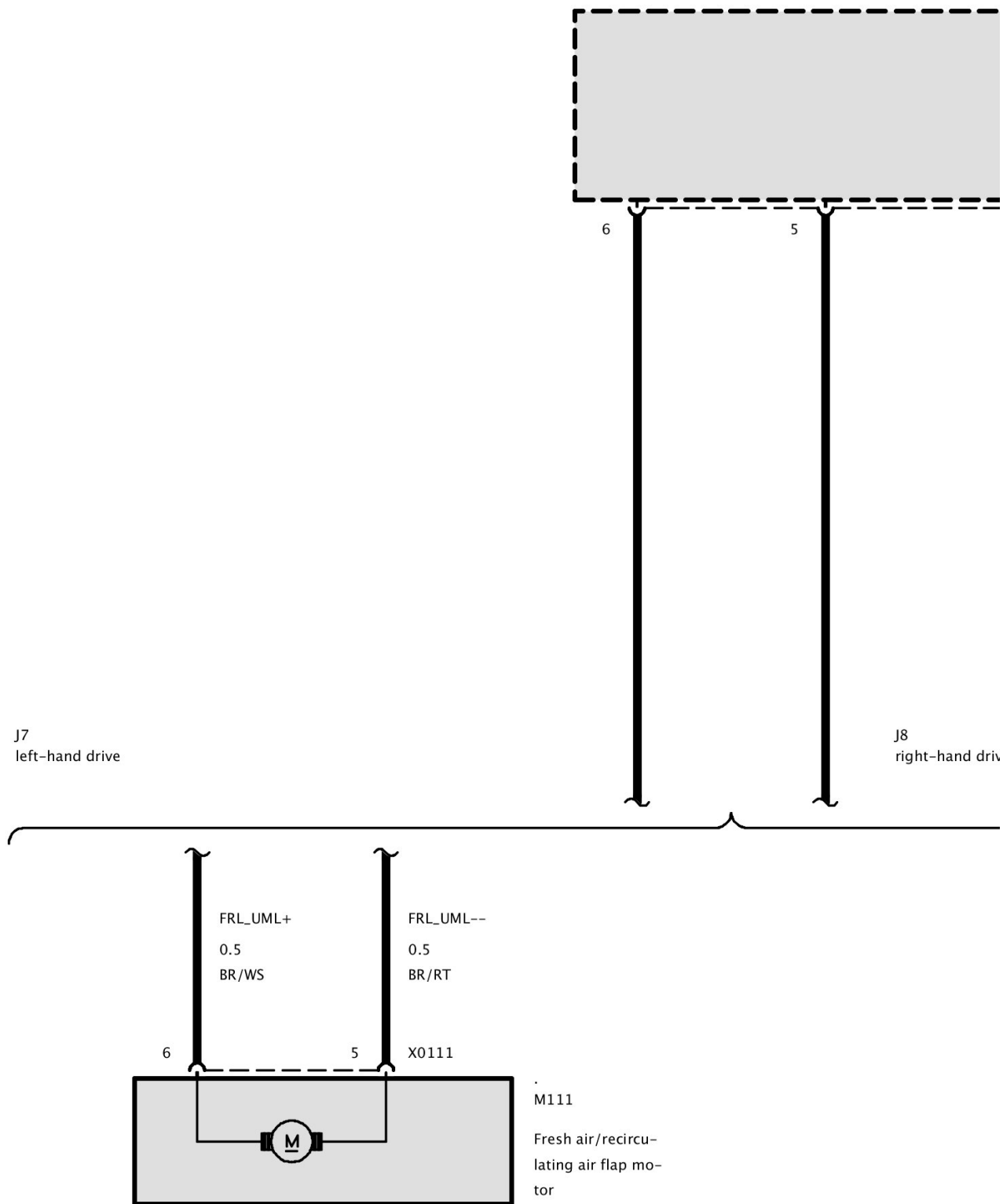
## Buttons, Heating/Air-Conditioning System

### Supply, Heating And Air Conditioning Control Unit

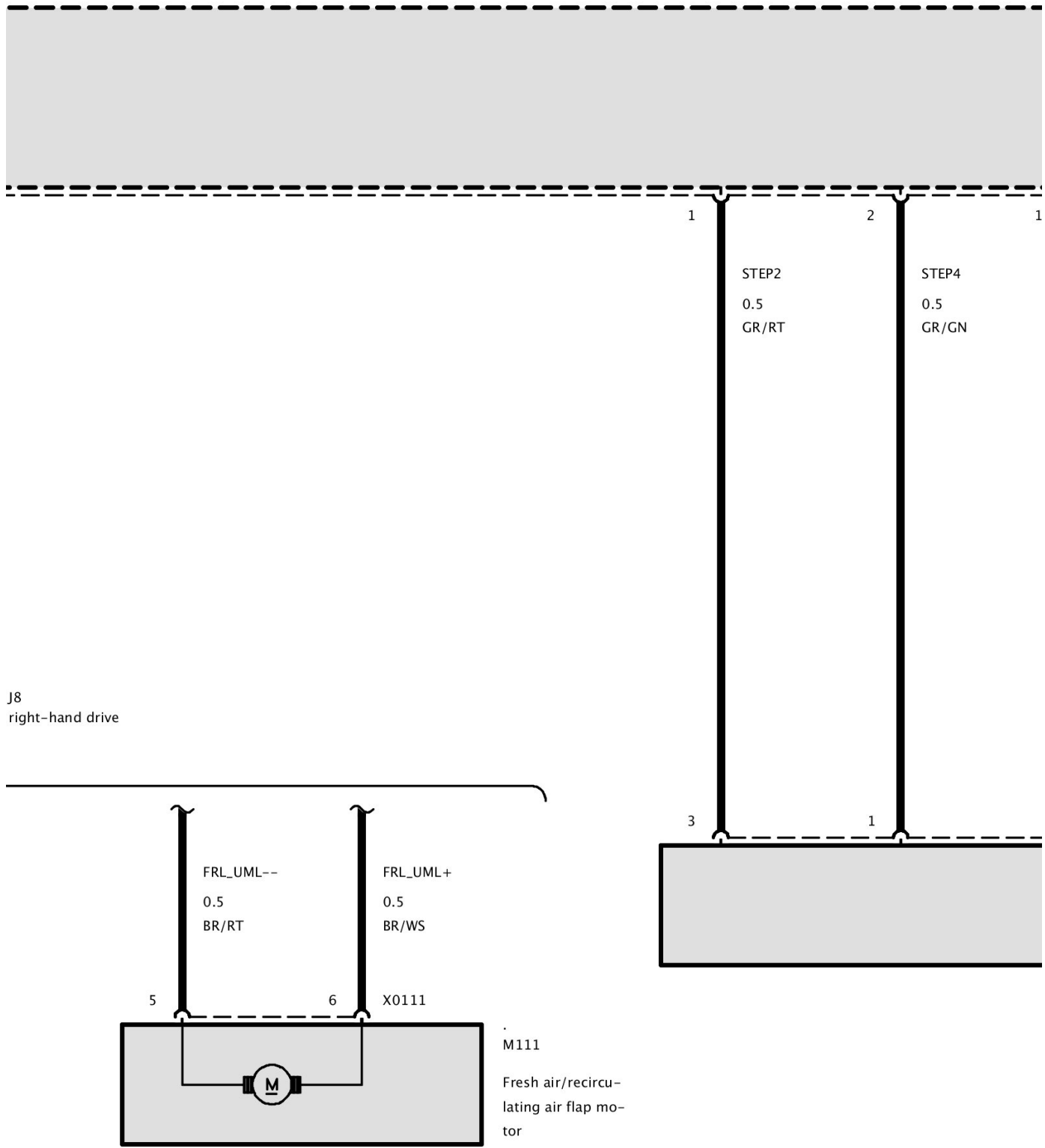


Air Distribution

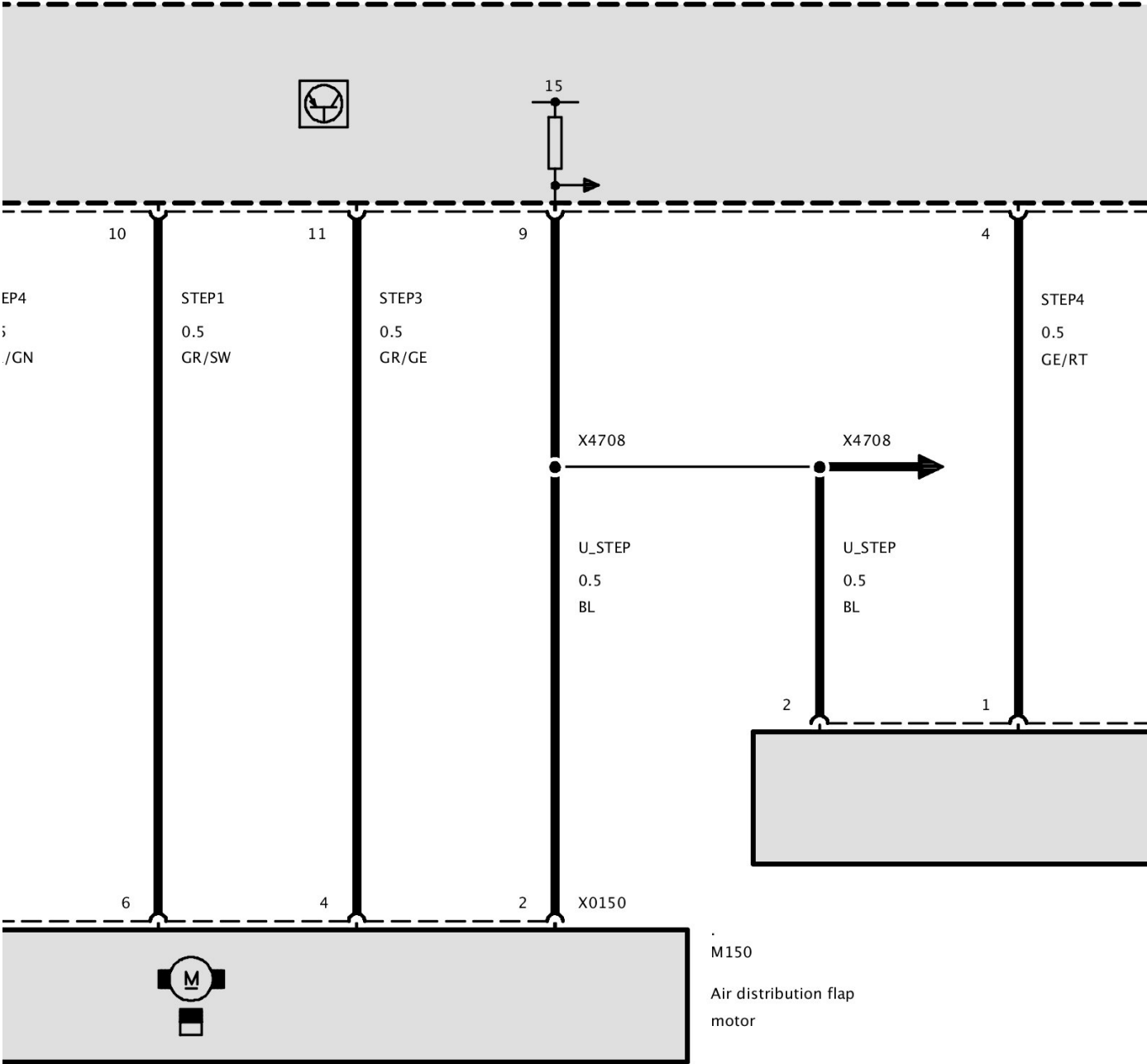
Air Distribution



**Part 1**



Part 2

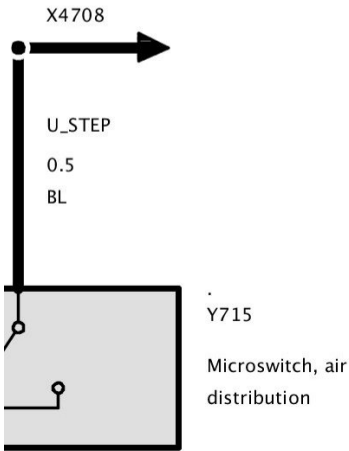


Part 3





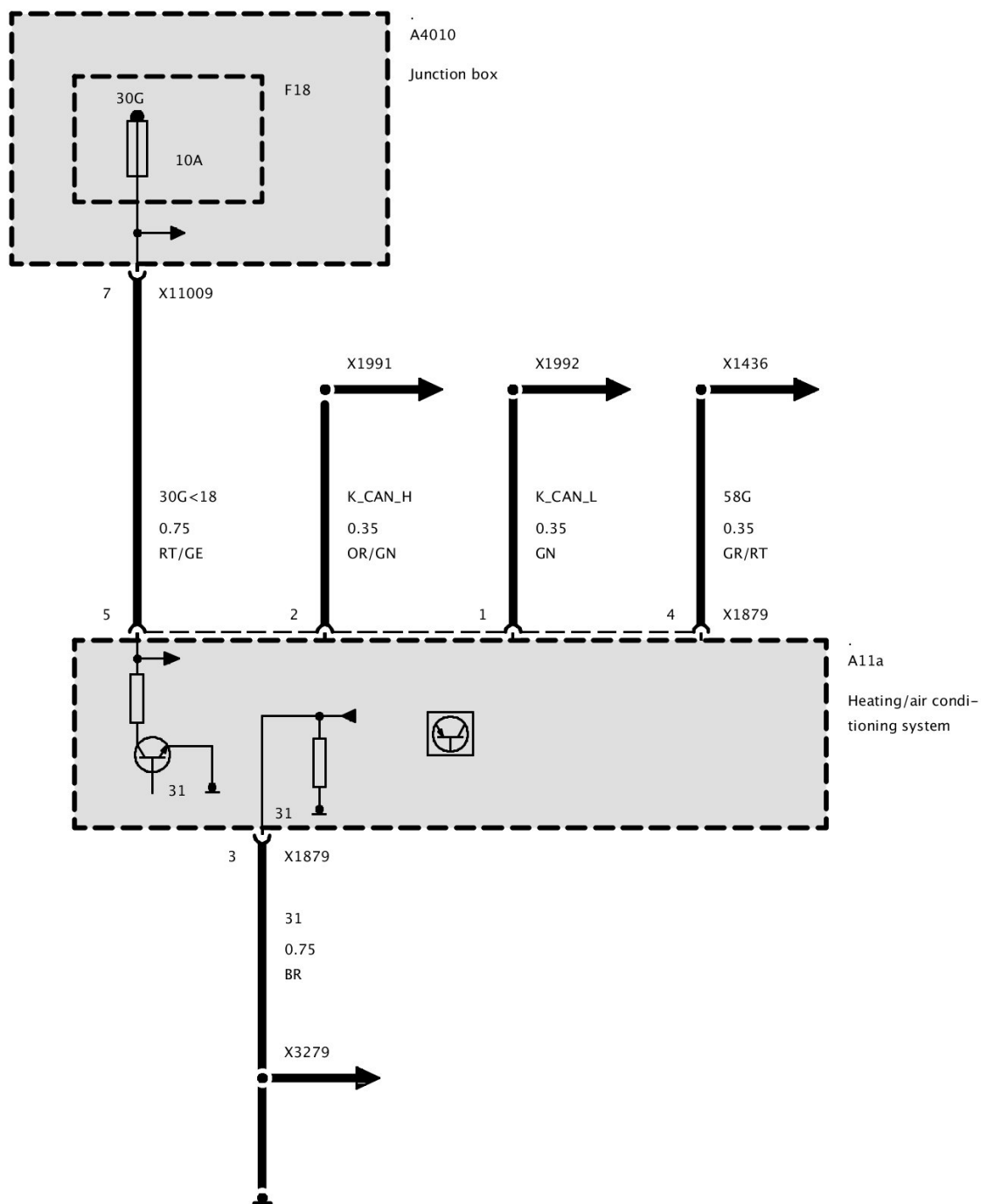
a  
ing/air condi-  
ing system



Part 5

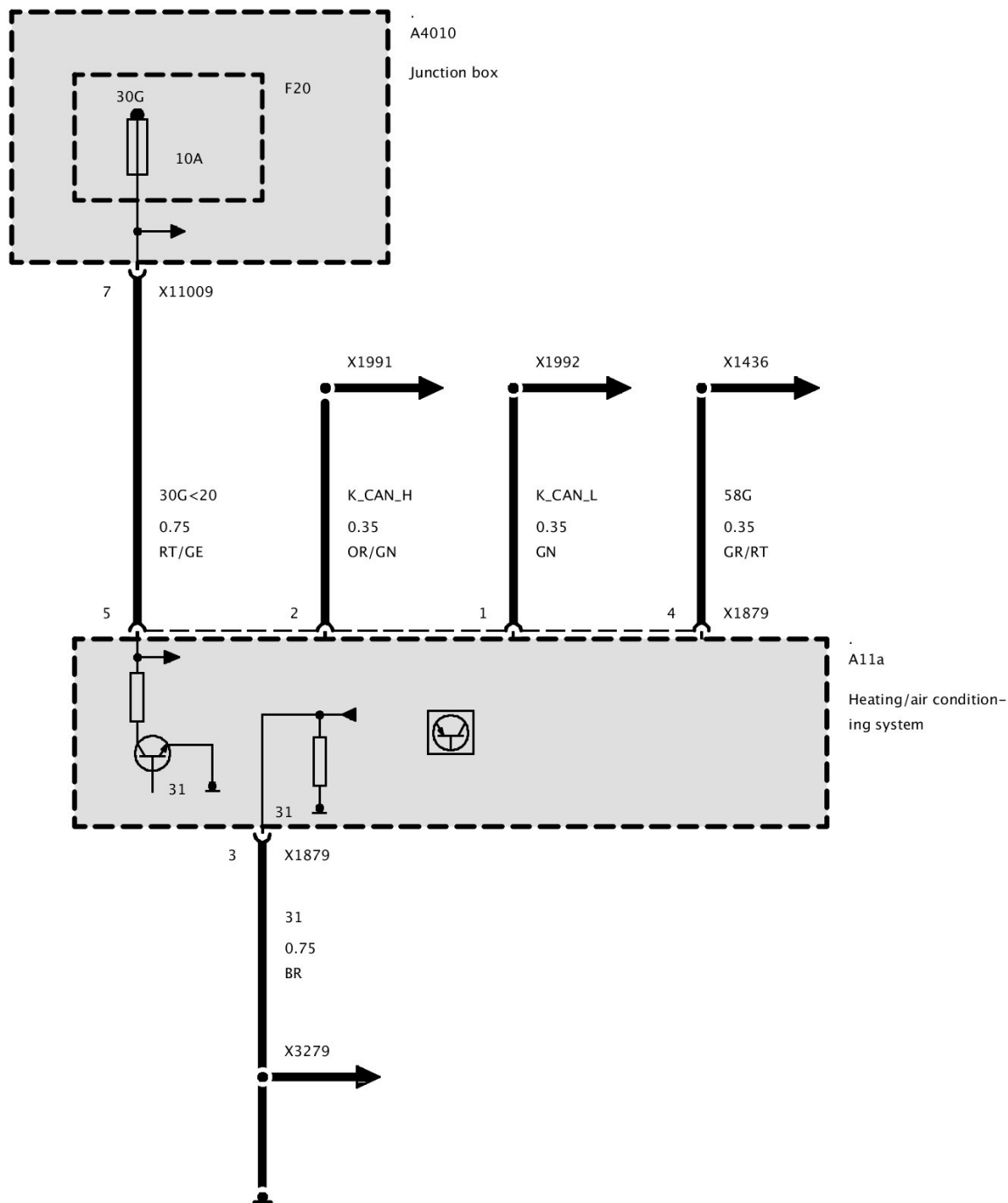
Supply, Heating And Air Conditioning Control Unit (Up To 12/08)

Supply, Heating And Air Conditioning Control Unit (Up To 12/08)



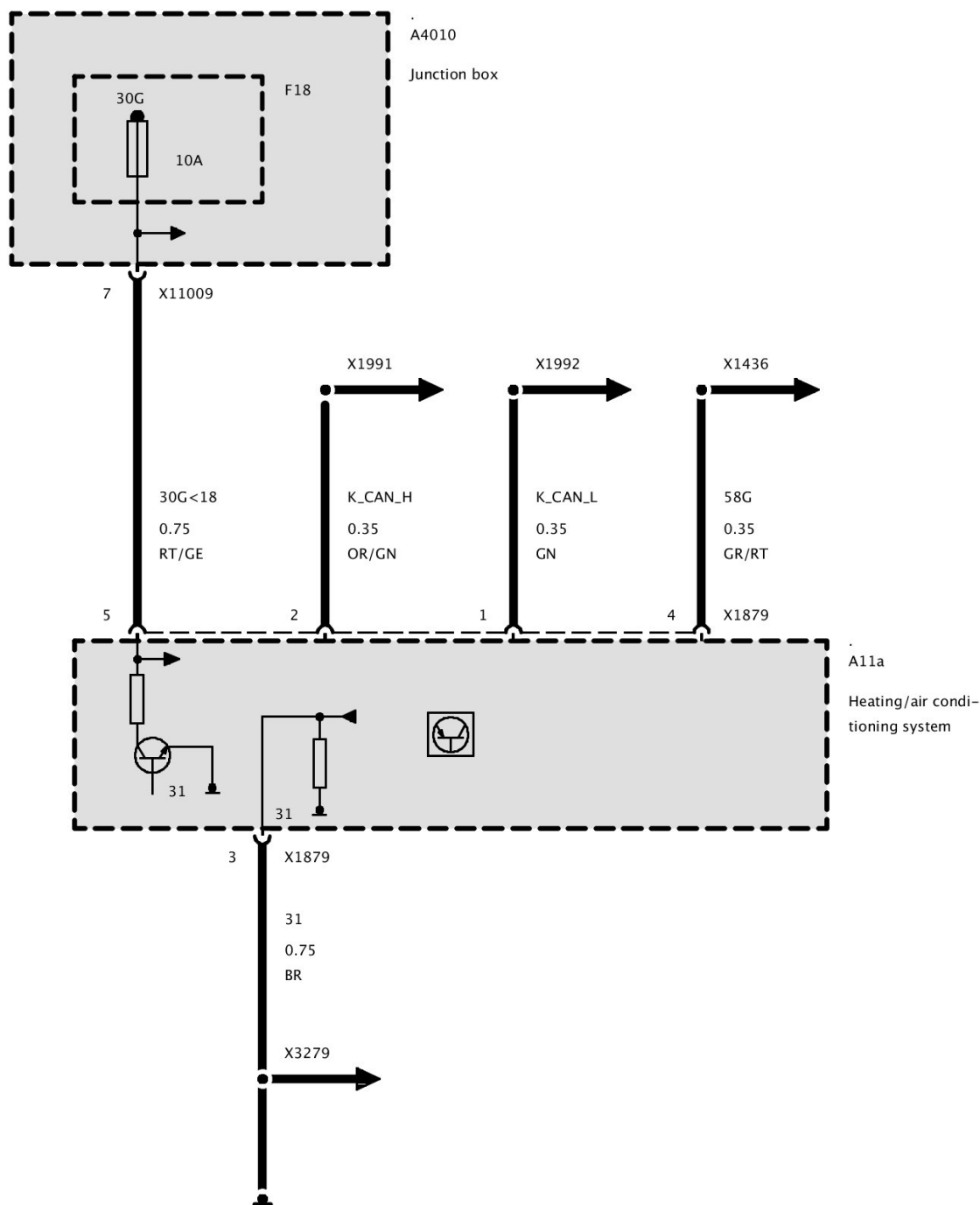
Supply, Heating And Air Conditioning Control Unit (As Of 12/08)

Supply, Heating And Air Conditioning Control Unit (As Of 12/08)



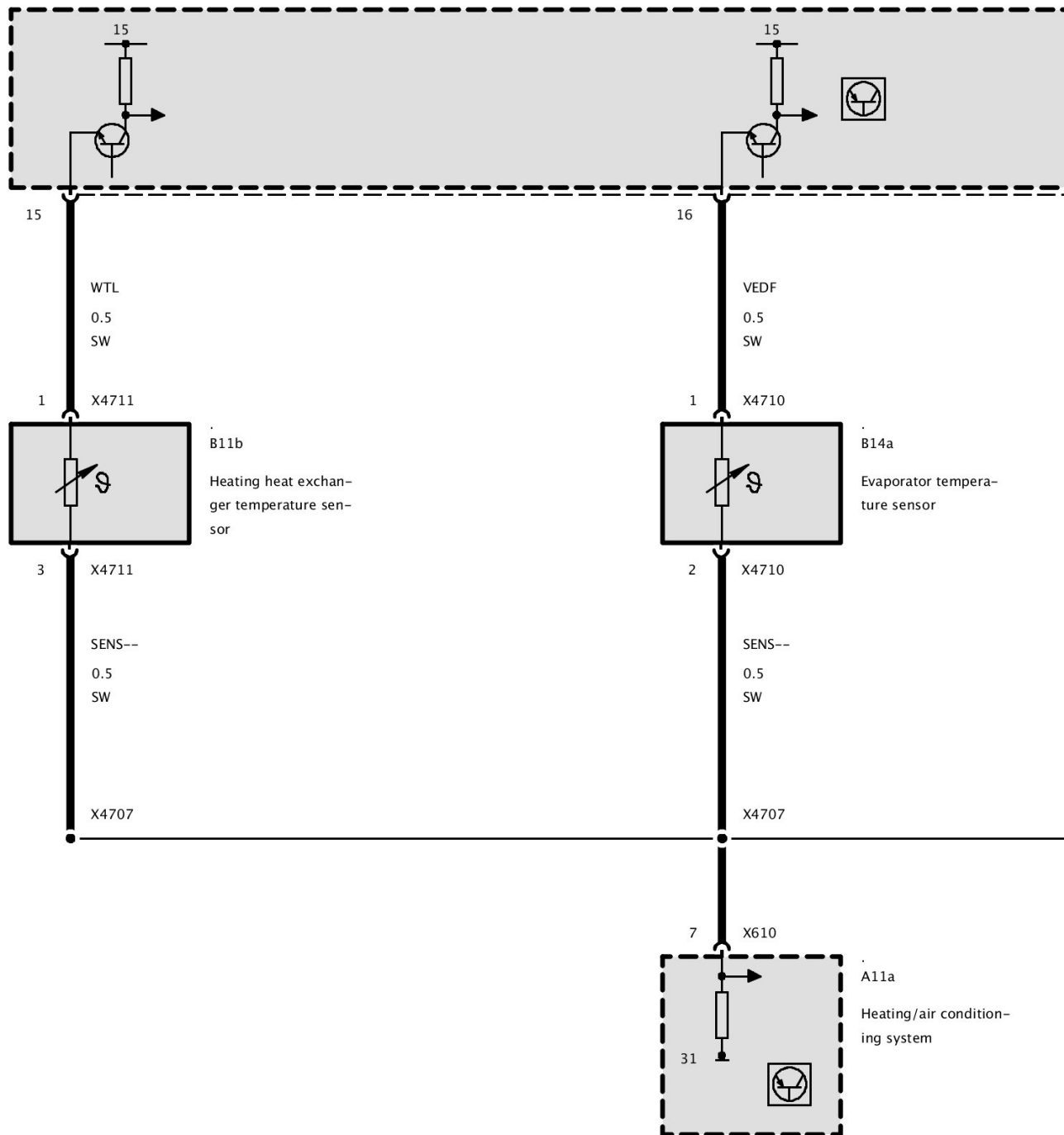
## Fresh Air/Recirculating Airflap Motor

Supply, Heating And Air Conditioning Control Unit

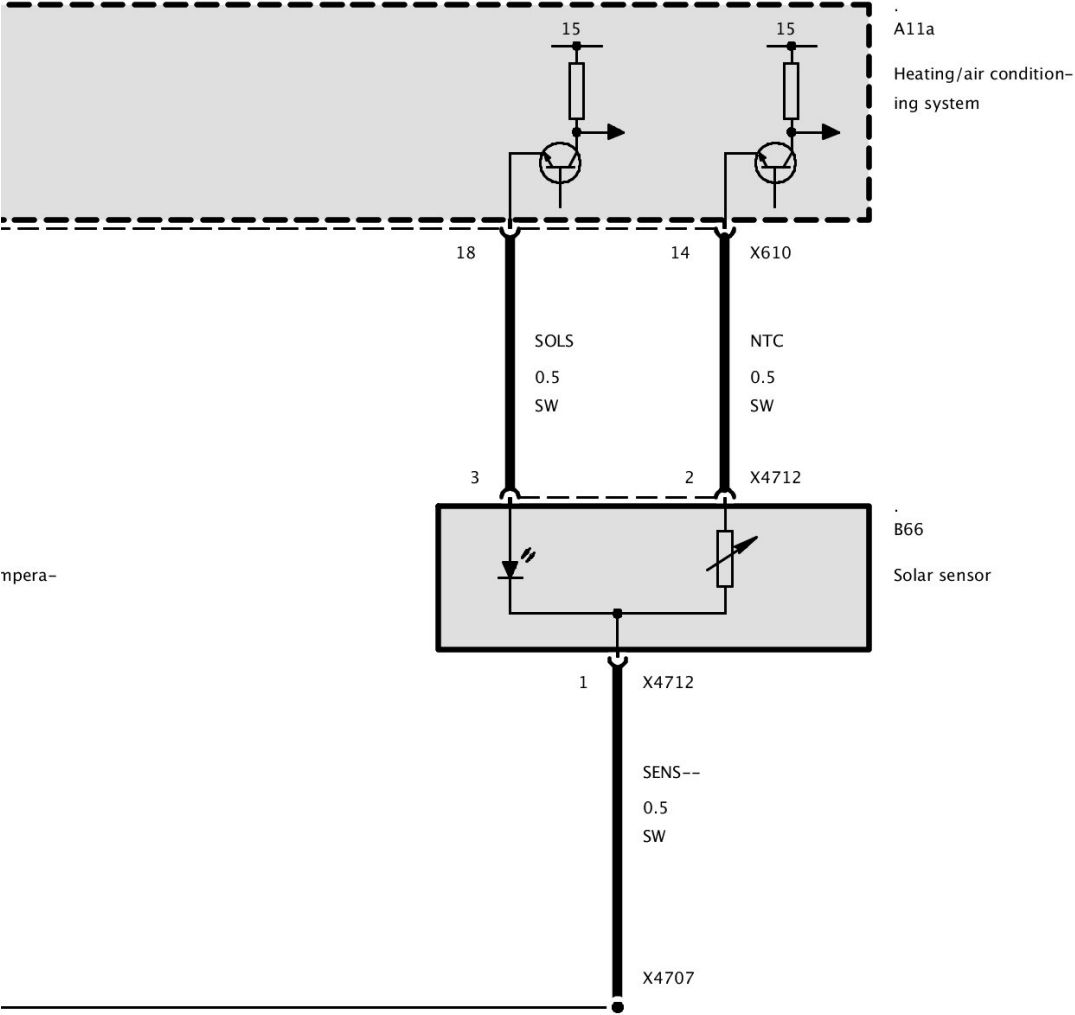


Temperature Control (IHKA Integrated Automatic Heating/Air Conditioning Up To 12/08)

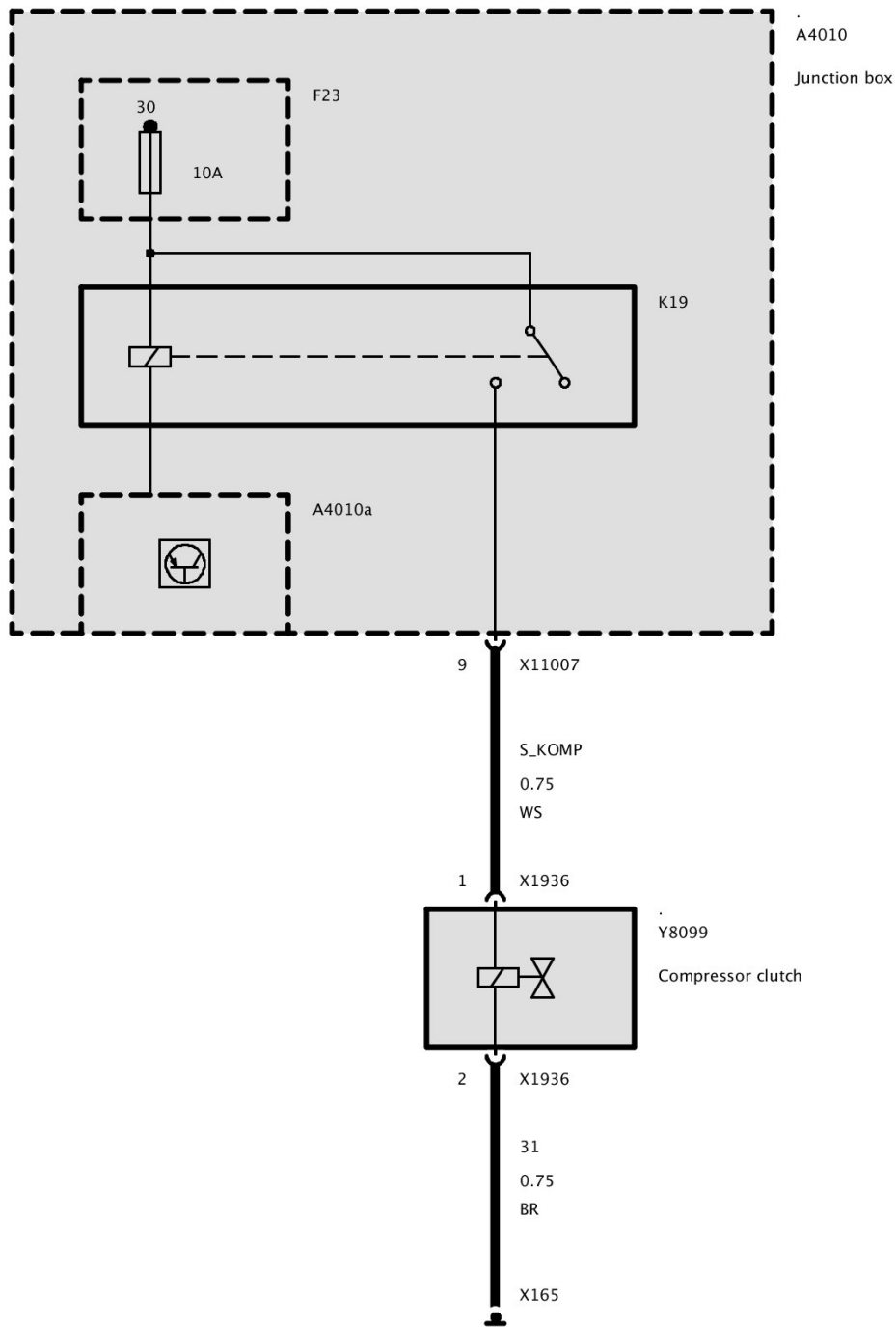
Temperature Control (IHKA Integrated Automatic Heating/Air Conditioning Up To 12/08)



Part 1



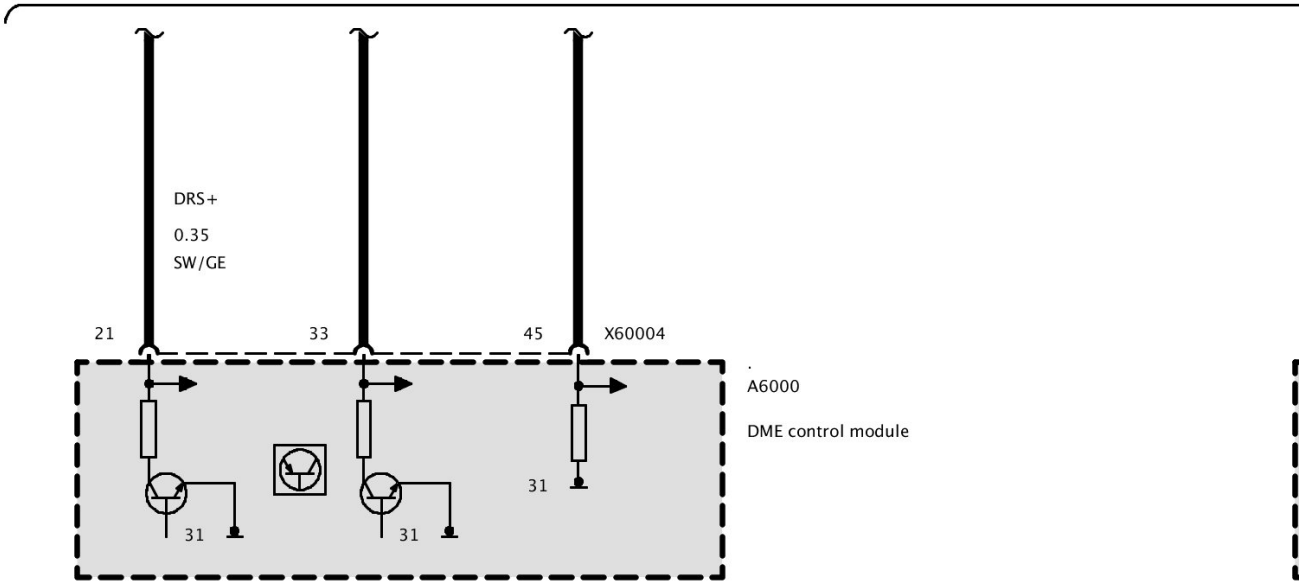
Part 2



Part 3

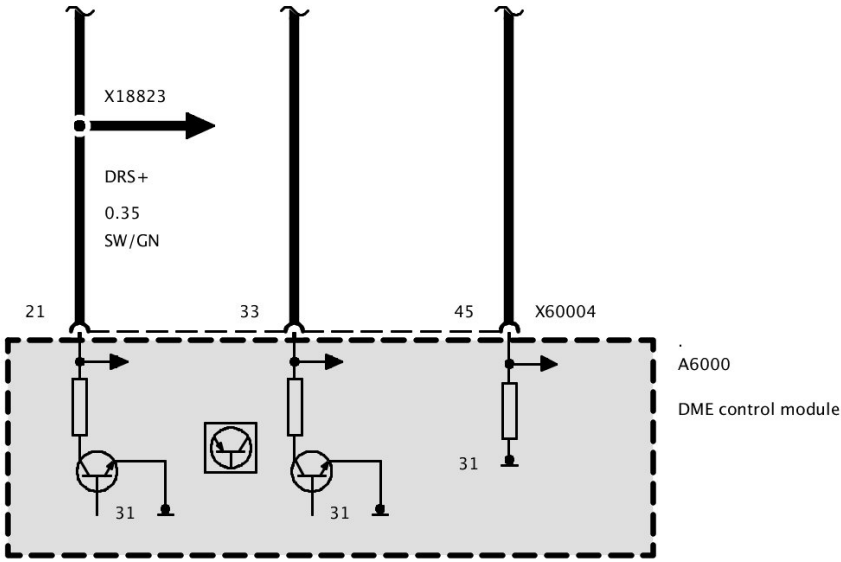
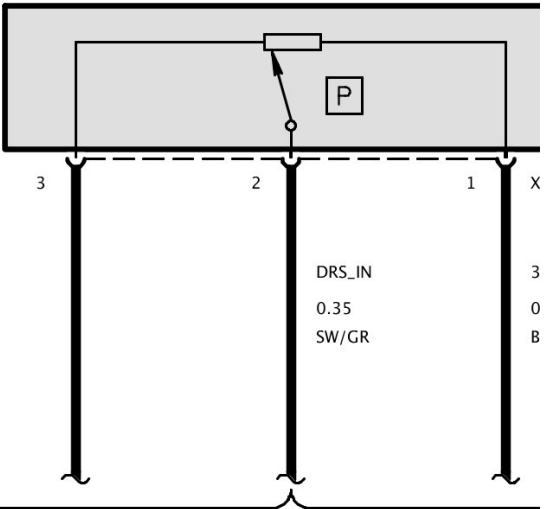


J300  
petrol engine without  
automatic engine start-  
stop function

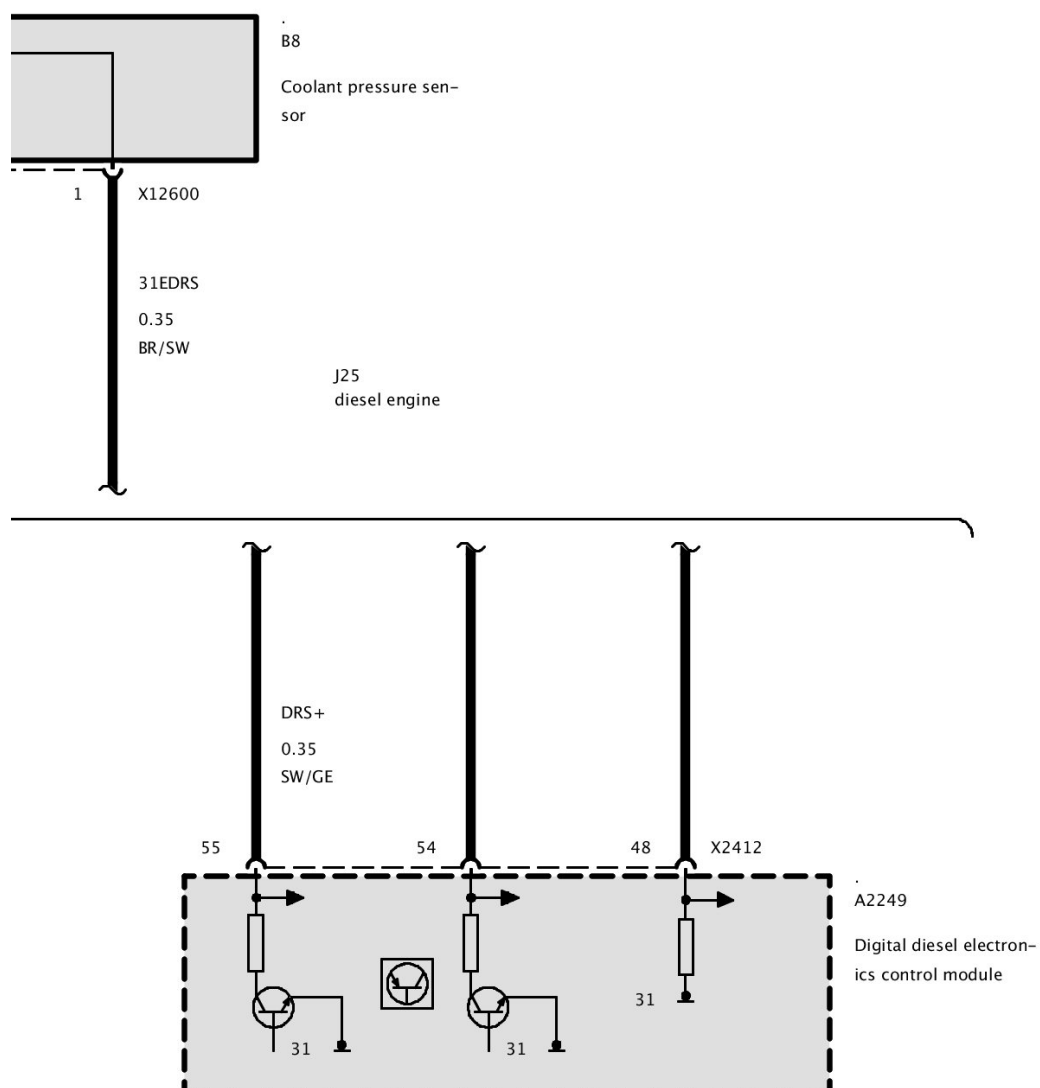


Part 4

J299  
petrol engine with au-  
tomatic engine start-  
stop function



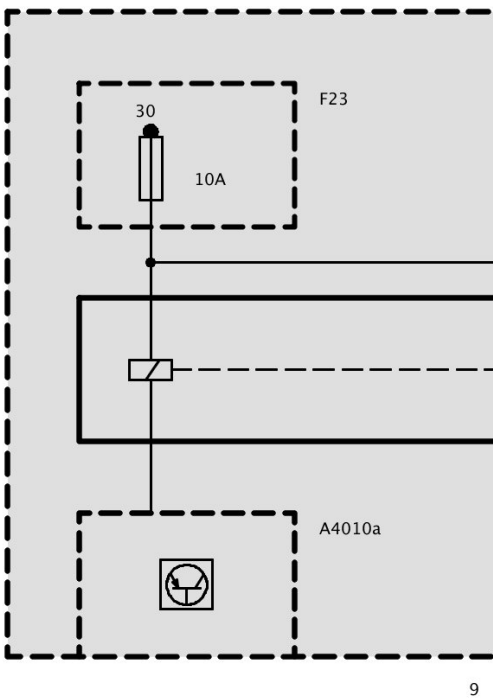
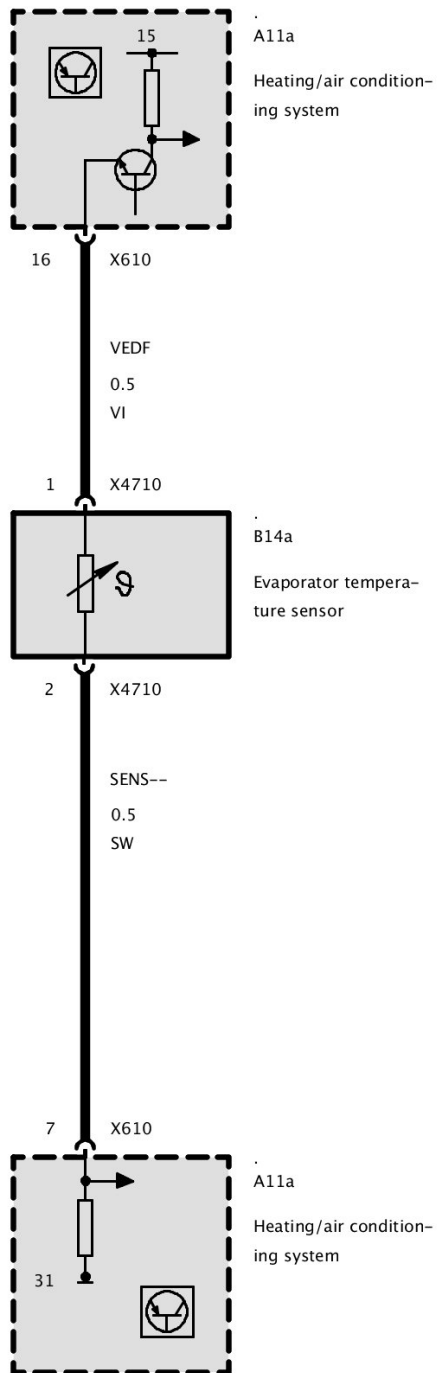
Part 5



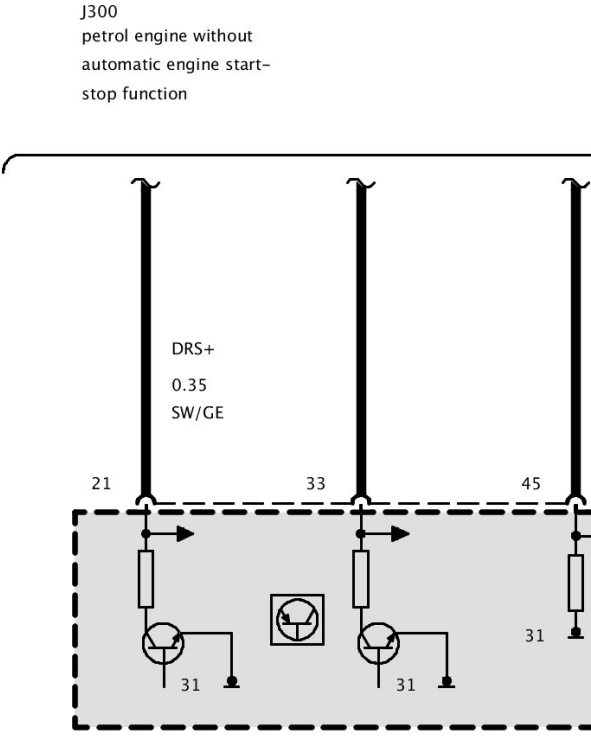
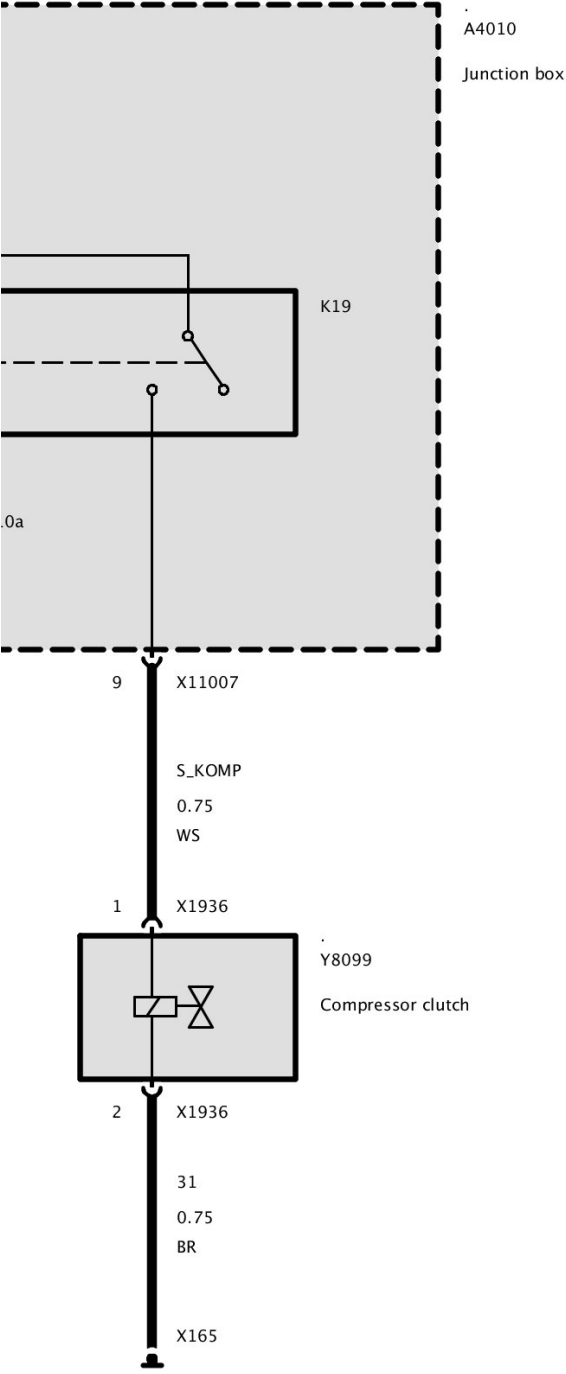
## Part 6

### Temperature Control (IHKS Integrated Heating/Air-Conditioning Control Up To 12/08)

#### Temperature Control (IHKS Integrated Heating/Air-Conditioning Control Up To 12/08)

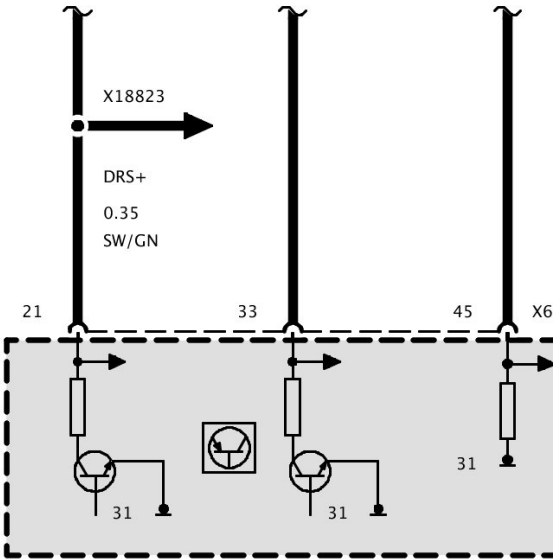
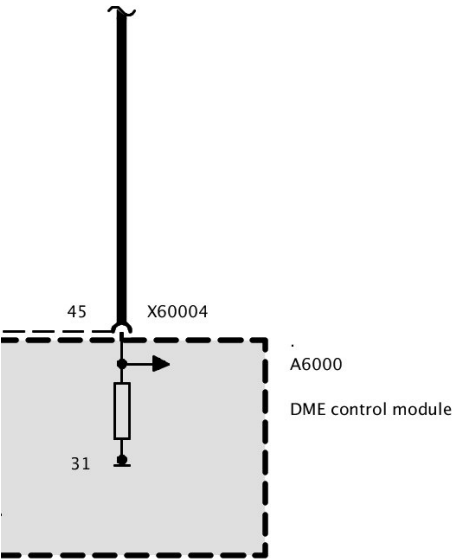


Part 1

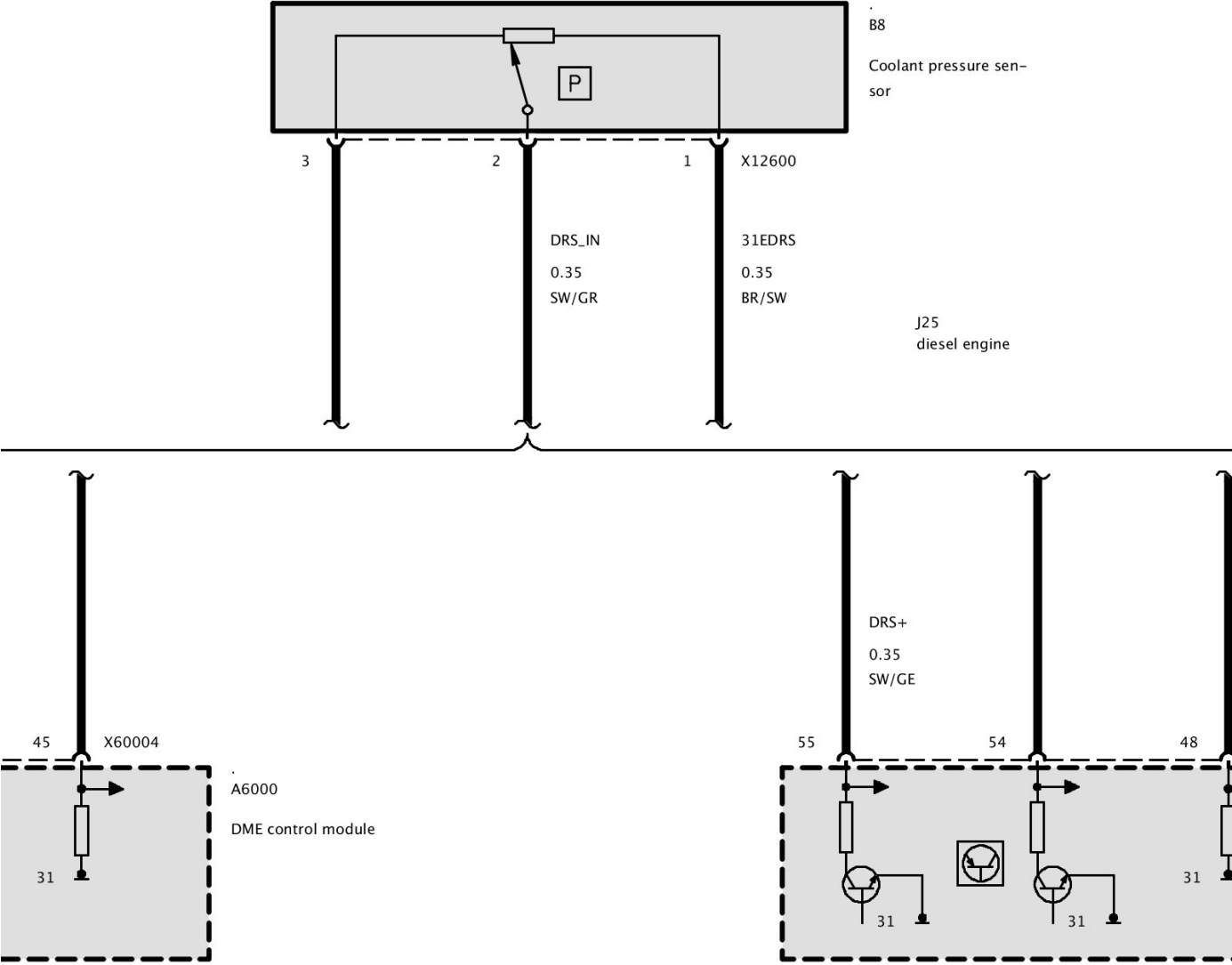


Part 2

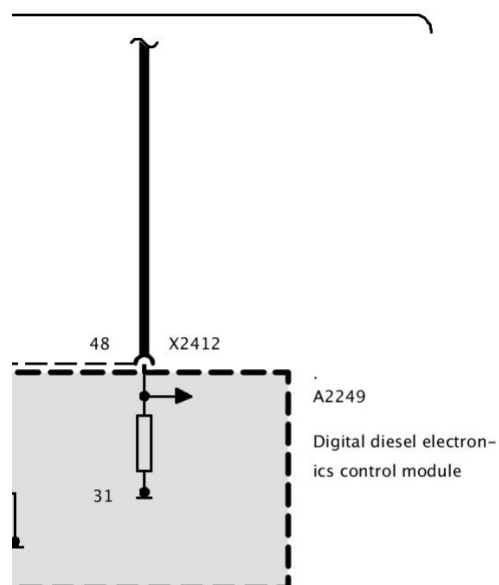
J299  
petrol engine with au-  
tomatic engine start-  
stop function



Part 3



Part 4

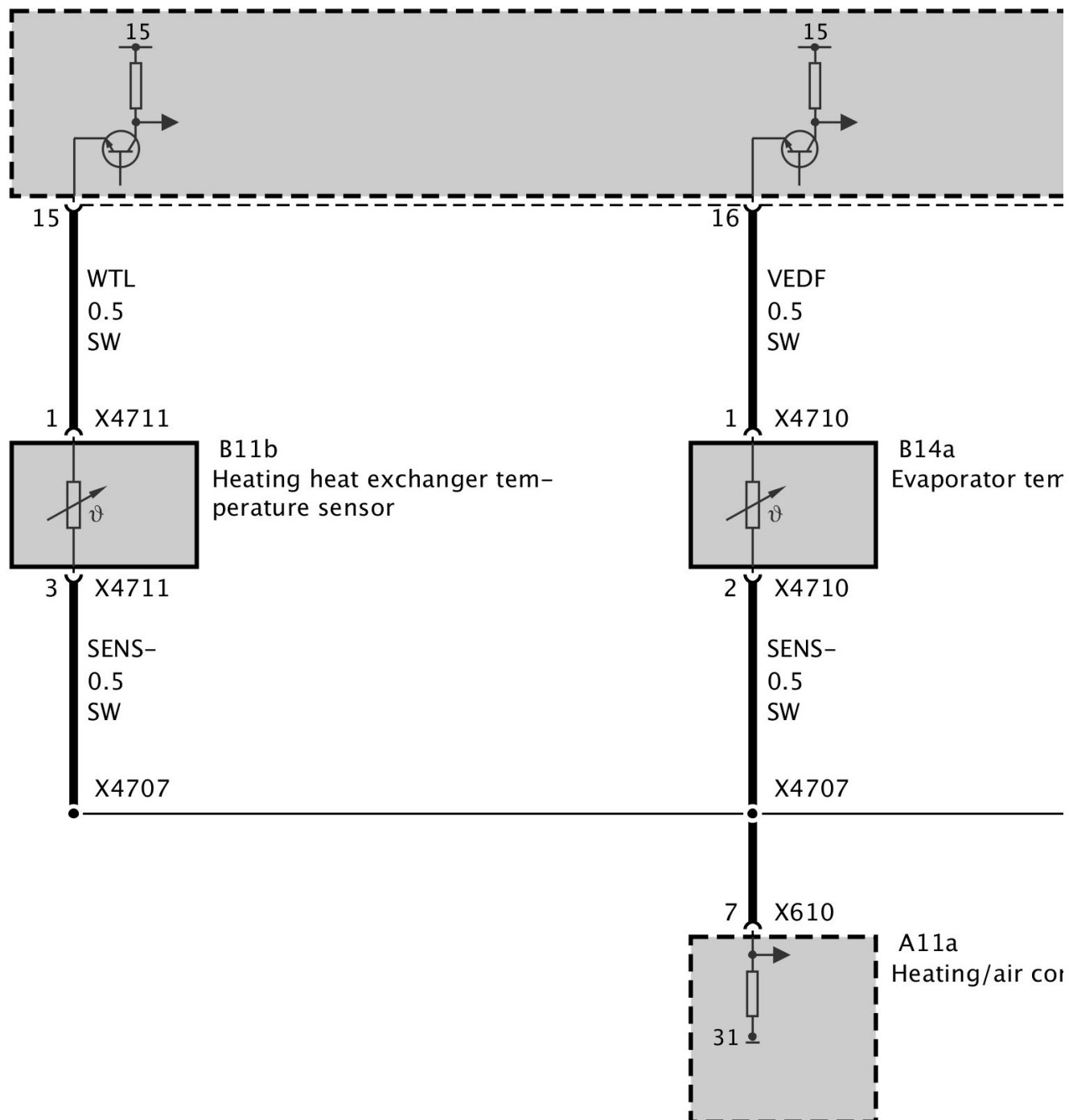


### Part 5

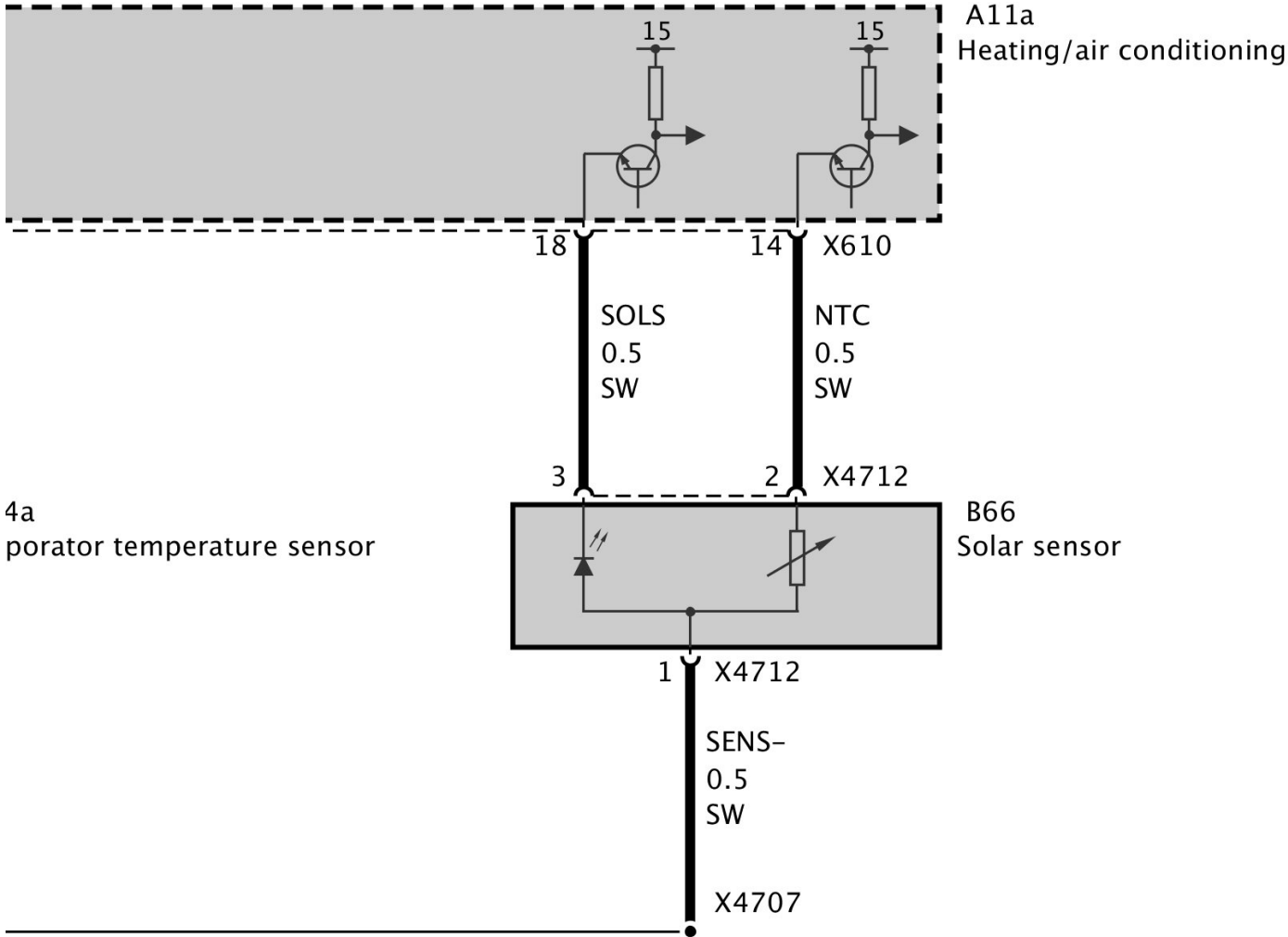
**Temperature Control (IHKA Integrated Automatic Heating/Air Conditioning As Of 12/08)**

Temperature Control (IHKA Integrated Automatic Heating/Air Conditioning As Of 12/08)





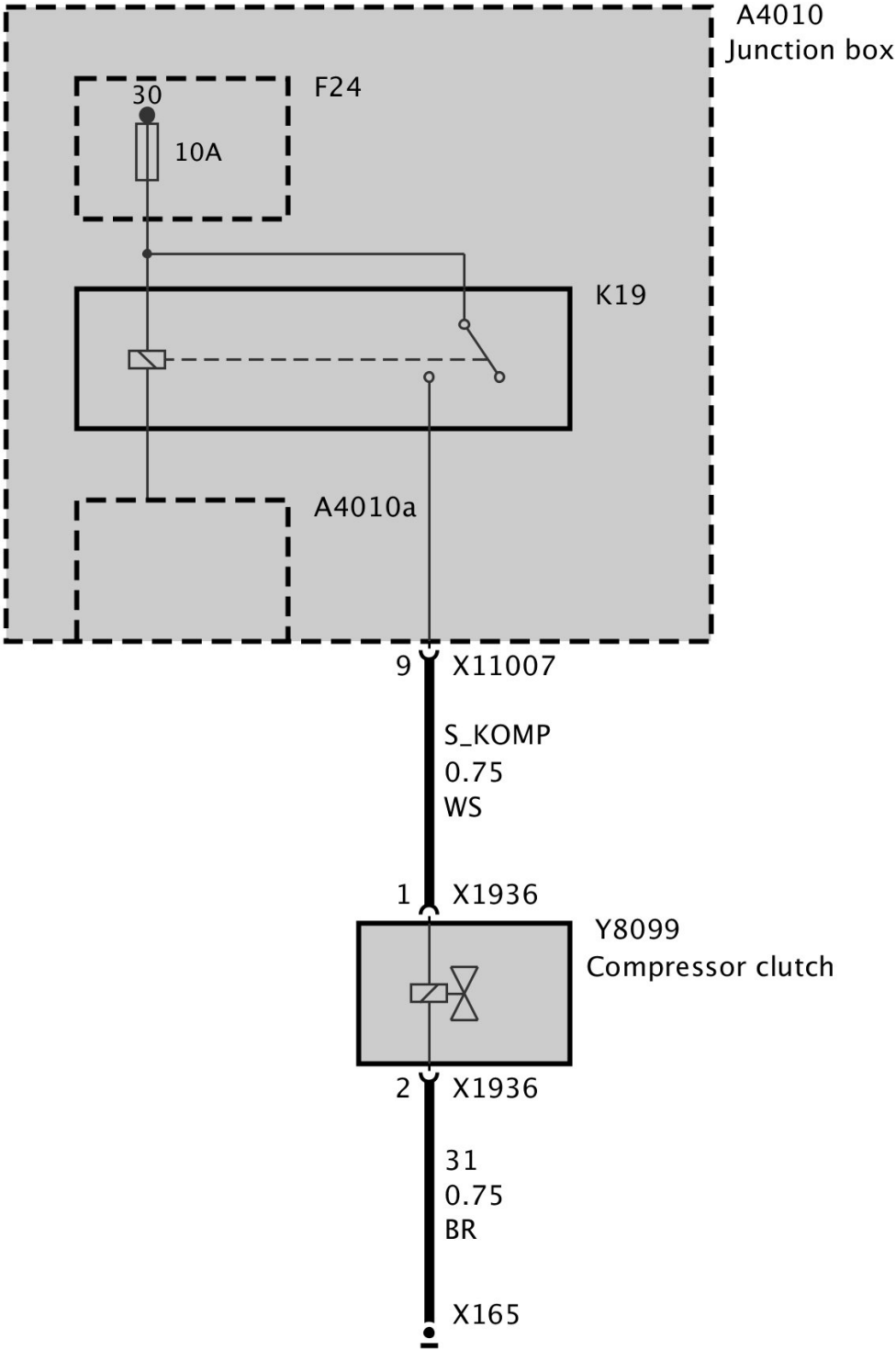
jmoraflores@hotmail.cl



1a  
Heating/air conditioning system

Part 2

onditioning system

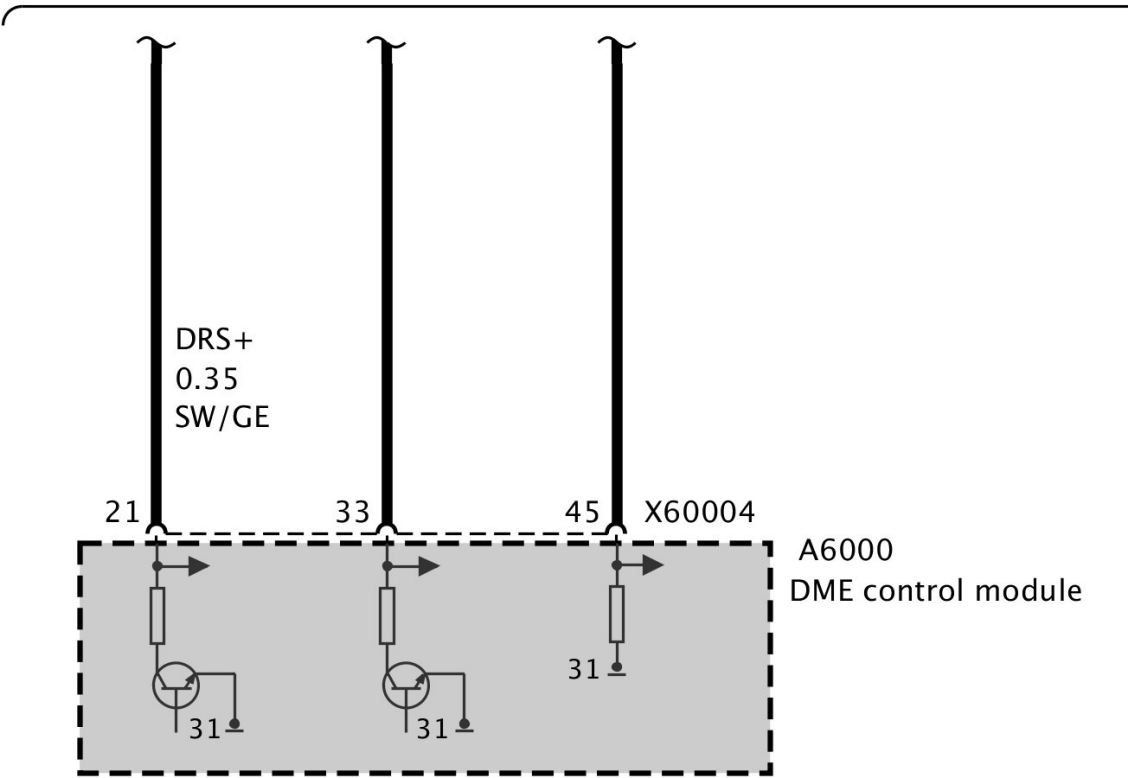


Part 3

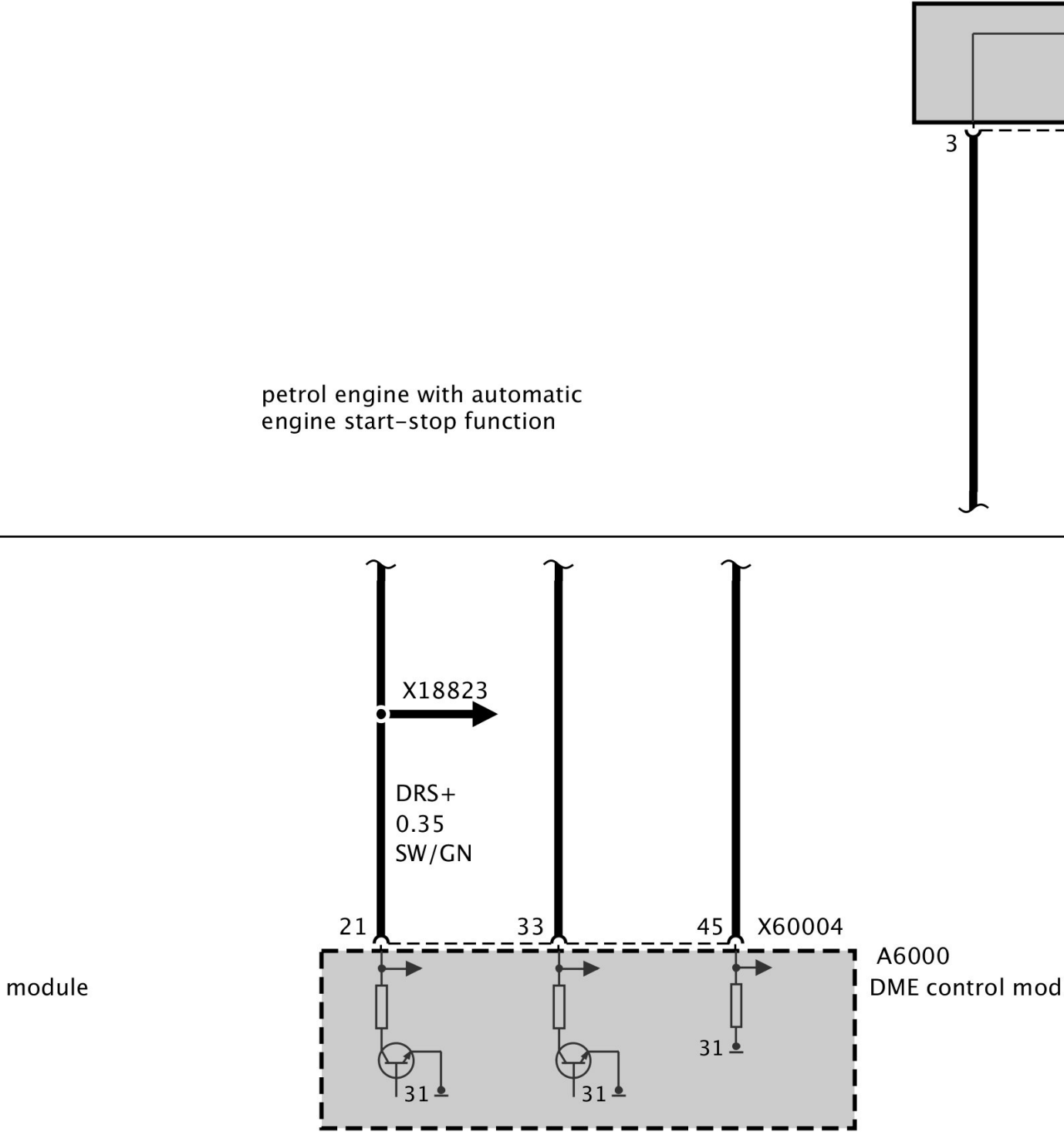
4010  
nction box

petrol engine without automatic  
engine start-stop function

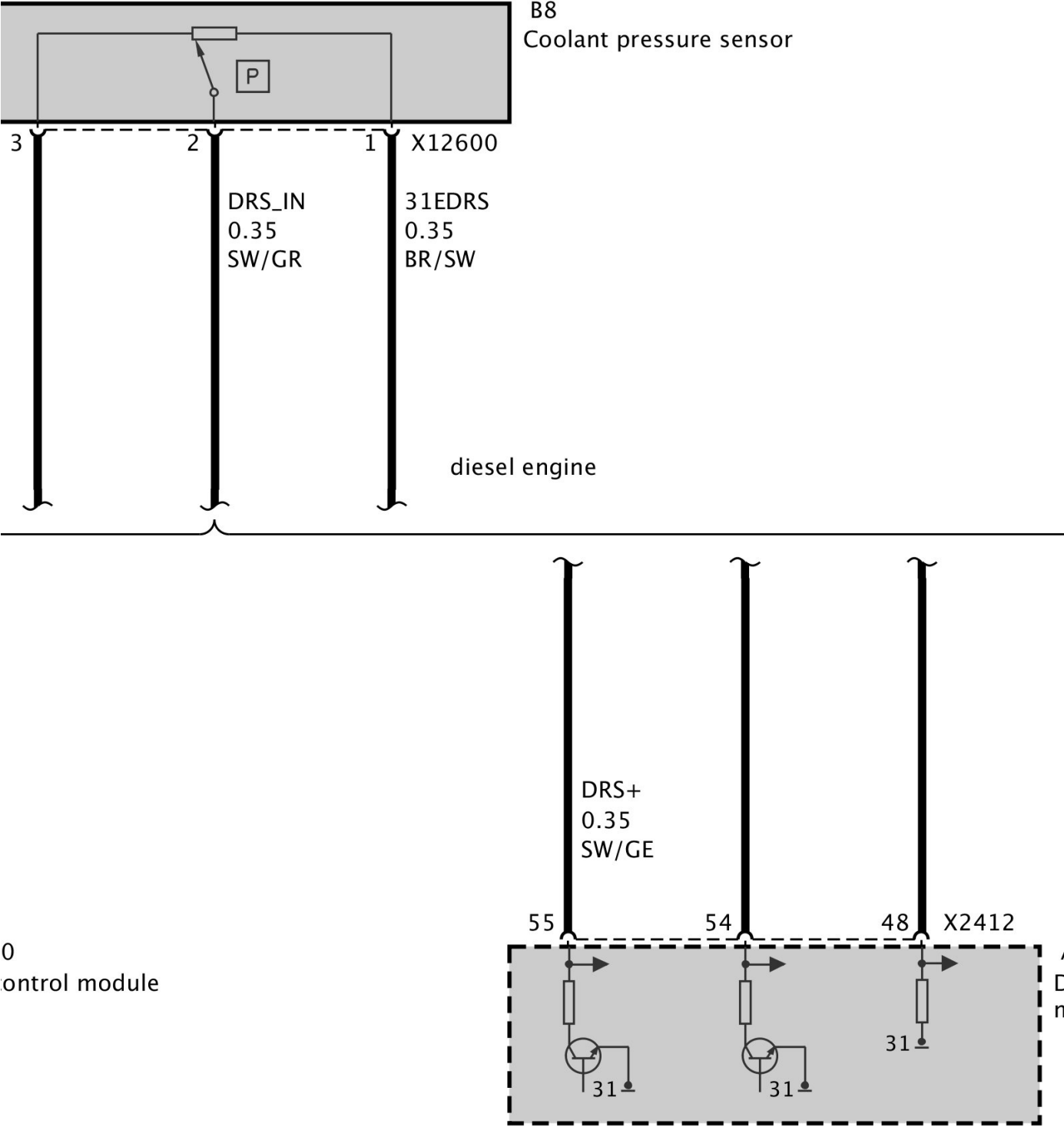
clutch



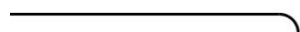
Part 4



Part 5



Part 6



5

X2412



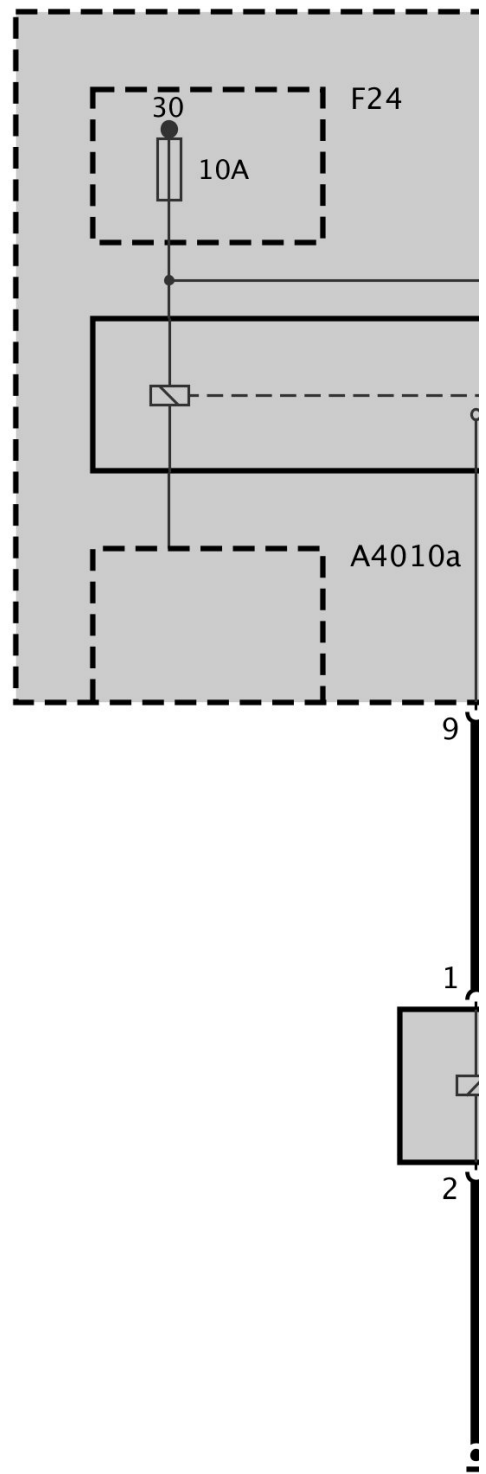
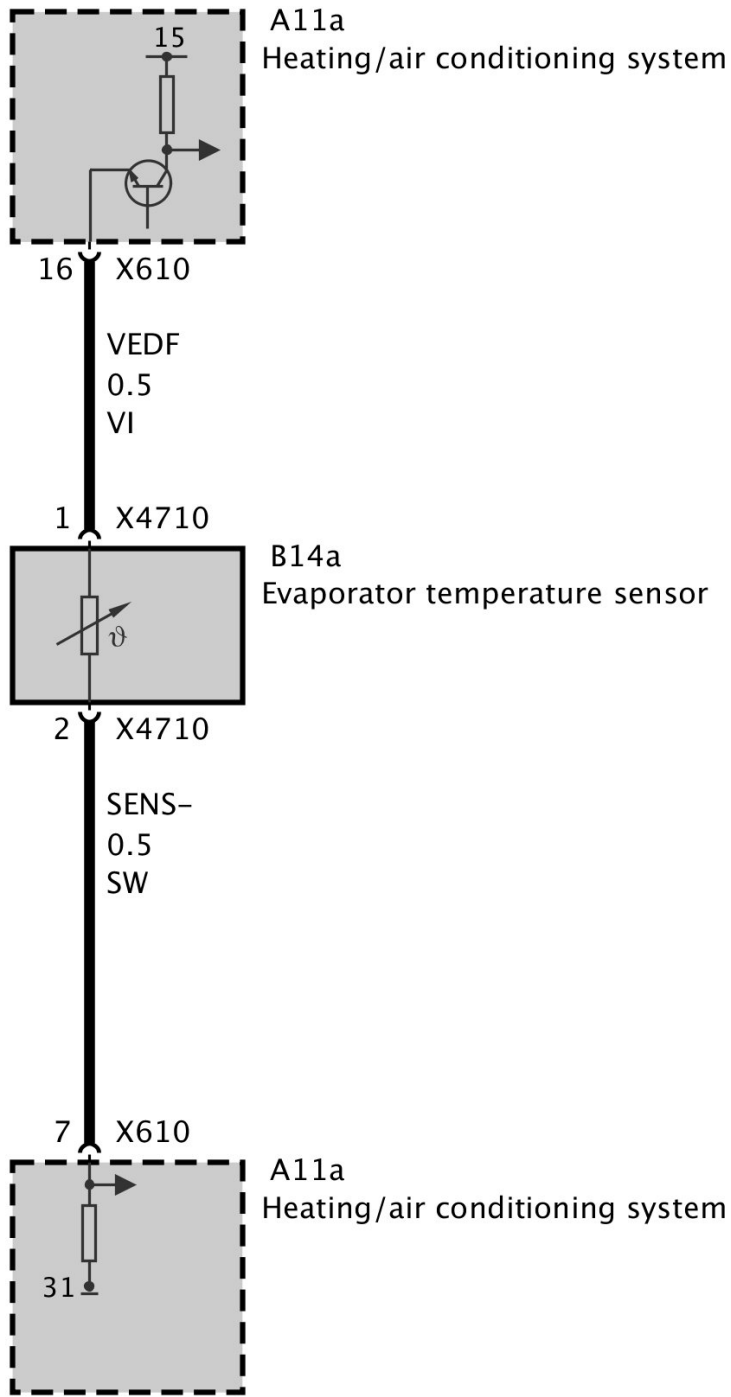
A2249

Digital diesel electronics control  
module

#### Part 7

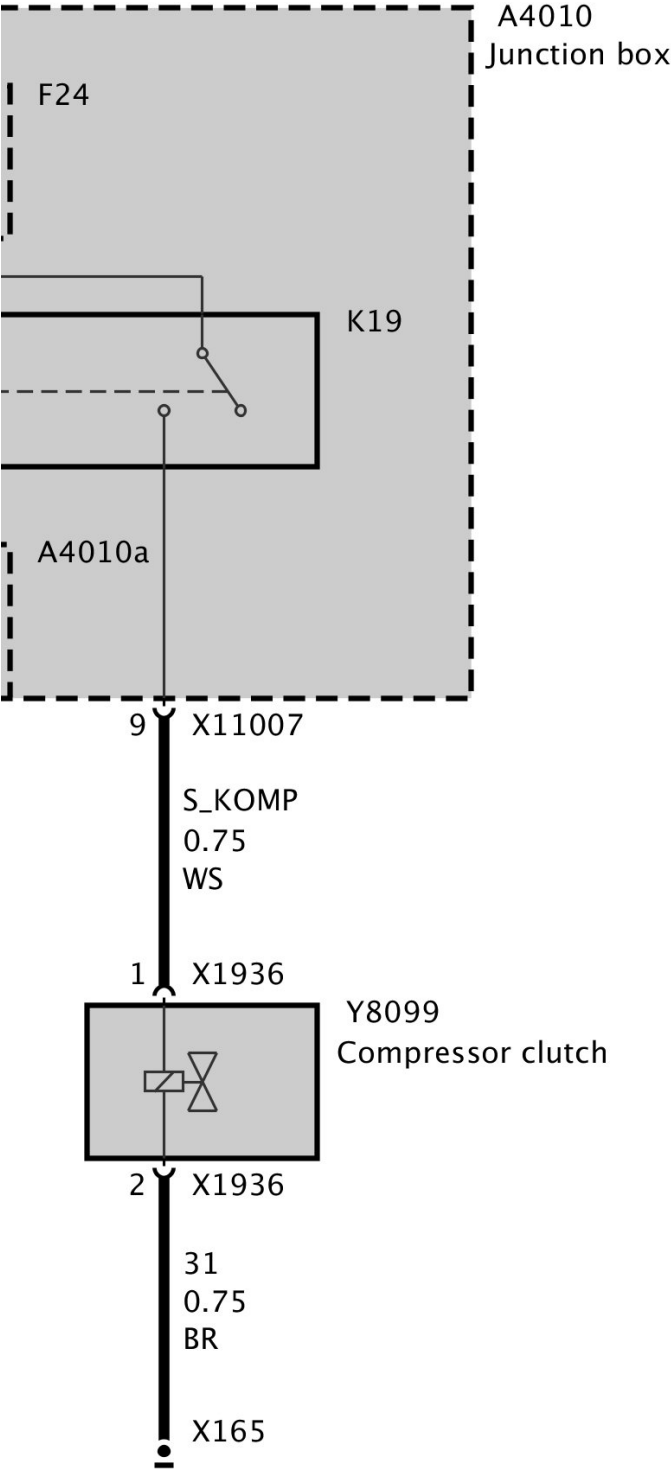
**Temperature Control (IHKS Integrated Heating/Air-Conditioning Control As Of 12/08)**

Temperature Control (IHKS Integrated Heating/Air-Conditioning Control As Of 12/08)

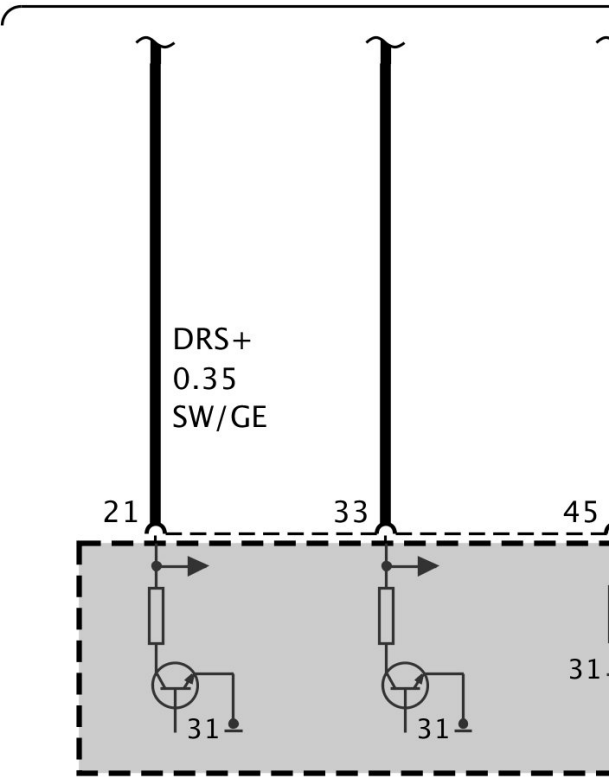


Part 1





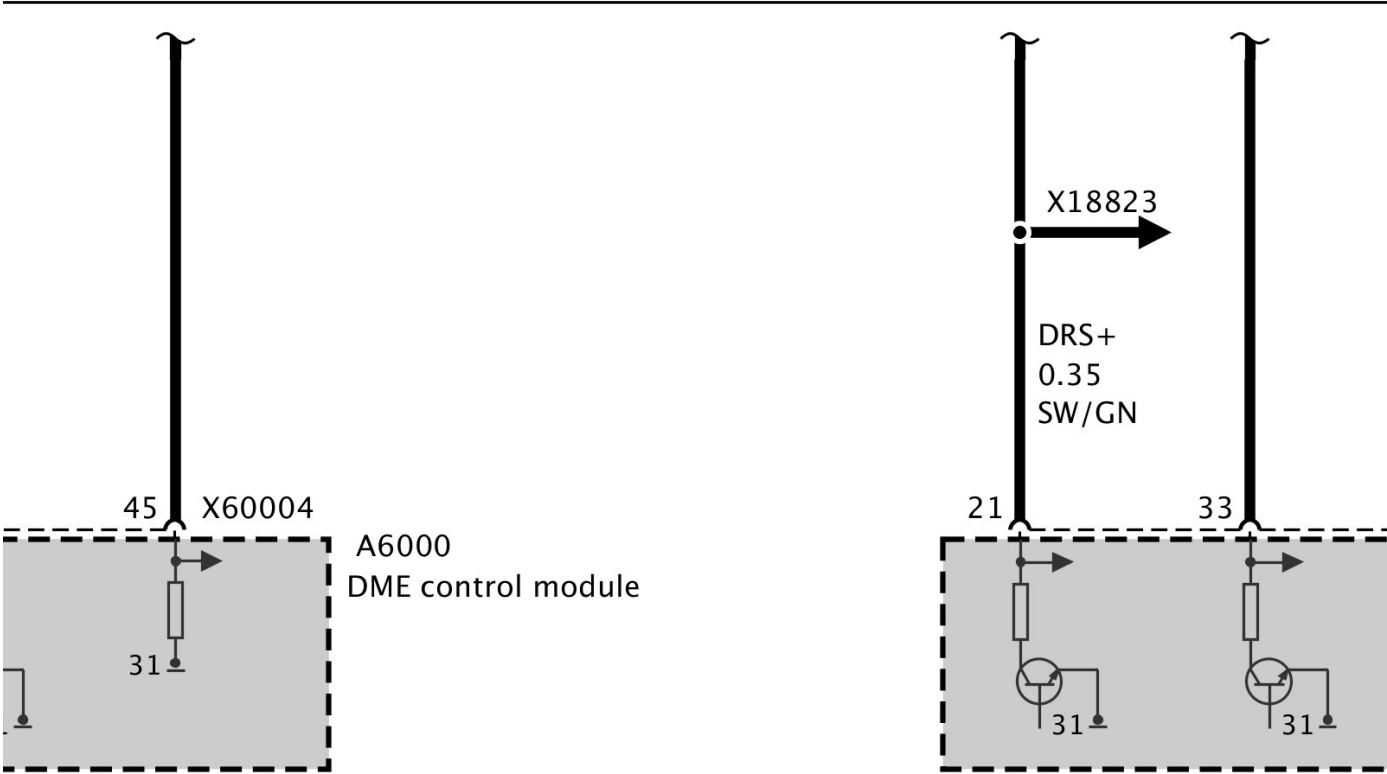
petrol engine without automatic engine start-stop function



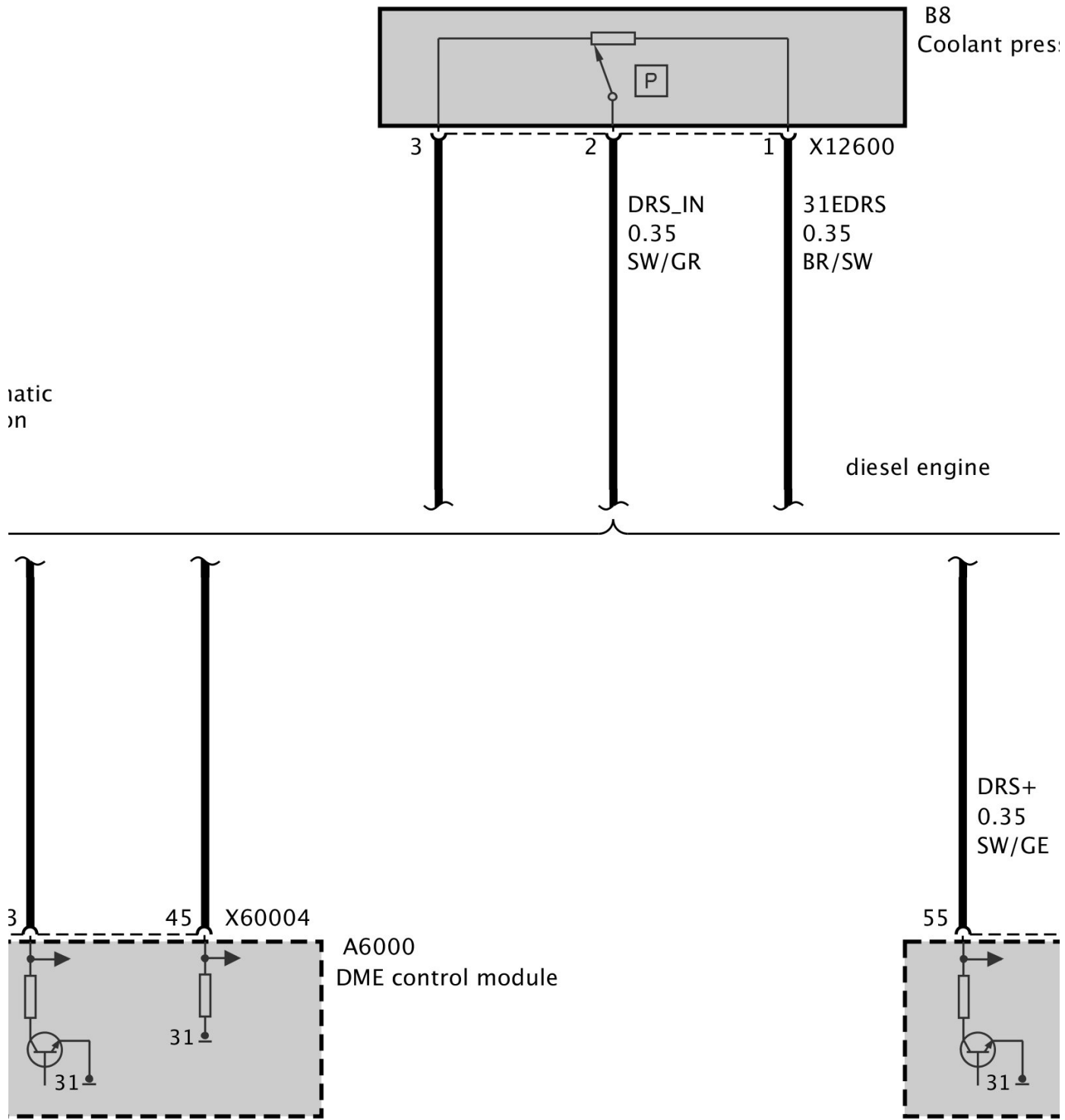
Part 2

ic

petrol engine with automatic engine start-stop function



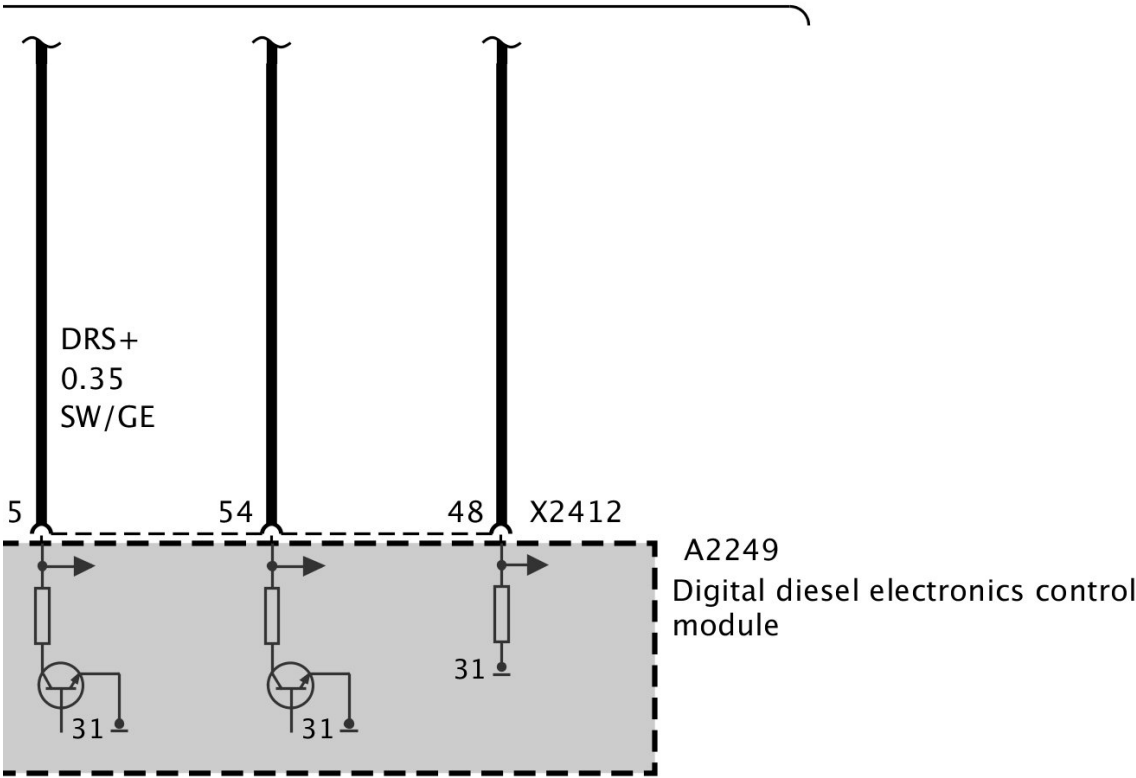
Part 3



Part 4

18  
Coolant pressure sensor

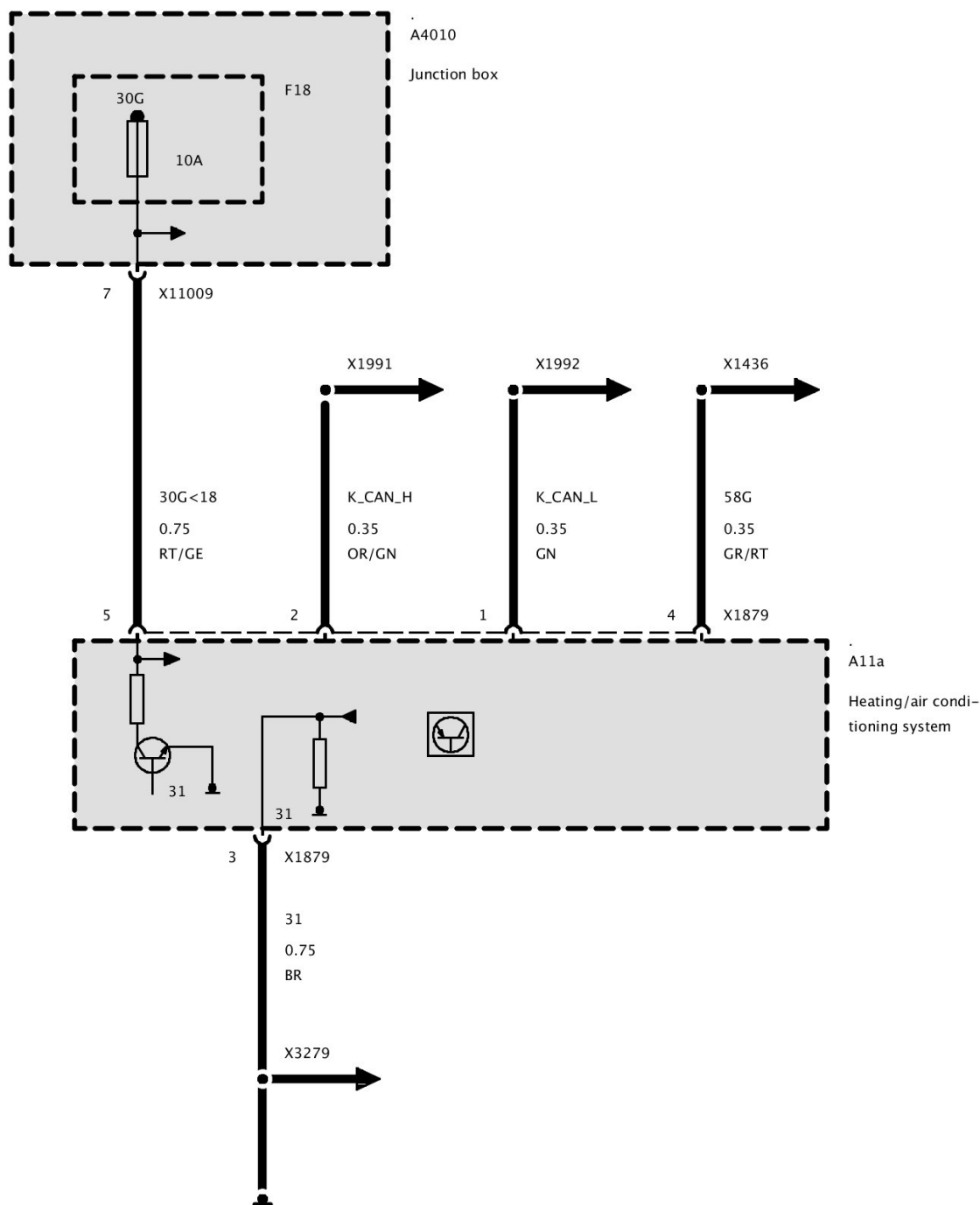
Engine



Part 5

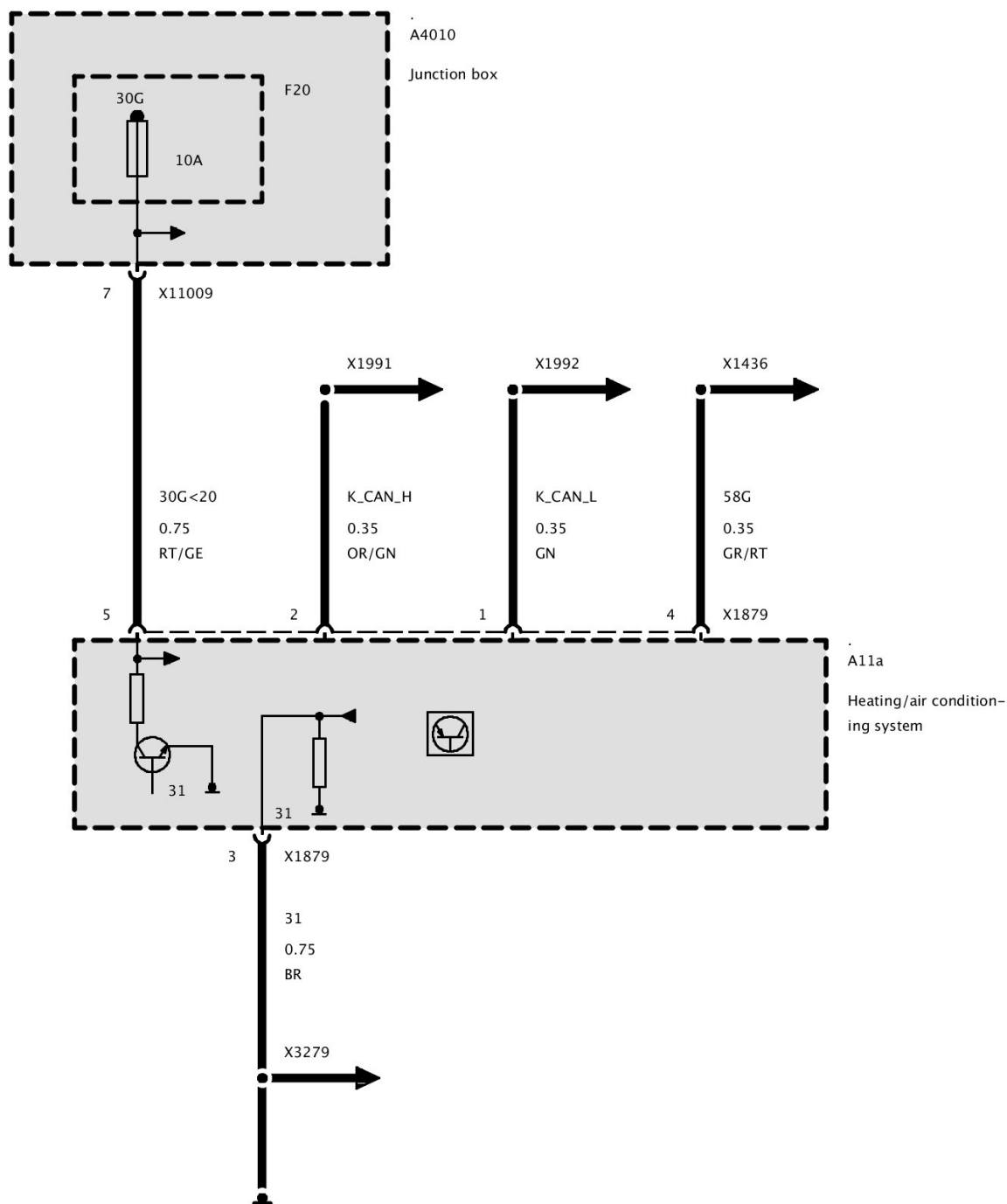
Supply, Heating And Air Conditioning Control Unit (Up To 12/08)

Supply, Heating And Air Conditioning Control Unit (Up To 12/08)



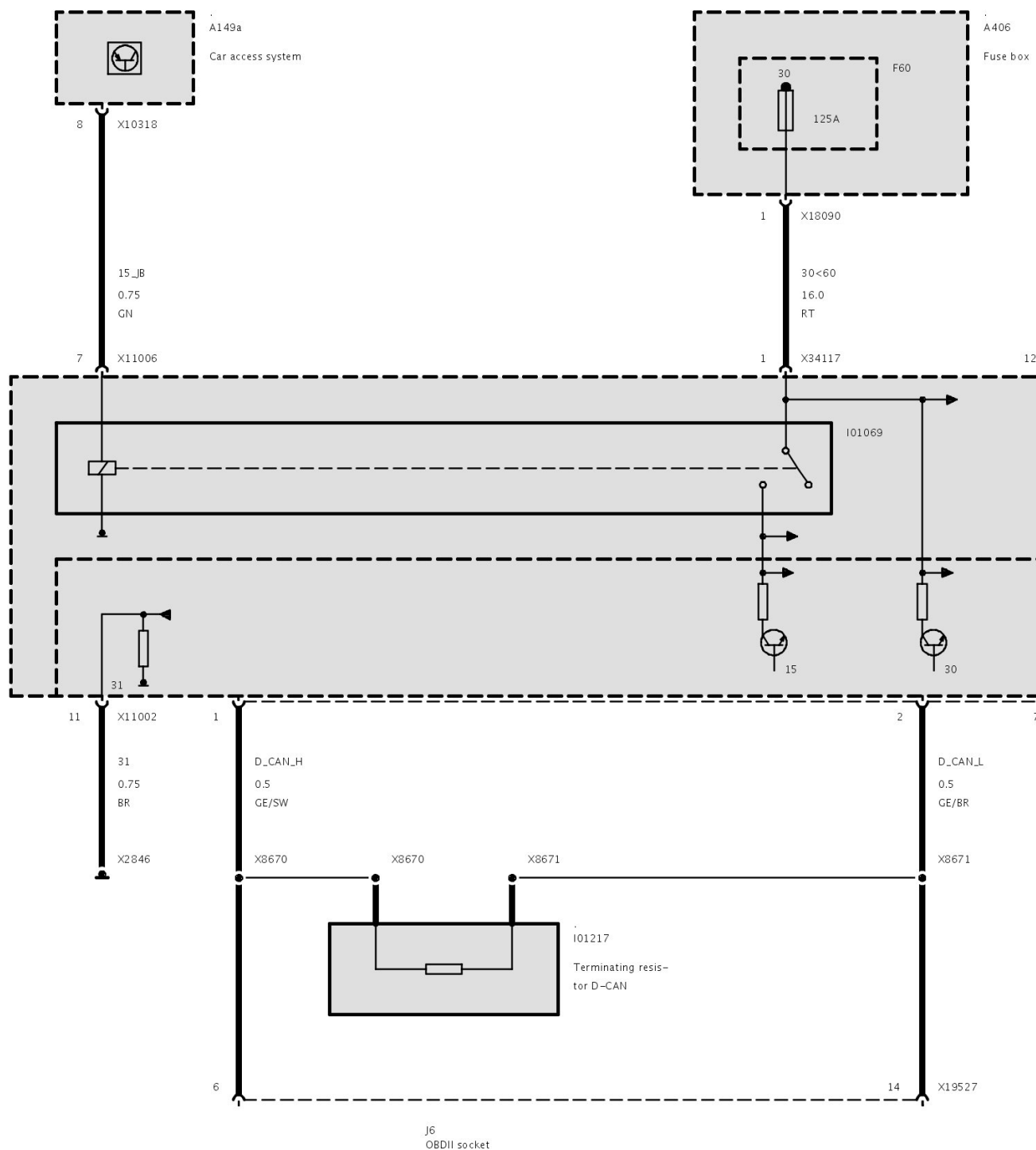
Supply, Heating And Air Conditioning Control Unit (As Of 12/08)

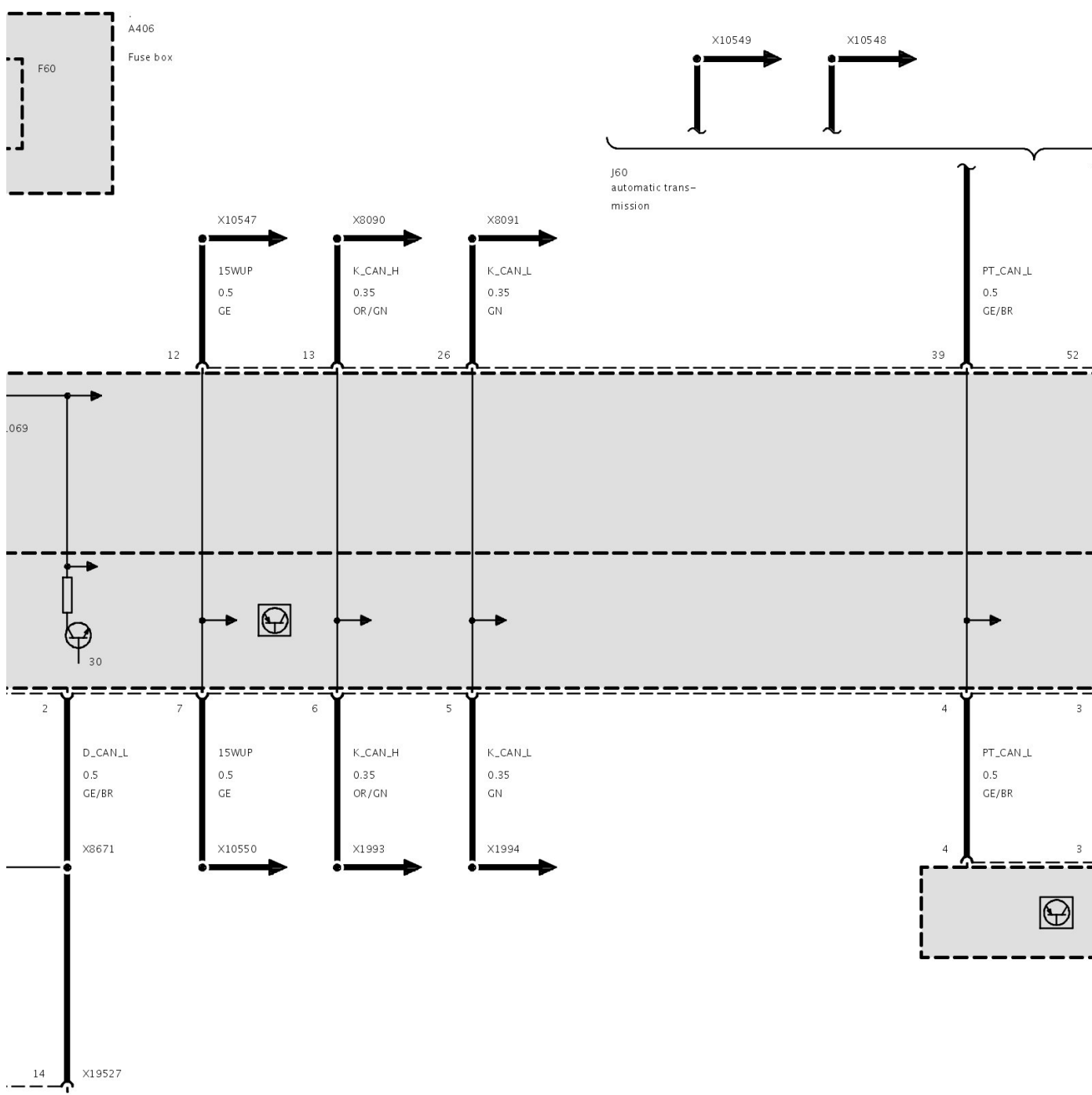
Supply, Heating And Air Conditioning Control Unit (As Of 12/08)



## Supply, JBE Junction-Box Electronics

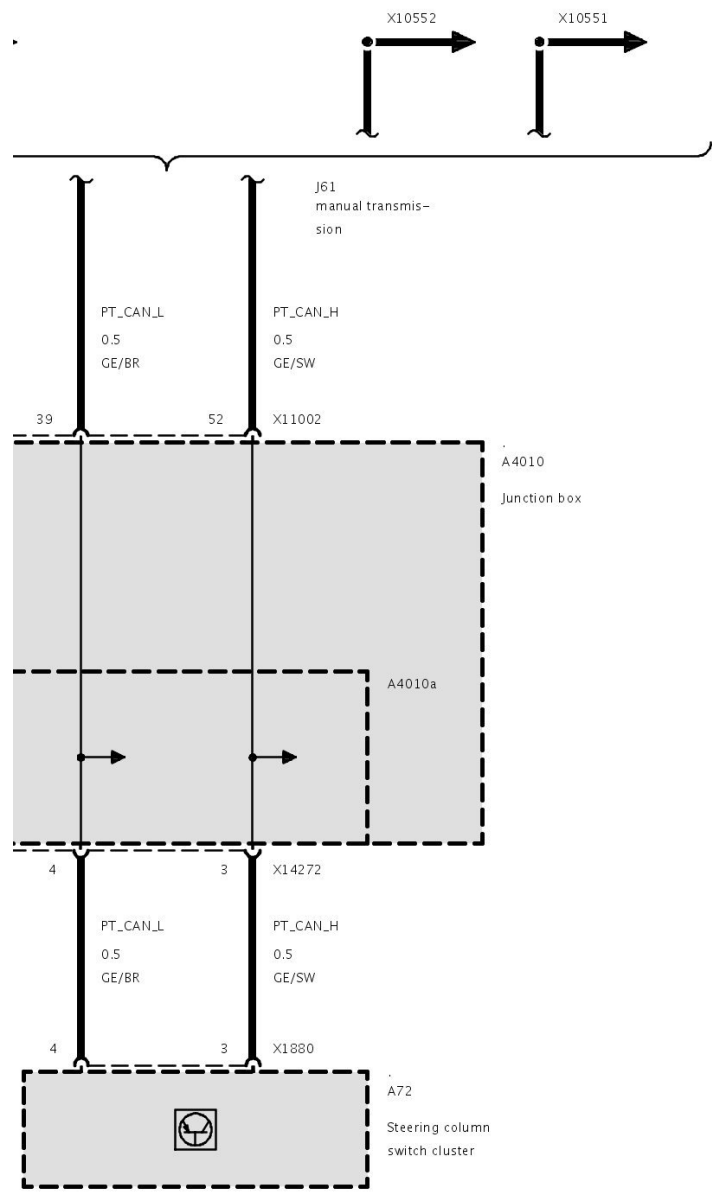
Power Supply JBE Junction Box, Electronics

**Part 1**



Part 2

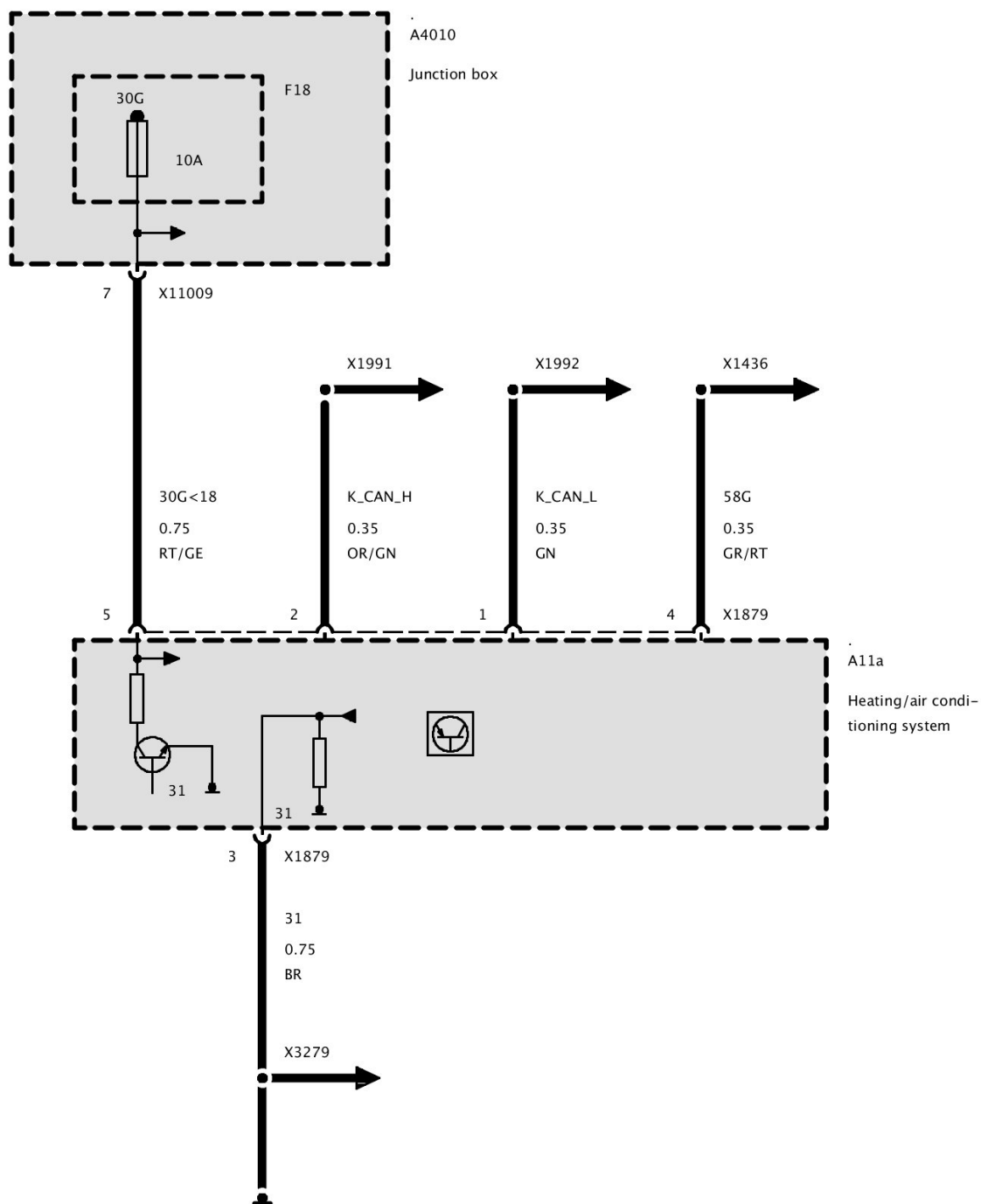




Part 3

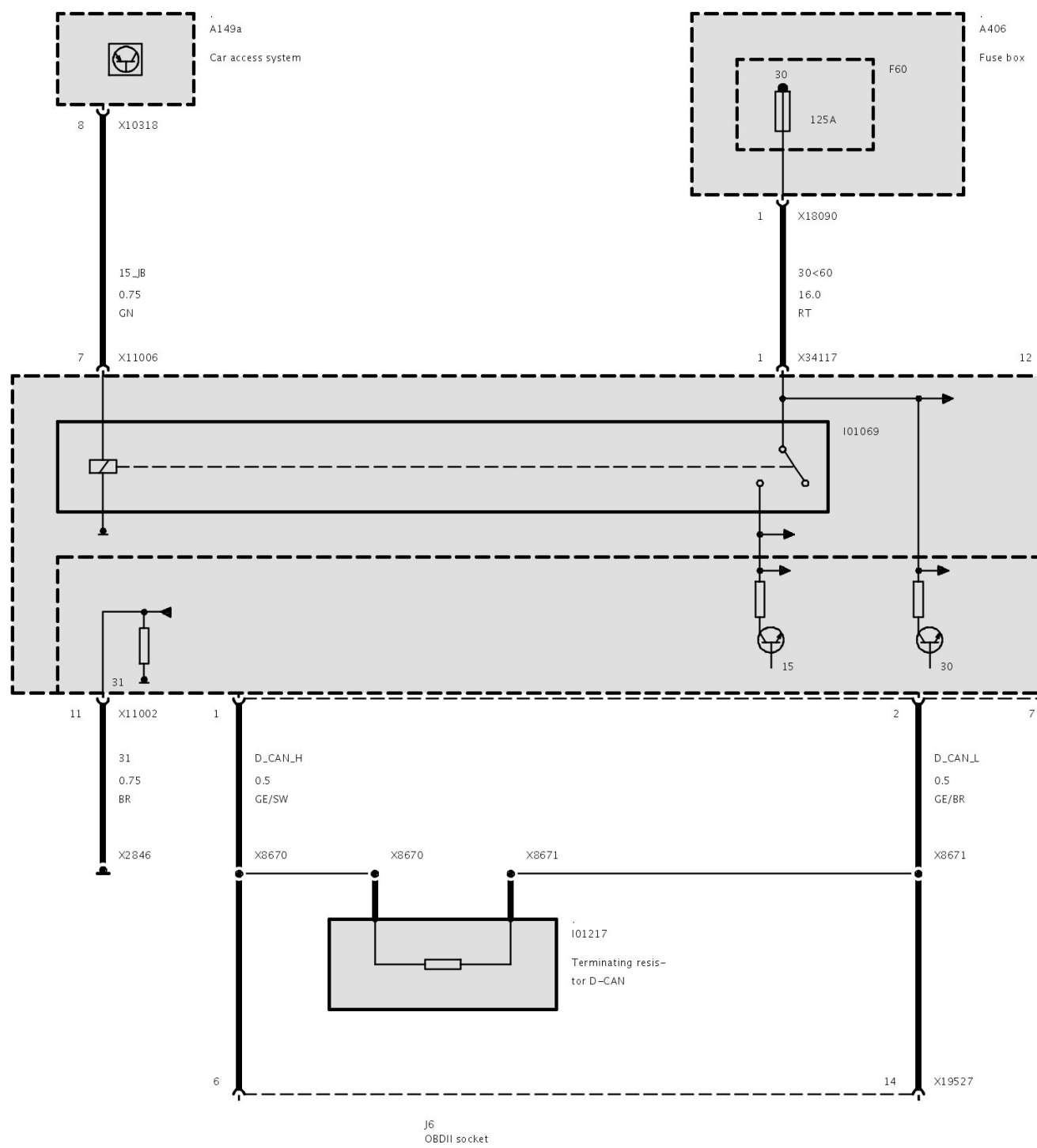
Buttons, Heating/Air-Conditioning System

Supply, Heating And Air Conditioning Control Unit

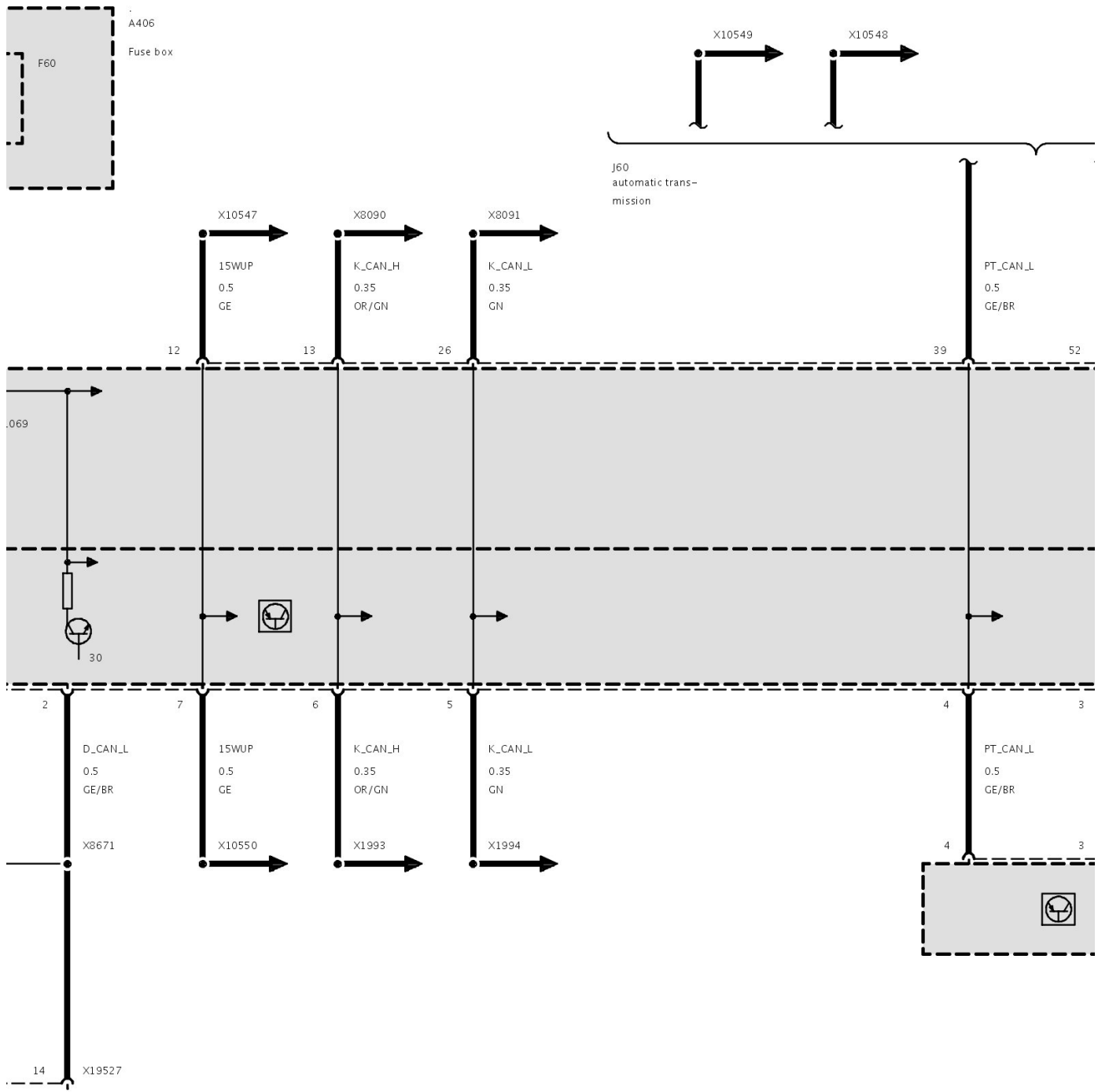


## Bus Diagnosis

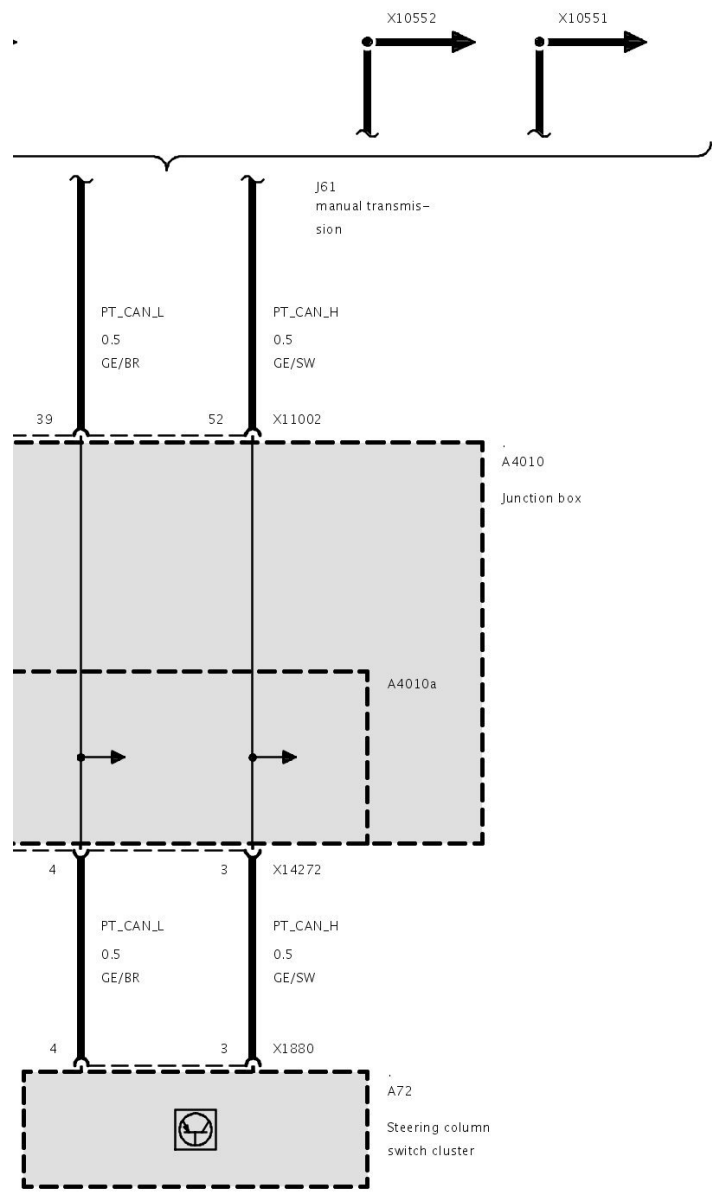
Power Supply JBE Junction Box, Electronics



Part 1



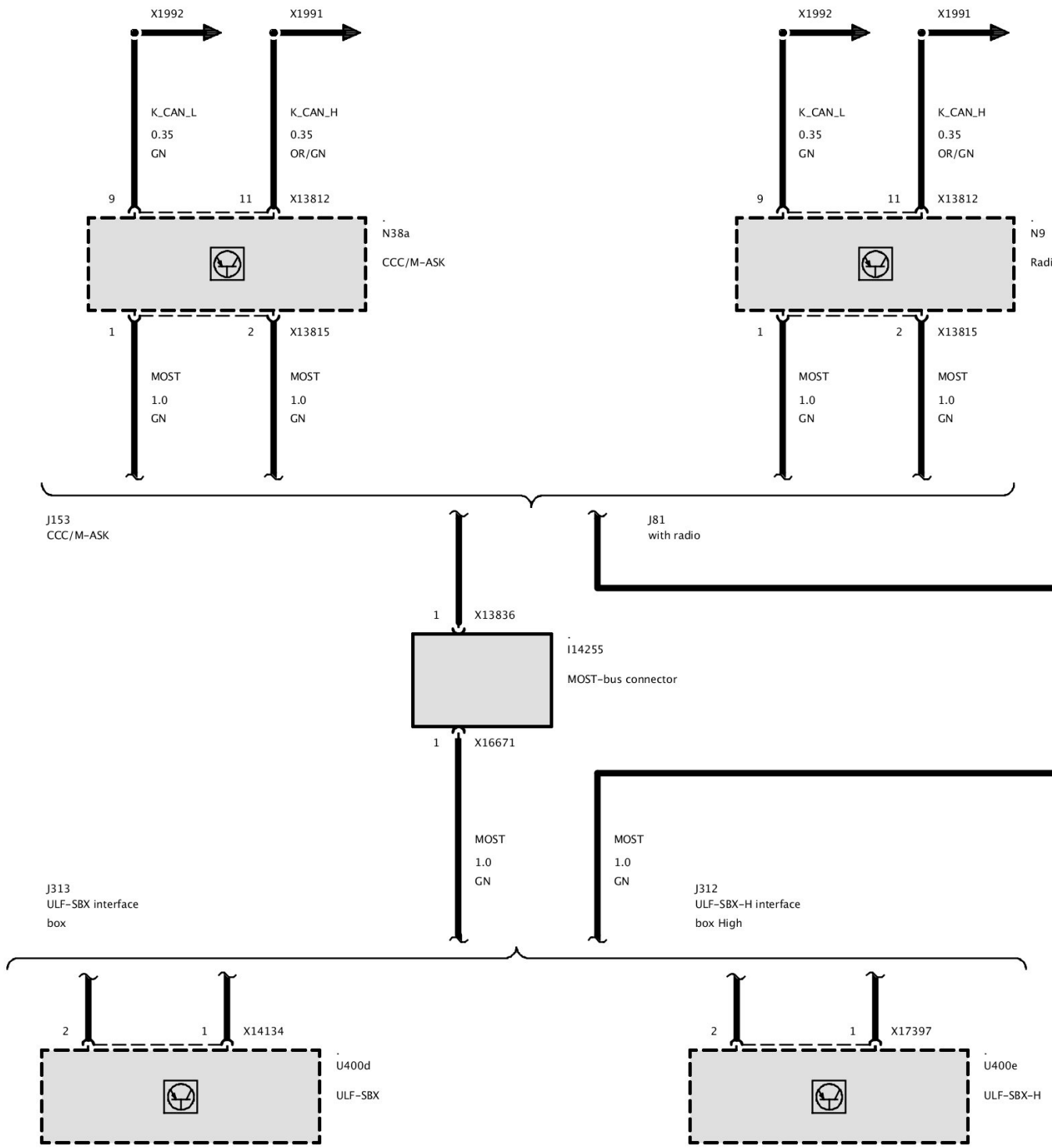
Part 2



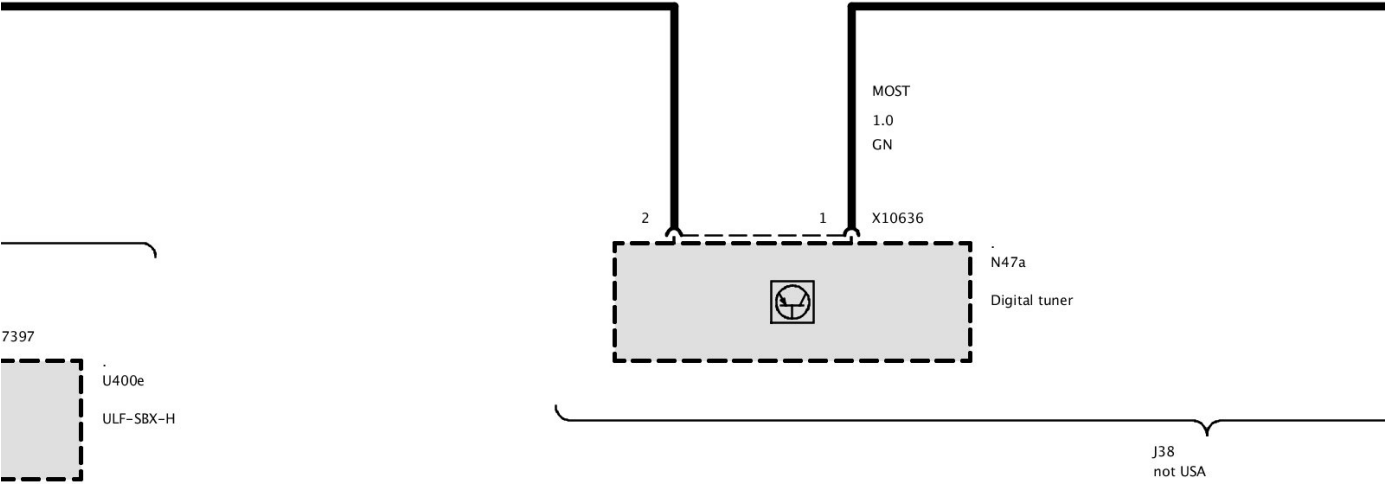
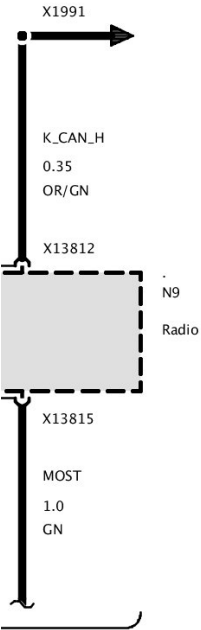
**Part 3**

**Most Function (Without RAD Radio)**

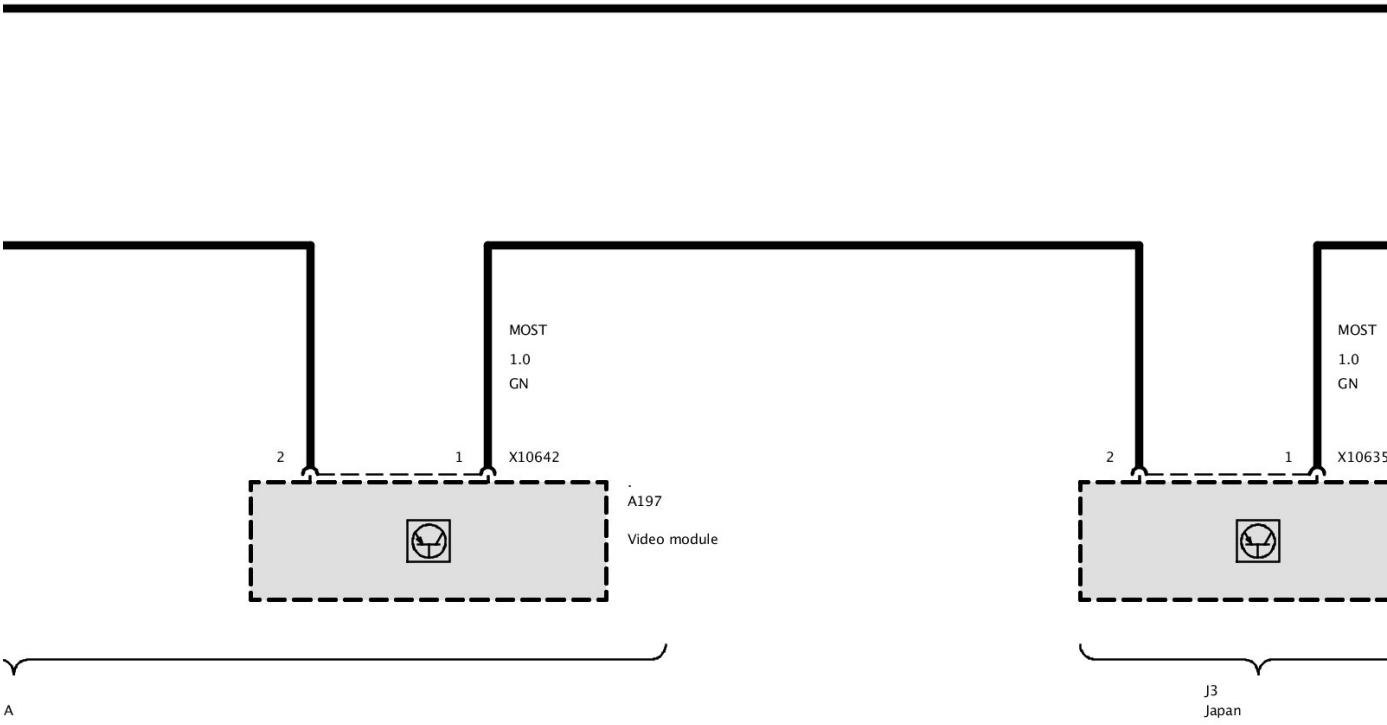
**MOST-Bus Network**



Part 1

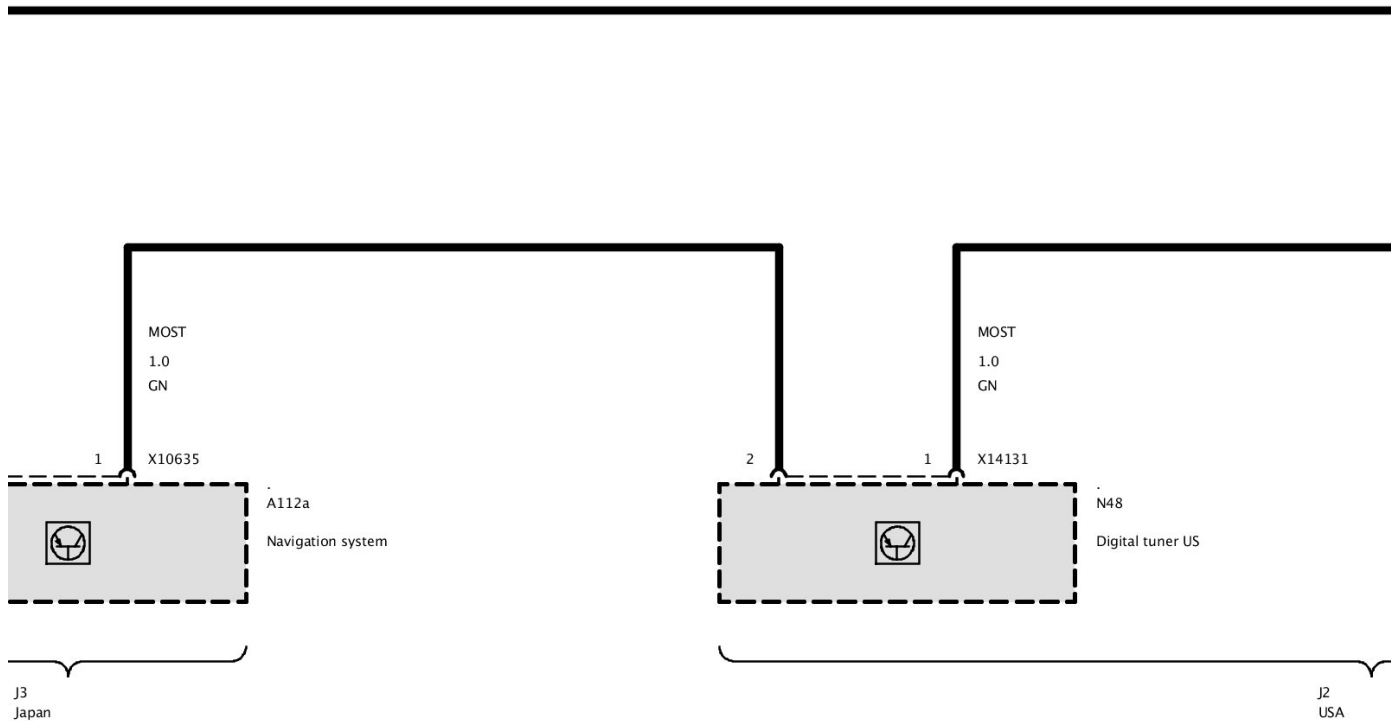


Part 2

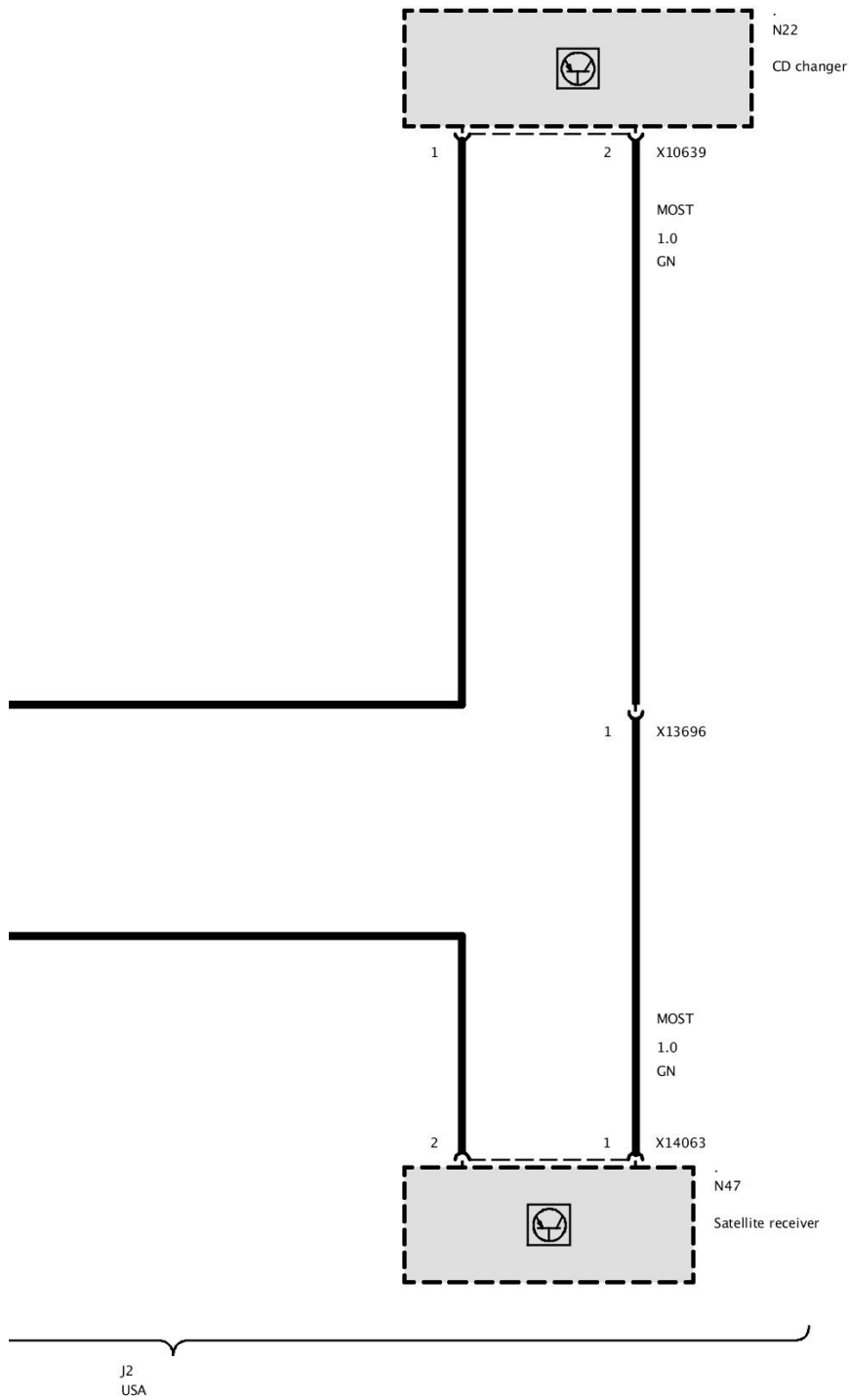


Part 3





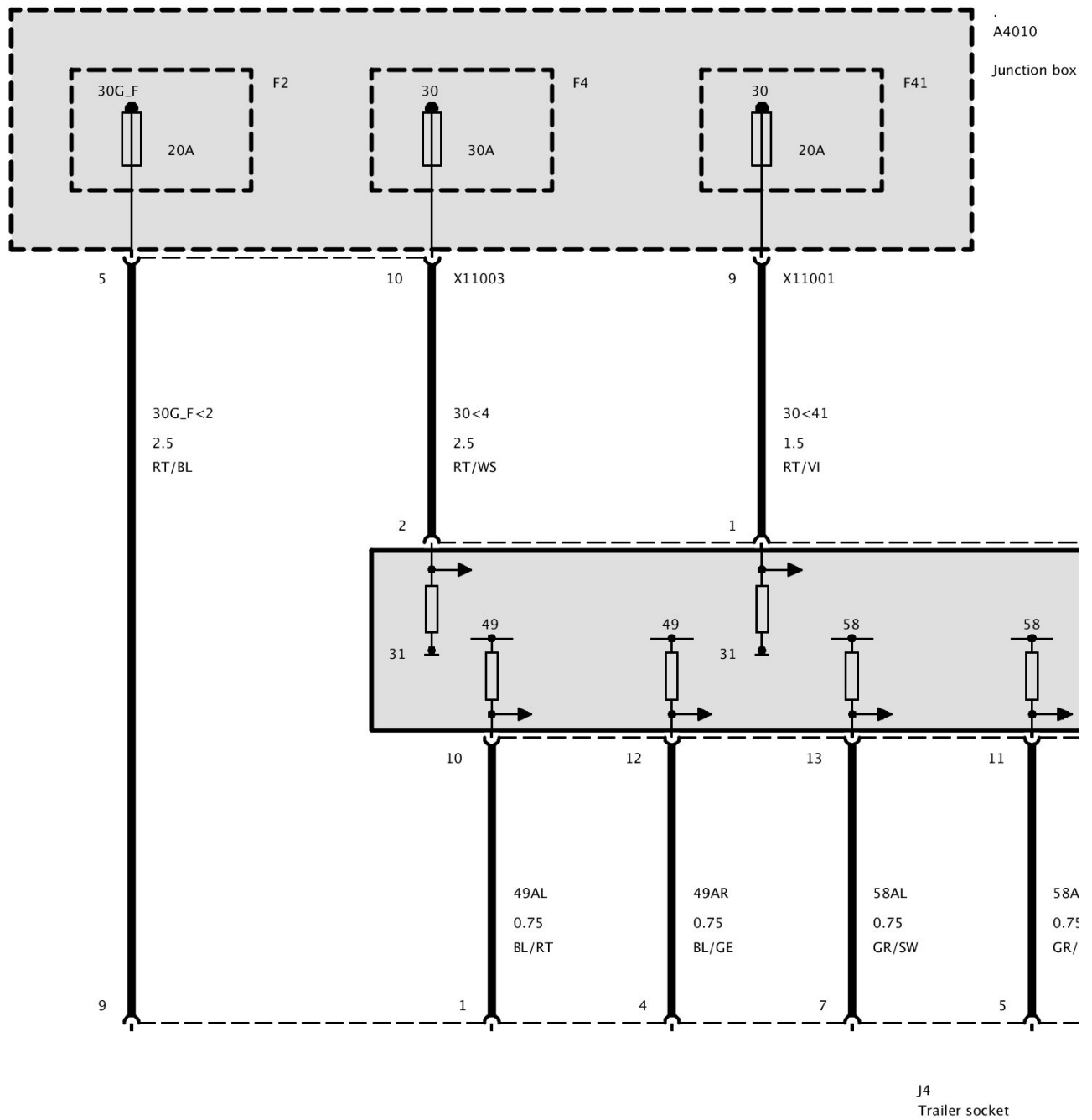
Part 4



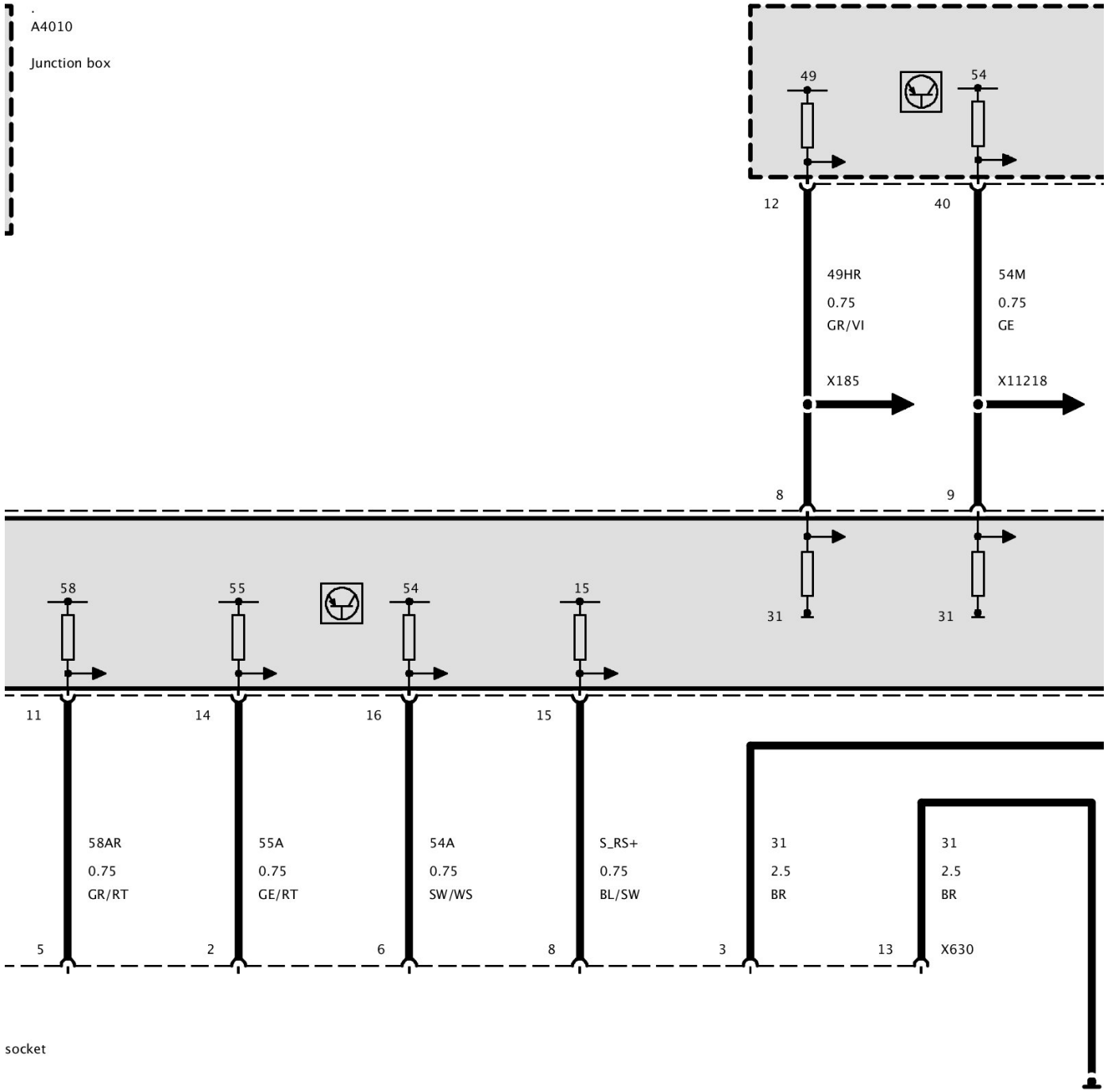
Part 5

Trailer Lighting (Up To 12/08)

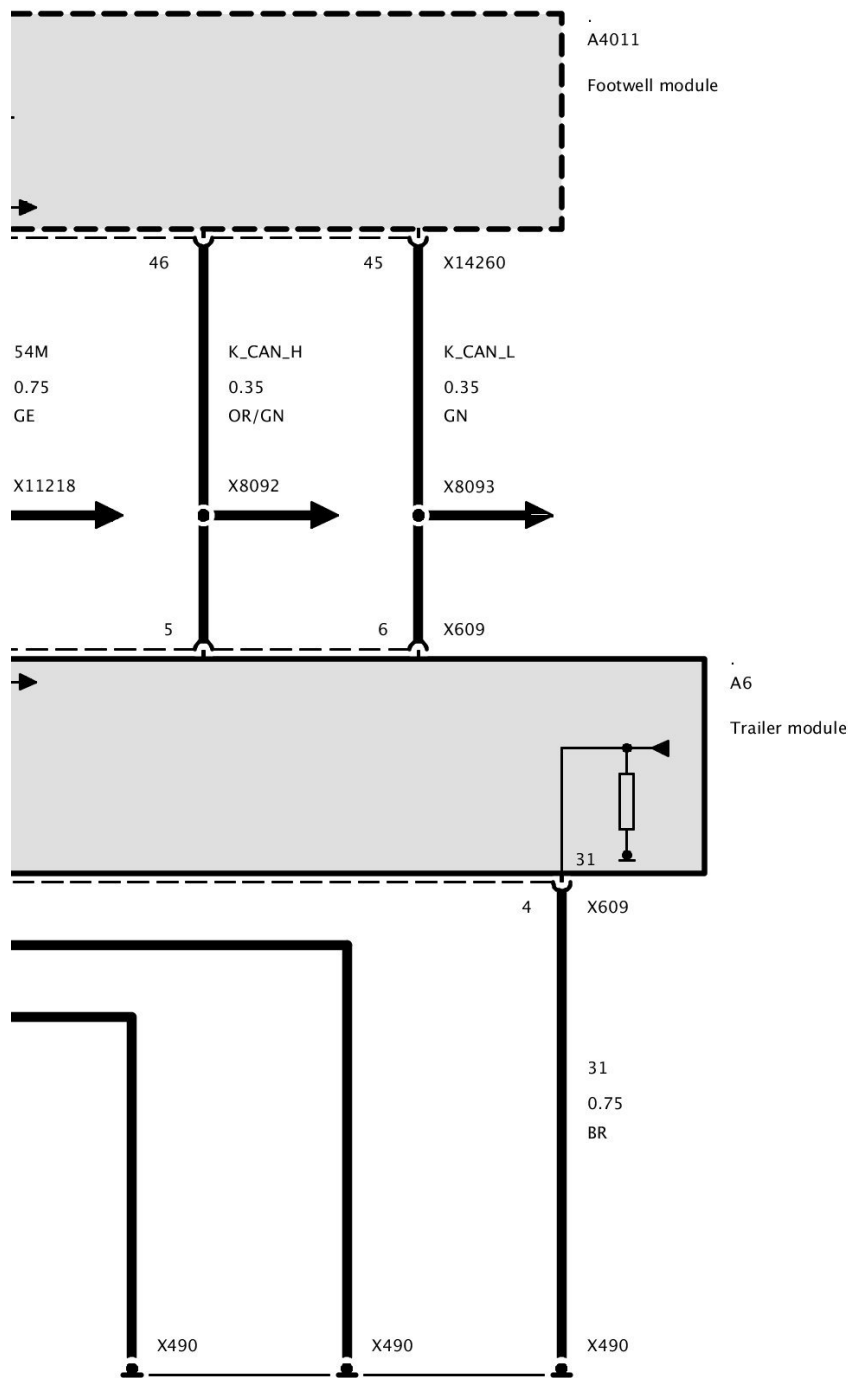
Trailer Lighting (Up To 12/08)



Part 1



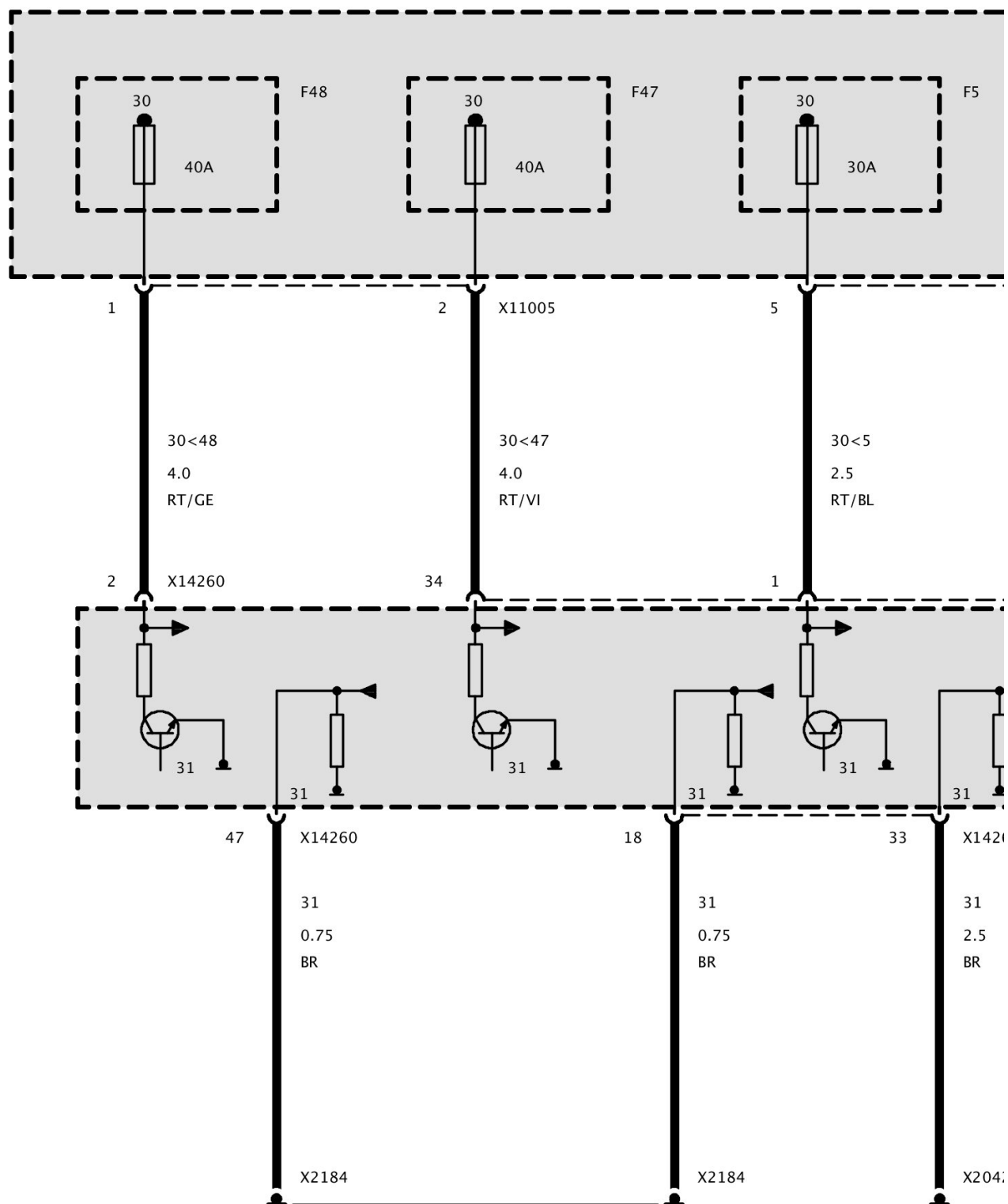
Part 2



Part 3

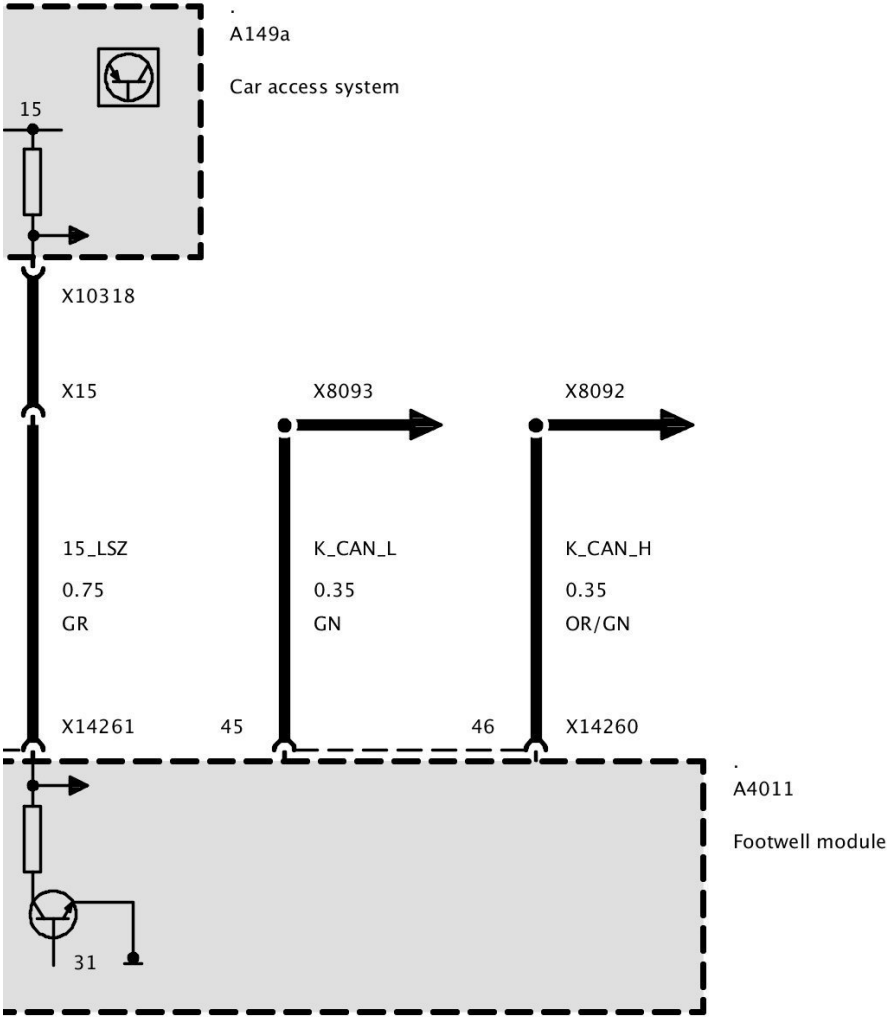
Power Supply, Footwell Module FRM (Up To 12/08)

Power Supply, Footwell Module FRM (Up To 12/08)



## Part 1



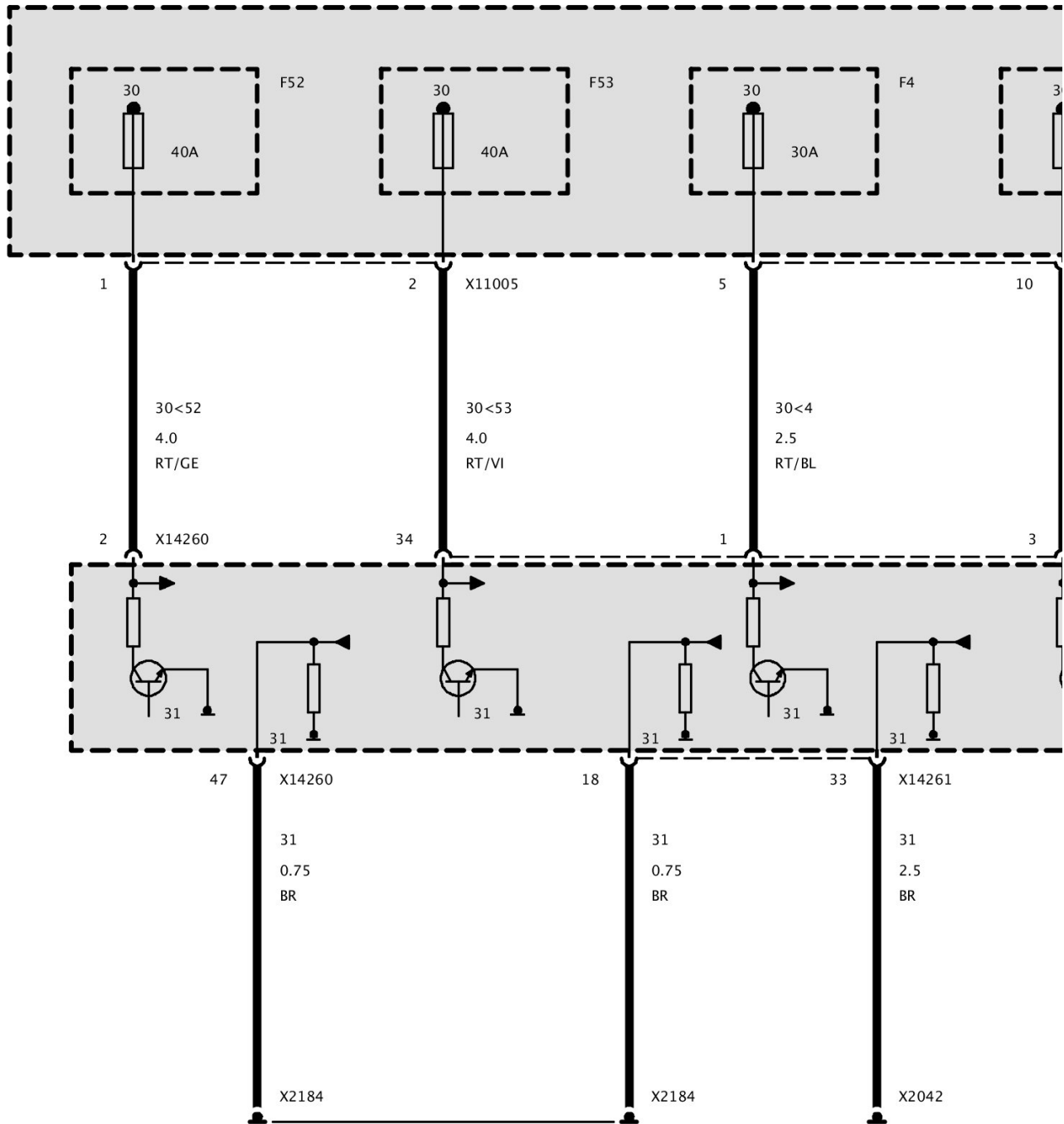


Part 3

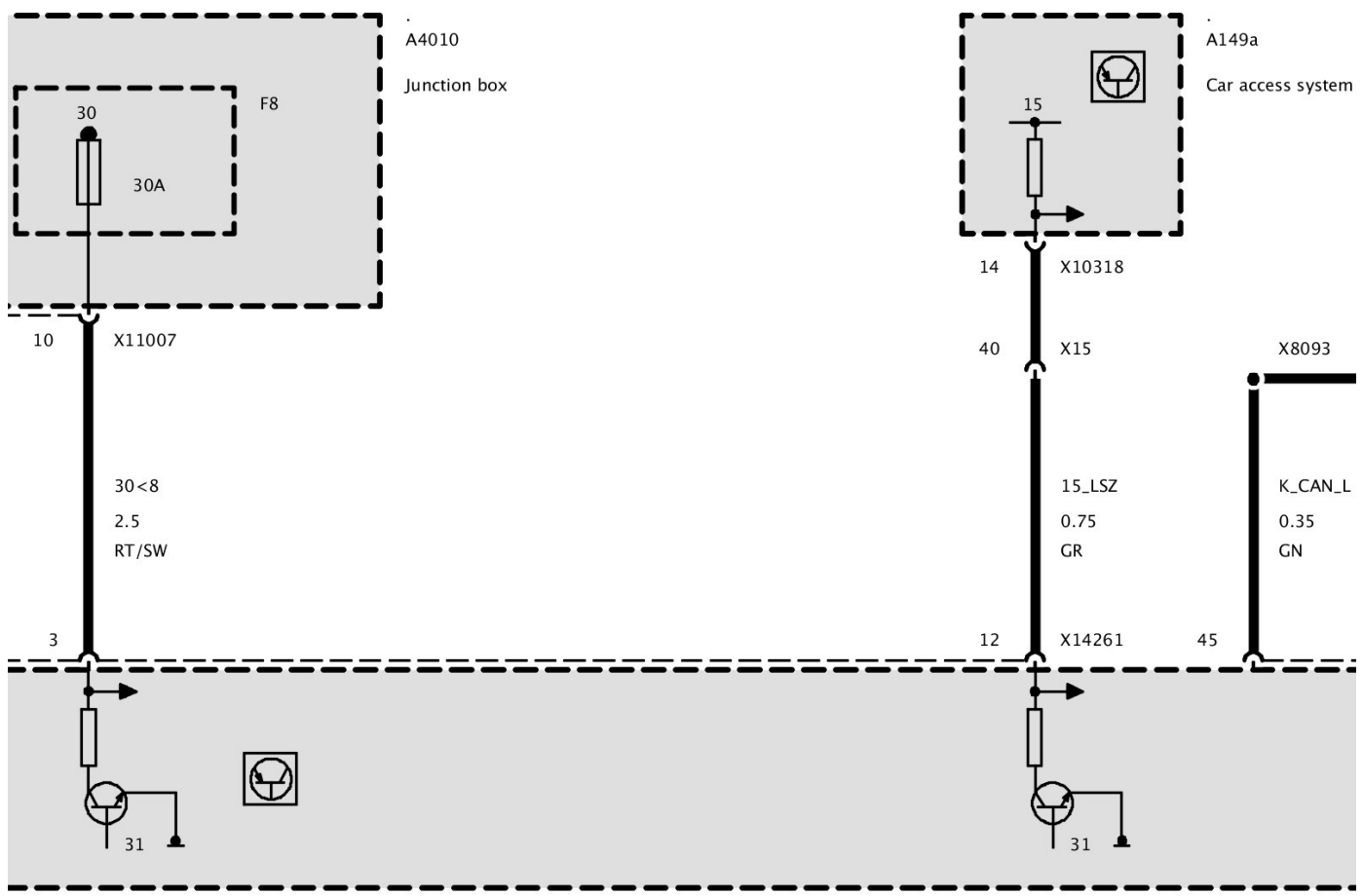
Power Supply, Footwell Module FRM (As Of 12/08)

Power Supply, Footwell Module FRM (As Of 12/08)



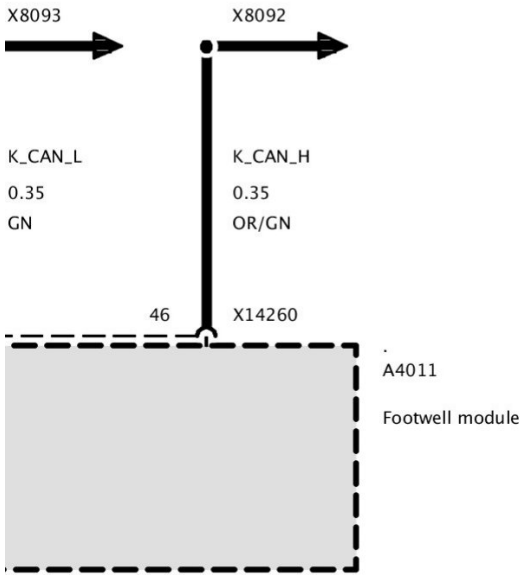


Part 1



Part 2

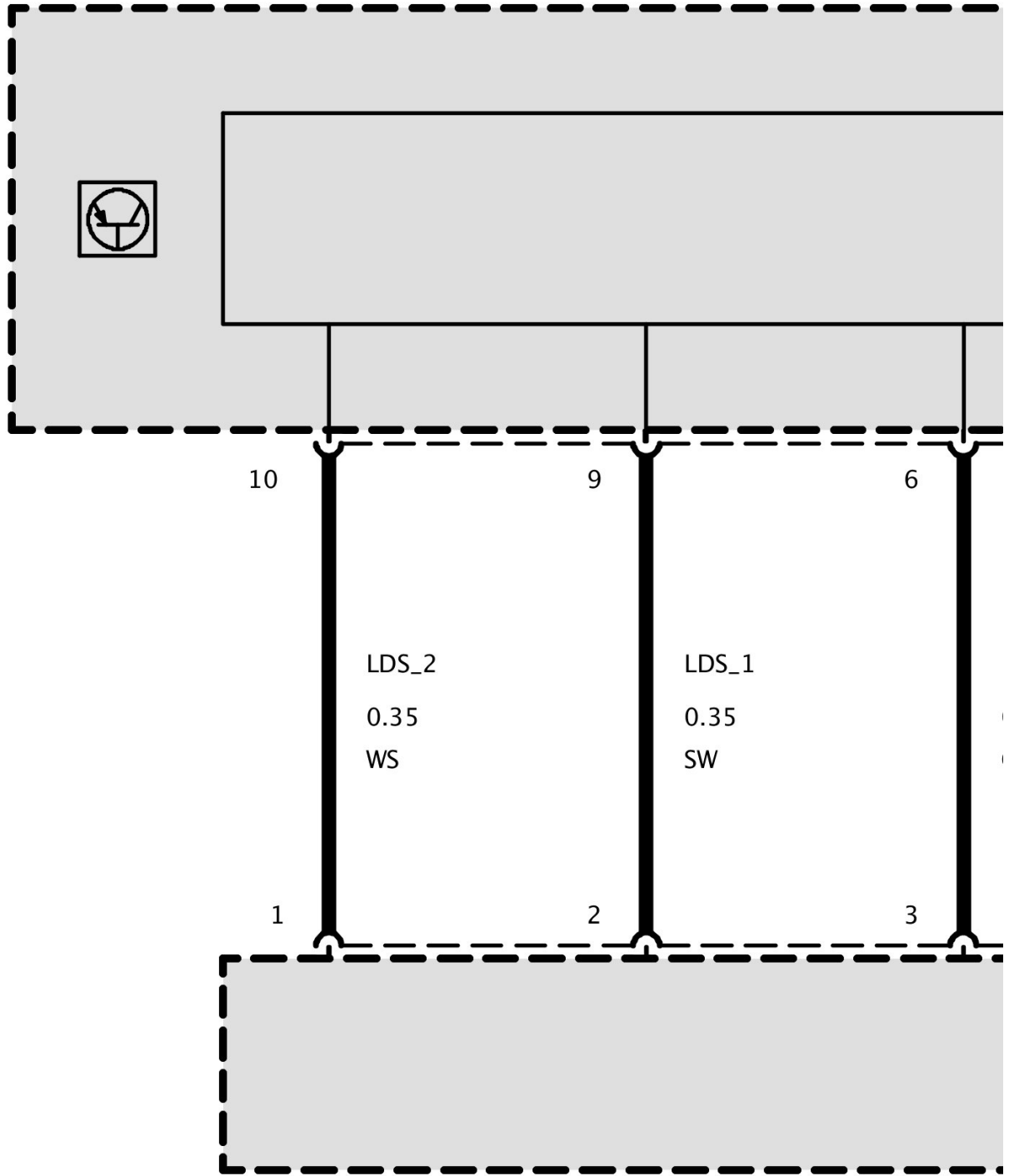
ss system



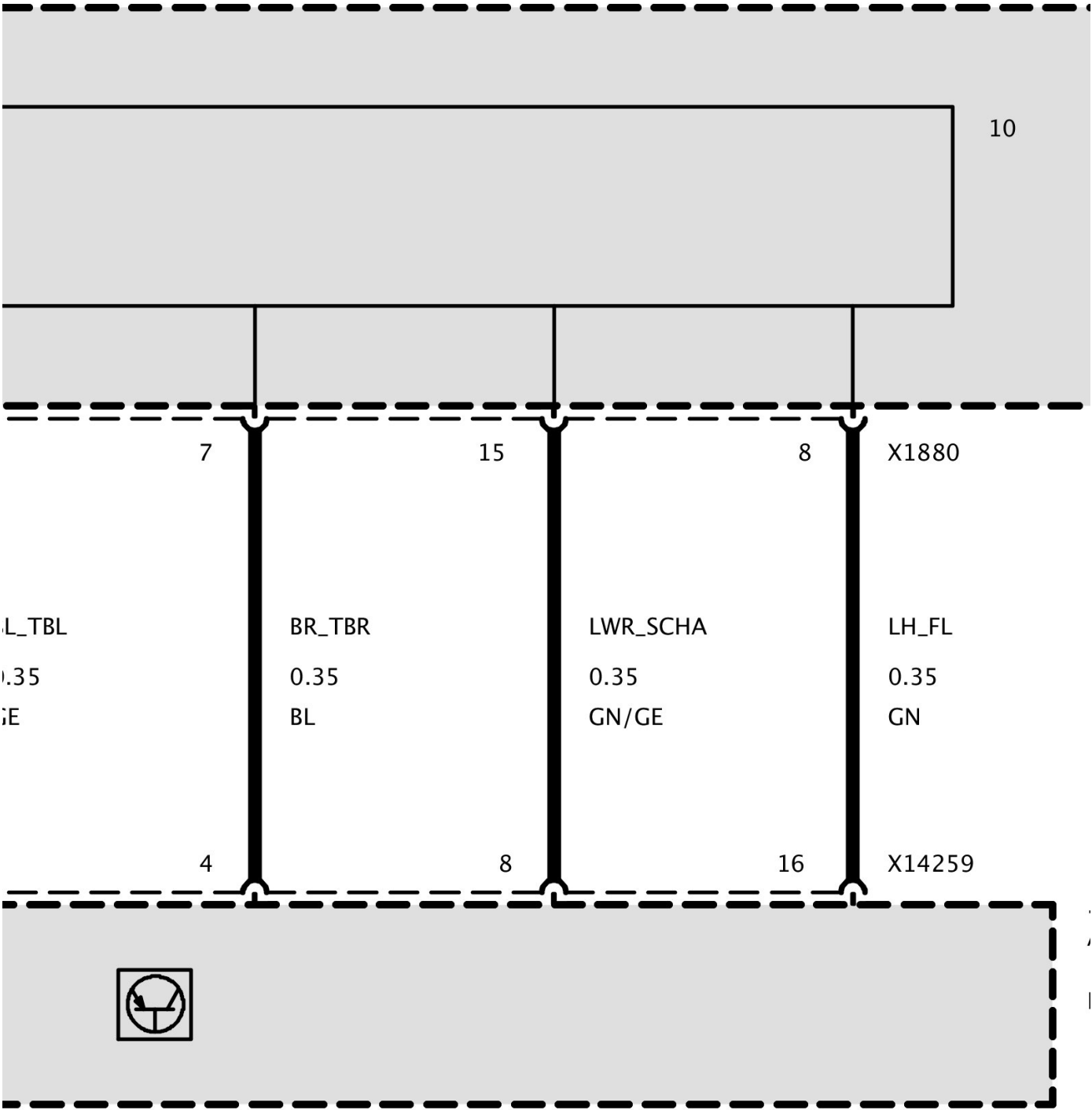
Part 3

Light Switch

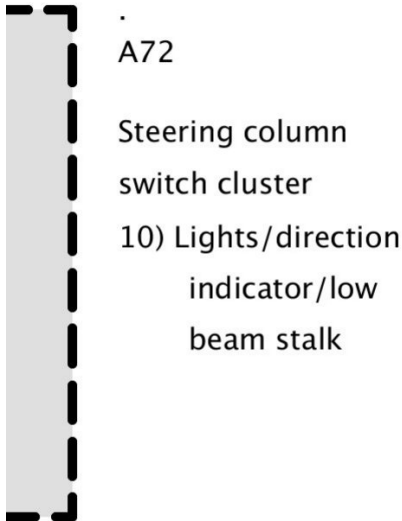
Lights/Direction Indicator/Low Beam Stalk



Part 1



Part 2



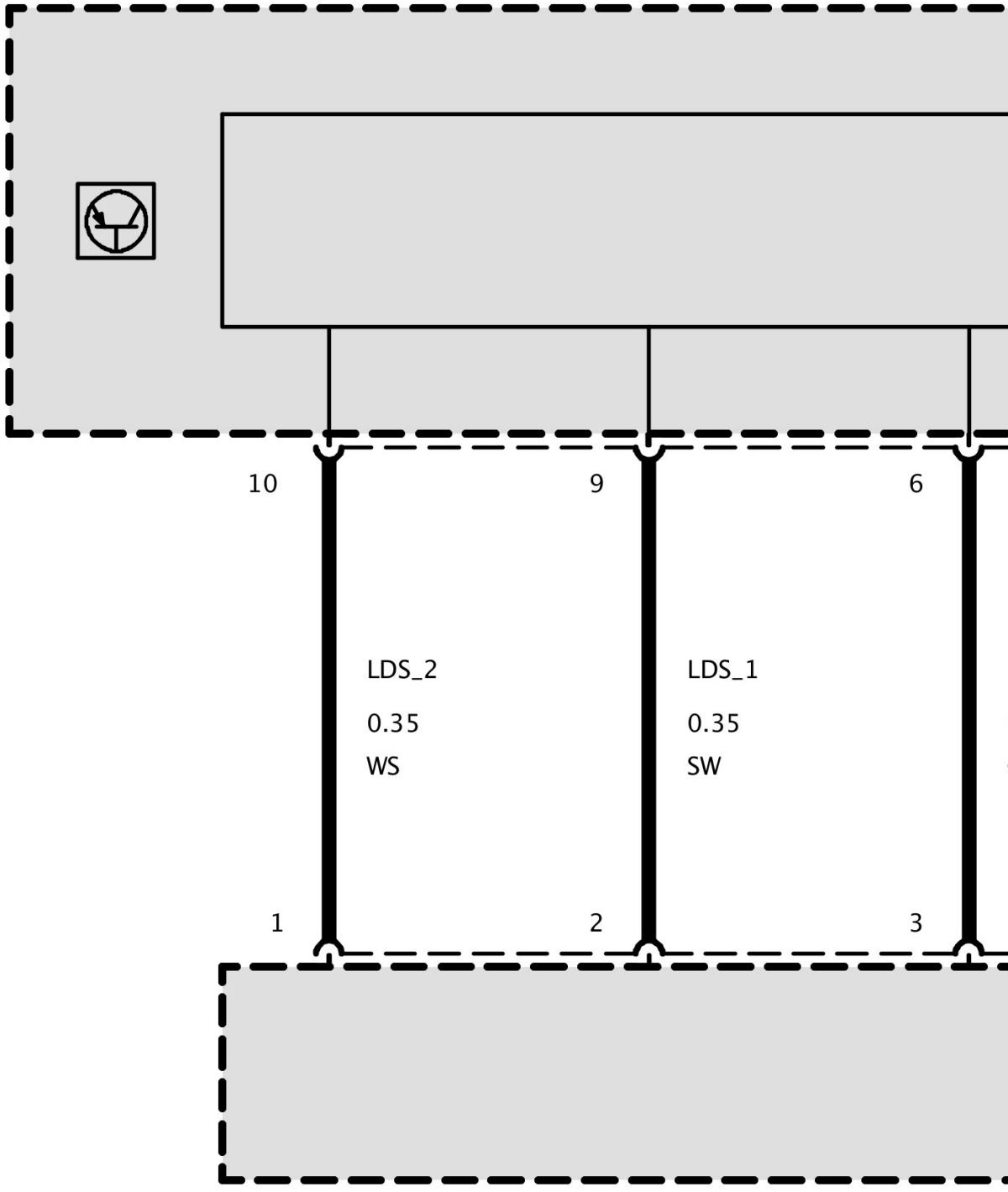
4011

ootwell module

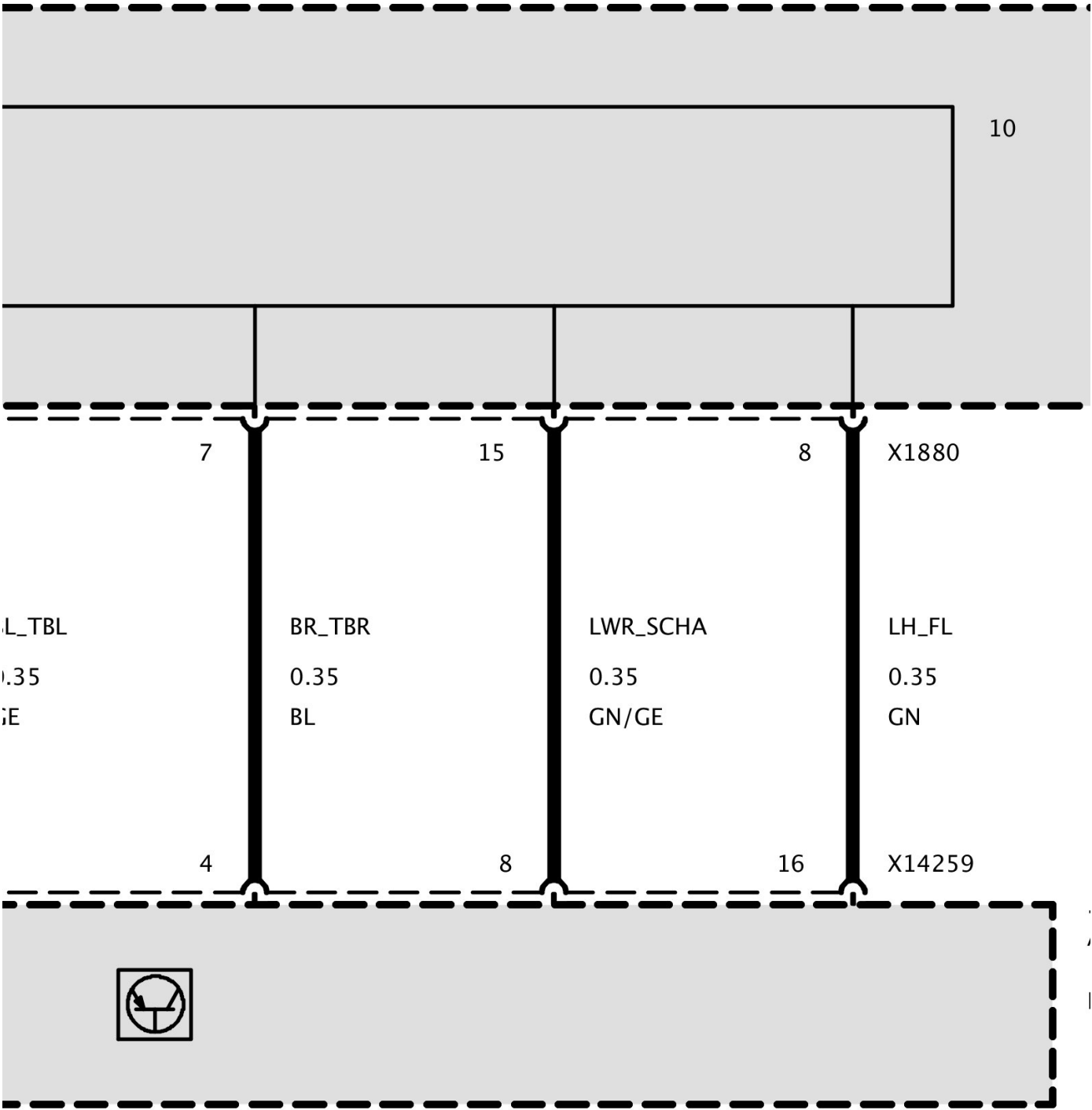
Part 3

Direction Indicator/High Beam Headlight Switch

Lights/Direction Indicator/Low Beam Stalk

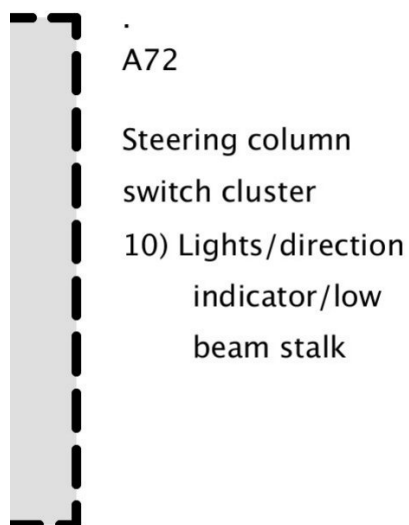


Part 1



Part 2





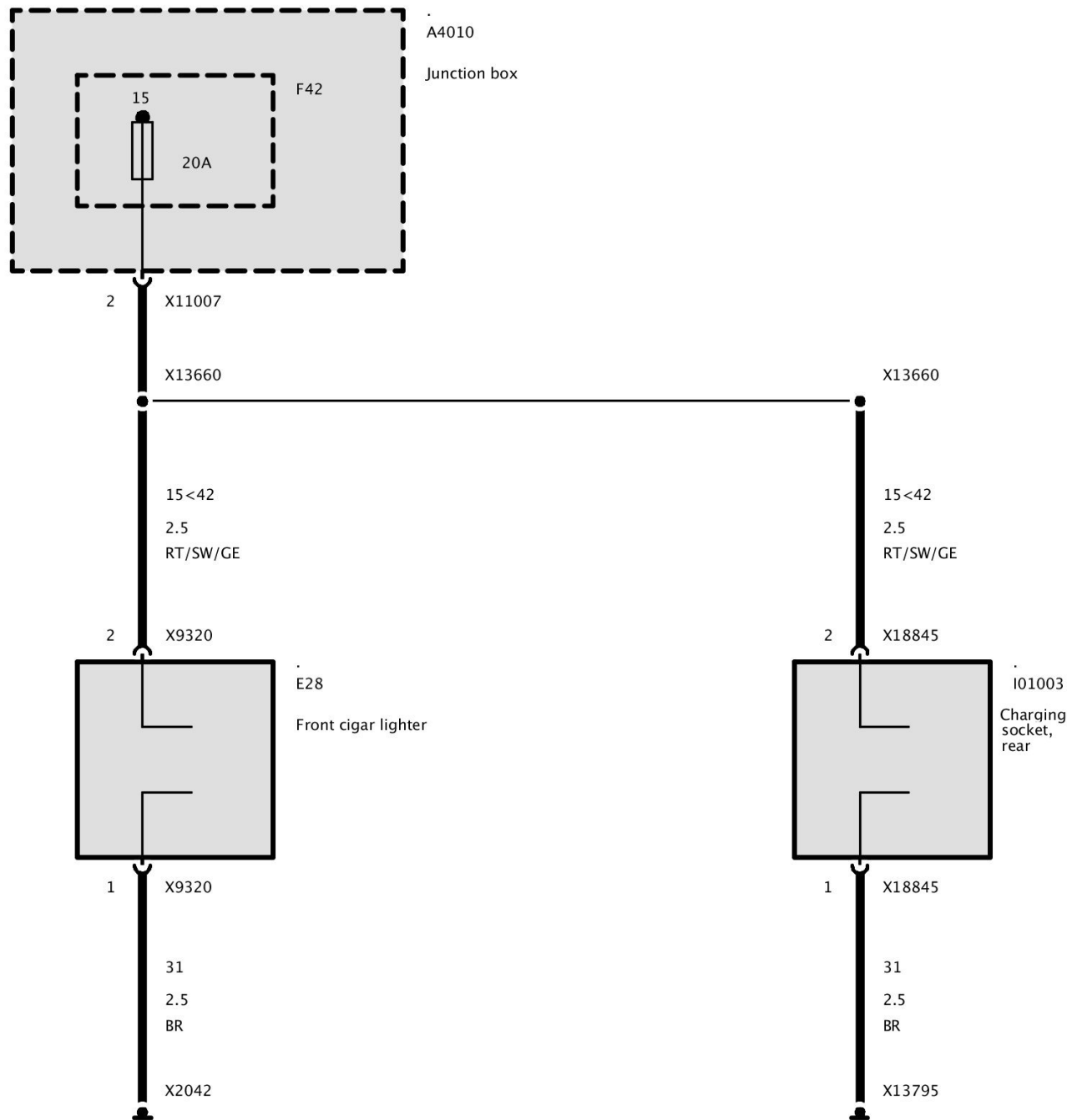
4011

ootwell module

### Part 3

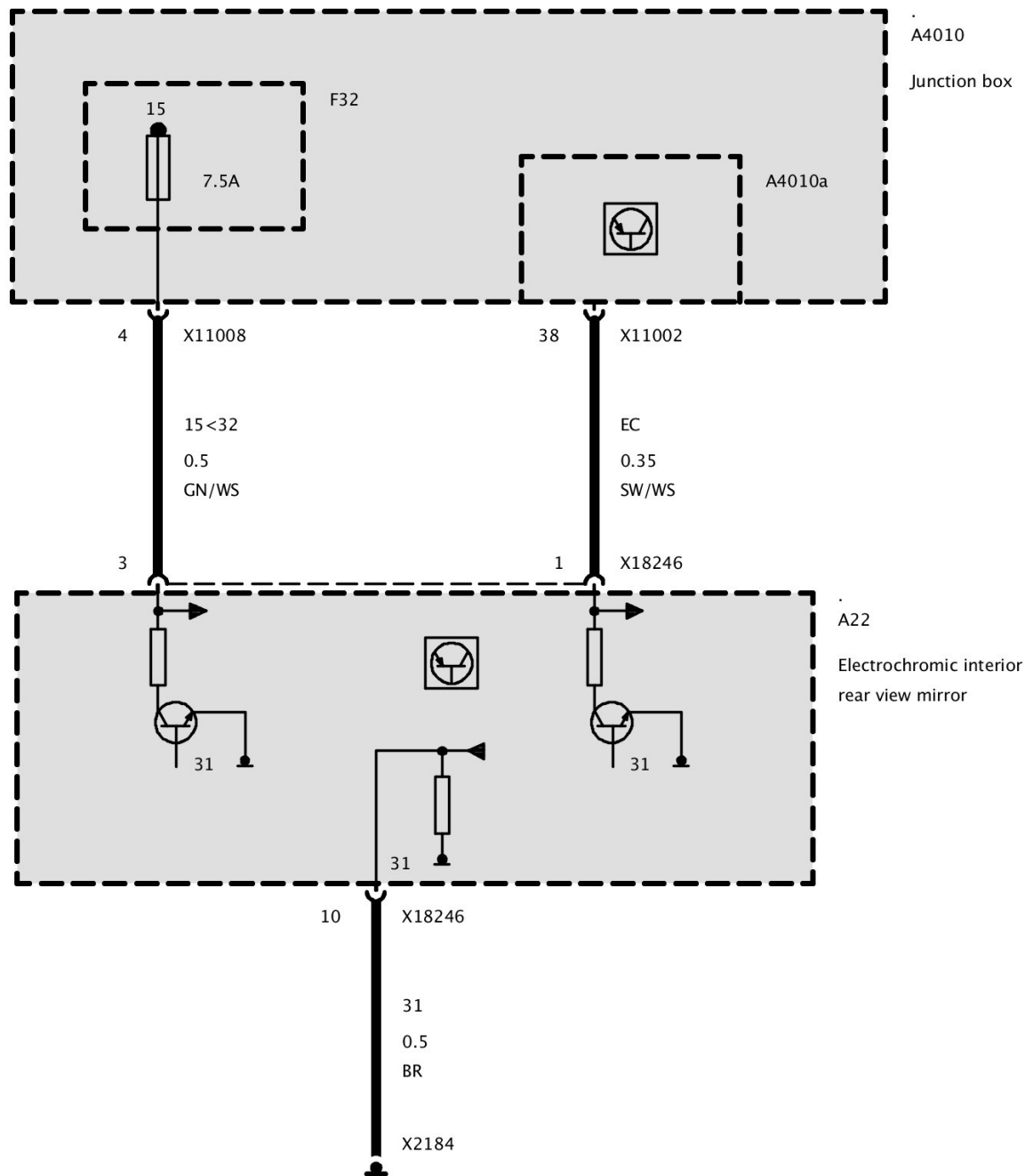
## Lighter And Power Socket

### Cigarette Lighter And Charging Sockets



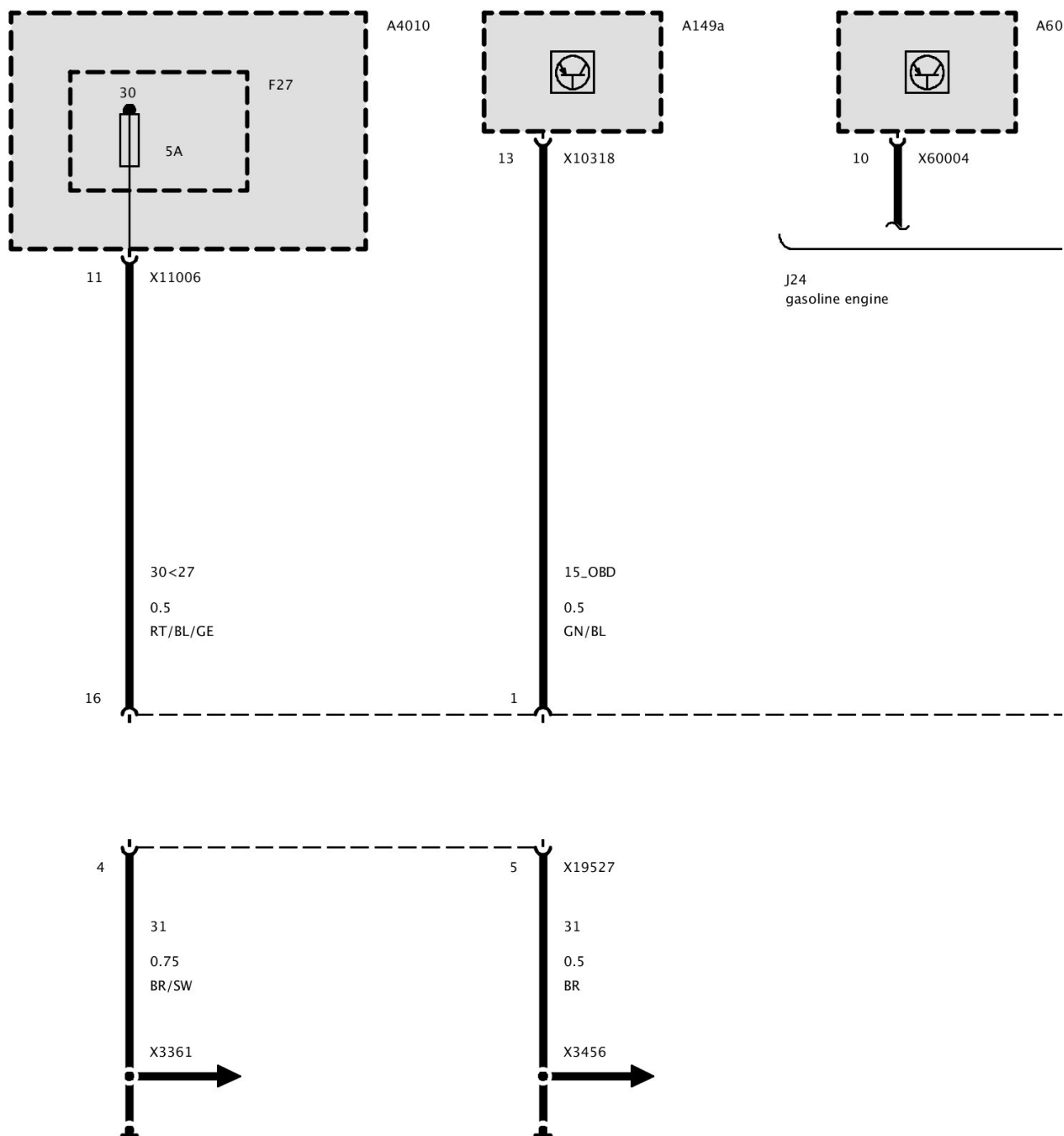
Garage Door Opener

Electrochromic Mirror

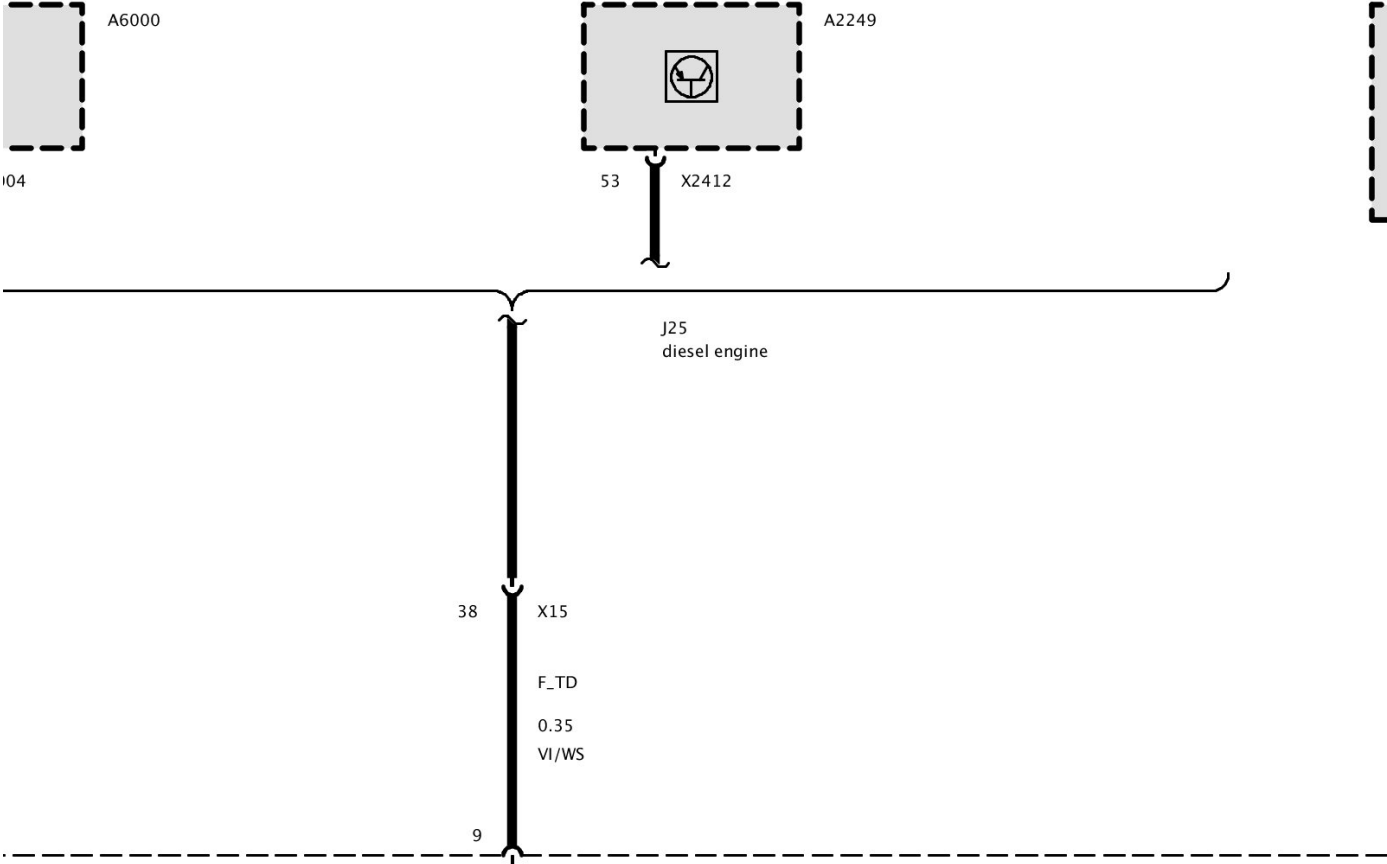


OBD Socket Outlet

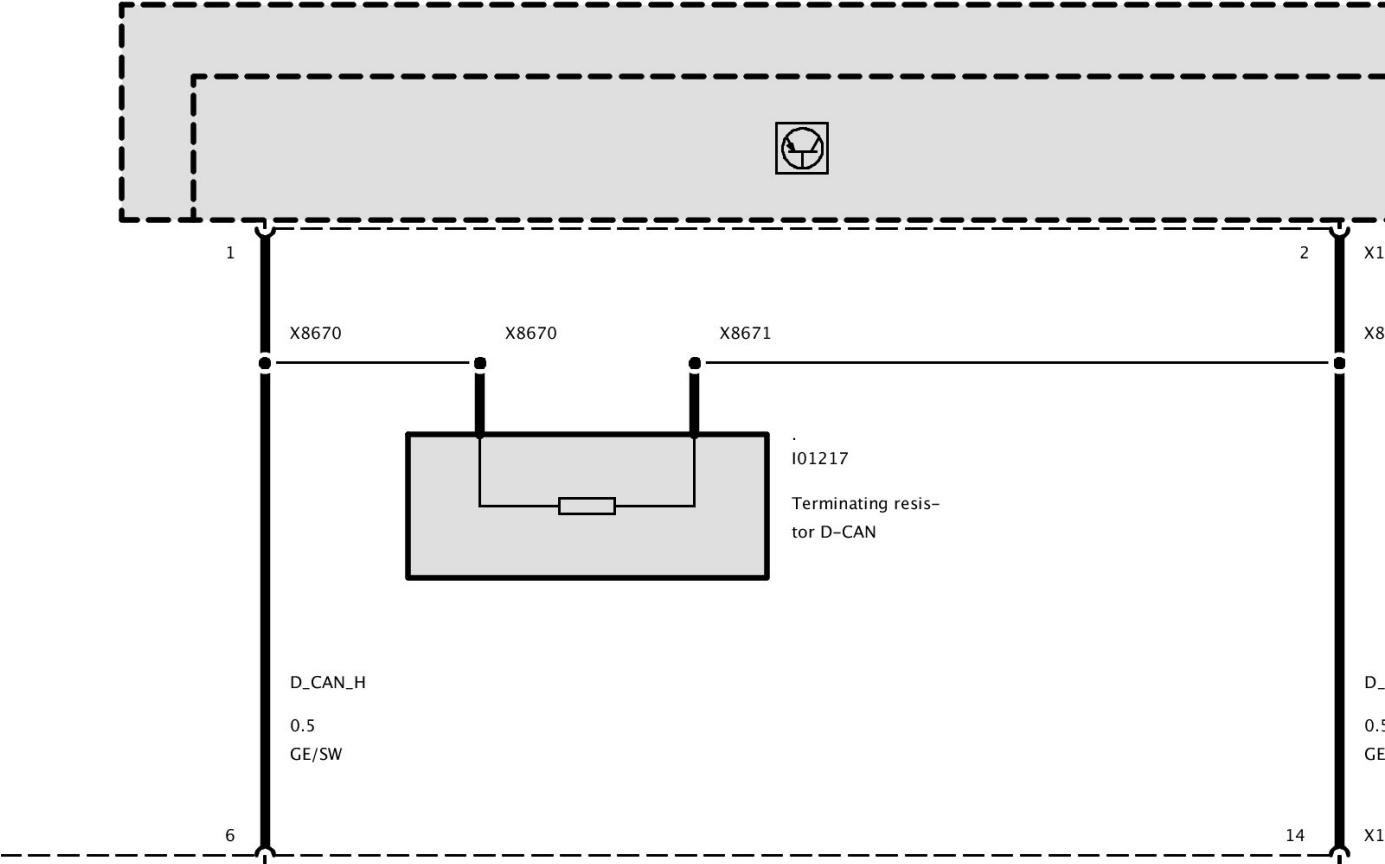
OBDII Socket



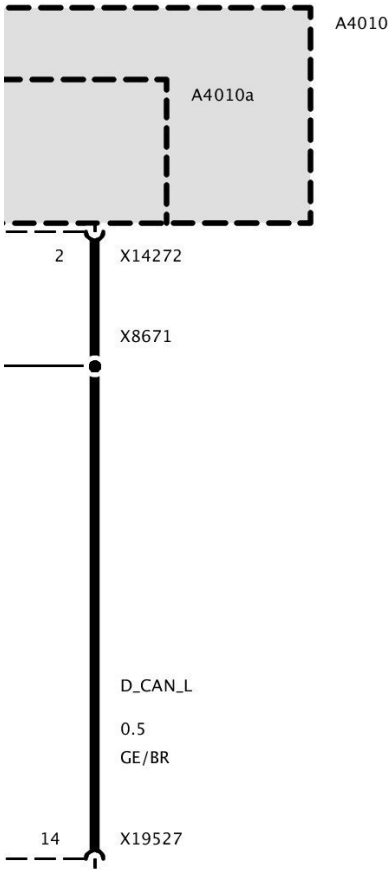
Part 1



Part 2



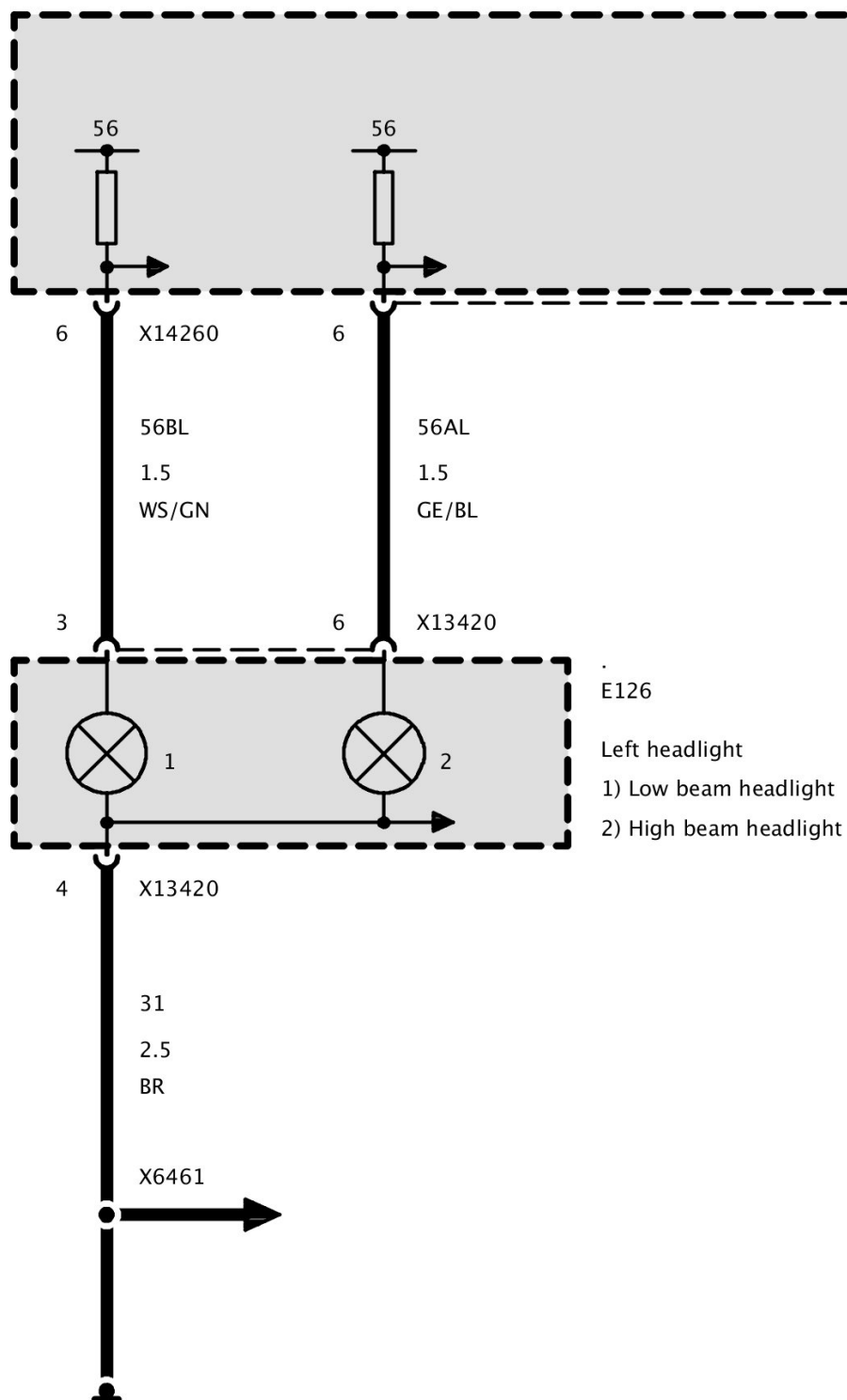
Part 3



**Part 4**

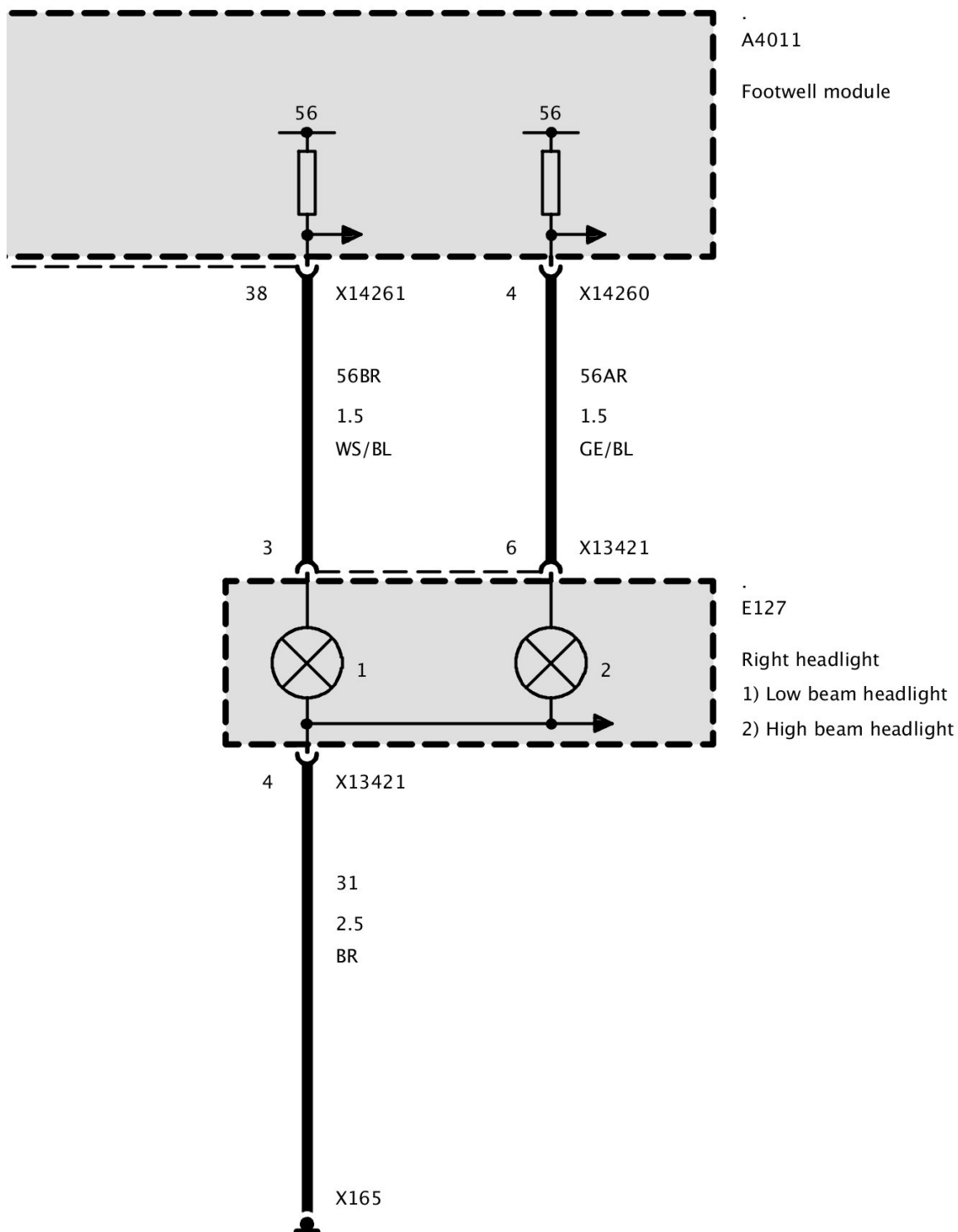
**Low Beam/High Beam (Without Xenon Lights)**

**Low Beam/High Beam (Without Xenon Lights)**



jmoraflores@hotmail.cl

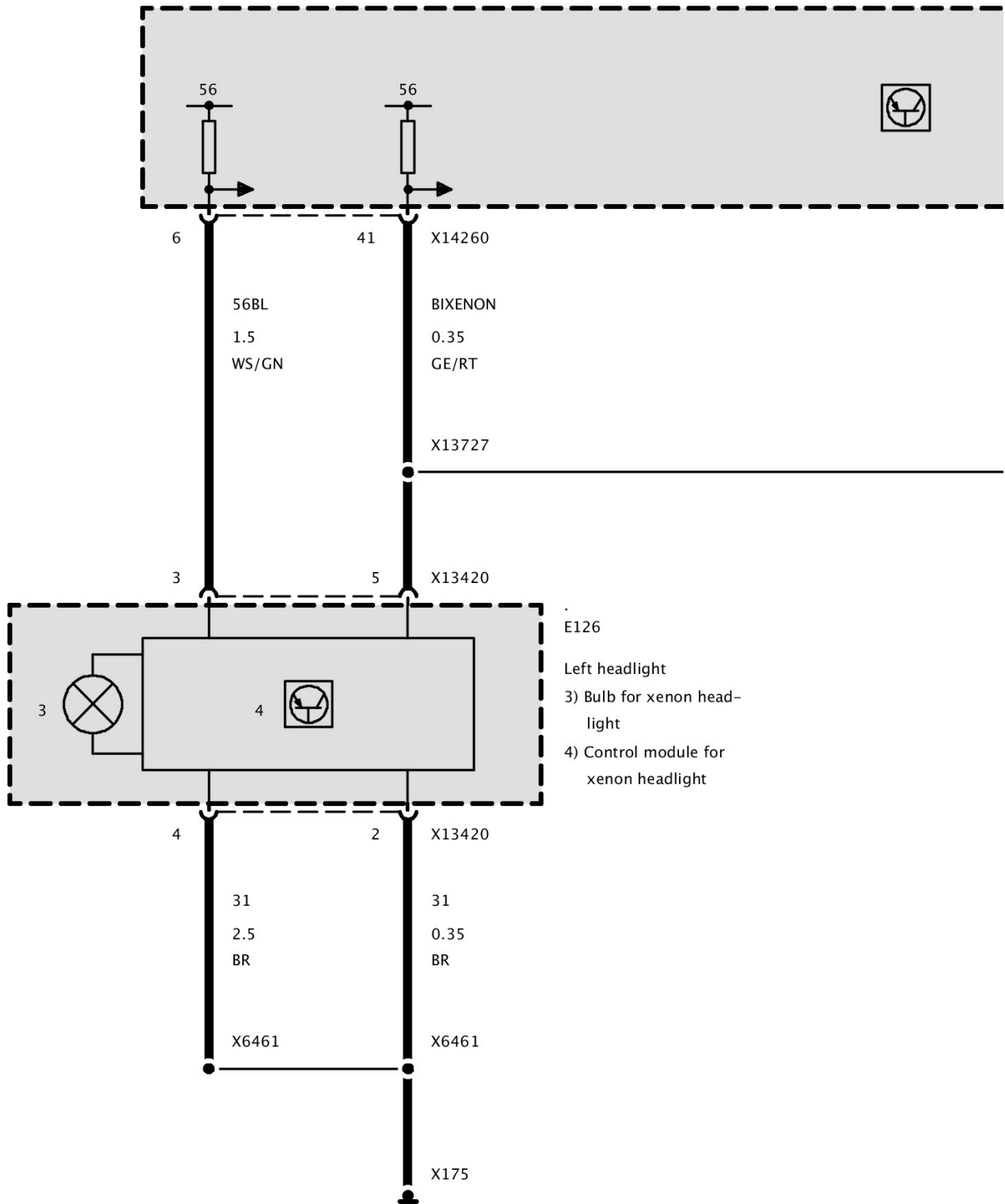




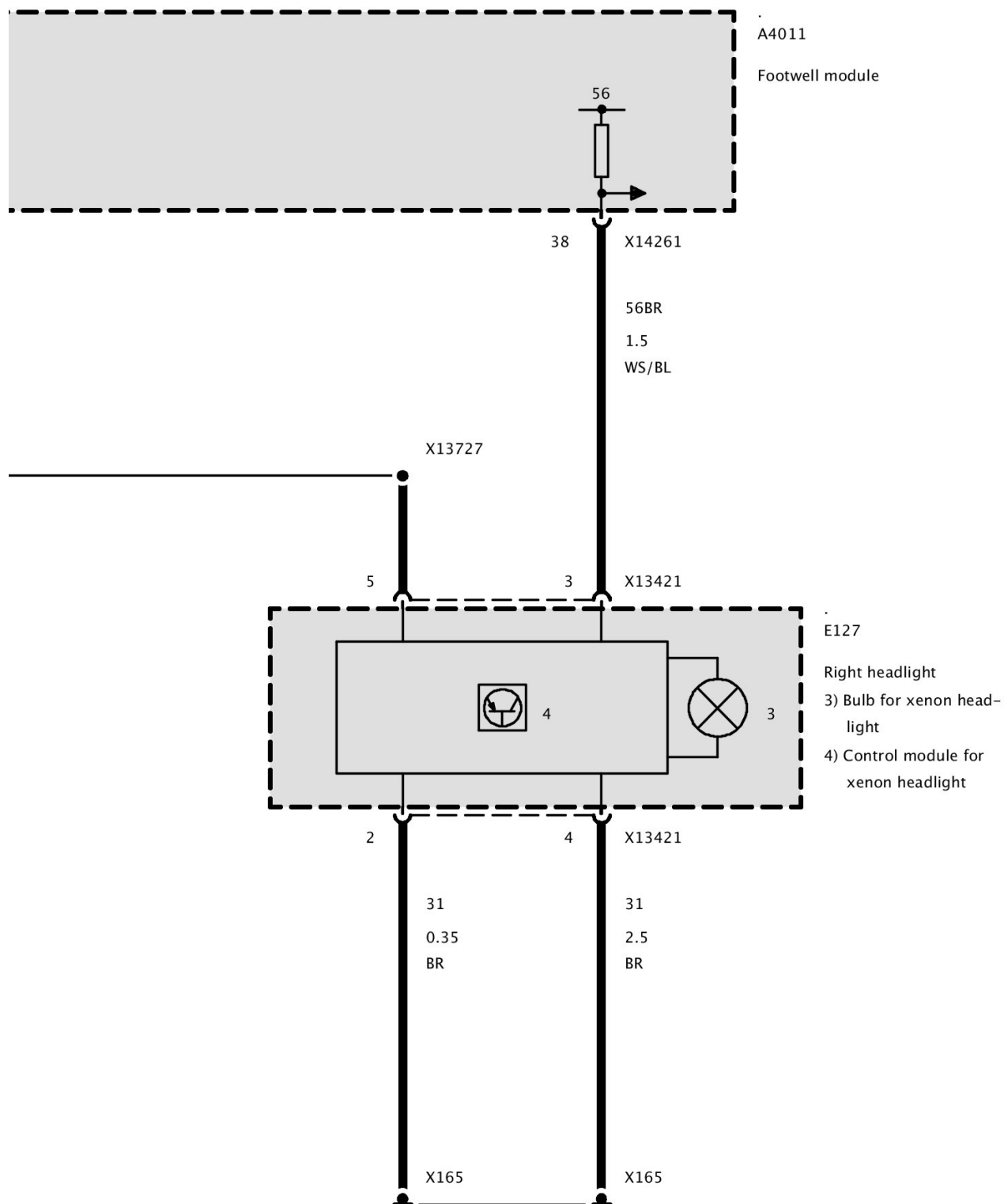
## Part 2

### Low Beam/High Beam (Xenon Lights)

#### Low Beam/High Beam (Xenon Lights)



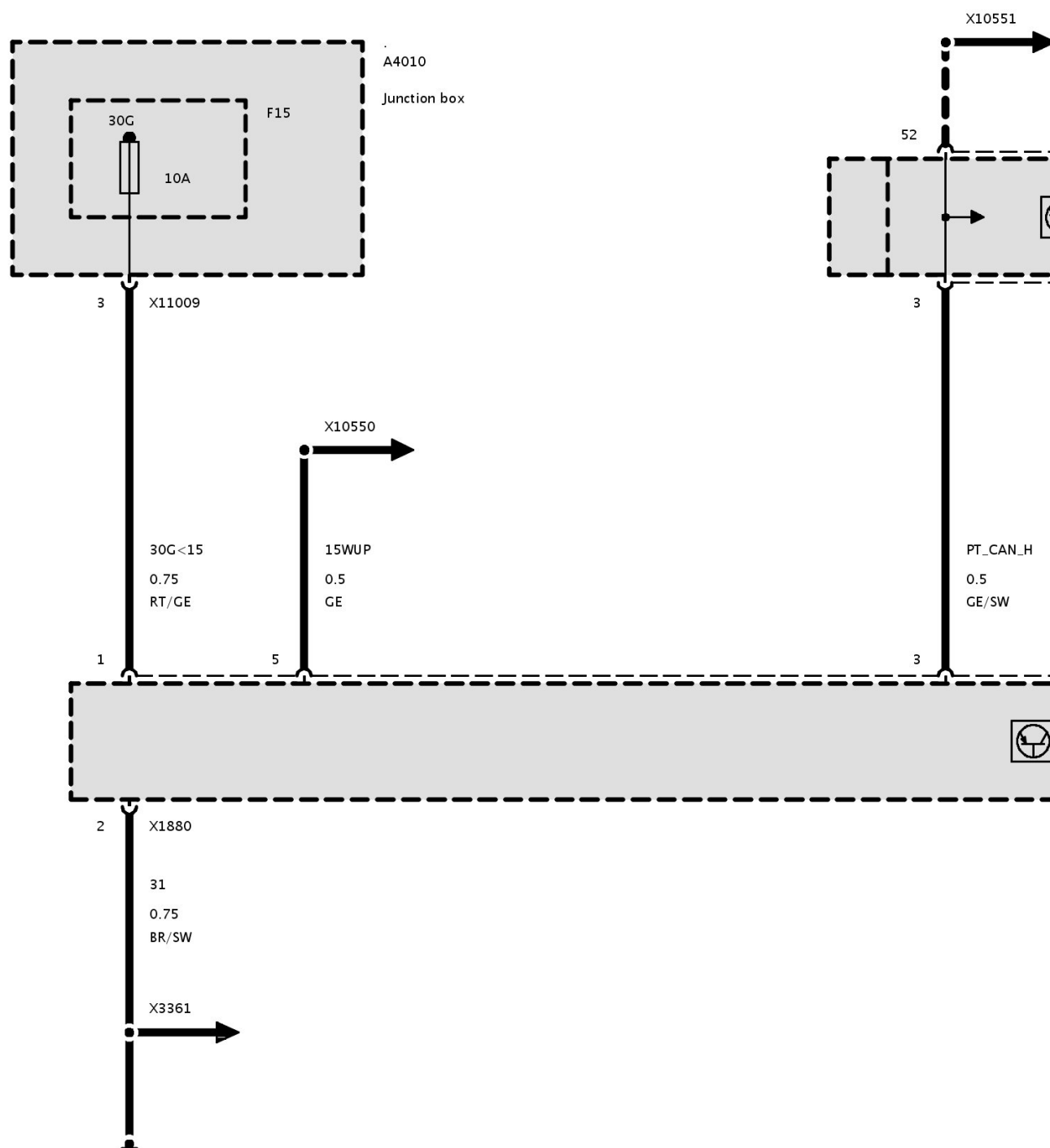
Part 1



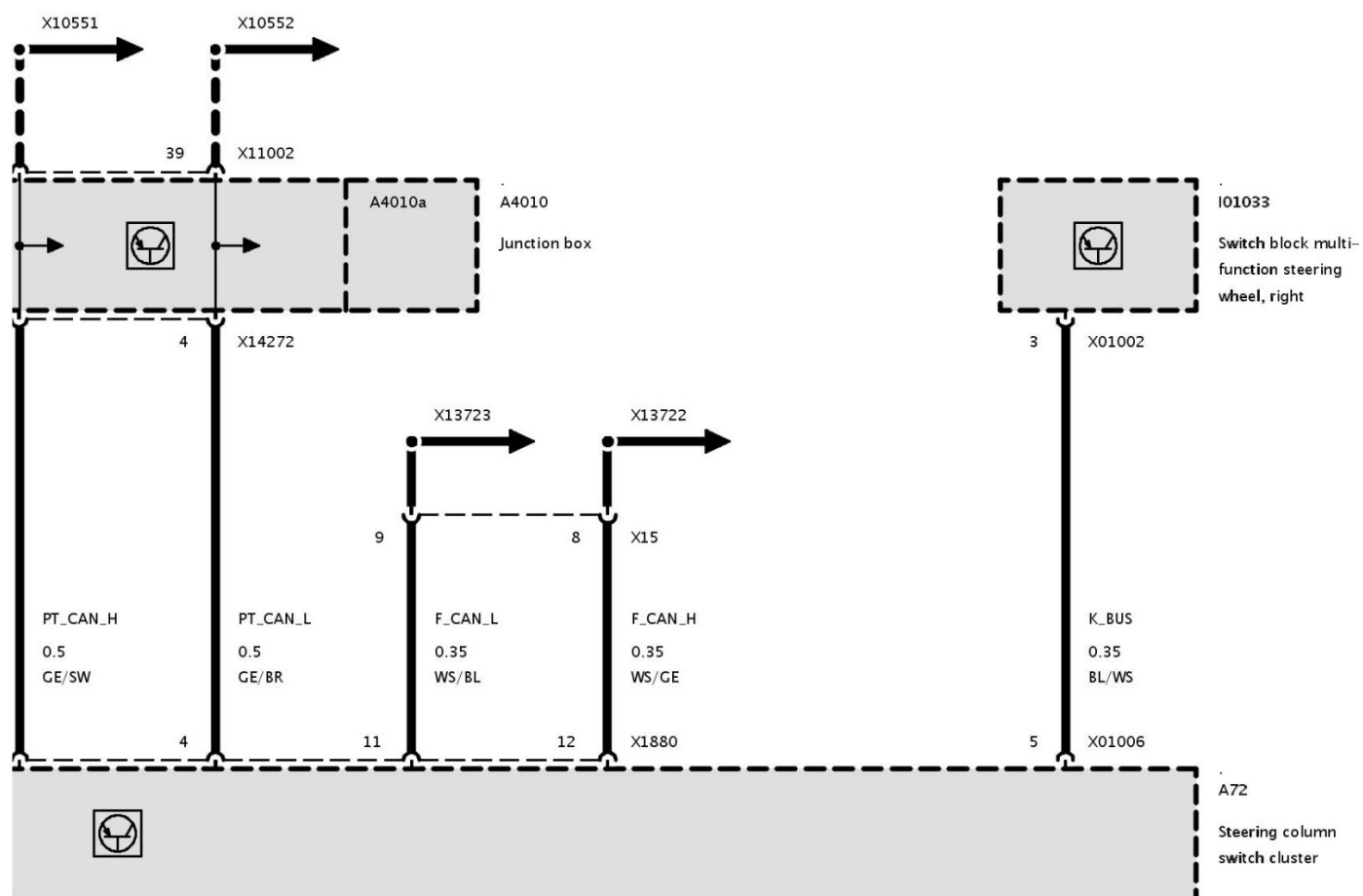
## Part 2

### Supply, Steering Column Switch Cluster SZL (Up To 12/08)

### Supply, Steering Column Switch Cluster SZL (Up To 12/08)



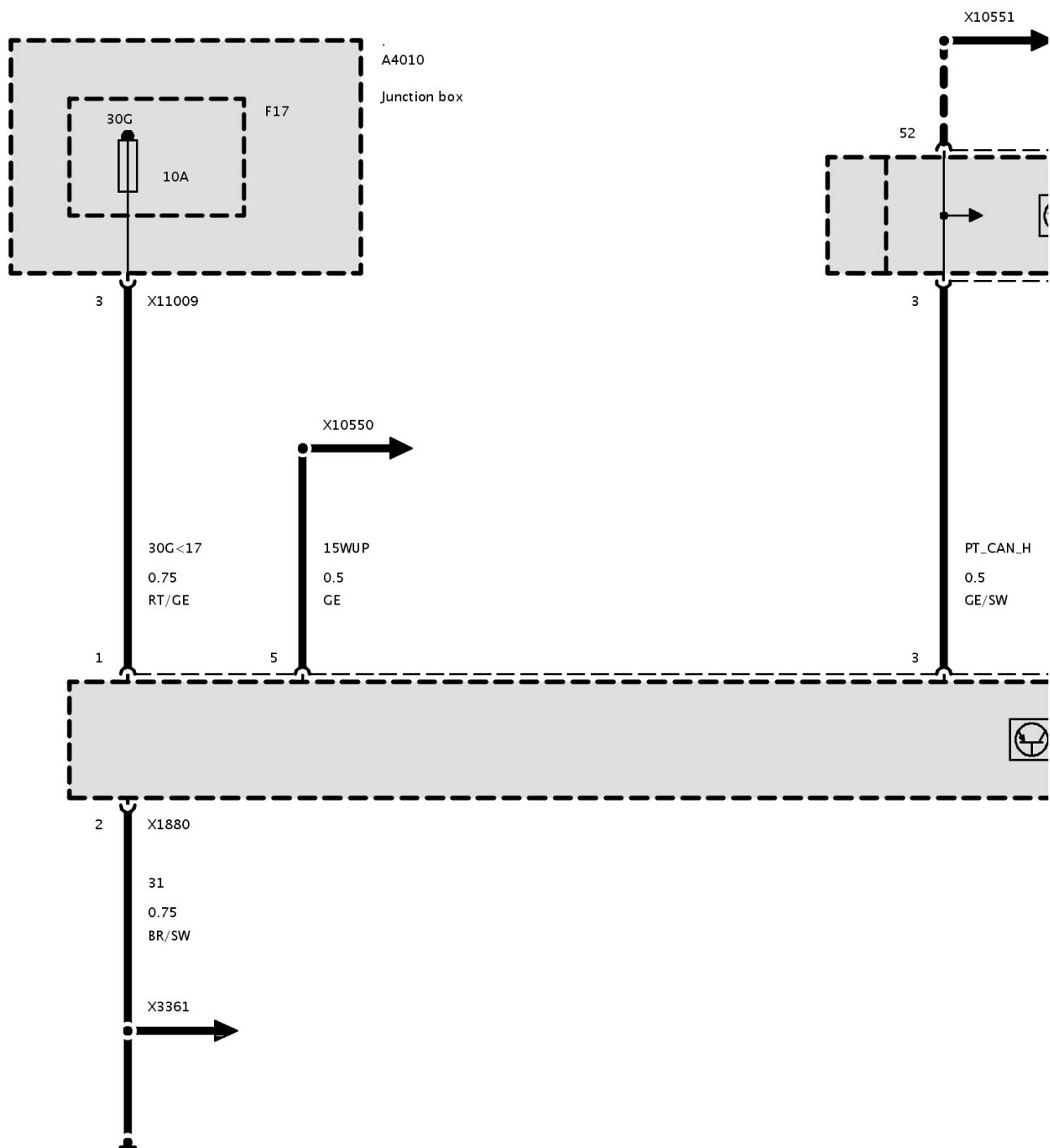
jmoraflores@hotmail.cl



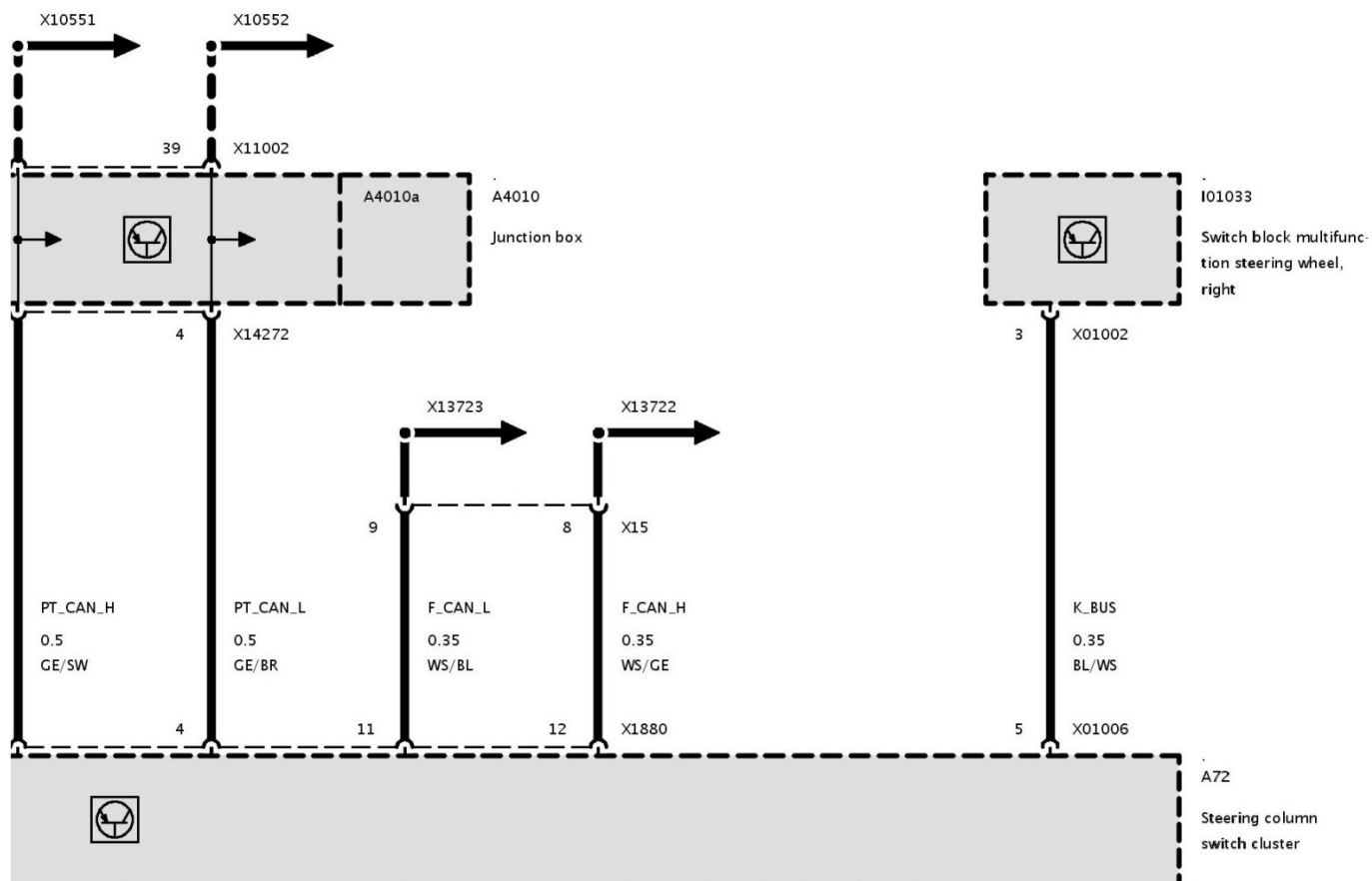
## Part 2

**Supply, Steering Column Switch Cluster SZL (As Of 12/08)**

**Supply, Steering Column Switch Cluster SZL (As Of 12/08)**



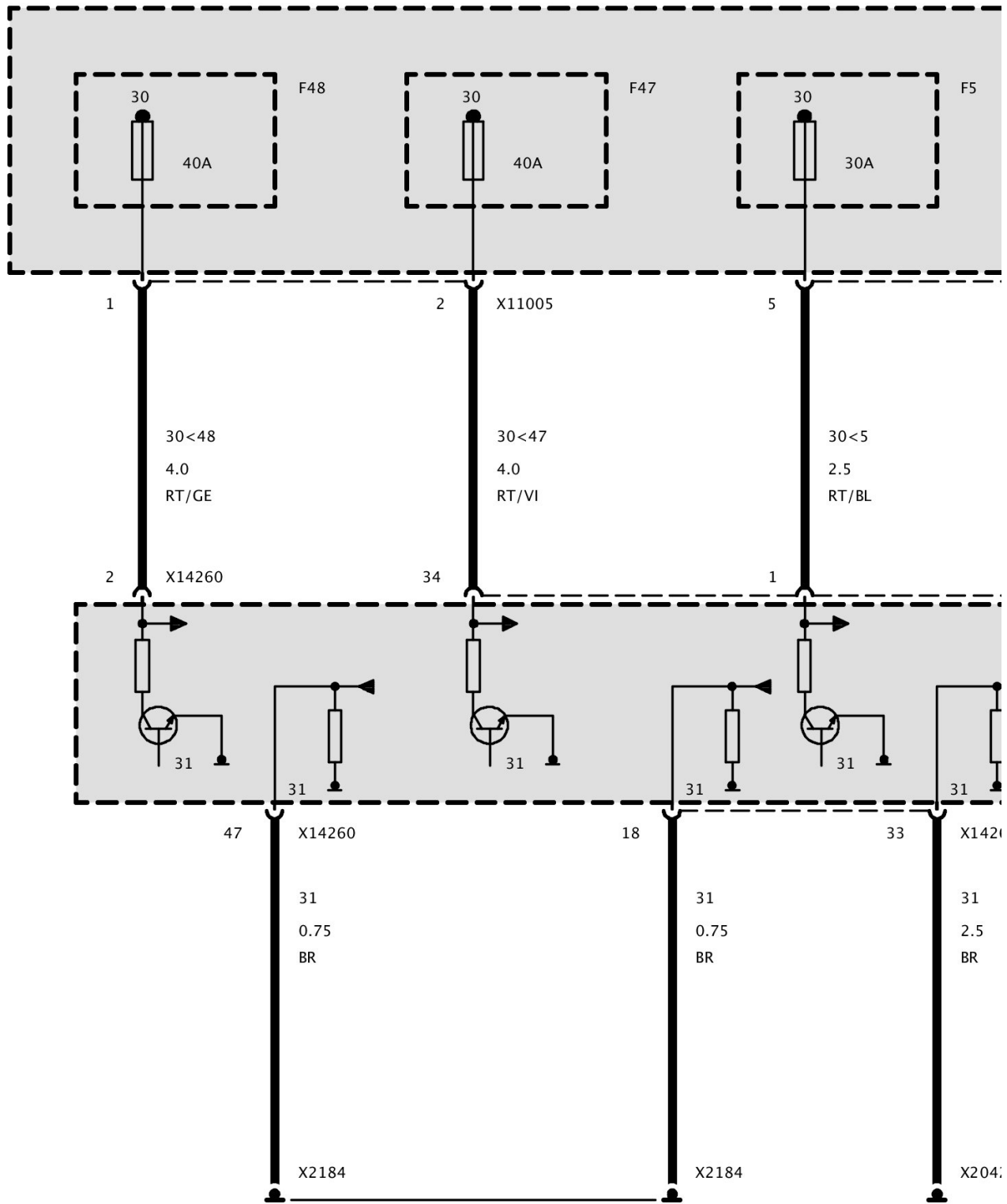
Part 1



## Part 2

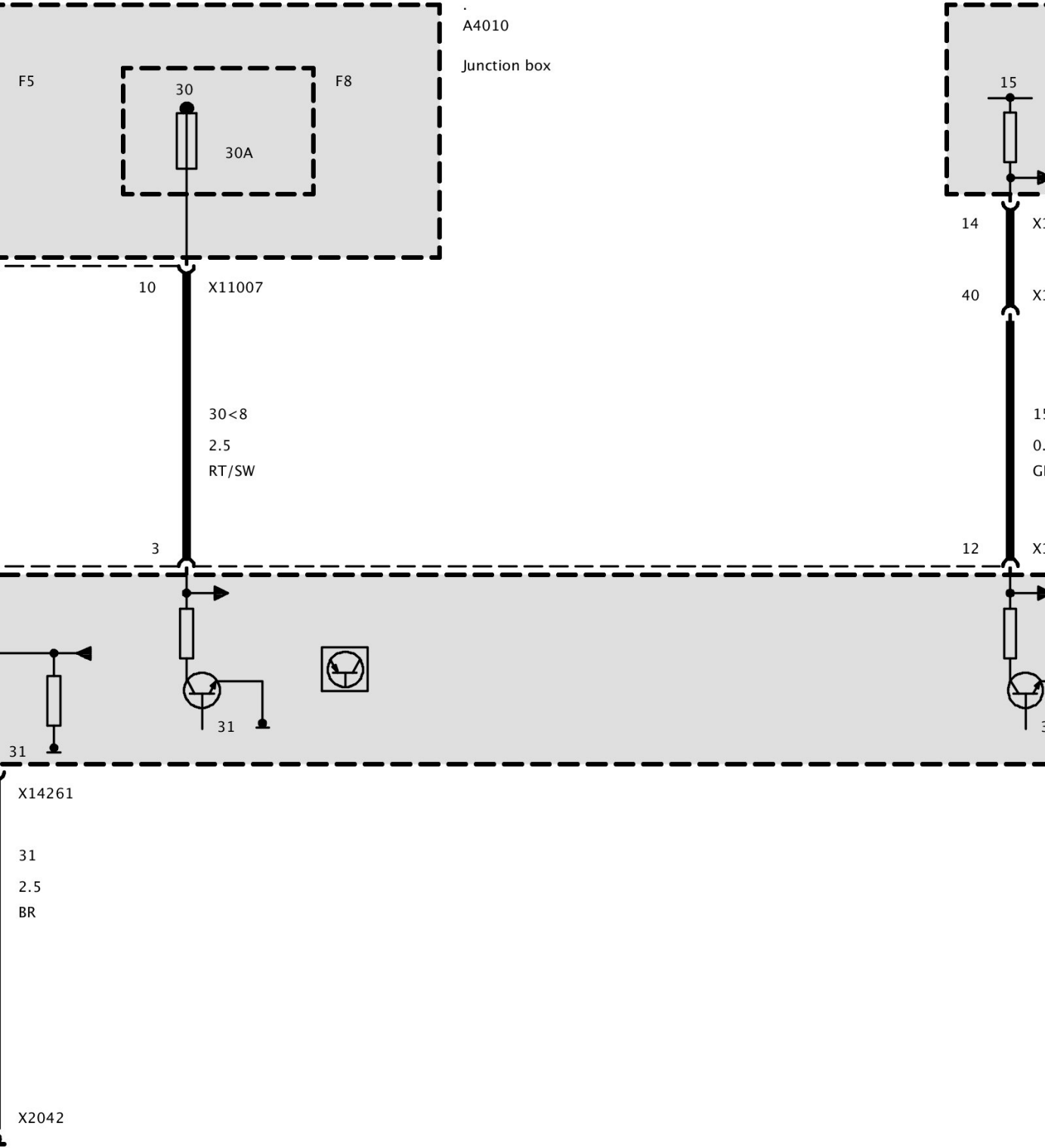
### Power Supply, Footwell Module FRM (Up To 12/08)

Power Supply, Footwell Module FRM (Up To 12/08)

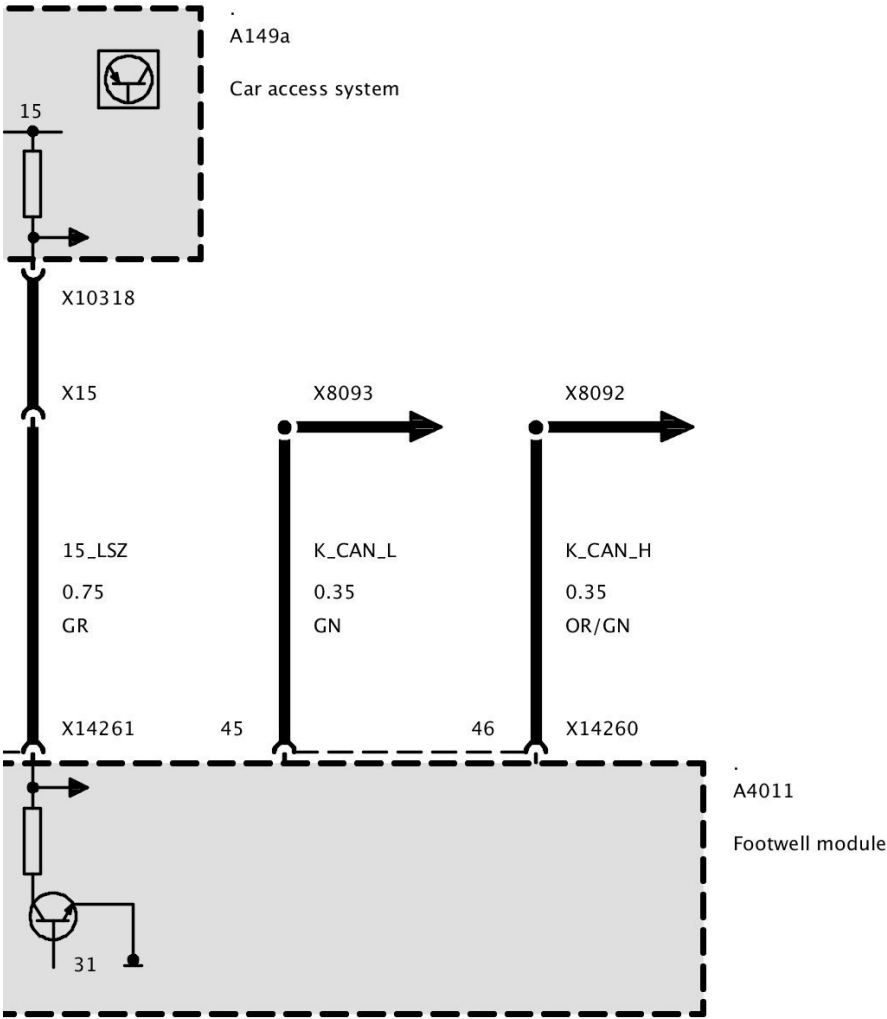


Part 1





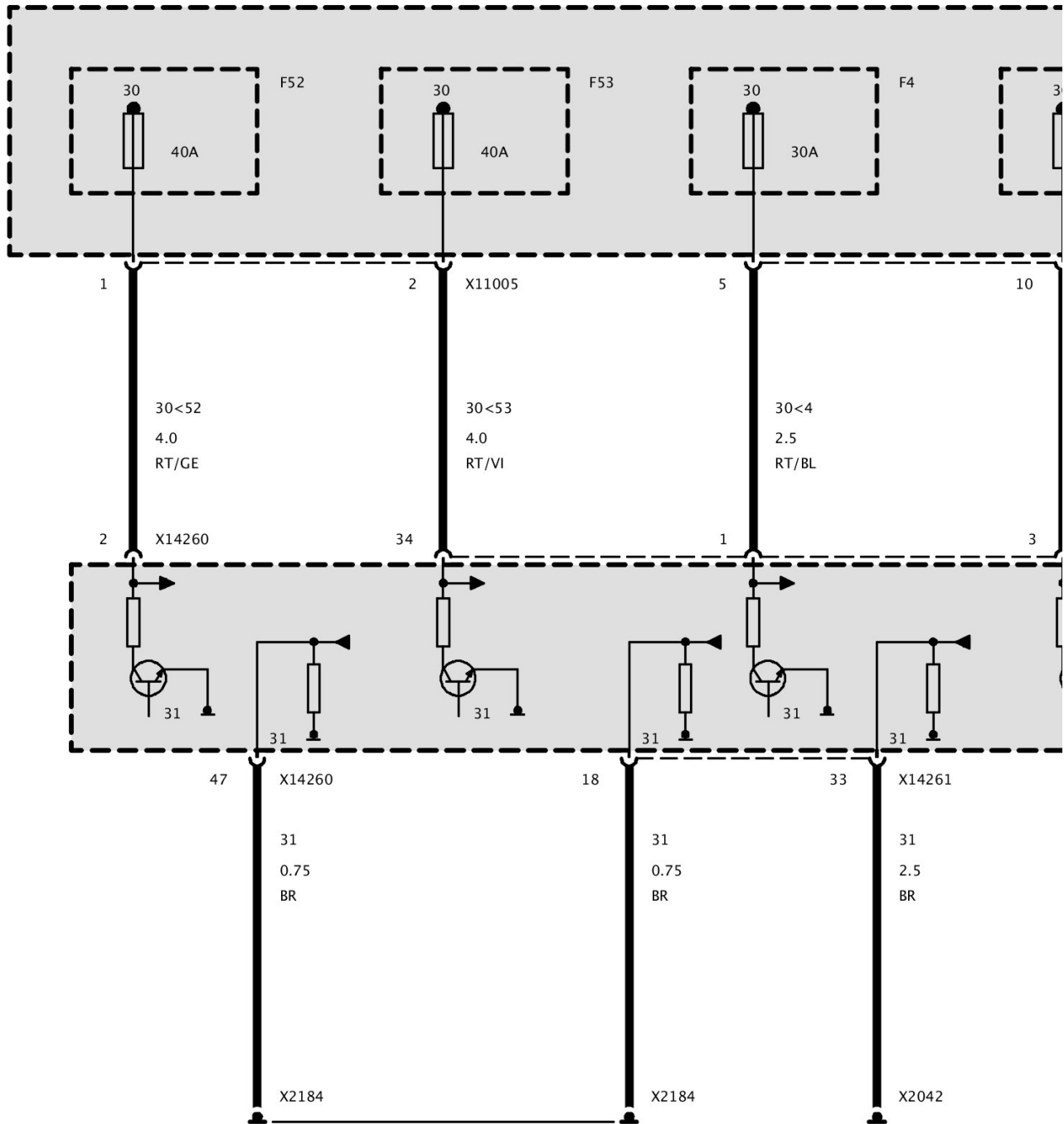
Part 2



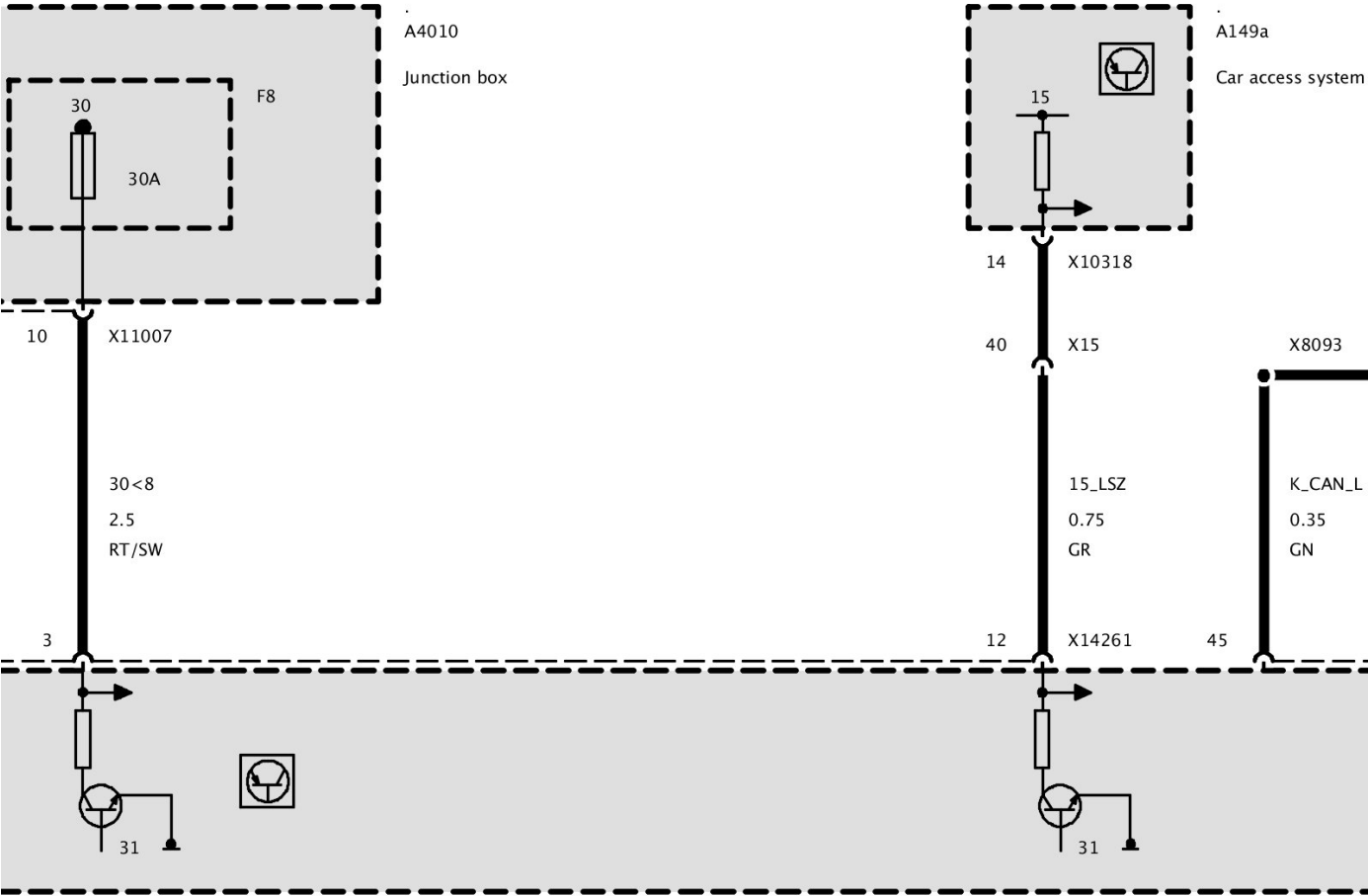
Part 3

Power Supply, Footwell Module FRM (As Of 12/08)

Power Supply, Footwell Module FRM (As Of 12/08)

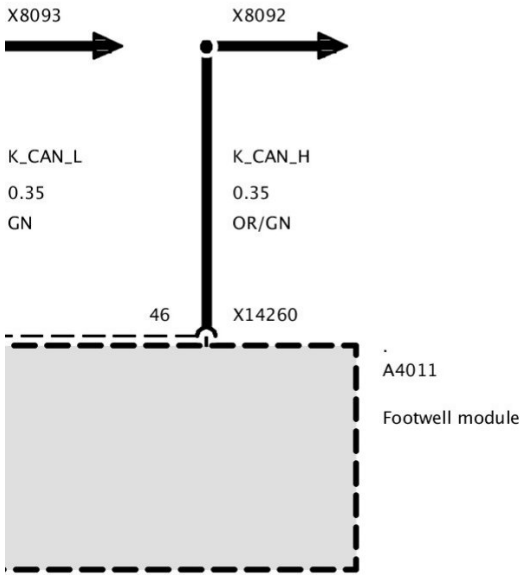


Part 1



Part 2

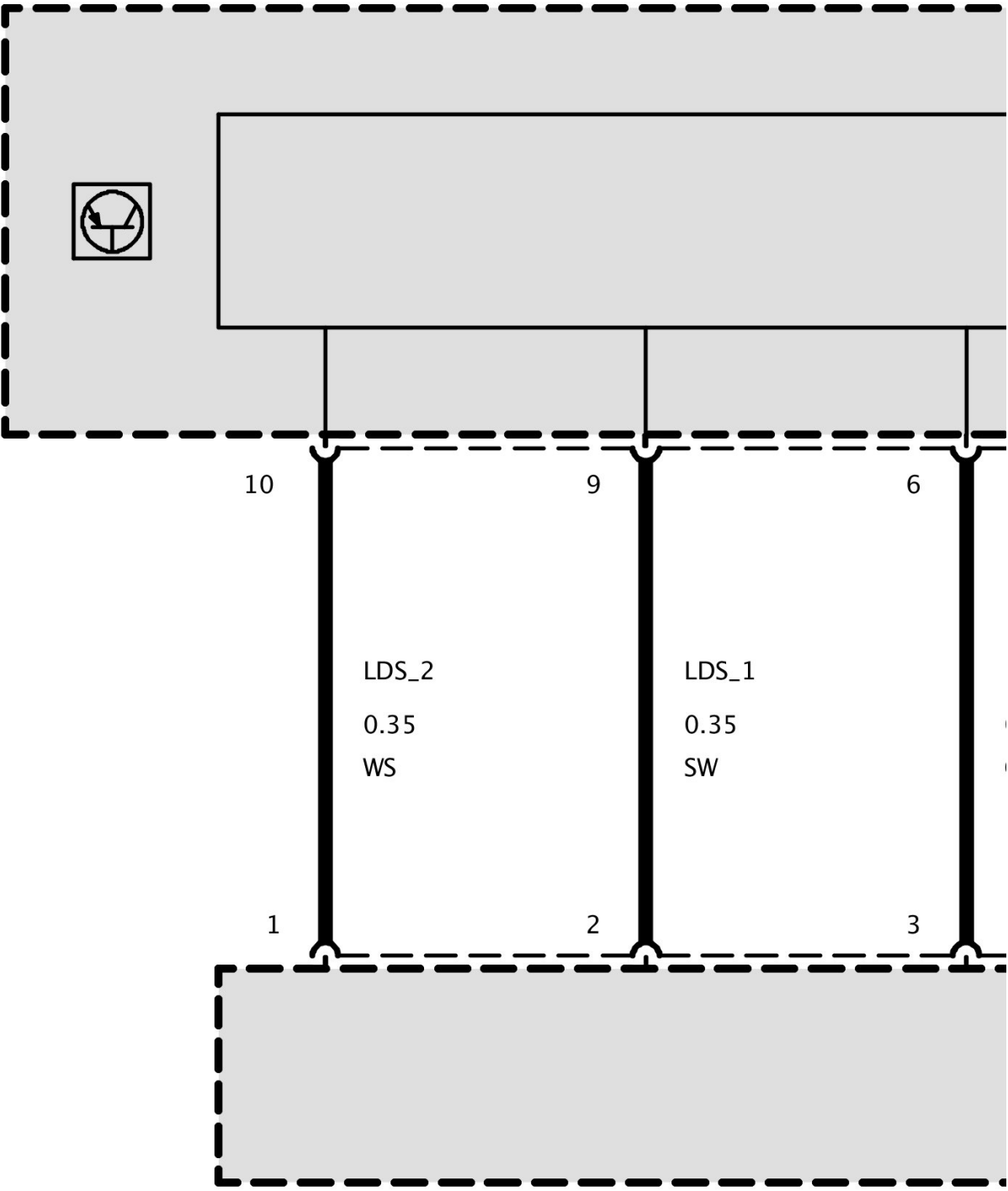
ss system



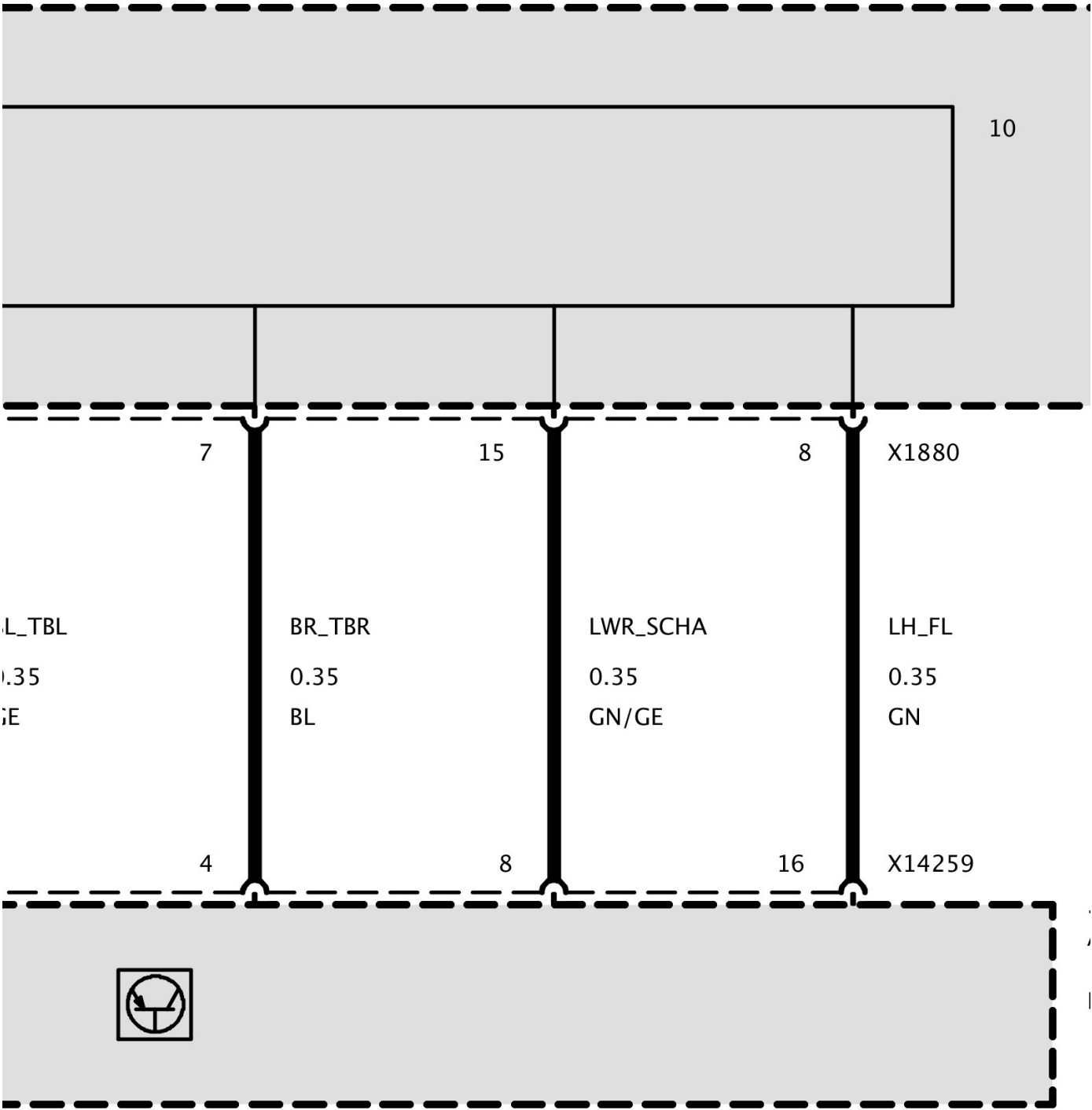
Part 3

Light Switch

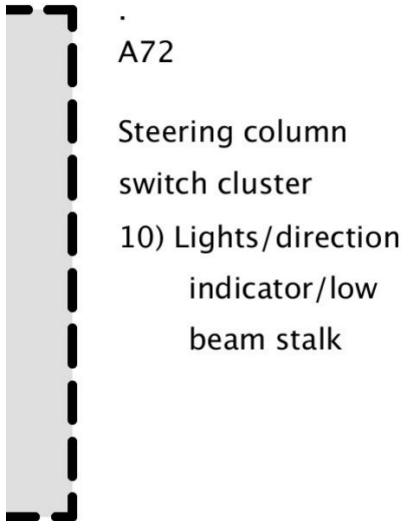
Lights/Direction Indicator/Low Beam Stalk



Part 1



Part 2



4011

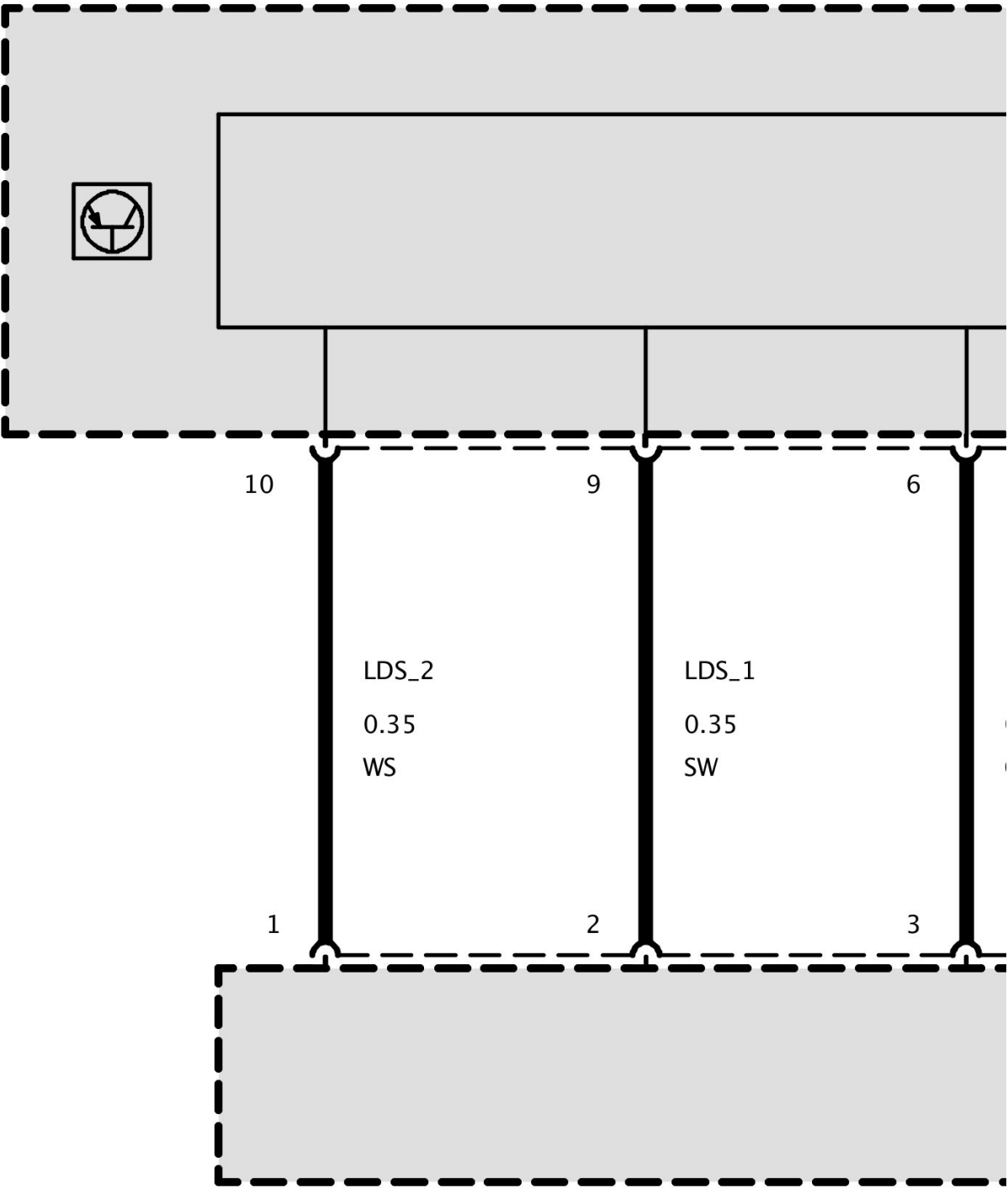
ootwell module

Part 3

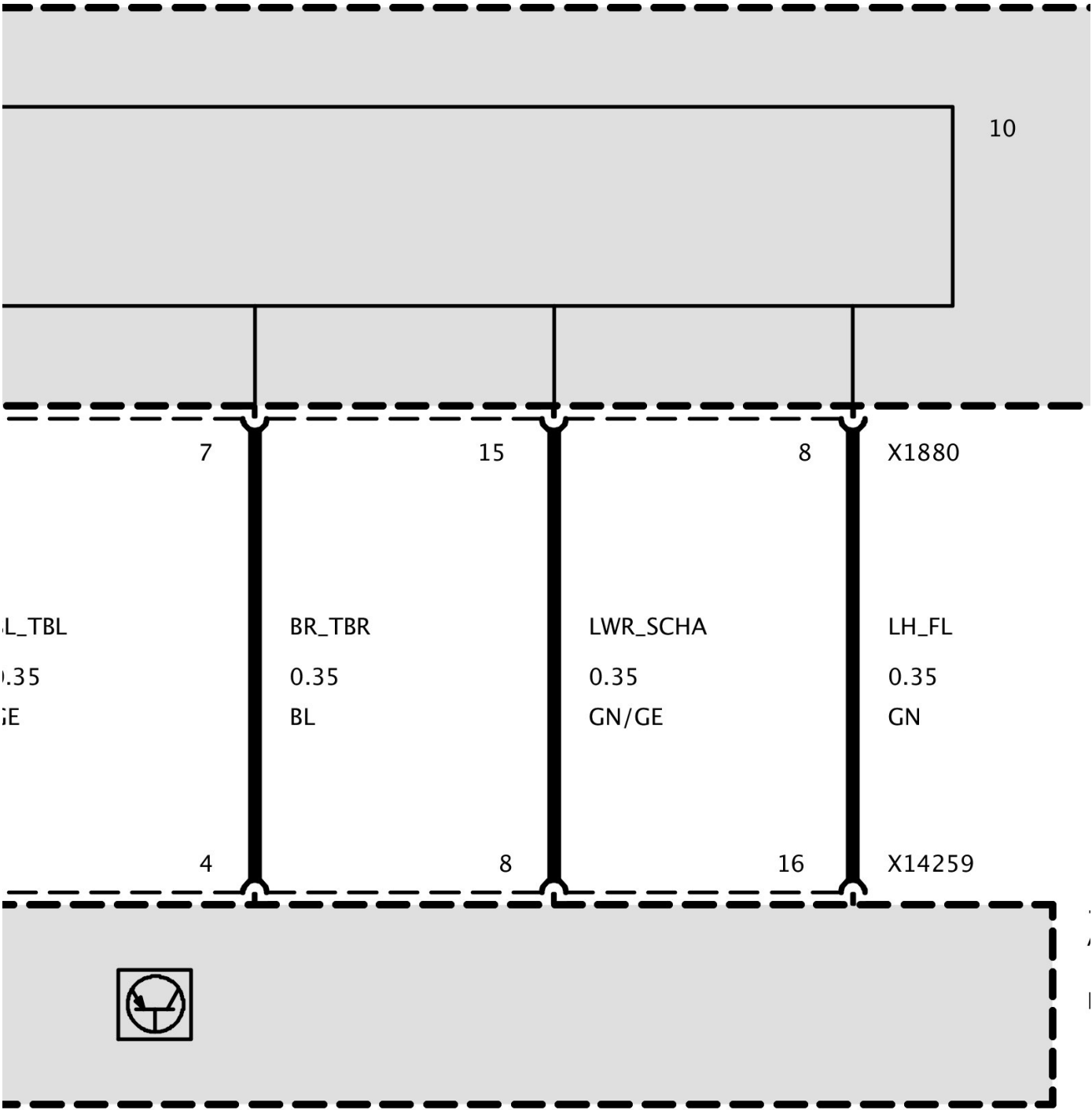
**Direction Indicator/High Beam Headlight Switch**

**Lights/Direction Indicator/Low Beam Stalk**

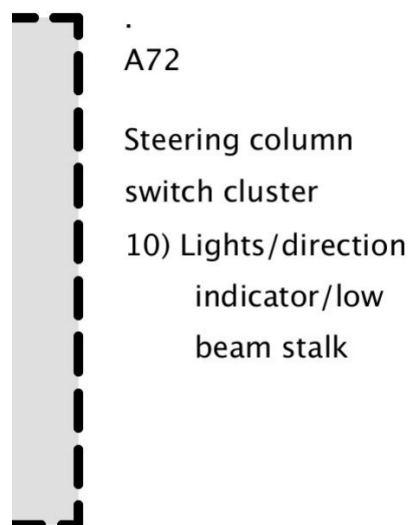




Part 1



Part 2



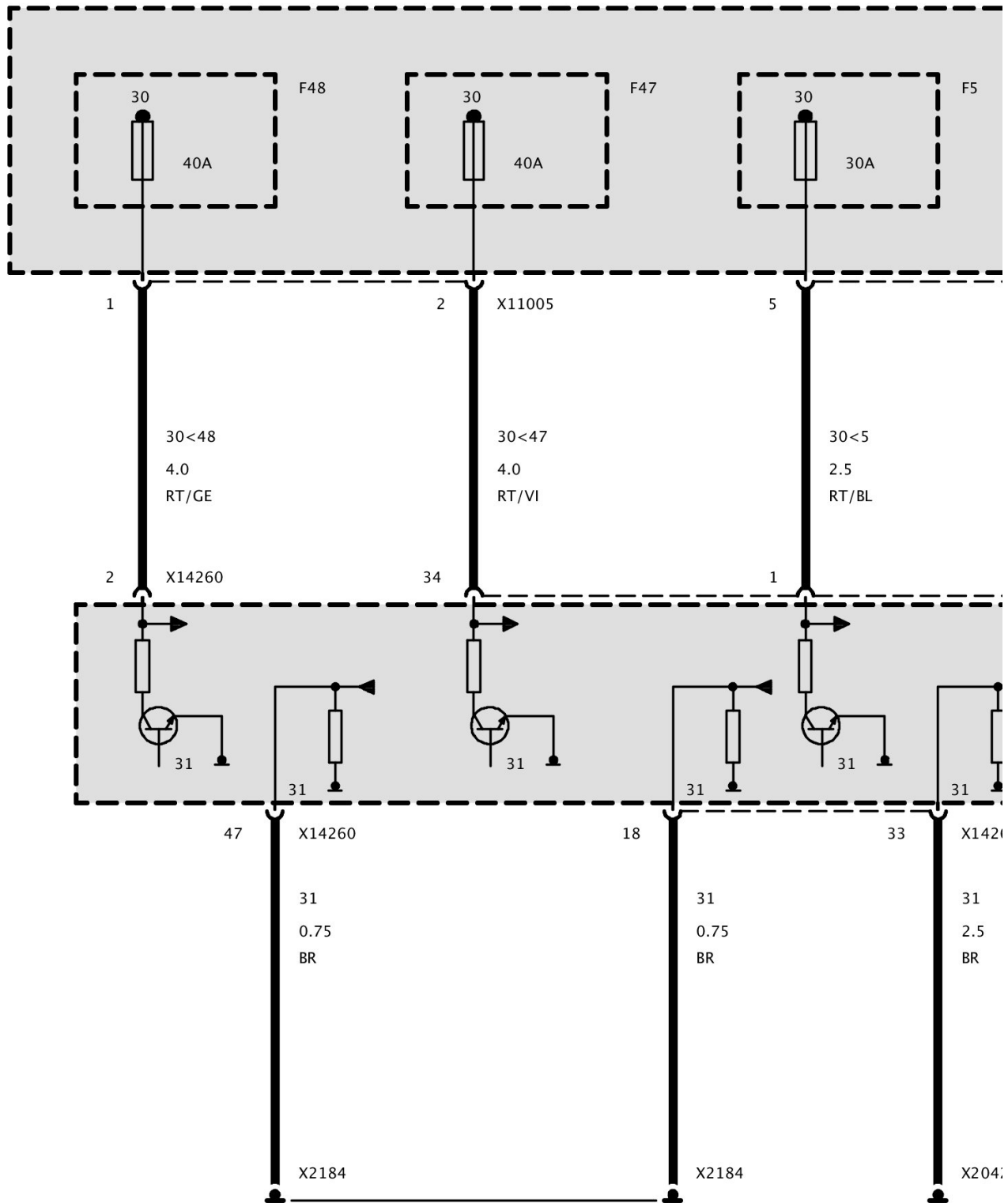
4011

ootwell module

### Part 3

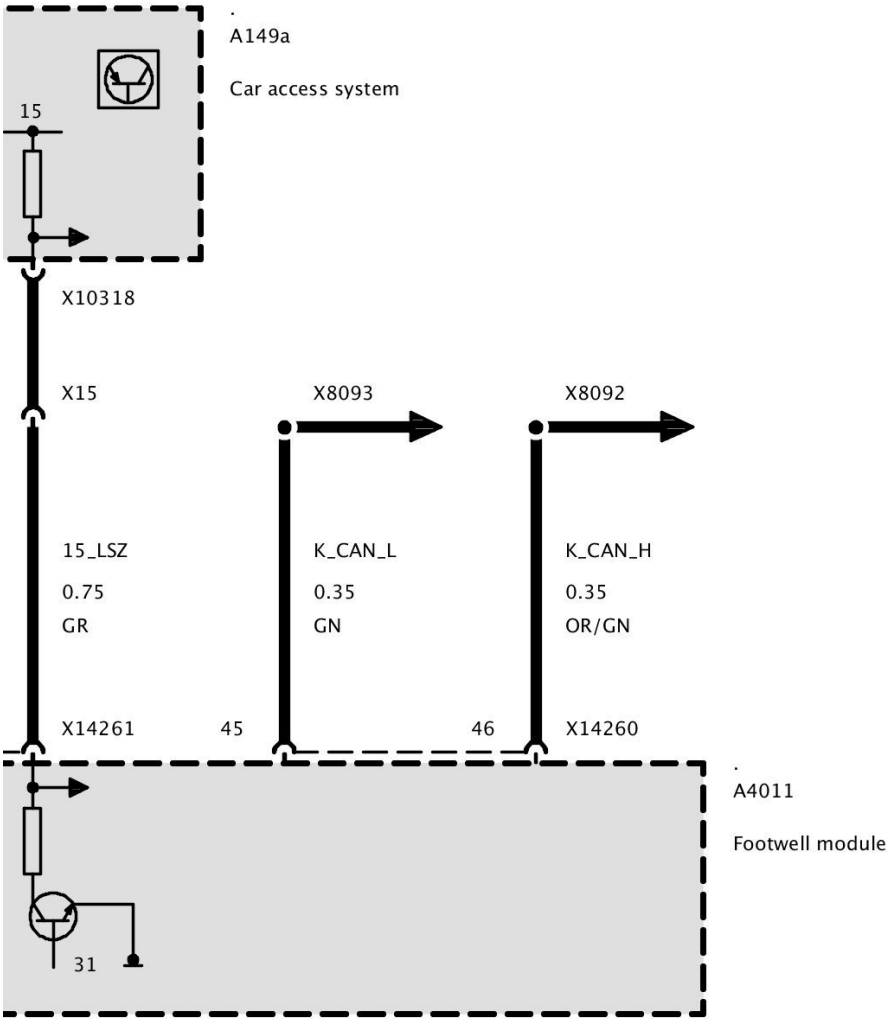
## Power Supply, Footwell Module FRM (Up To 12/08)

Power Supply, Footwell Module FRM (Up To 12/08)



Part 1

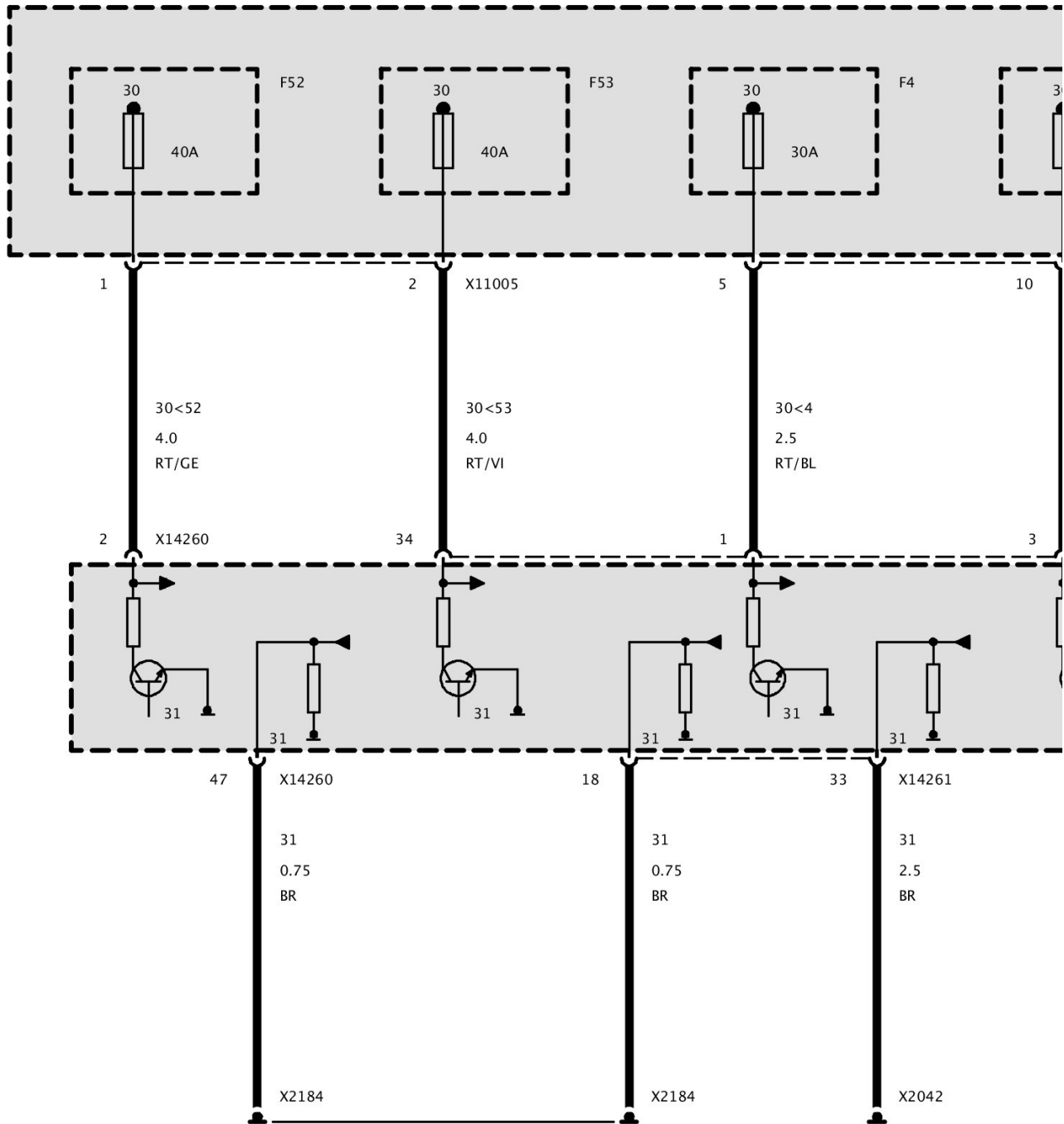




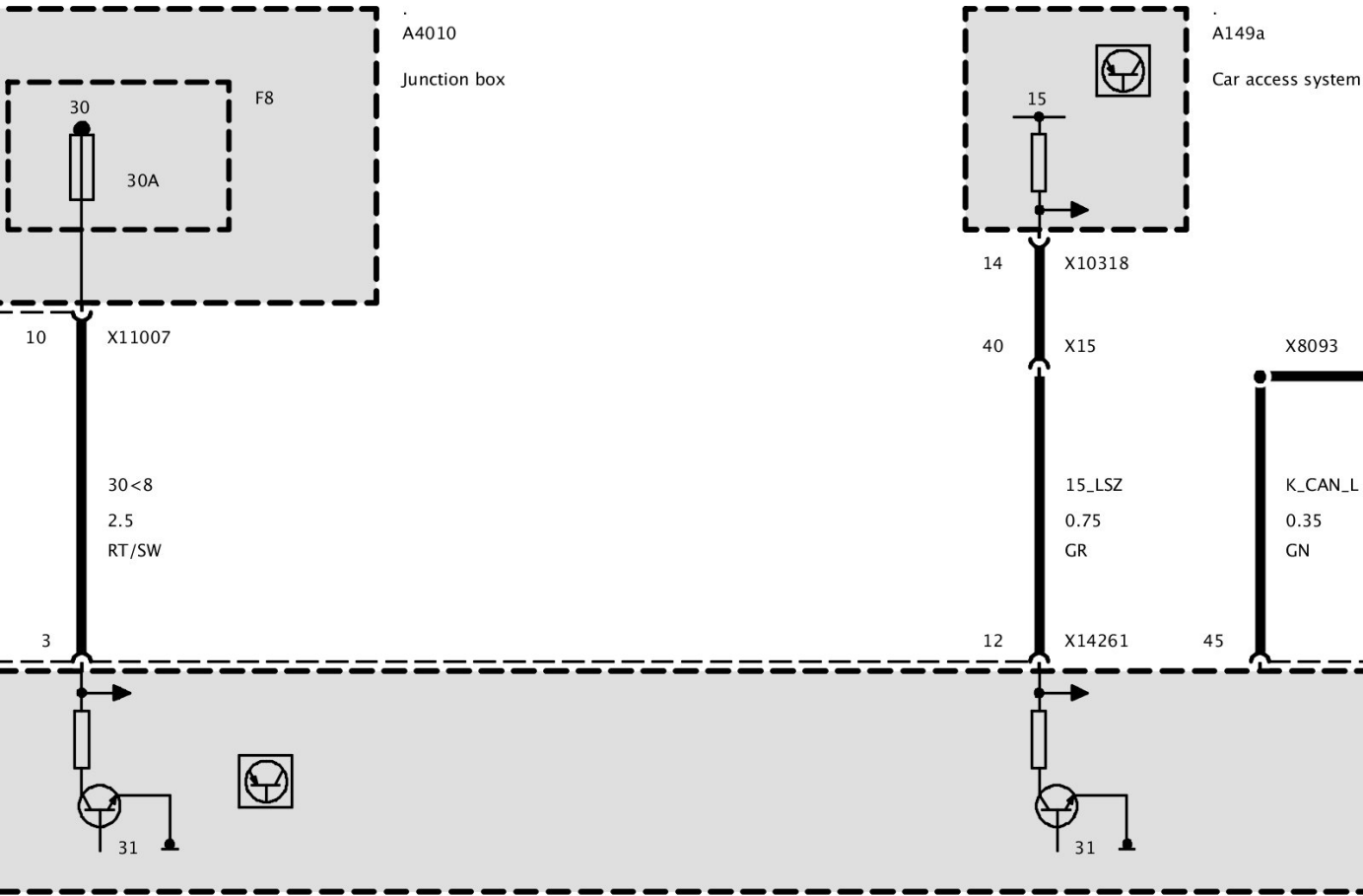
Part 3

Power Supply, Footwell Module FRM (As Of 12/08)

Power Supply, Footwell Module FRM (As Of 12/08)



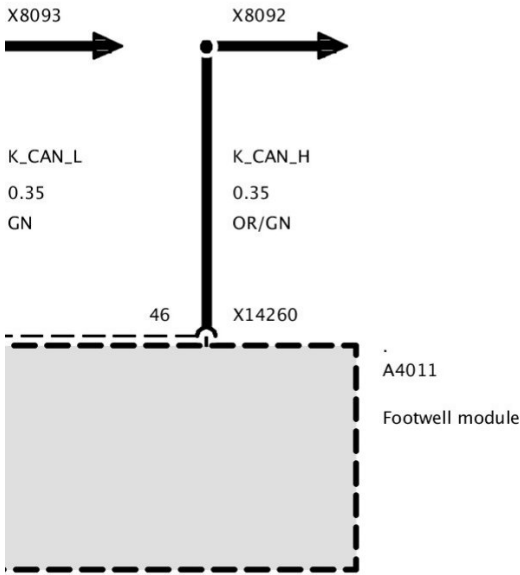
Part 1



Part 2



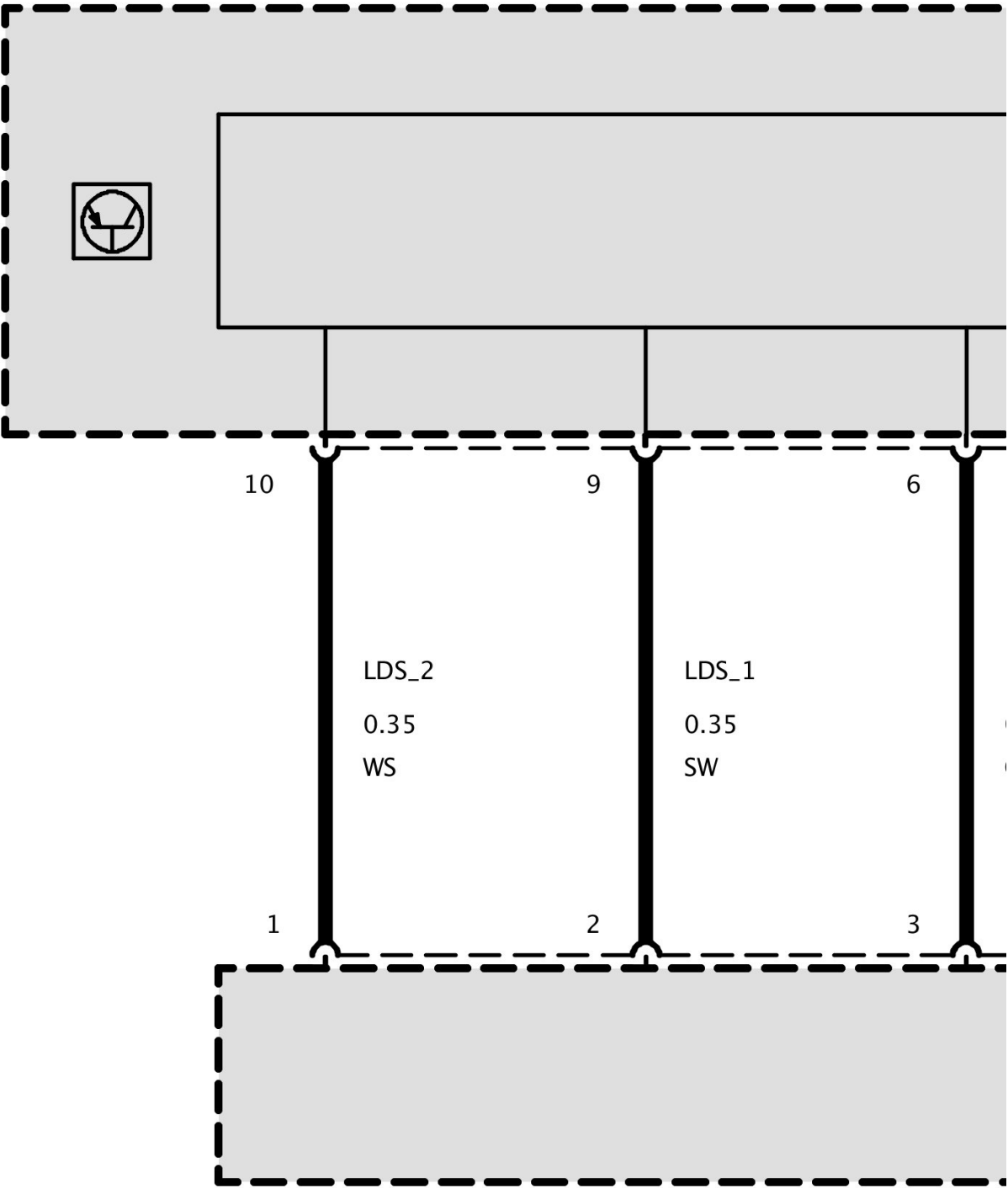
ss system



Part 3

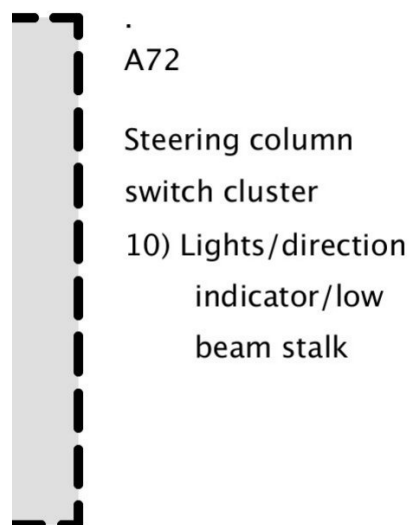
Direction Indicator/High Beam Headlight Switch

Lights/Direction Indicator/Low Beam Stalk



Part 1





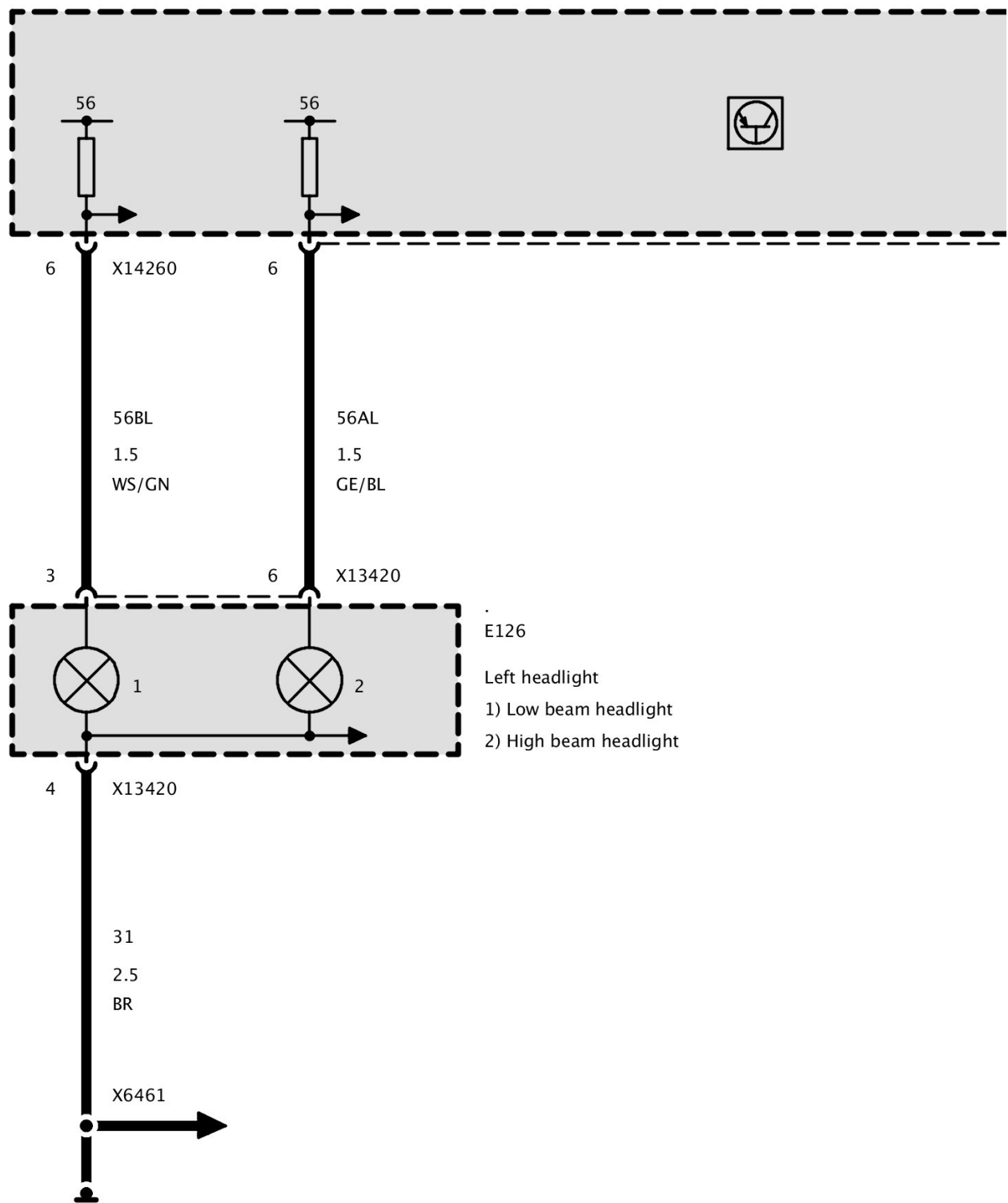
4011

ootwell module

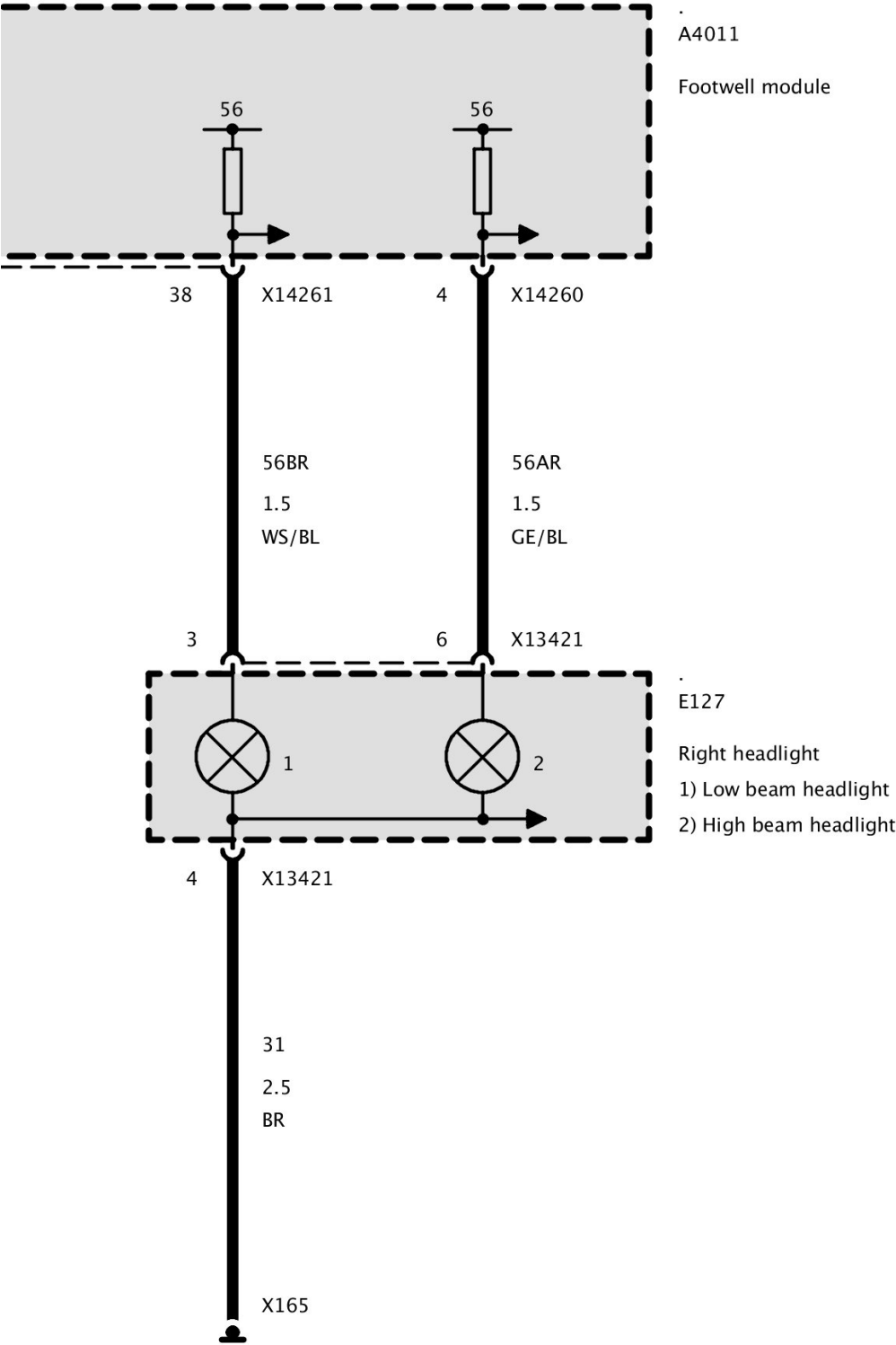
### Part 3

## Automatic Driving Lights Control (Without Xenon Lights)

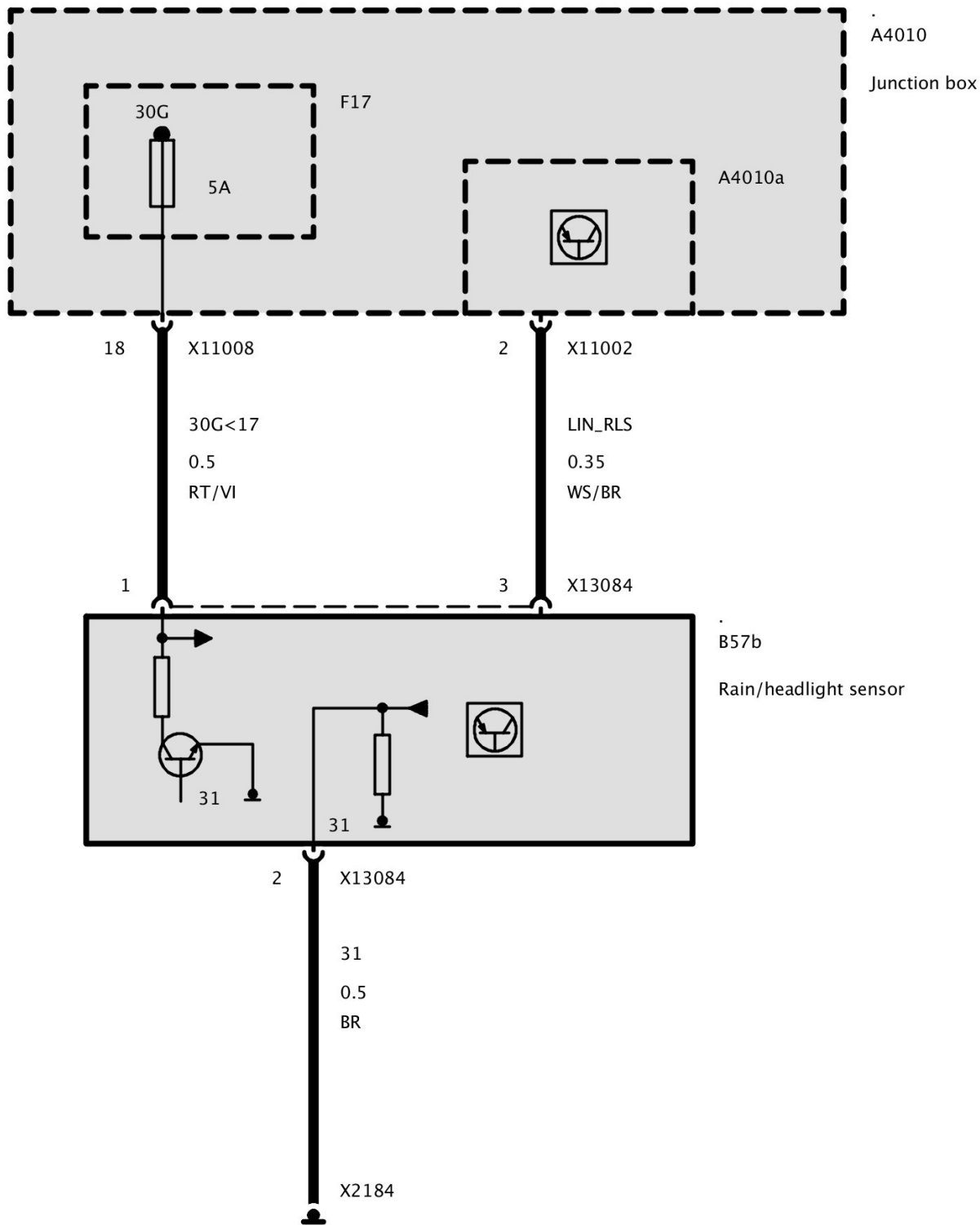
Automatic Driving Lights Control (Without Xenon Lights)



Part 1



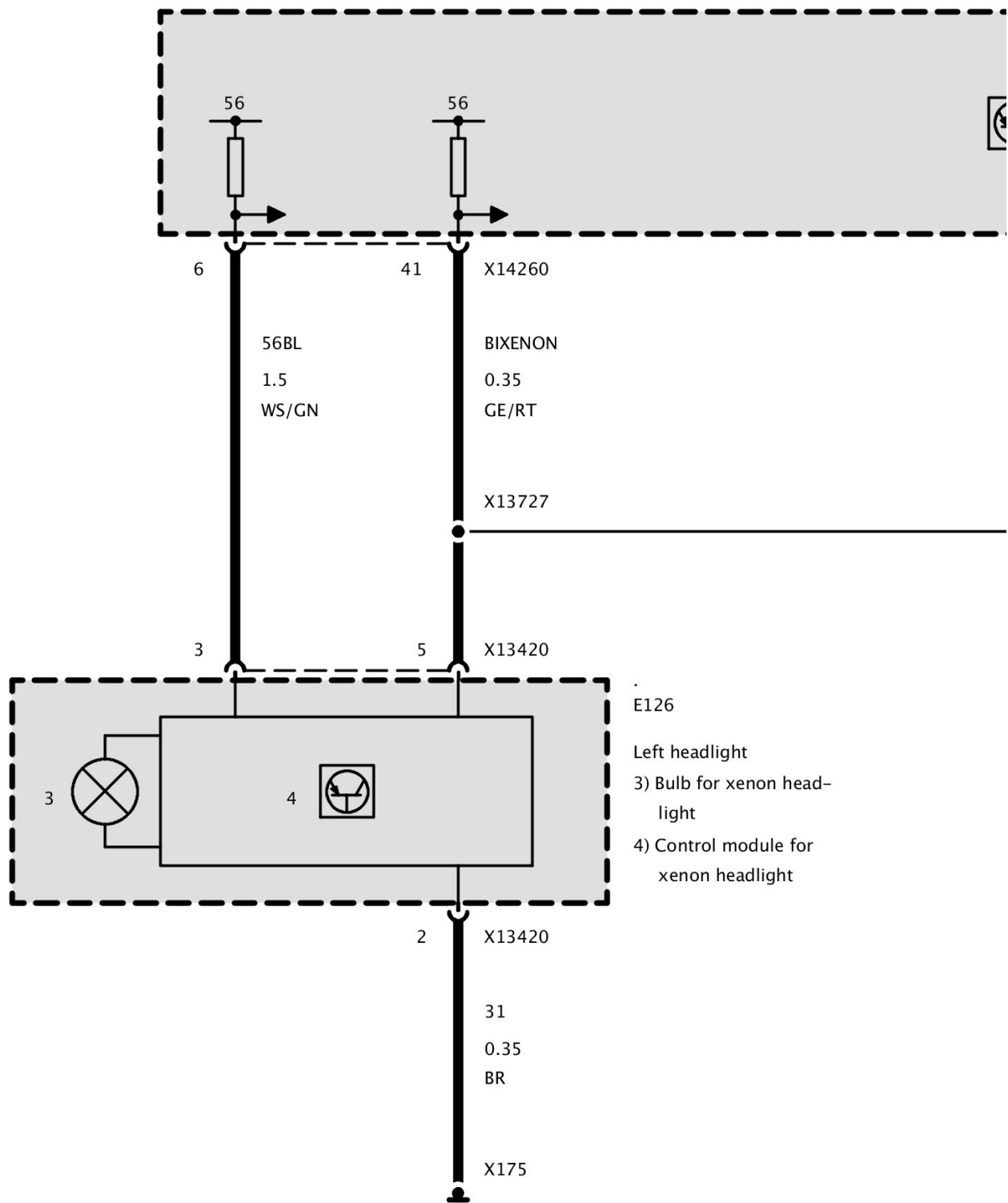
Part 2



Part 3

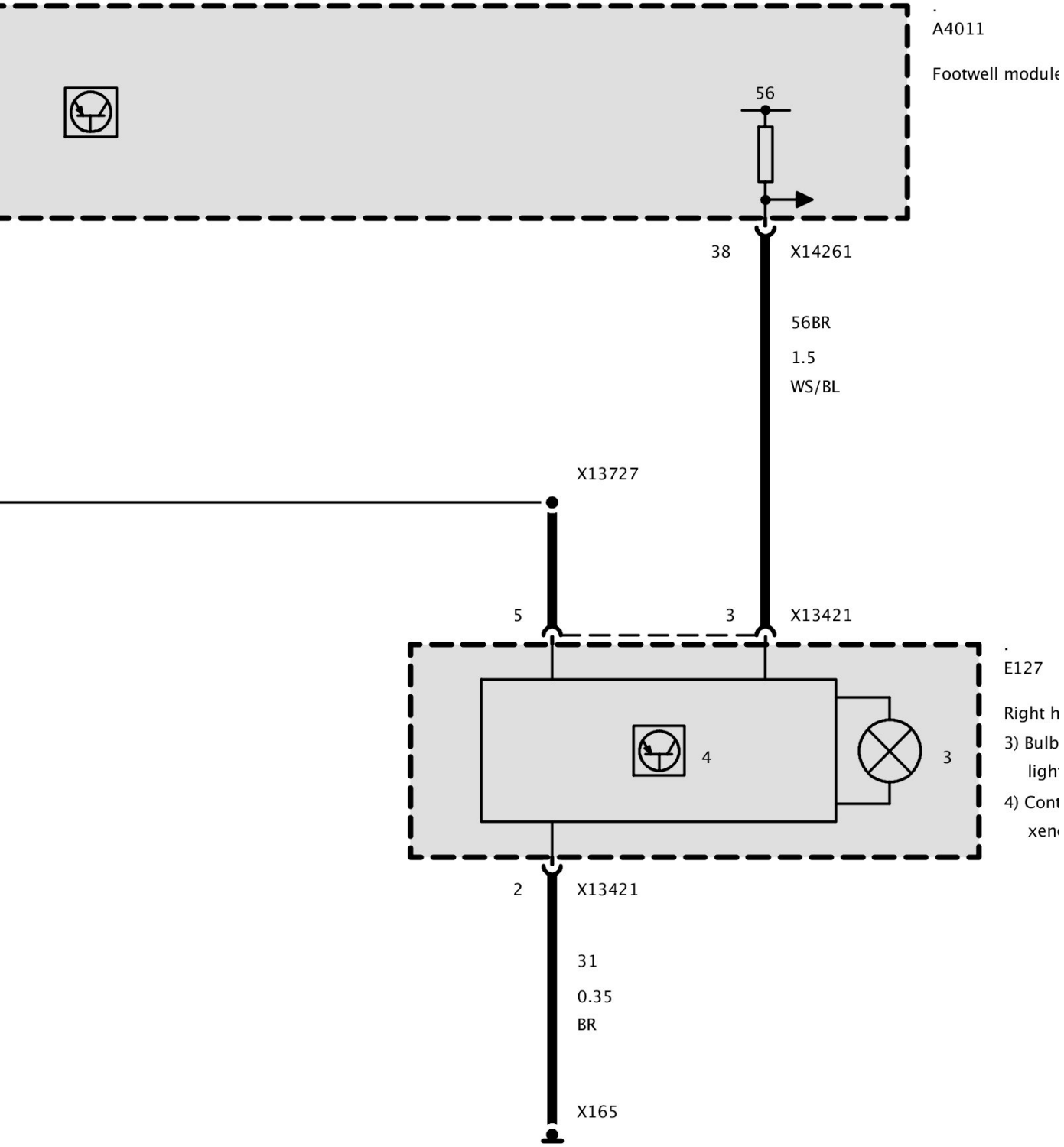
Automatic Driving Lights Control (Xenon Lights)

Automatic Driving Lights Control (Xenon Lights)



Part 1

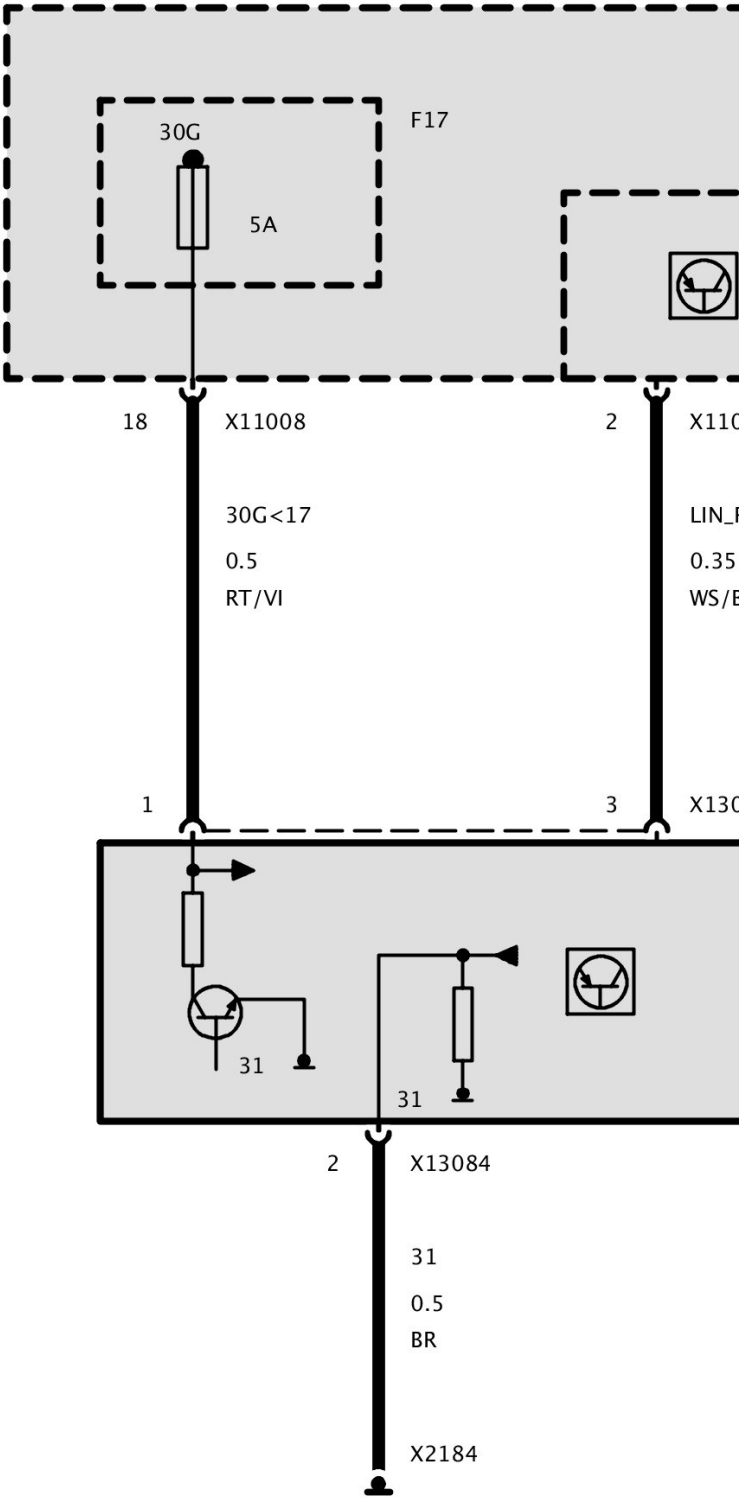




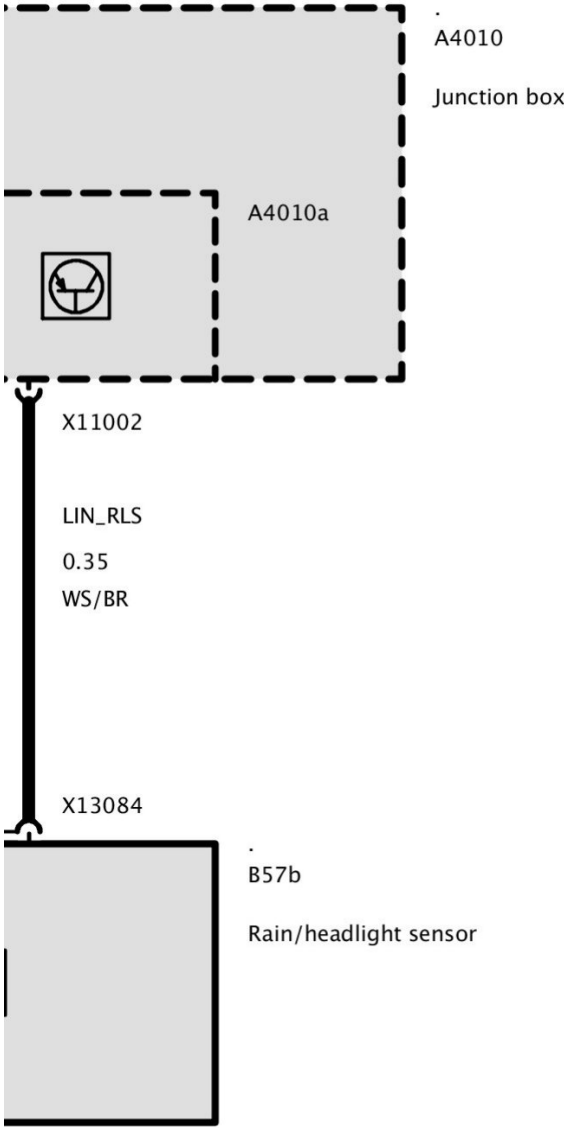
Part 2

1  
/ell module

- E127
- Right headlight
- 3) Bulb for xenon headlight
- 4) Control module for xenon headlight



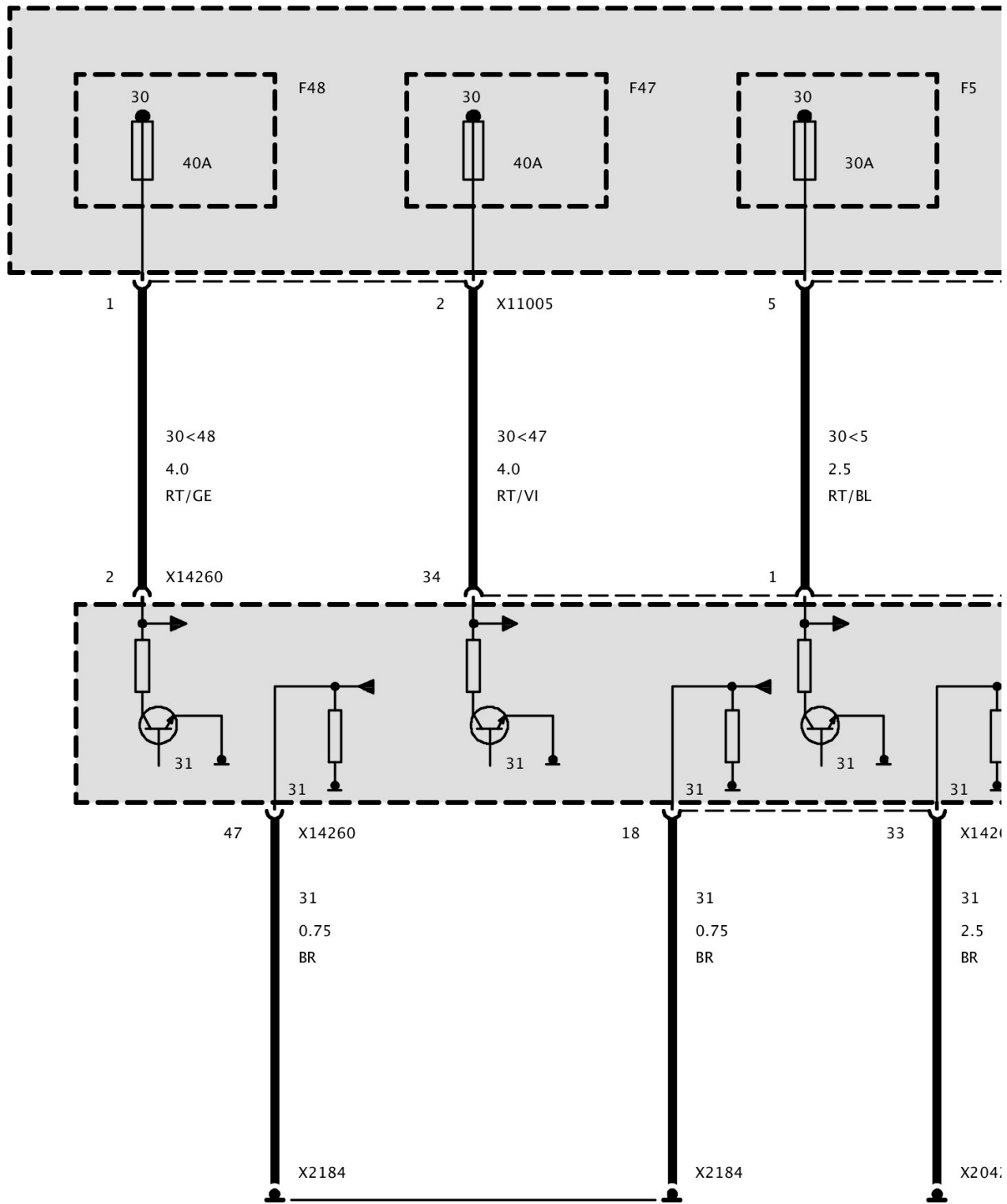
Part 3



Part 4

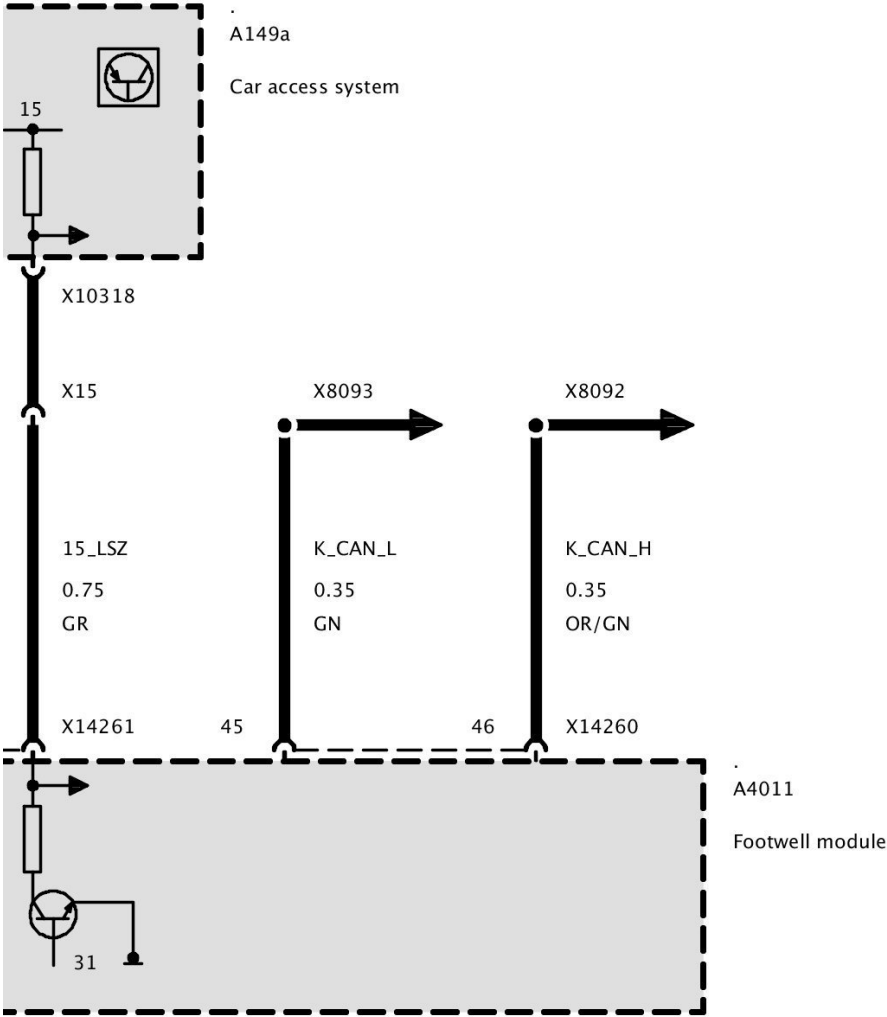
Power Supply, Footwell Module FRM (Up To 12/08)

Power Supply, Footwell Module FRM (Up To 12/08)



Part 1

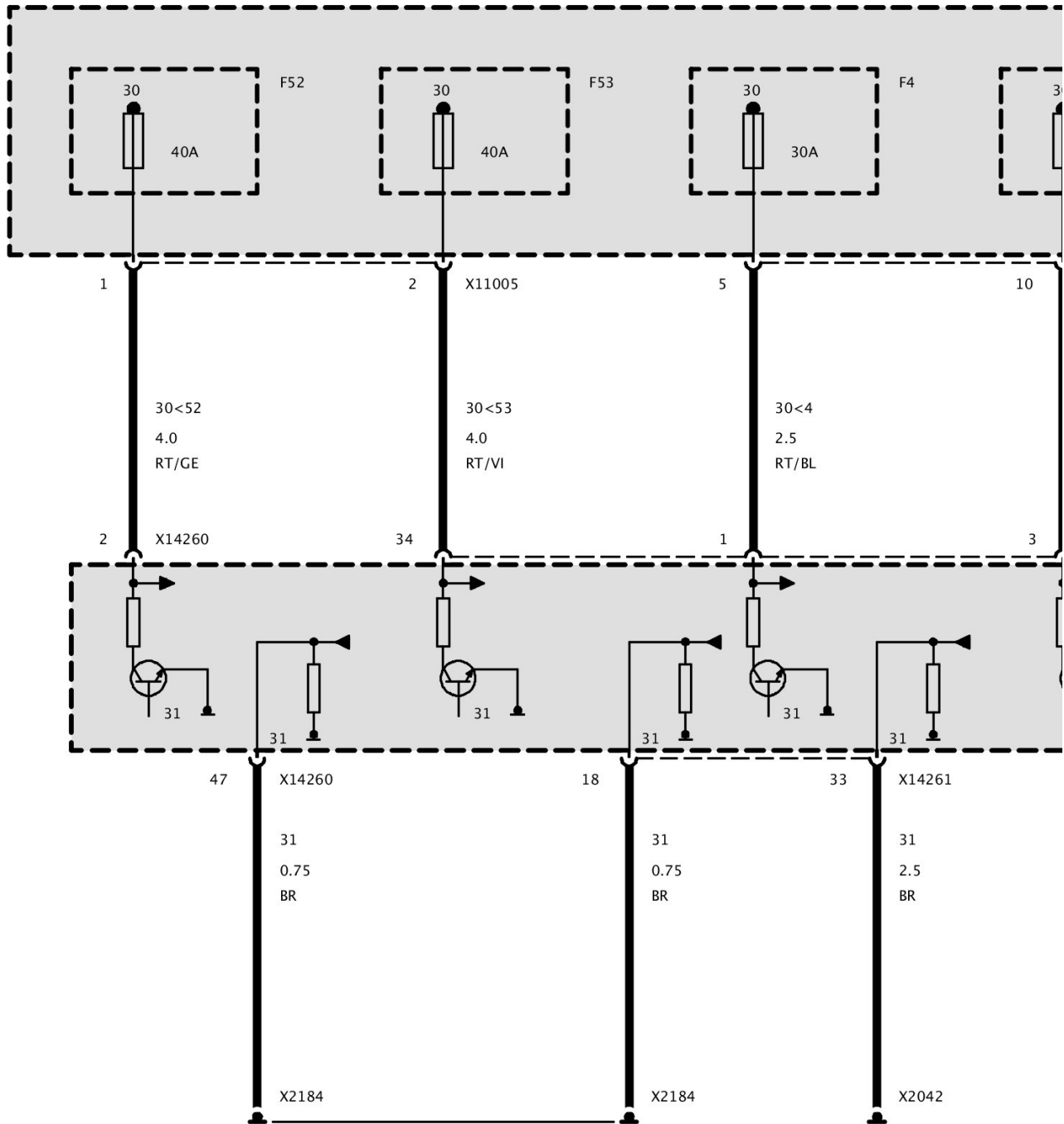




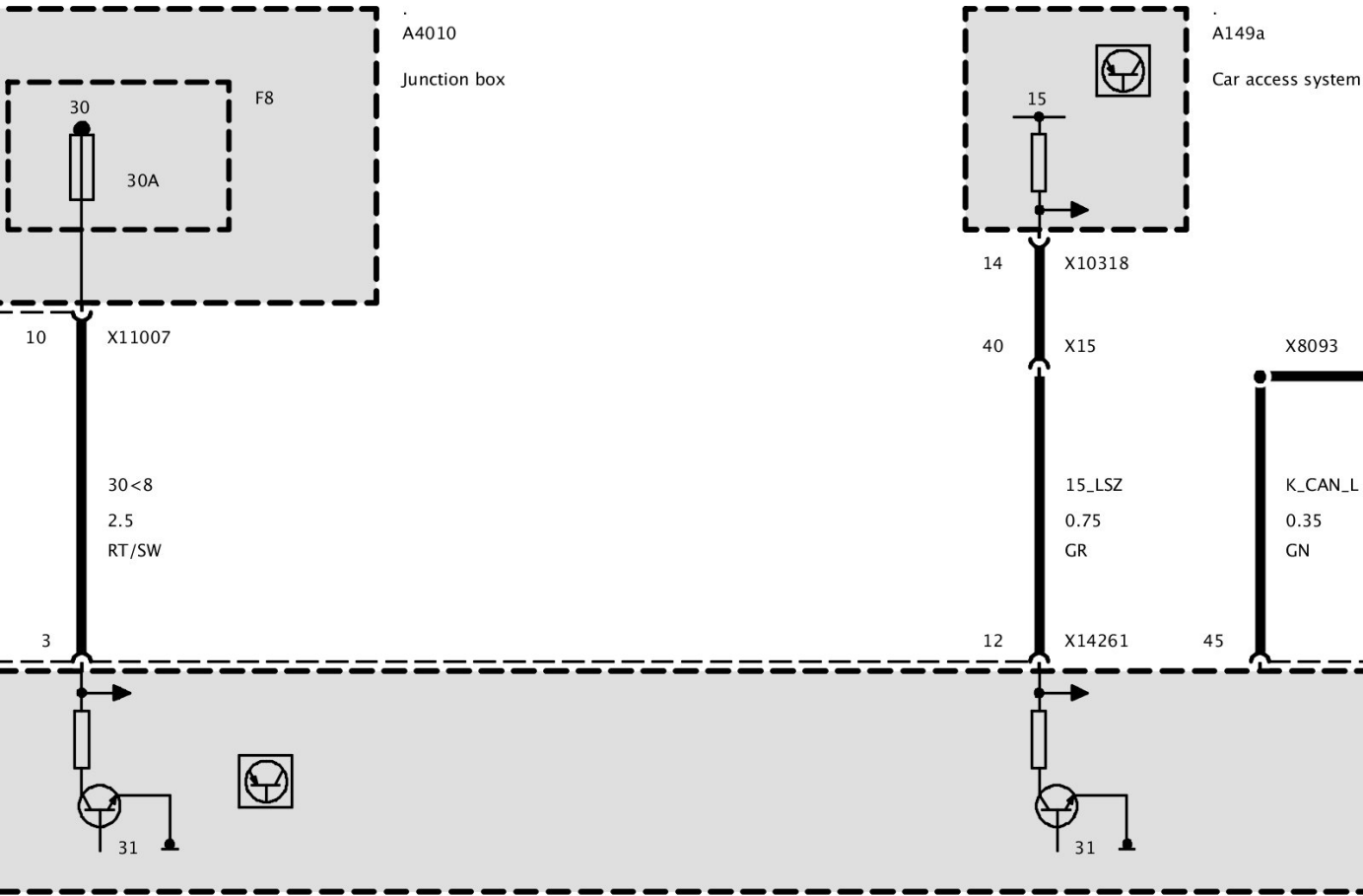
Part 3

Power Supply, Footwell Module FRM (As Of 12/08)

Power Supply, Footwell Module FRM (As Of 12/08)



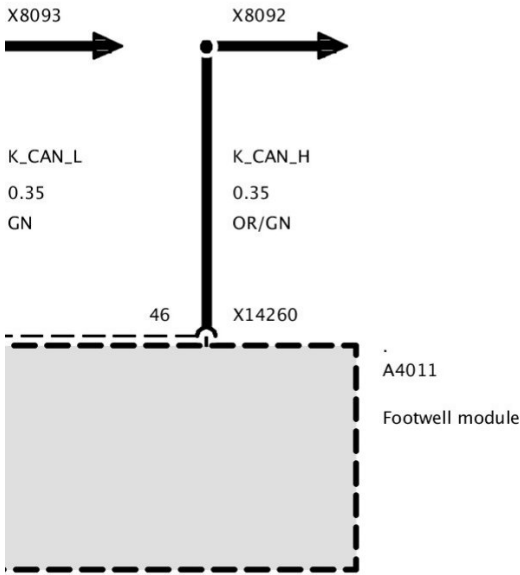
Part 1



Part 2



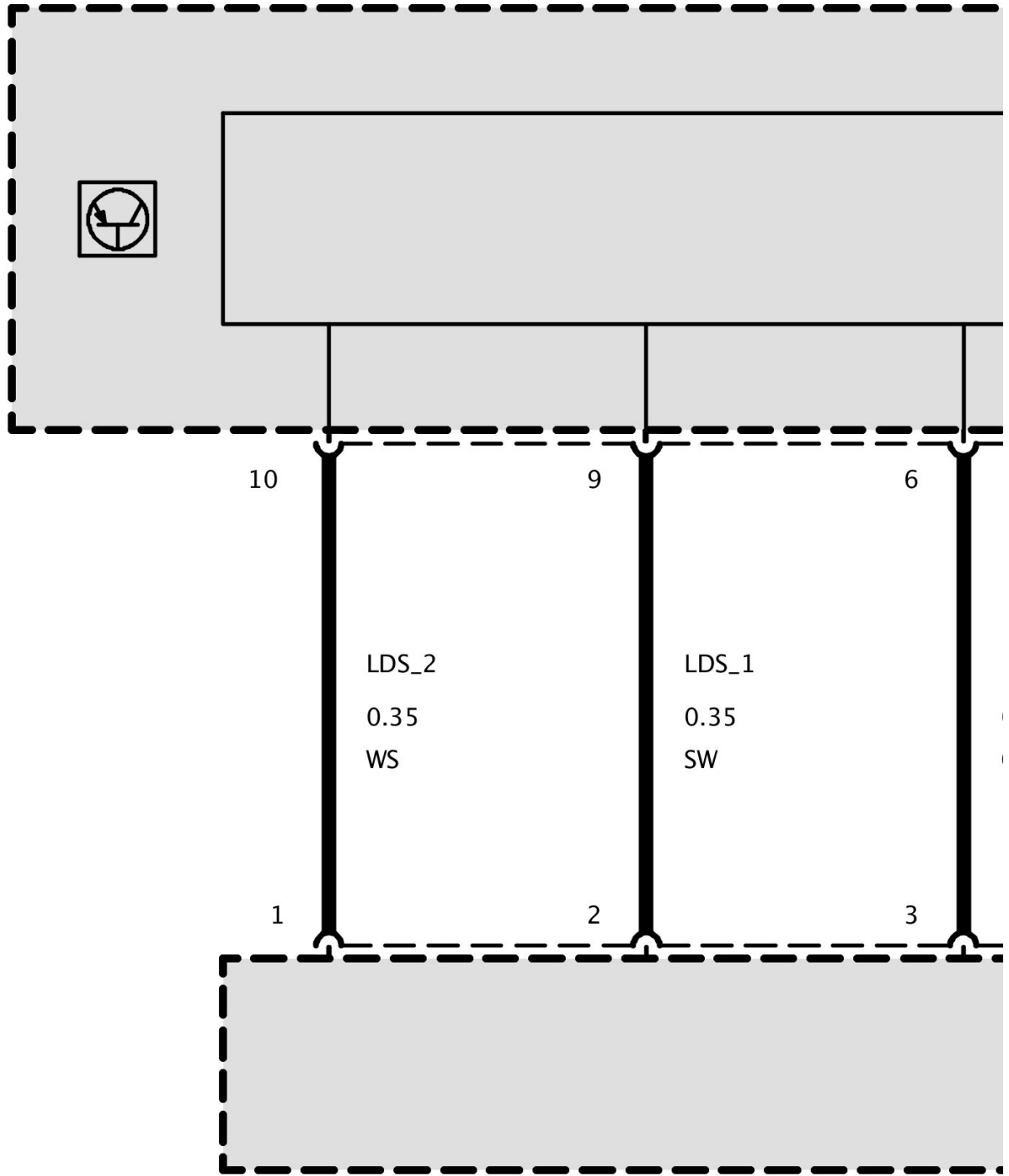
ss system



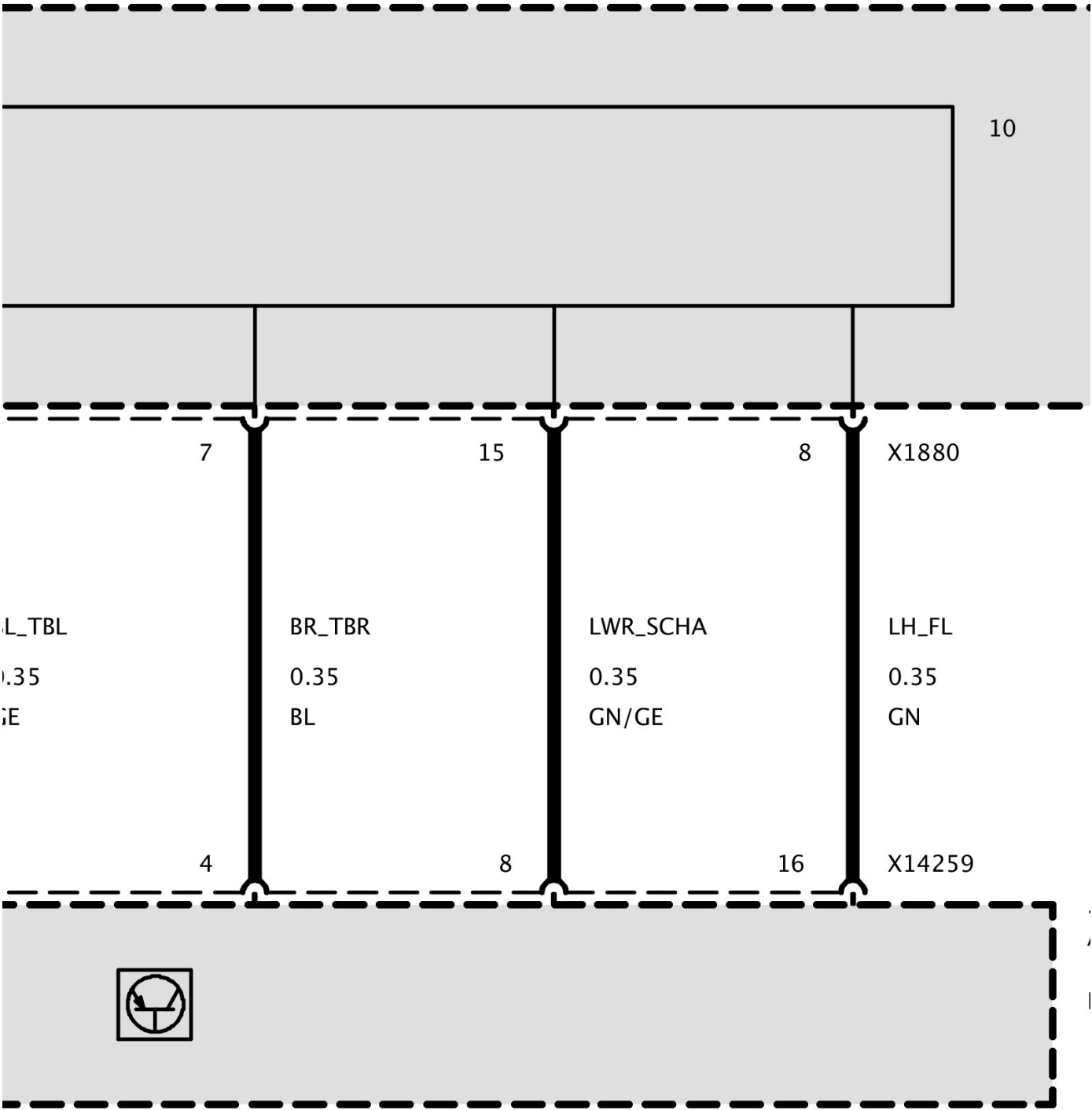
Part 3

Light Switch

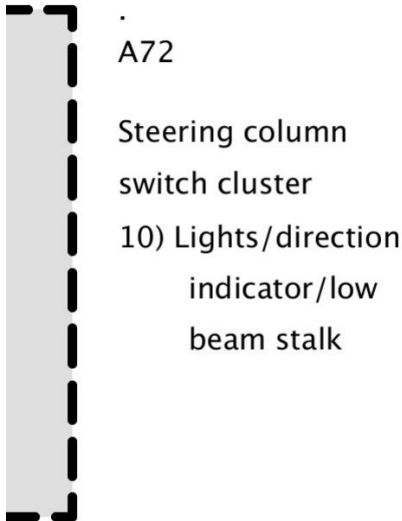
Lights/Direction Indicator/Low Beam Stalk



Part 1



Part 2



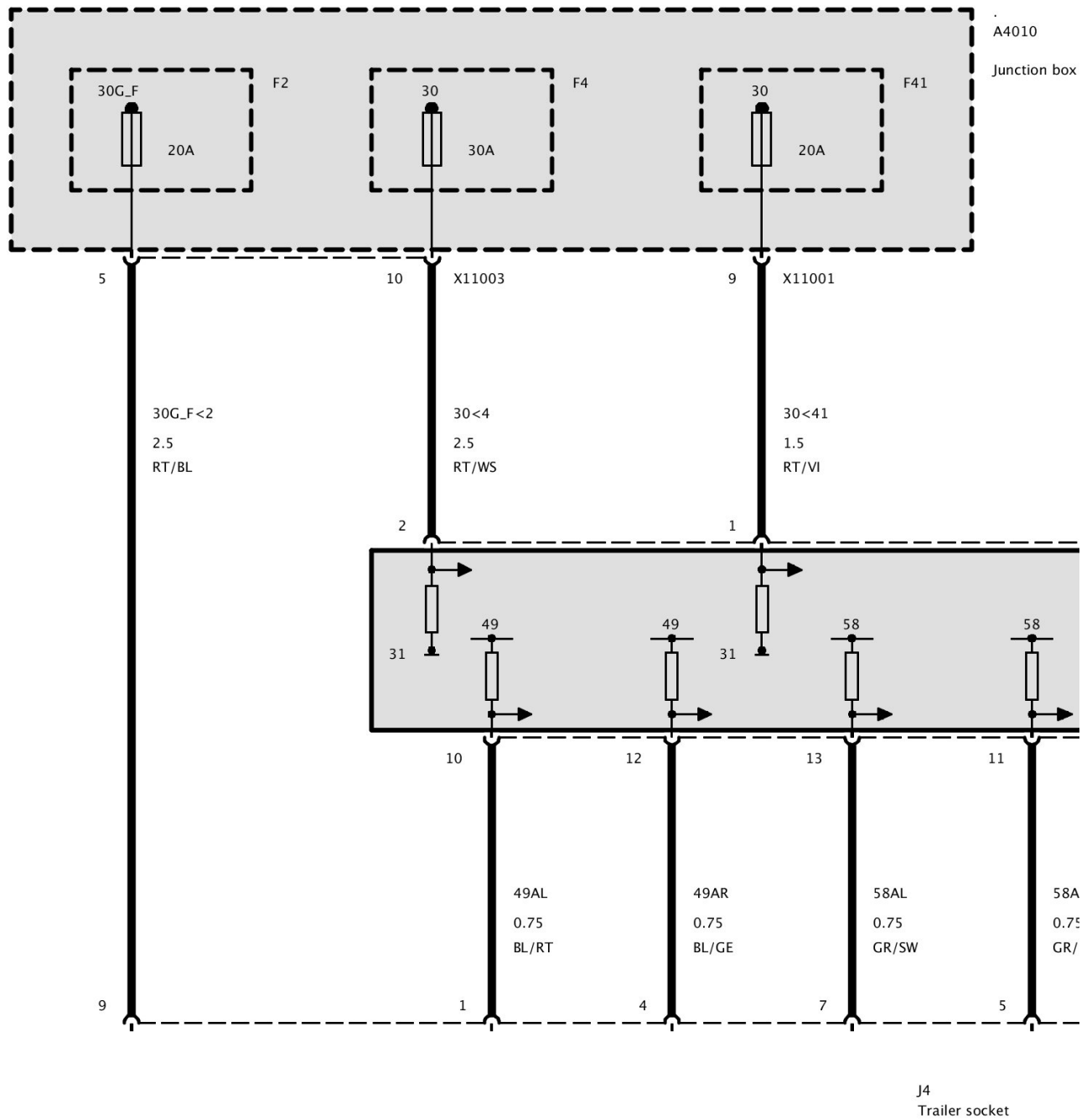
4011

ootwell module

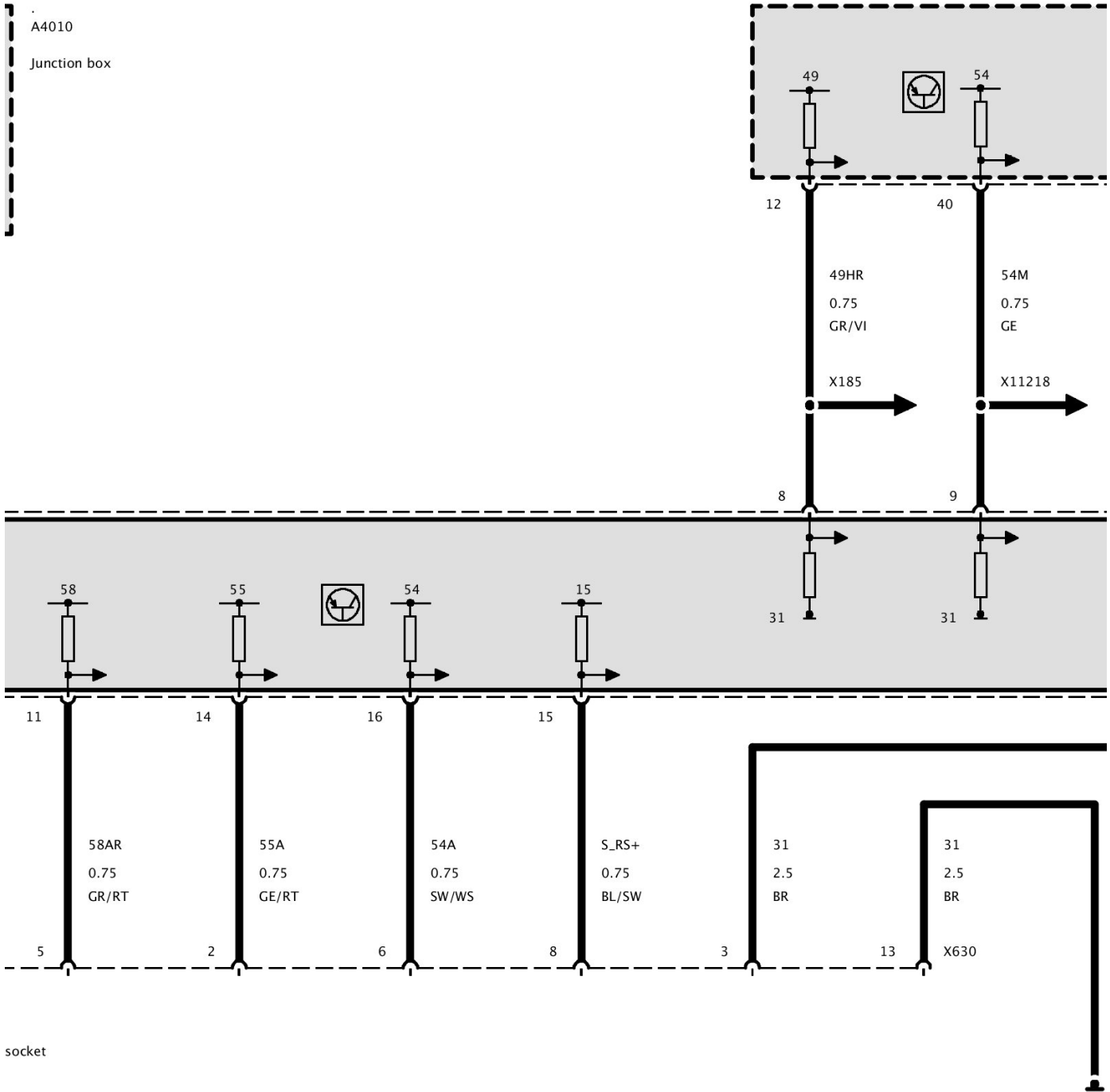
Part 3

Trailer Lighting (Up To 12/08)

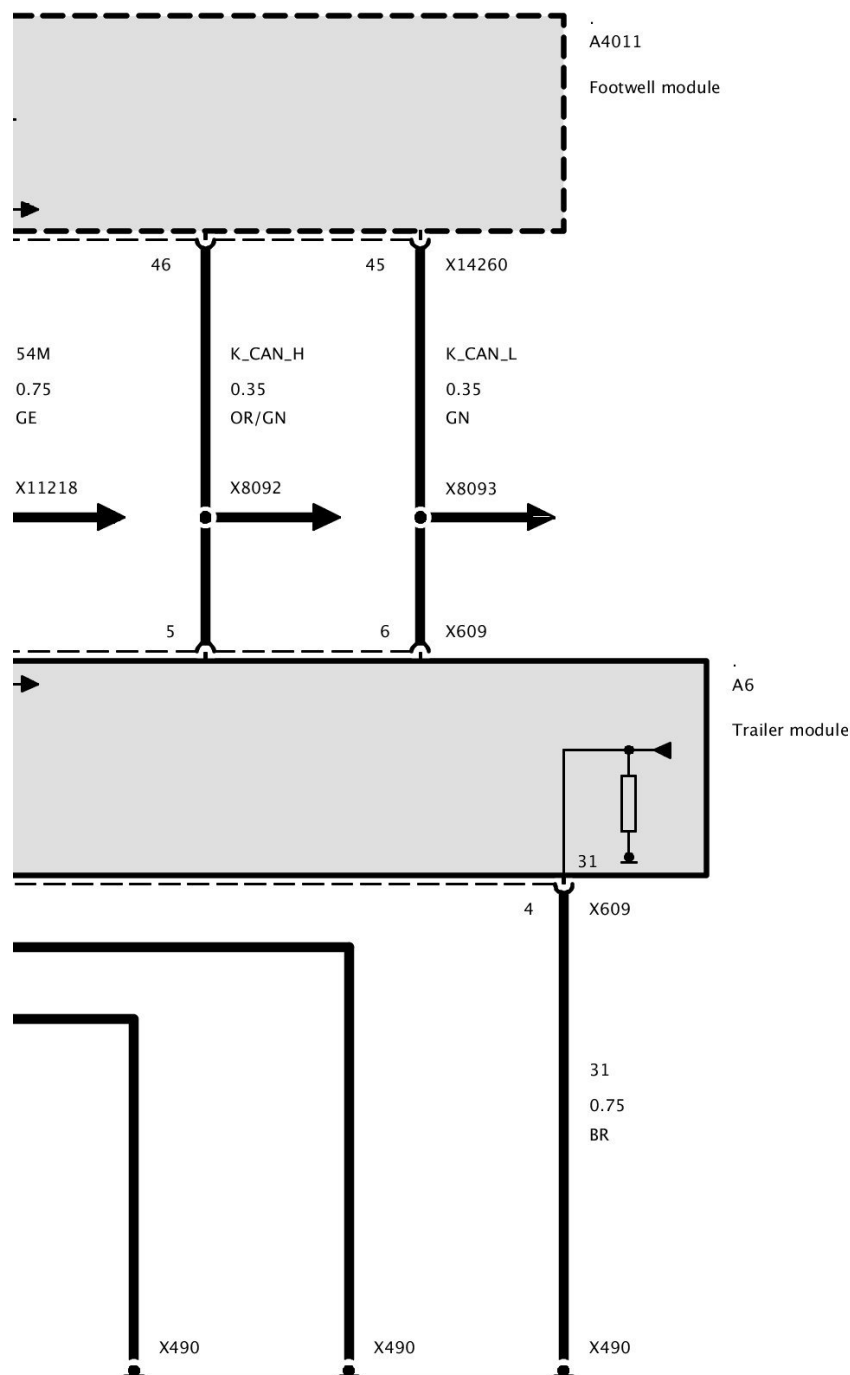
Trailer Lighting (Up To 12/08)



Part 1



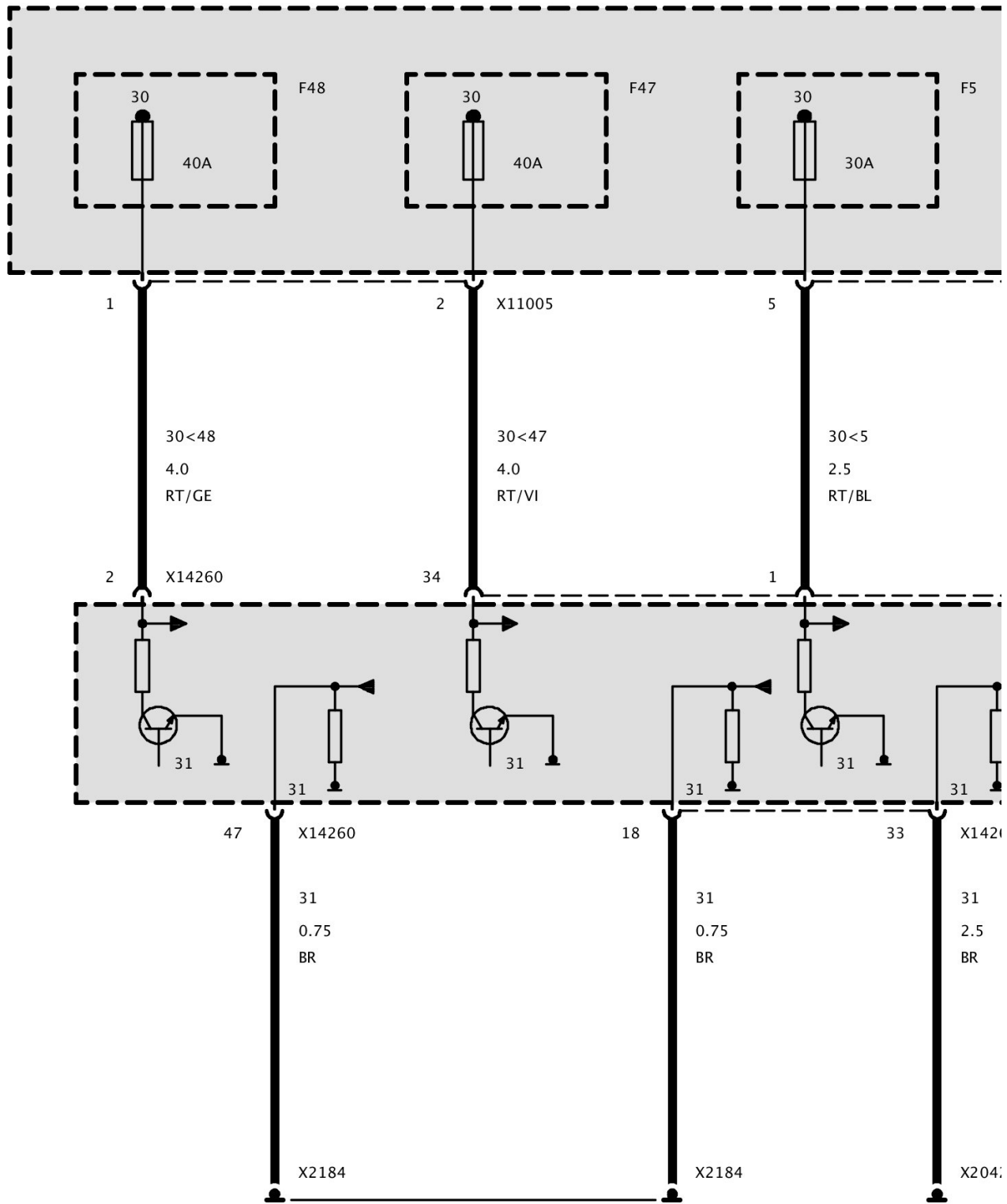
Part 2



### Part 3

## Power Supply, Footwell Module FRM (Up to 12/08)

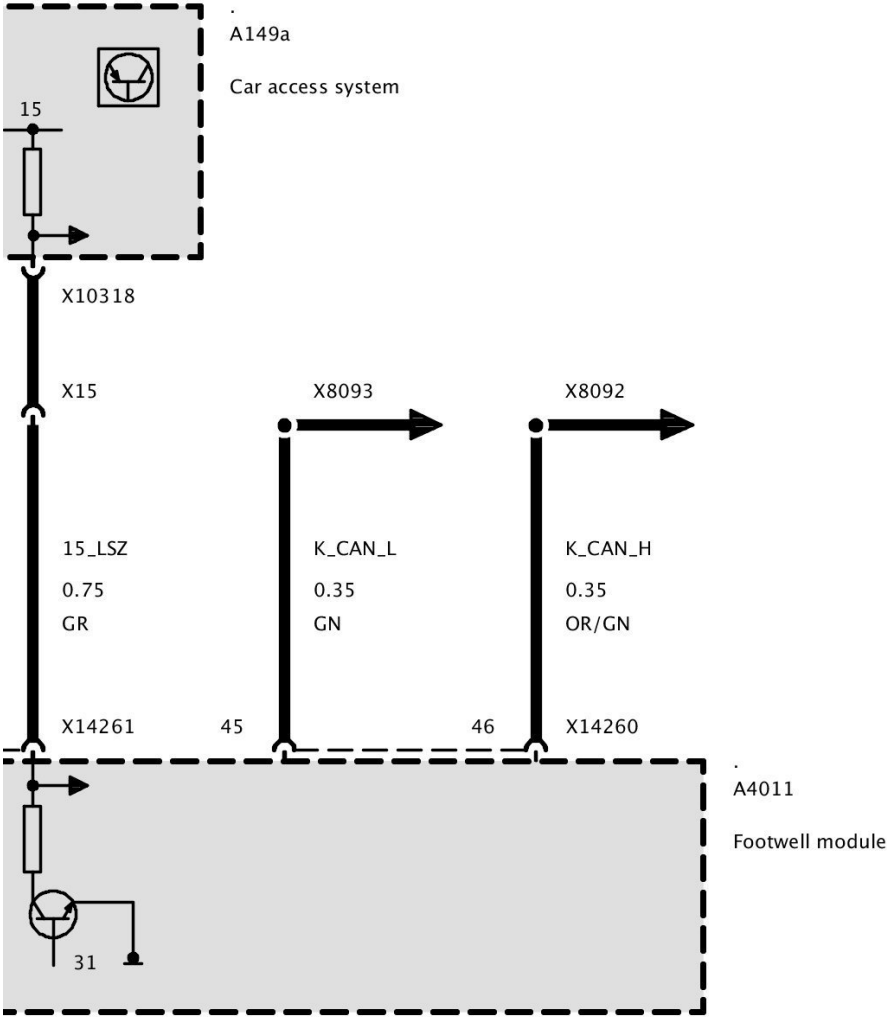
Power Supply, Footwell Module FRM (Up to 12/08)



Part 1



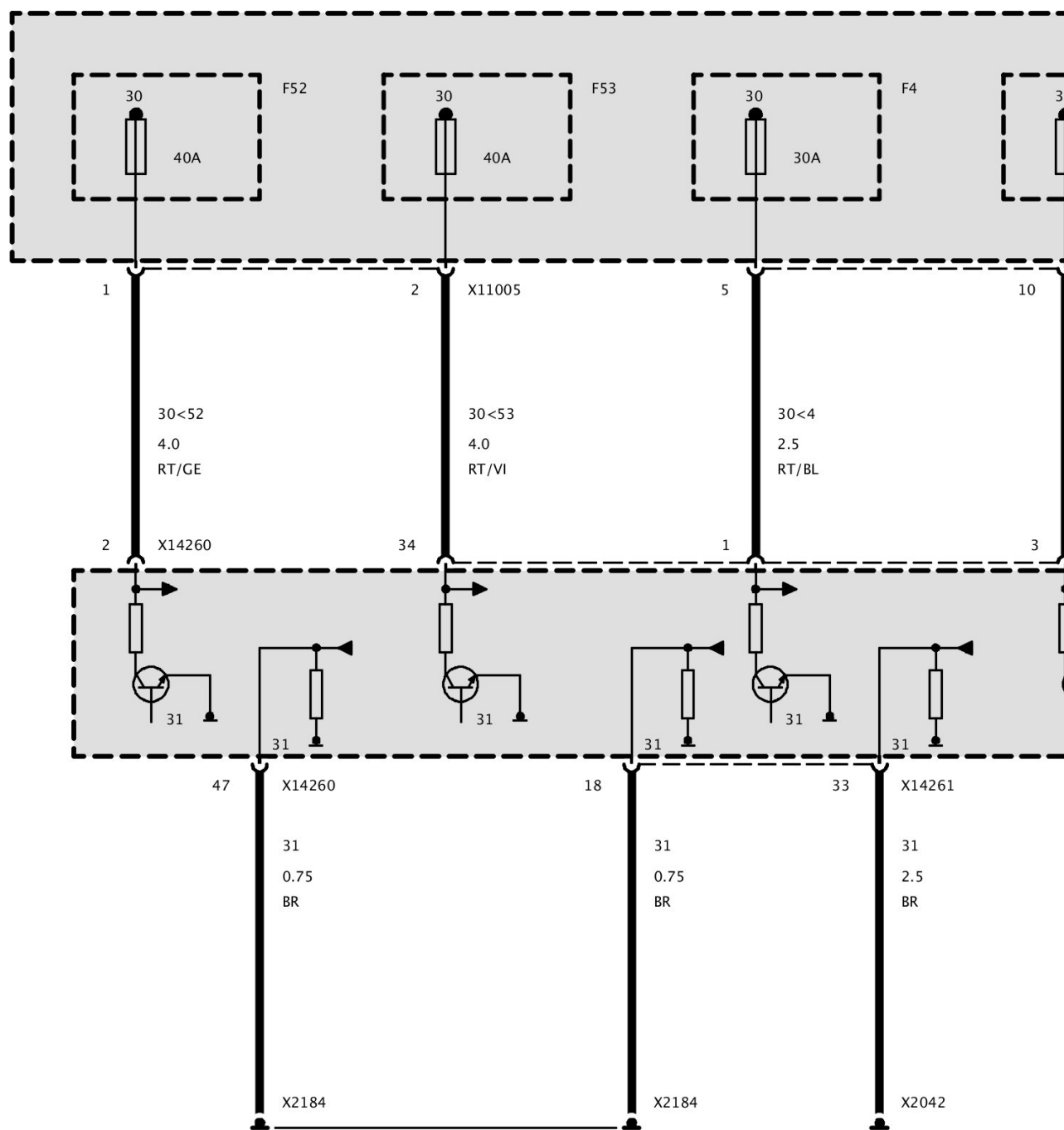




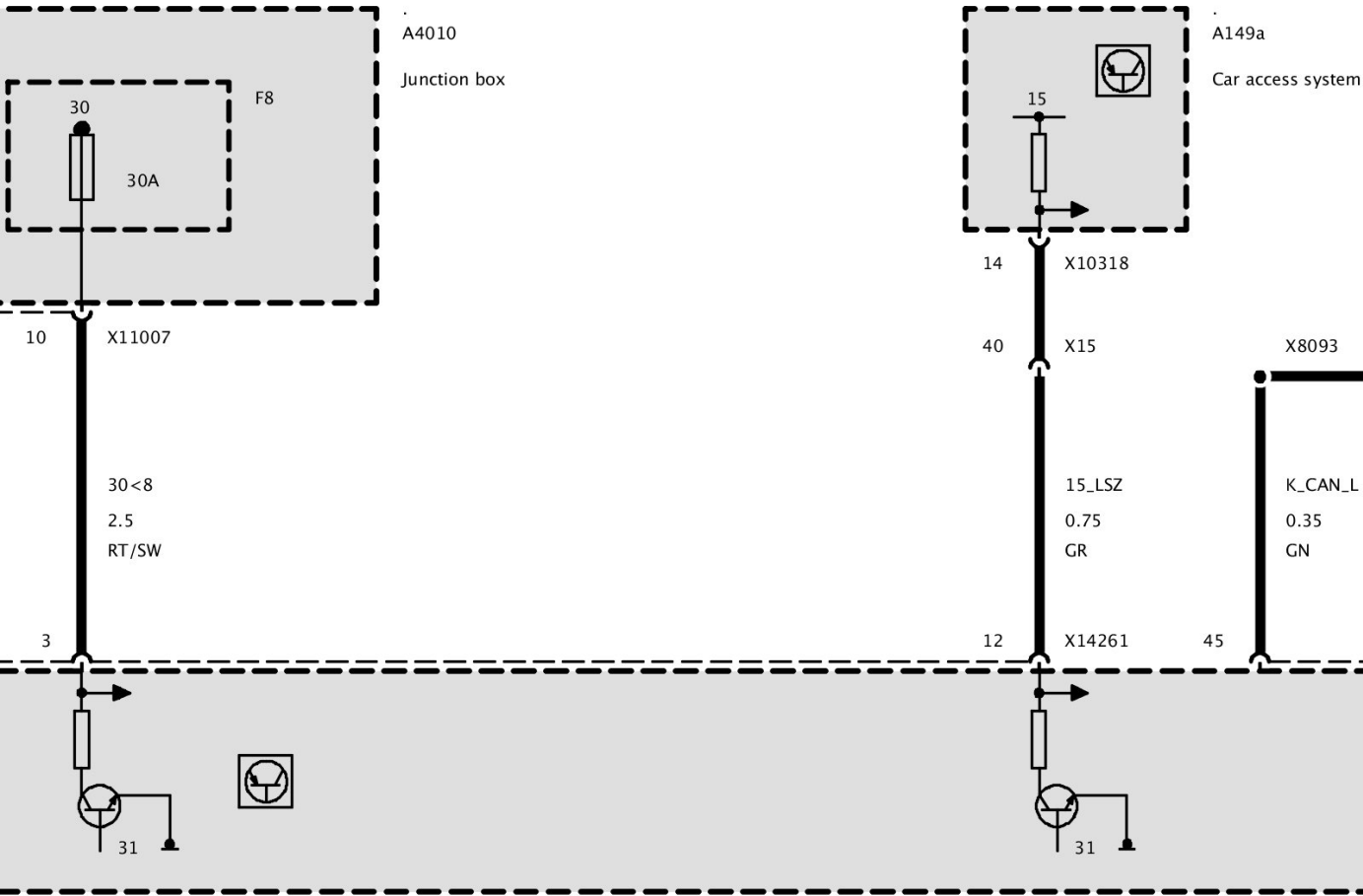
Part 3

Power Supply, Footwell Module FRM (As Of 12/08)

Power Supply, Footwell Module FRM (As Of 12/08)

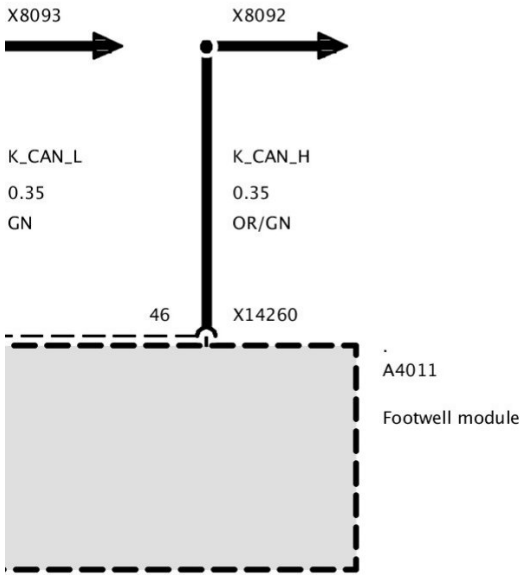


Part 1



Part 2

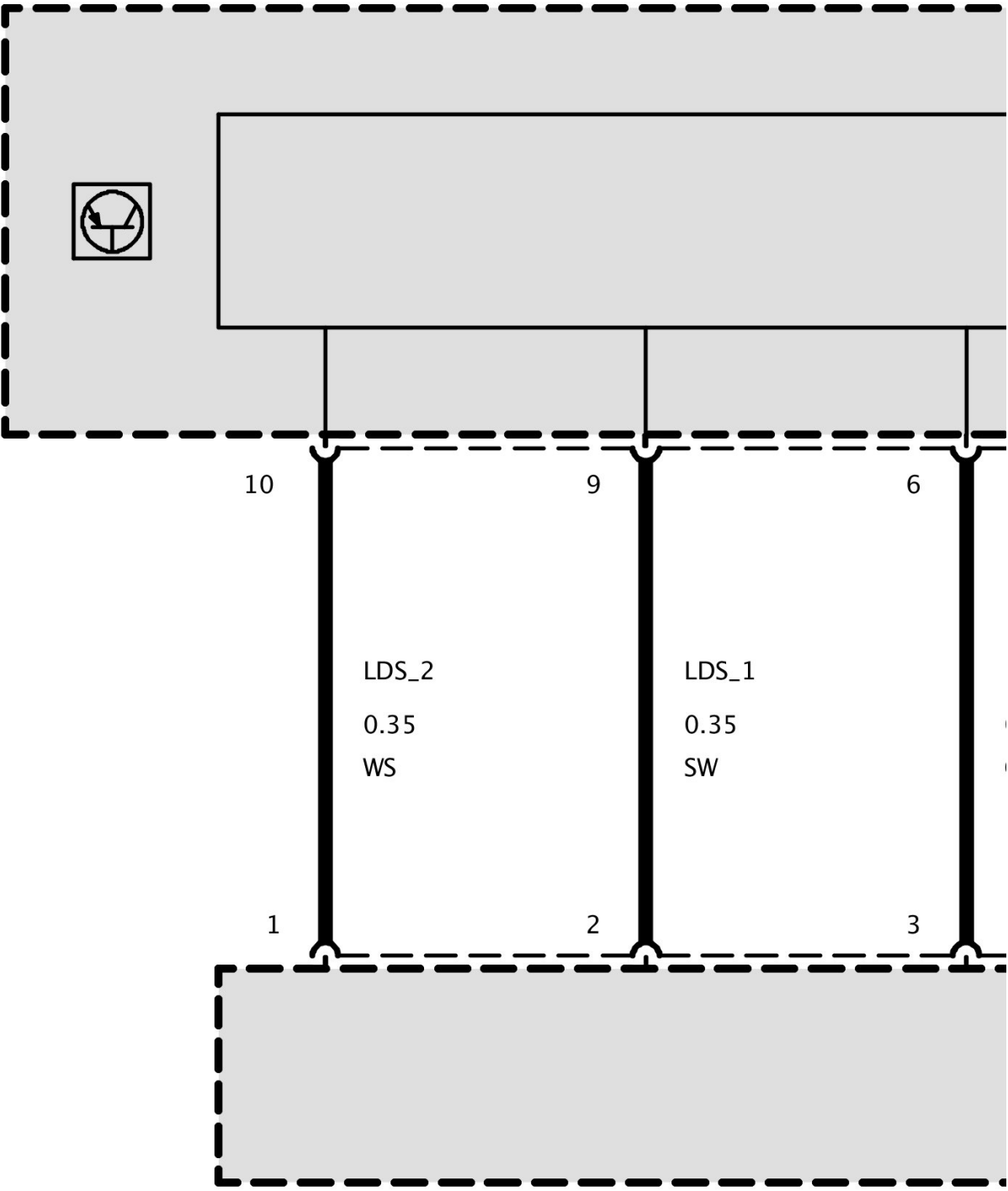
ss system



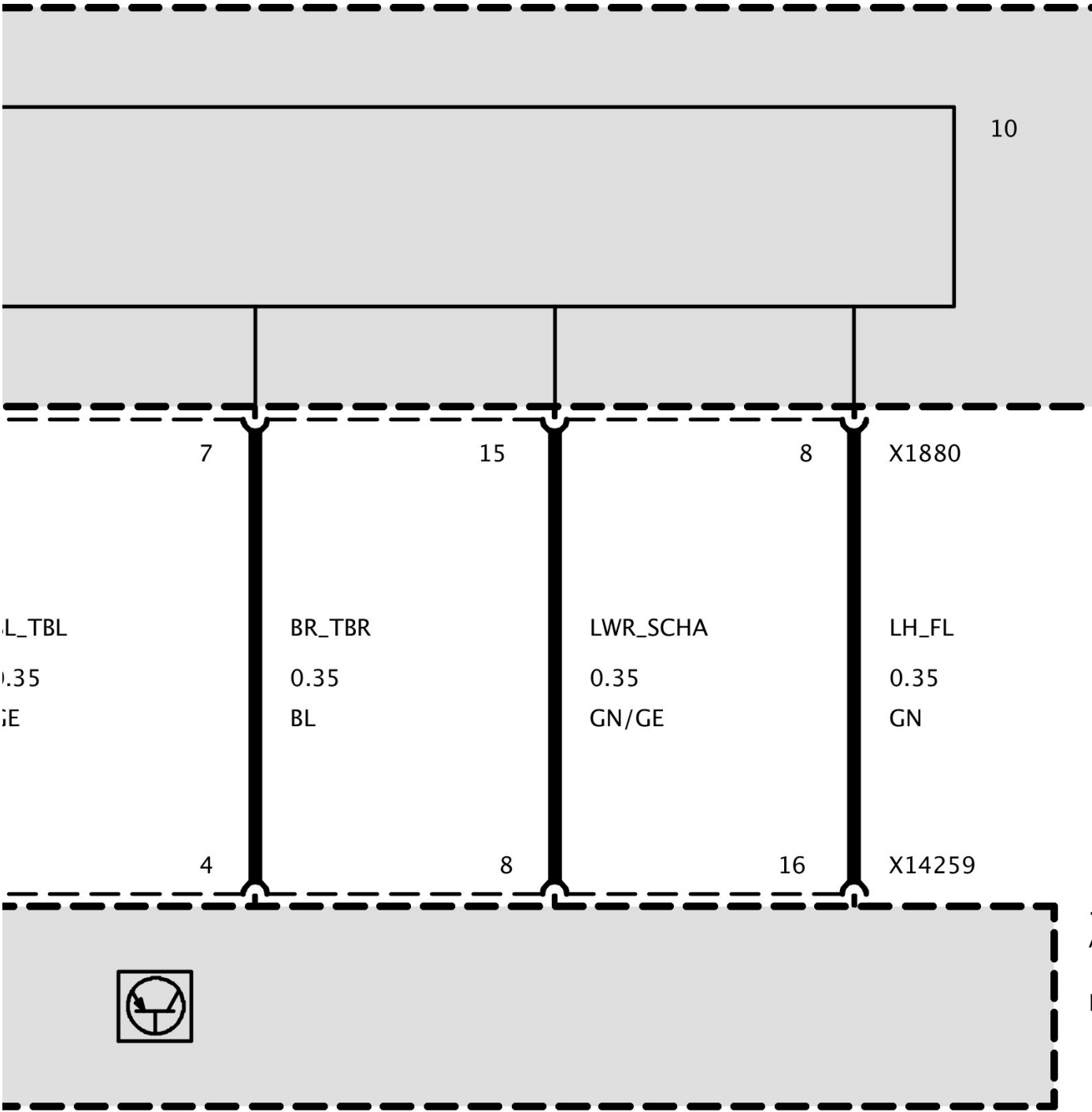
Part 3

Light Switch

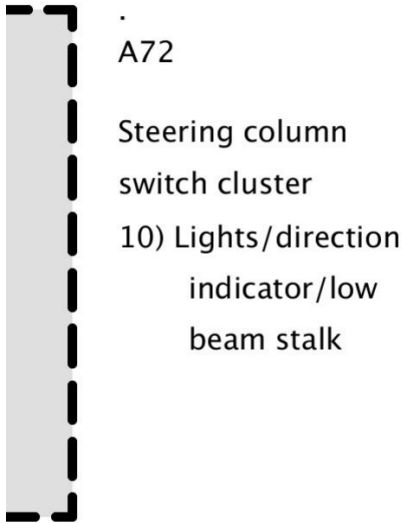
Lights/Direction Indicator/Low Beam Stalk



Part 1



Part 2



4011

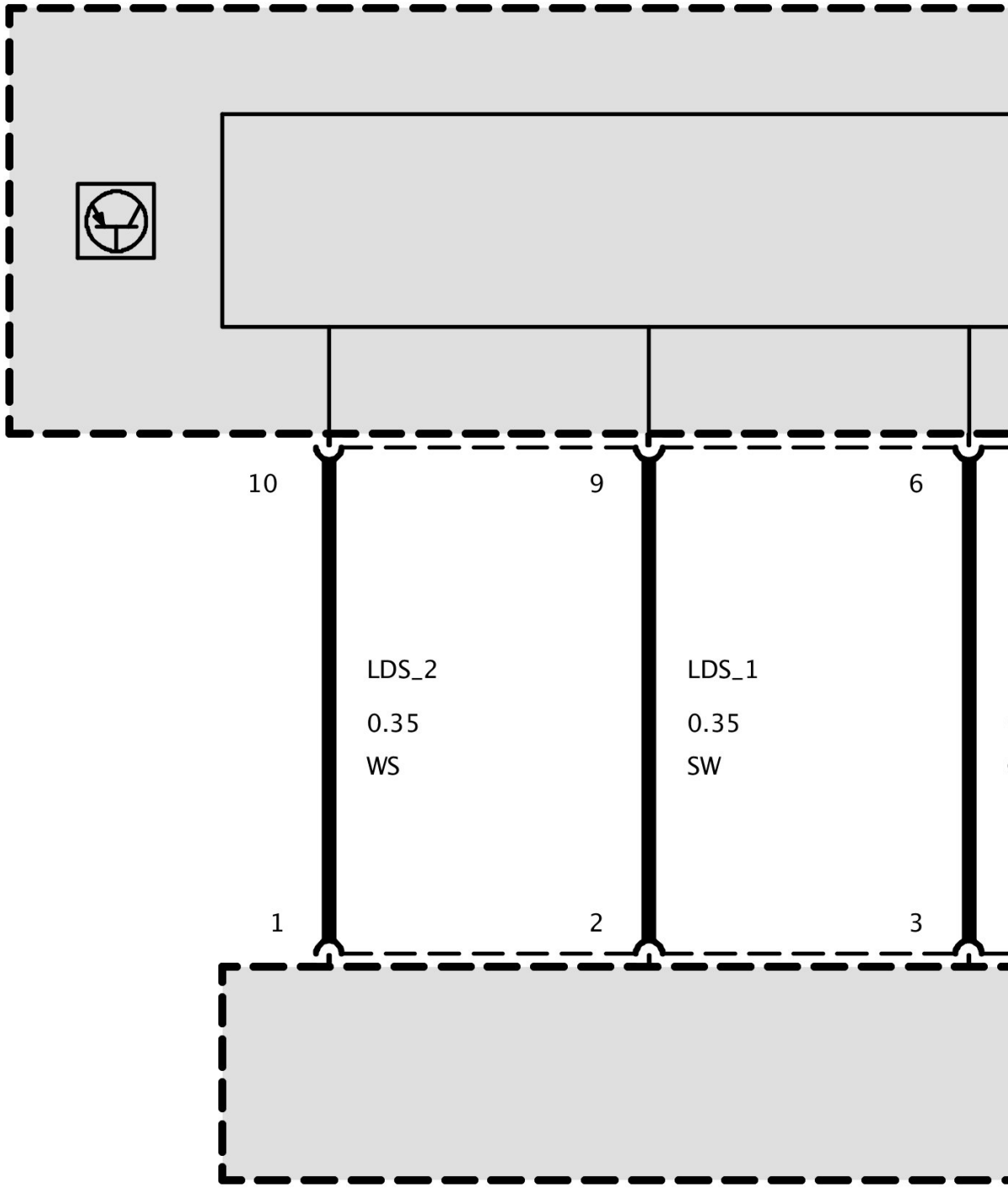
ootwell module

Part 3

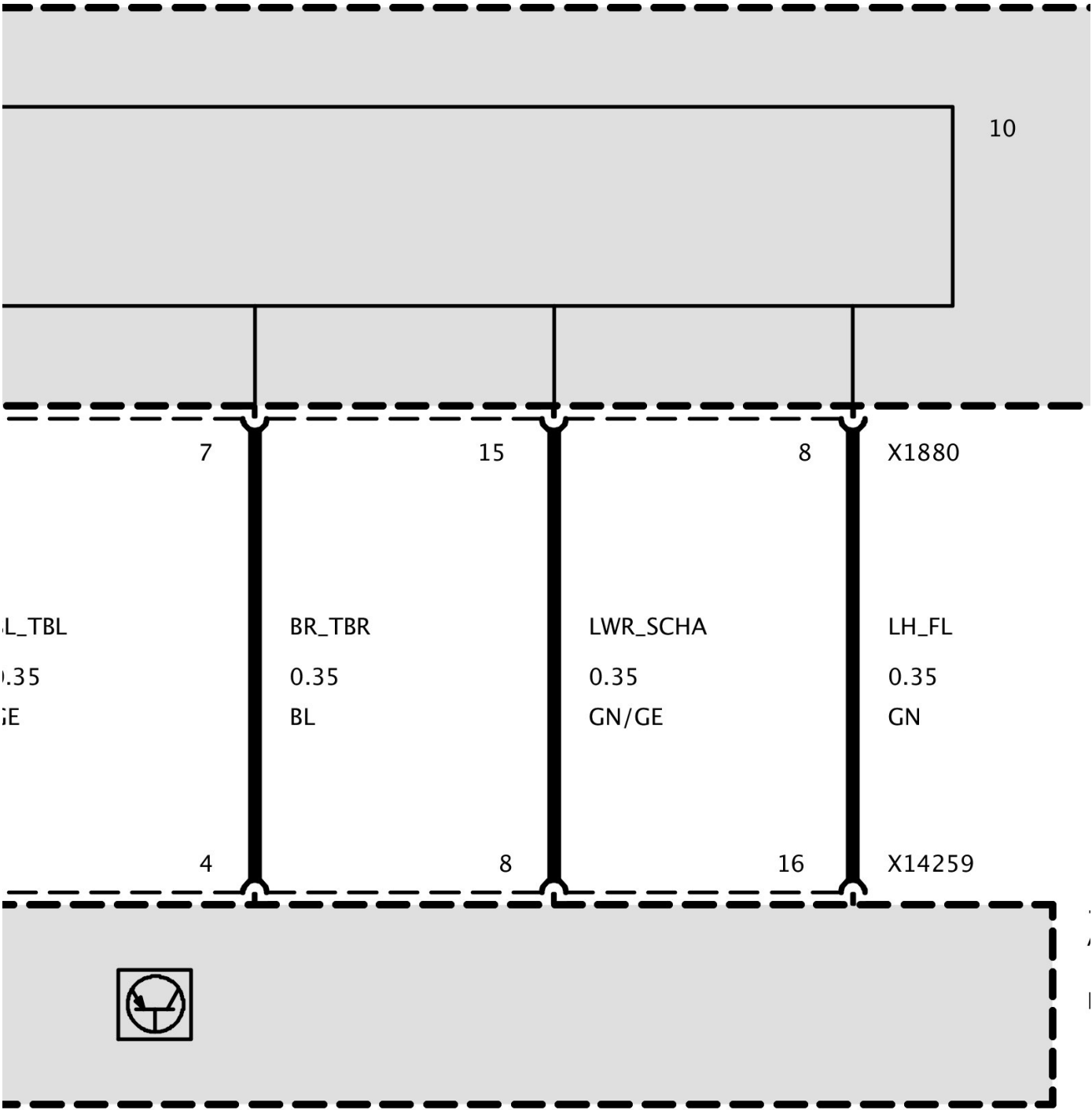
Direction Indicator/High Beam Headlight Switch

Lights/Direction Indicator/Low Beam Stalk

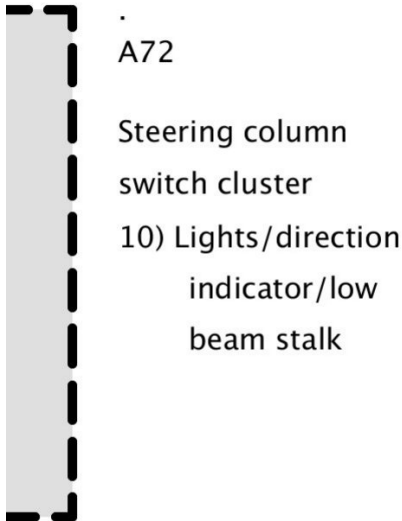




Part 1



Part 2



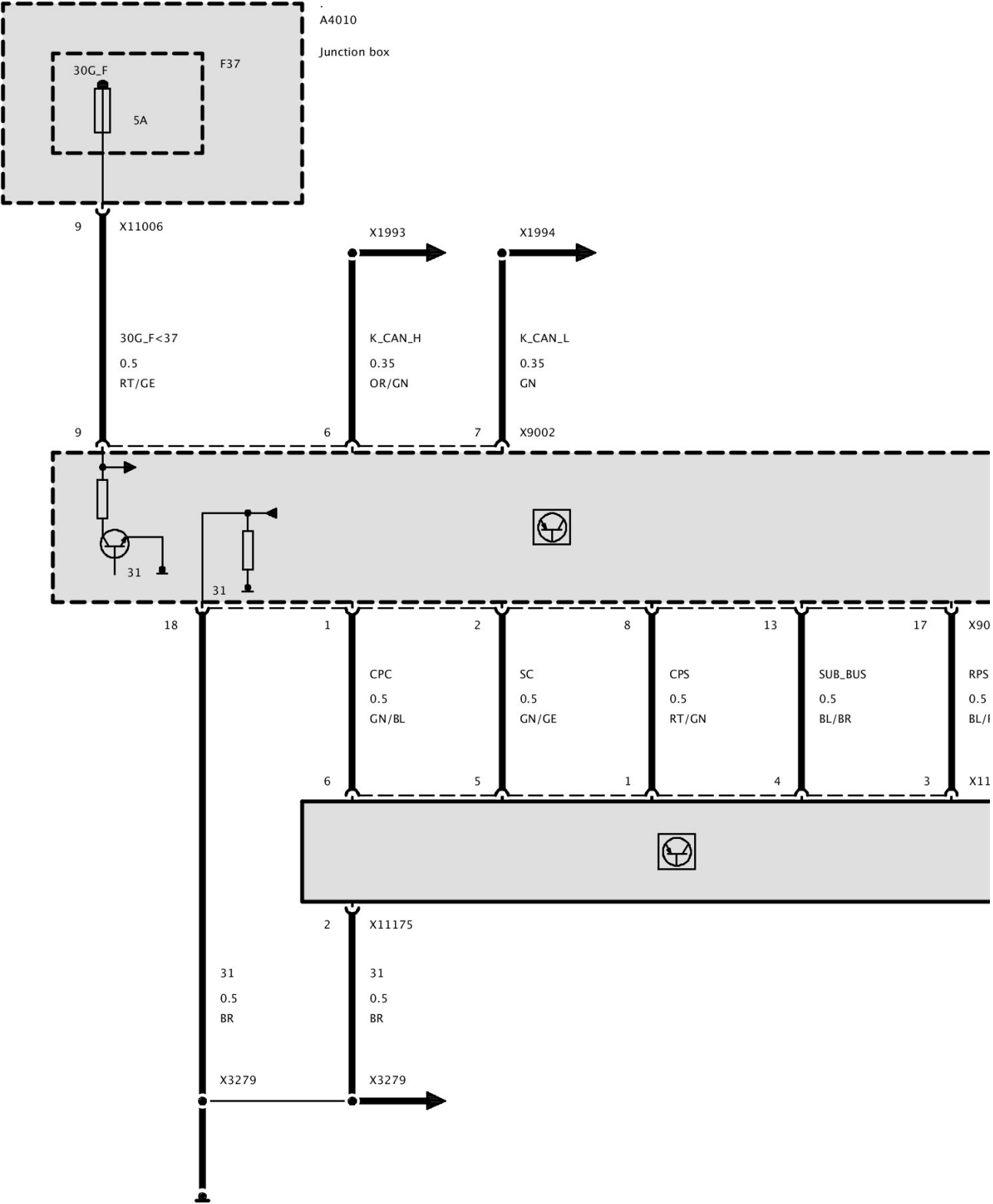
4011

ootwell module

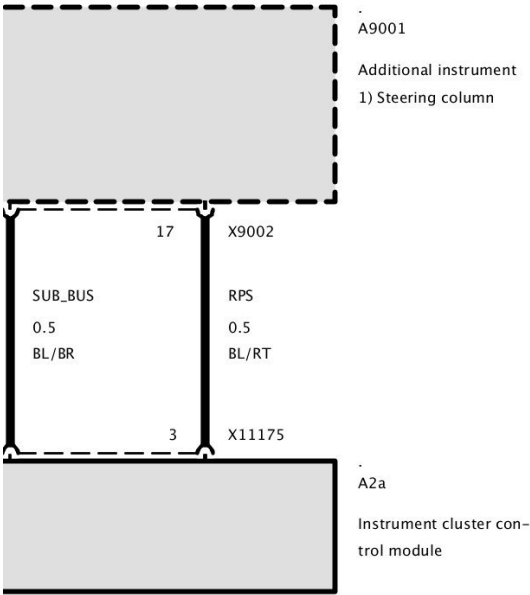
Part 3

Power Supply, Instrument Cluster KOMBI

Power Supply, Instrument Cluster KOMBI



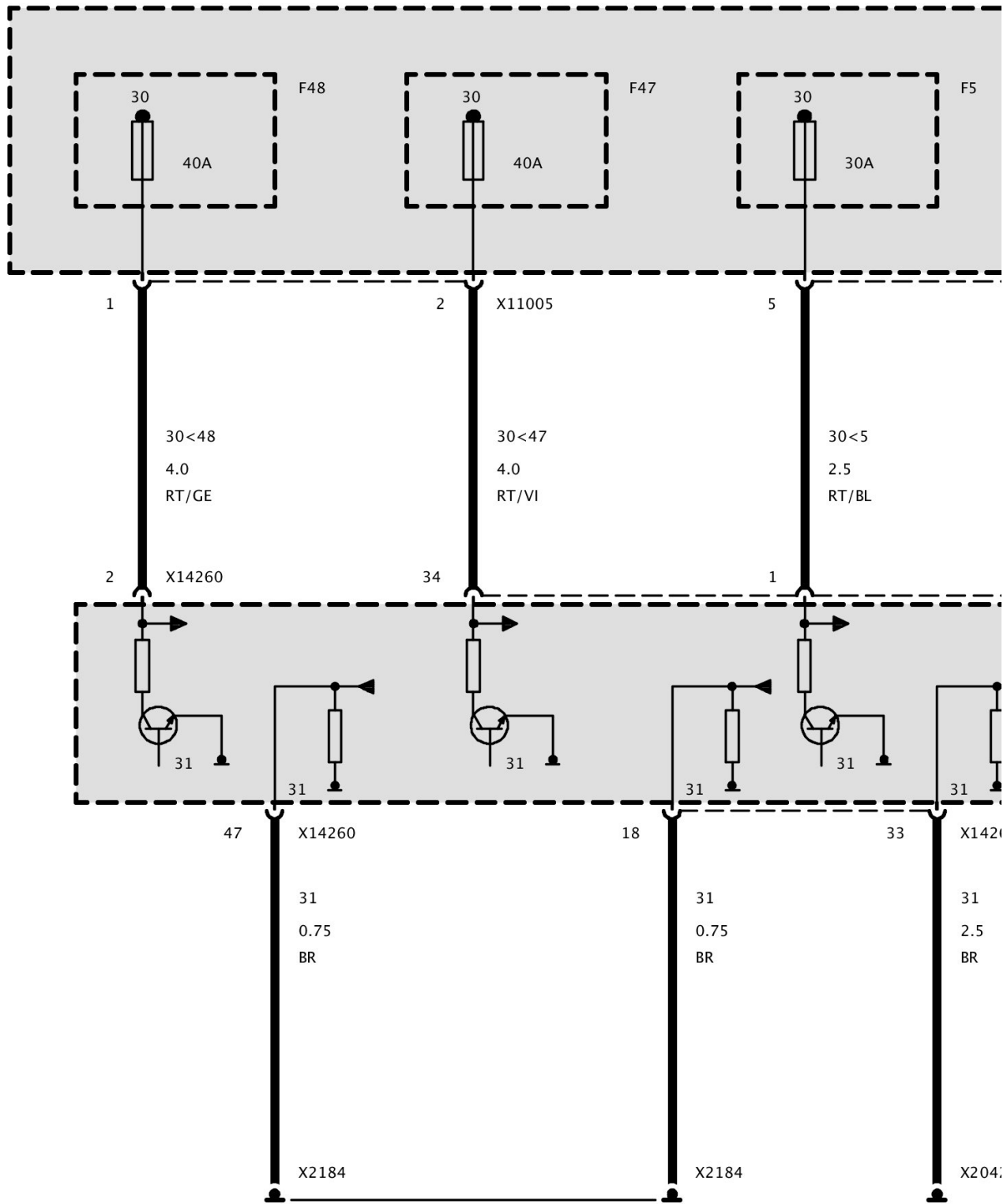
Part 1



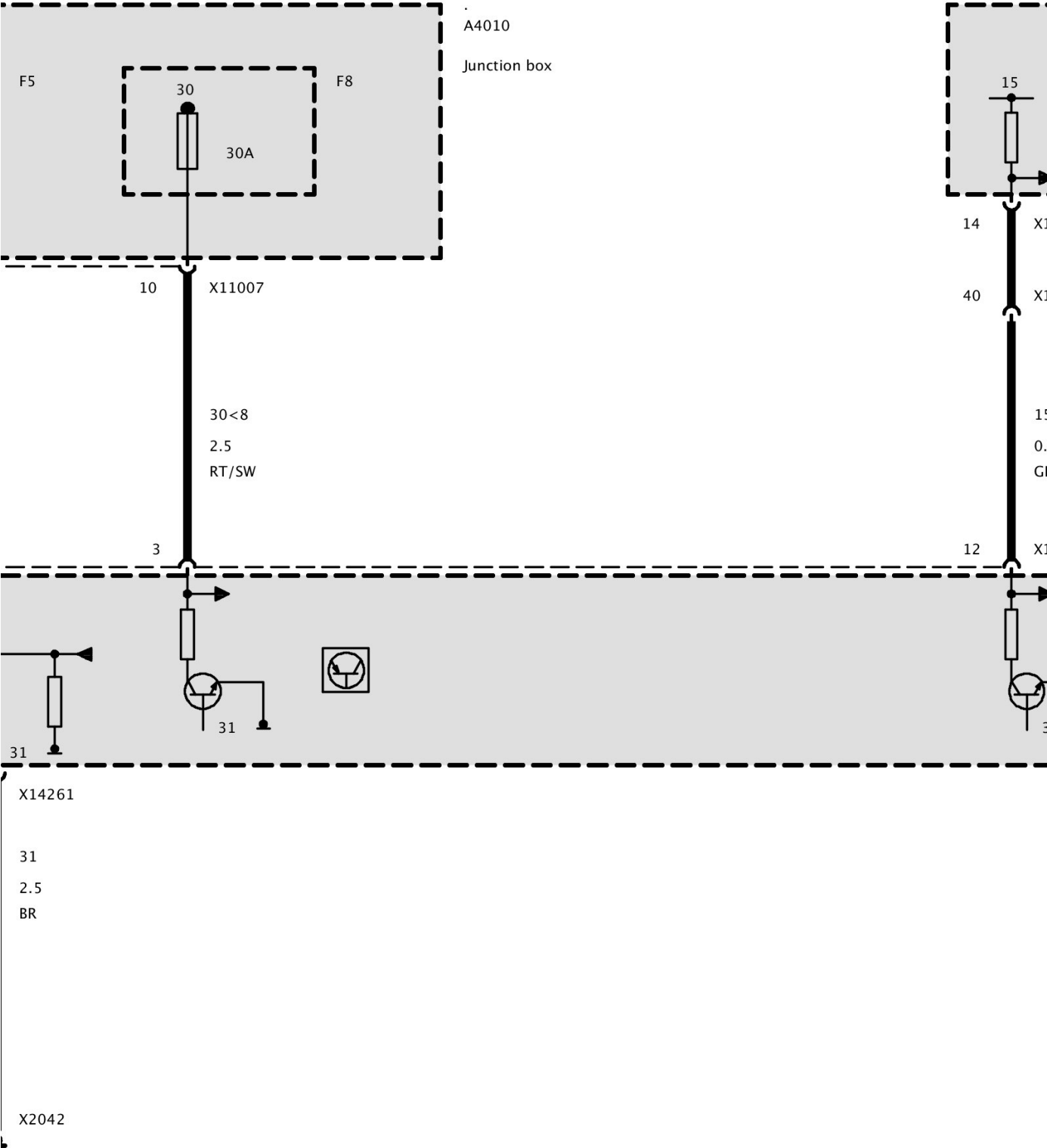
**Part 2**

**Power Supply, Footwell Module FRM Up to 12/08)**

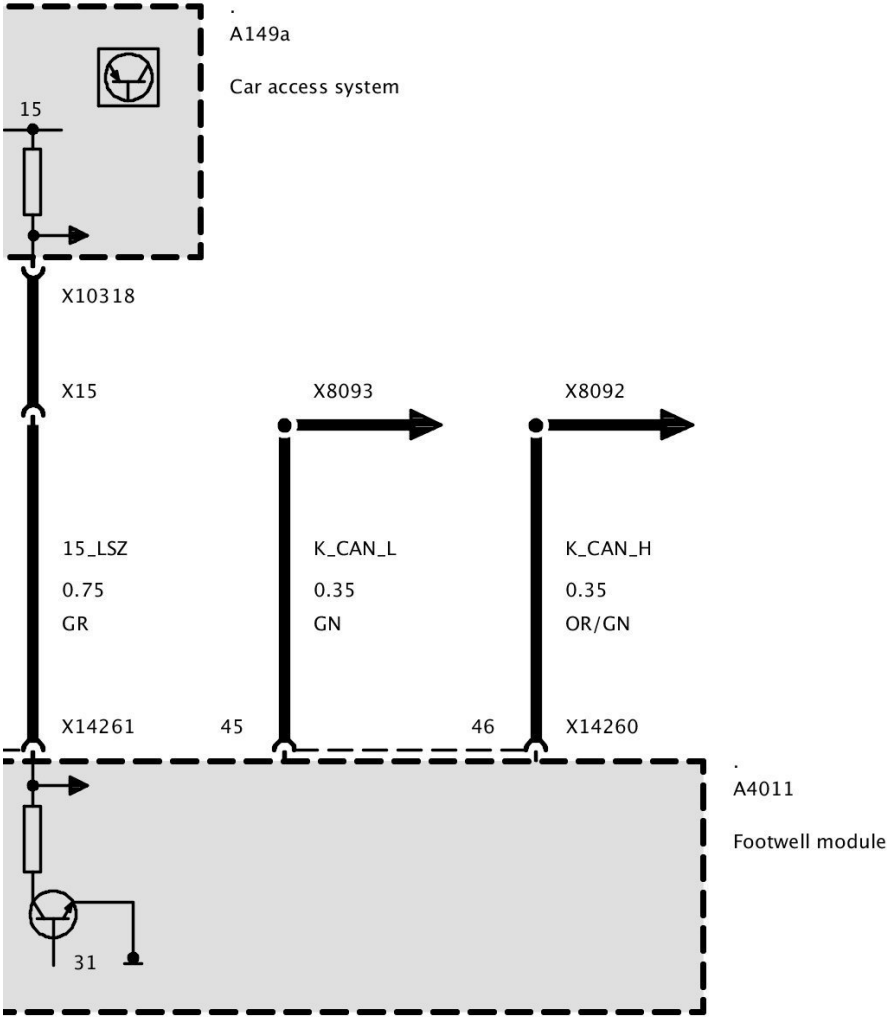
**Power Supply, Footwell Module FRM (As Of 12/08)**



Part 1



Part 2

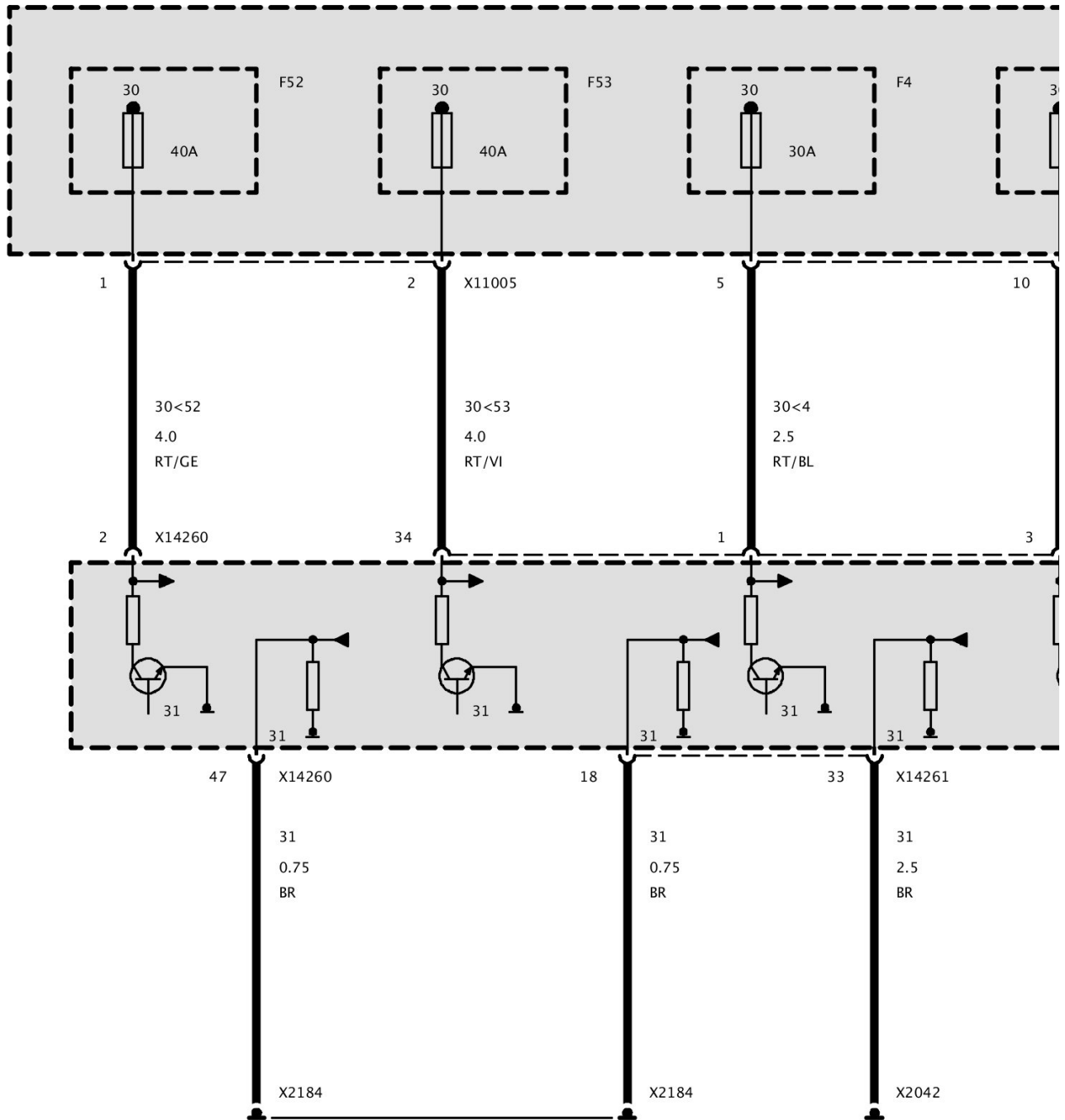


Part 3

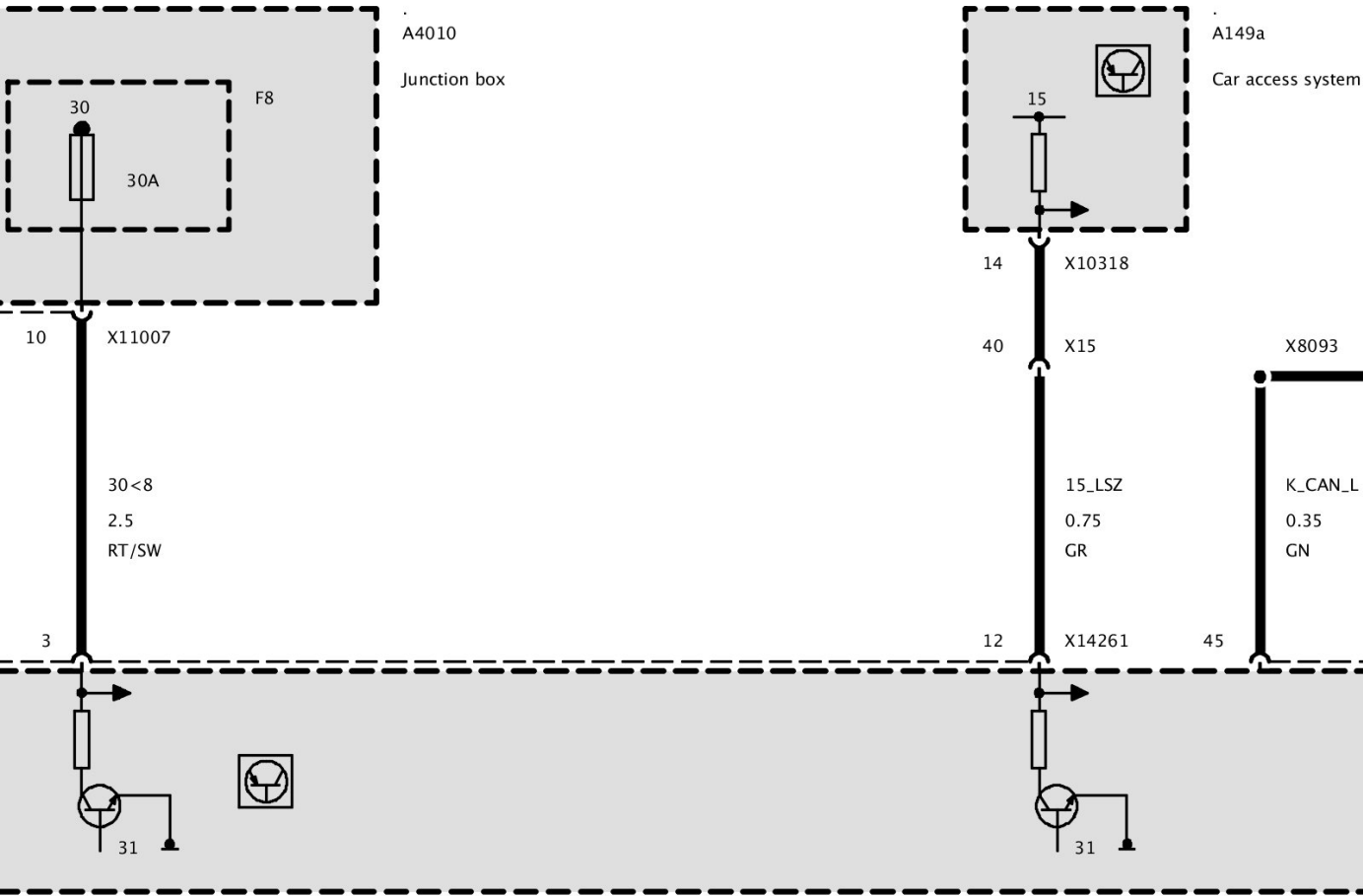
Power Supply, Footwell Module FRM (As Of 12/08)

Power Supply, Footwell Module FRM (As Of 12/08)



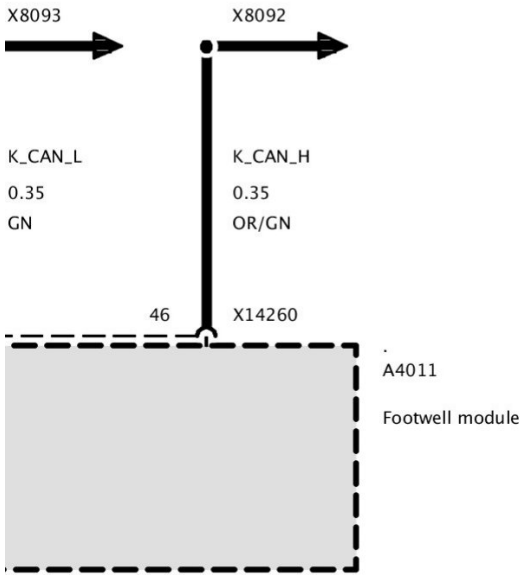


Part 1



Part 2

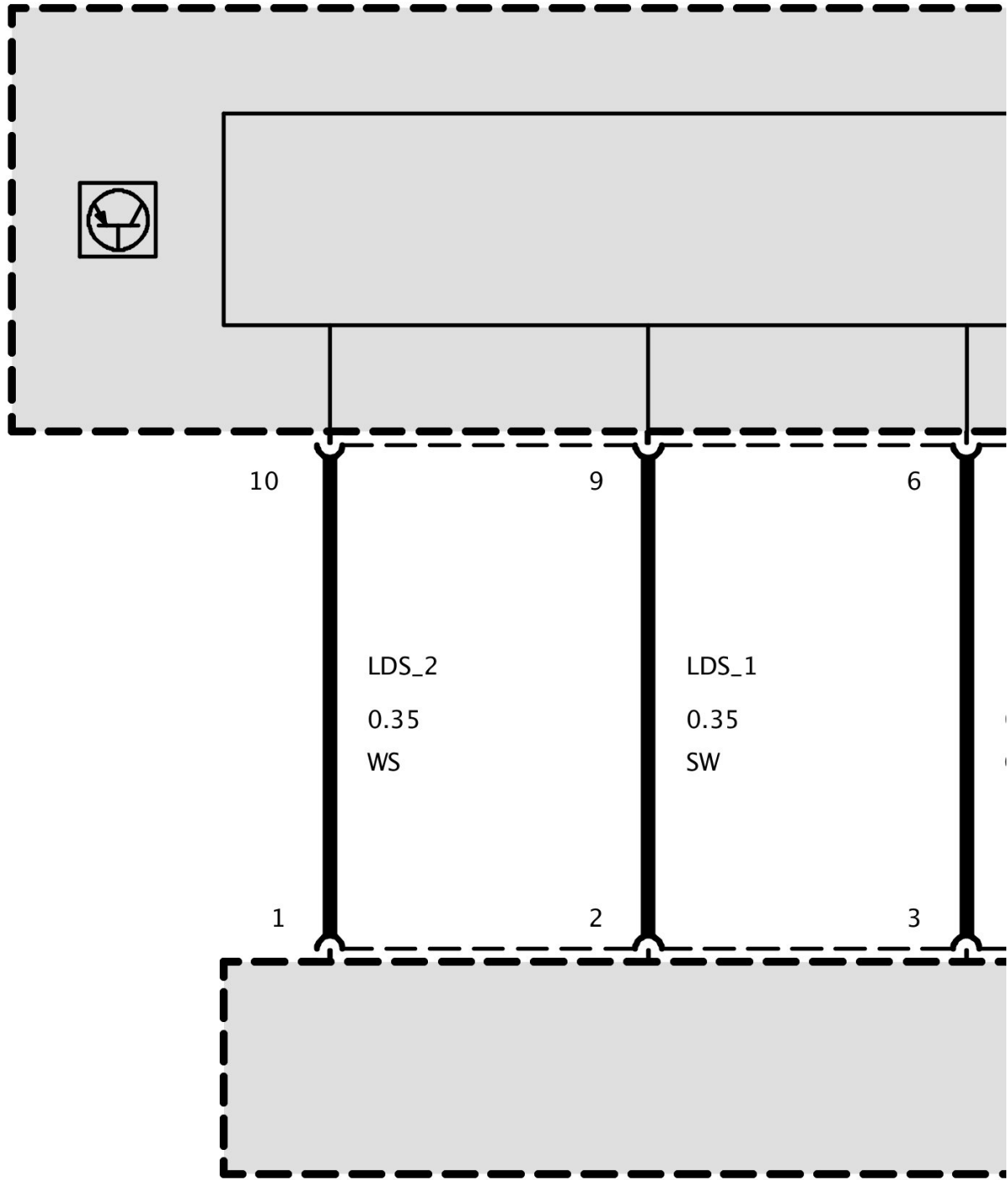
ss system



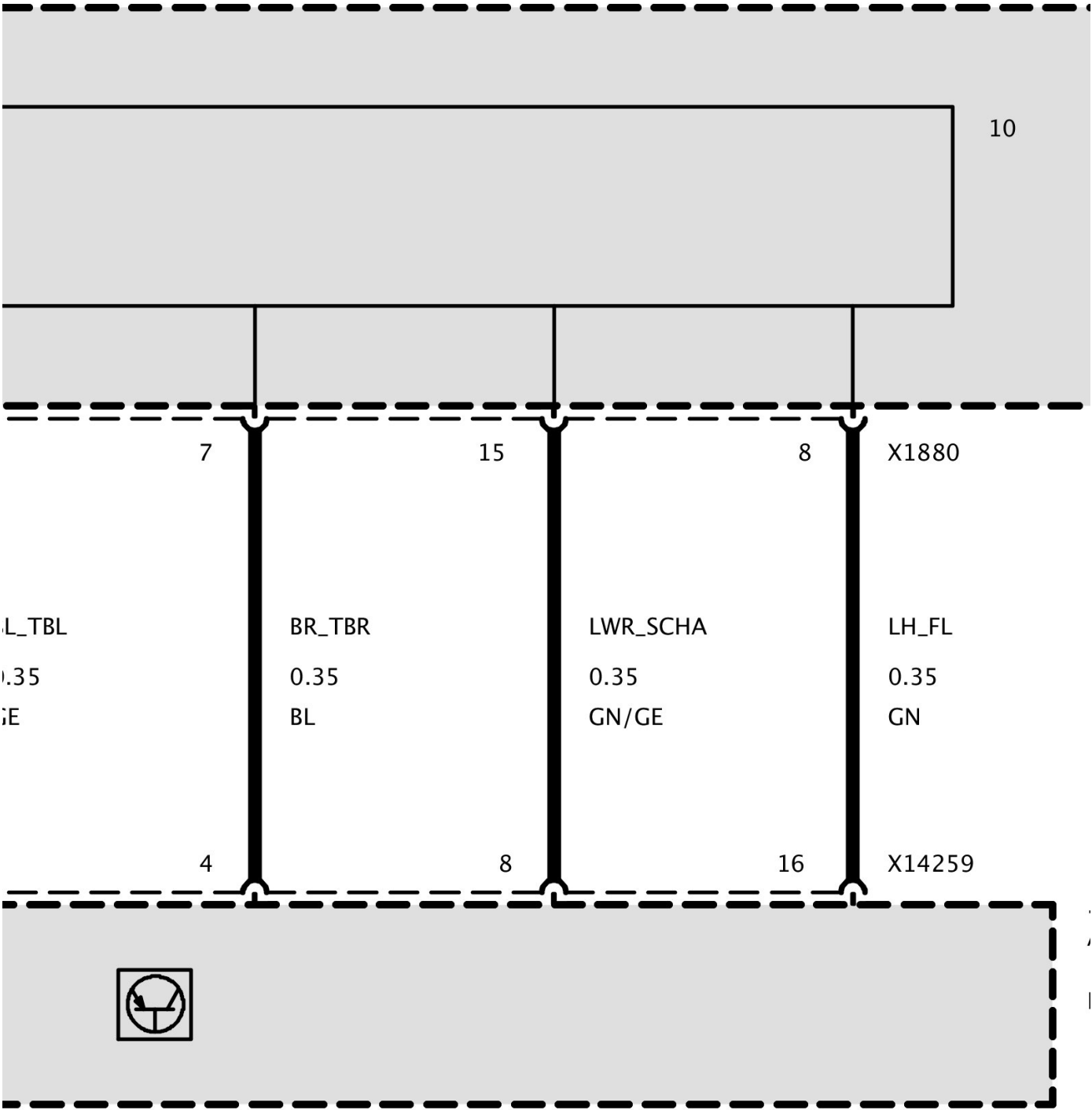
Part 3

Light Switch

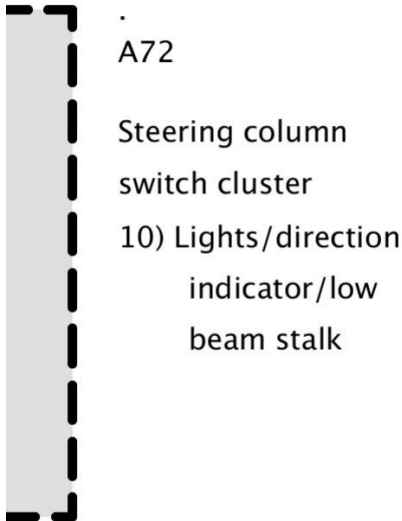
Lights/Direction Indicator/Low Beam Stalk



Part 1



Part 2



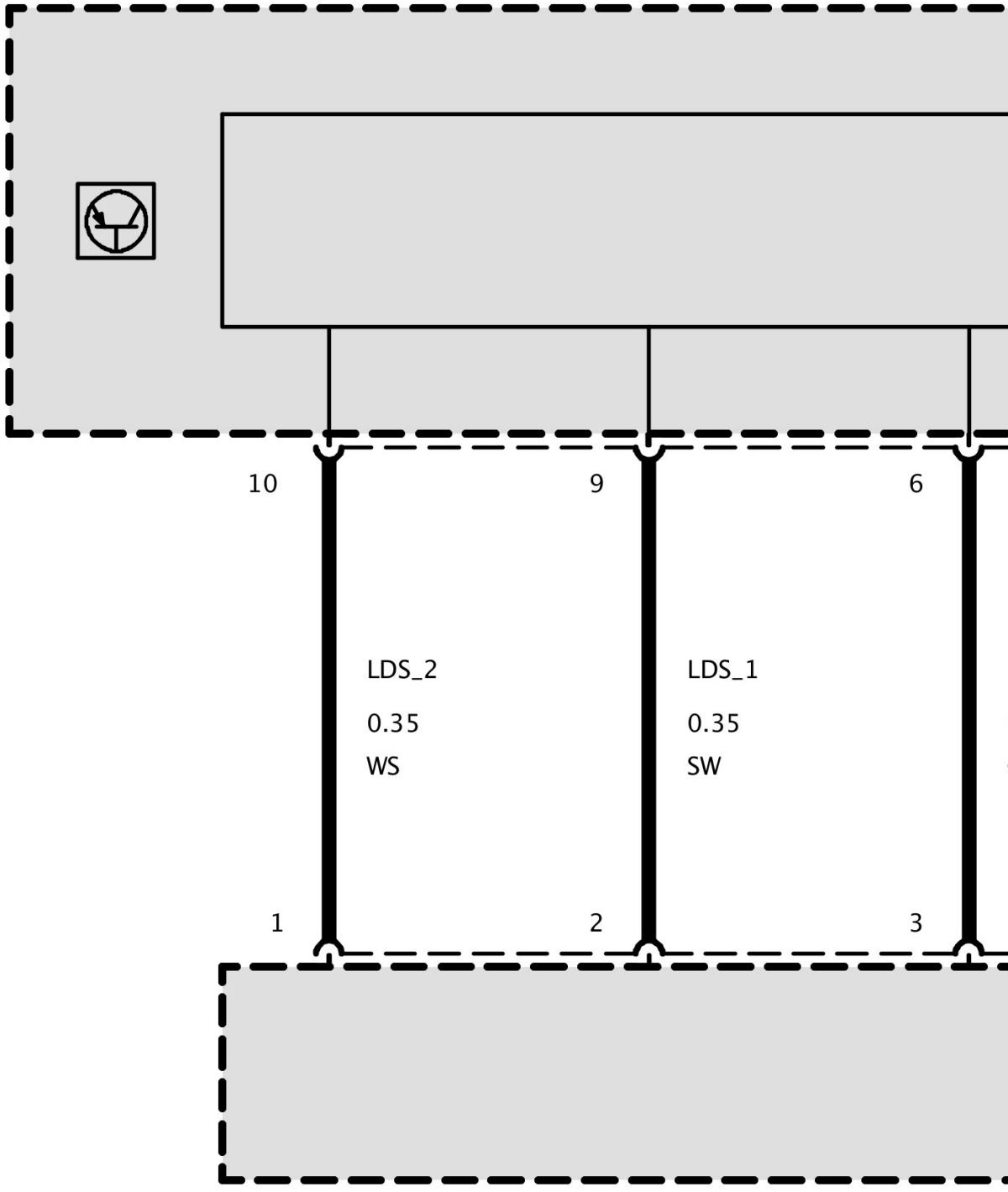
4011

ootwell module

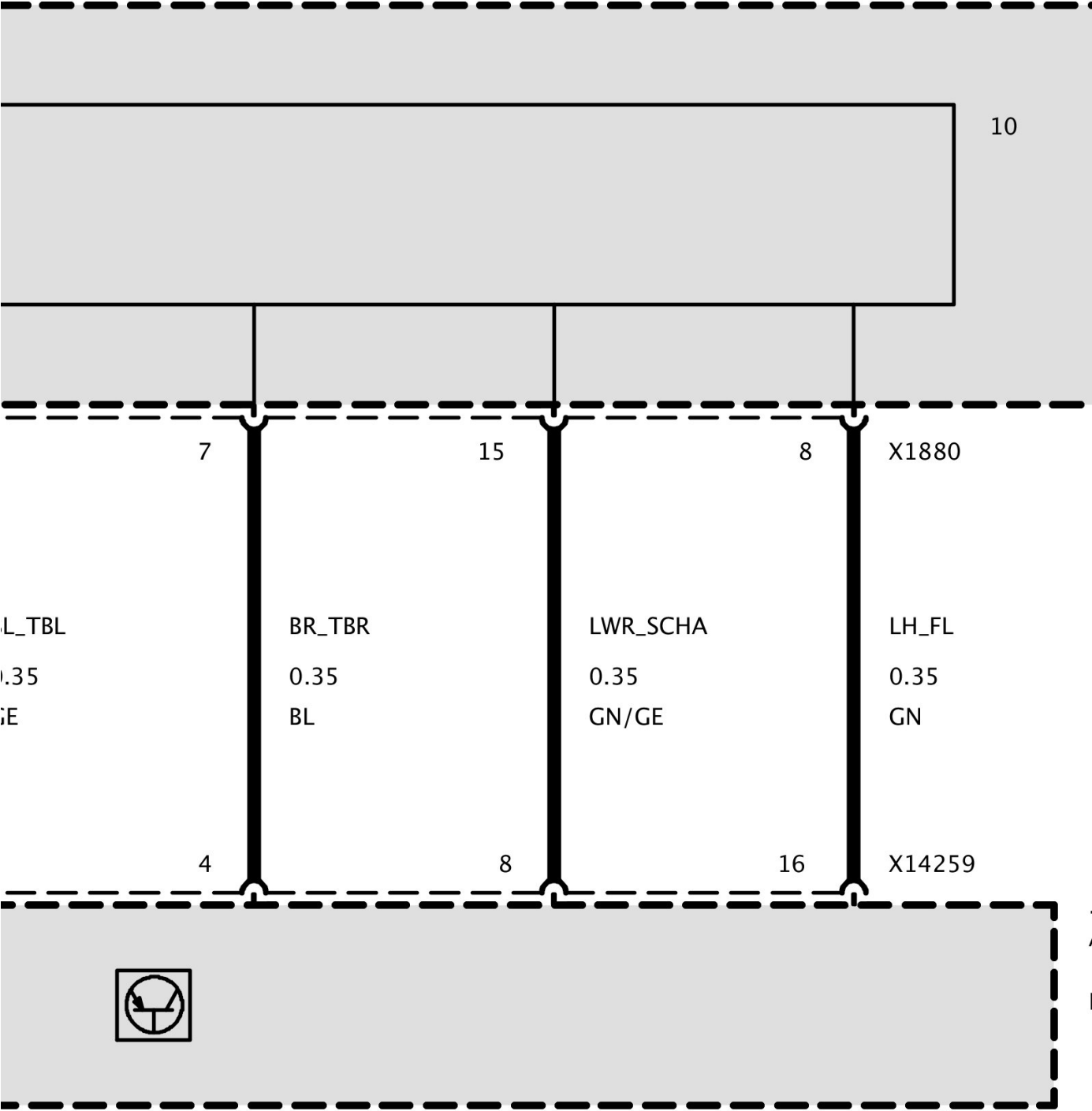
**Part 3**

**Light Switch**

**Lights/Direction Indicator/Low Beam Stalk**

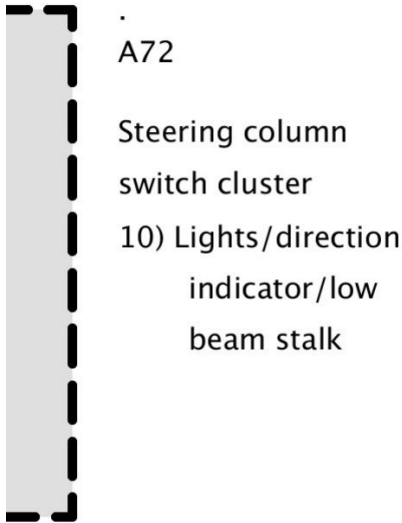


Part 1



Part 2





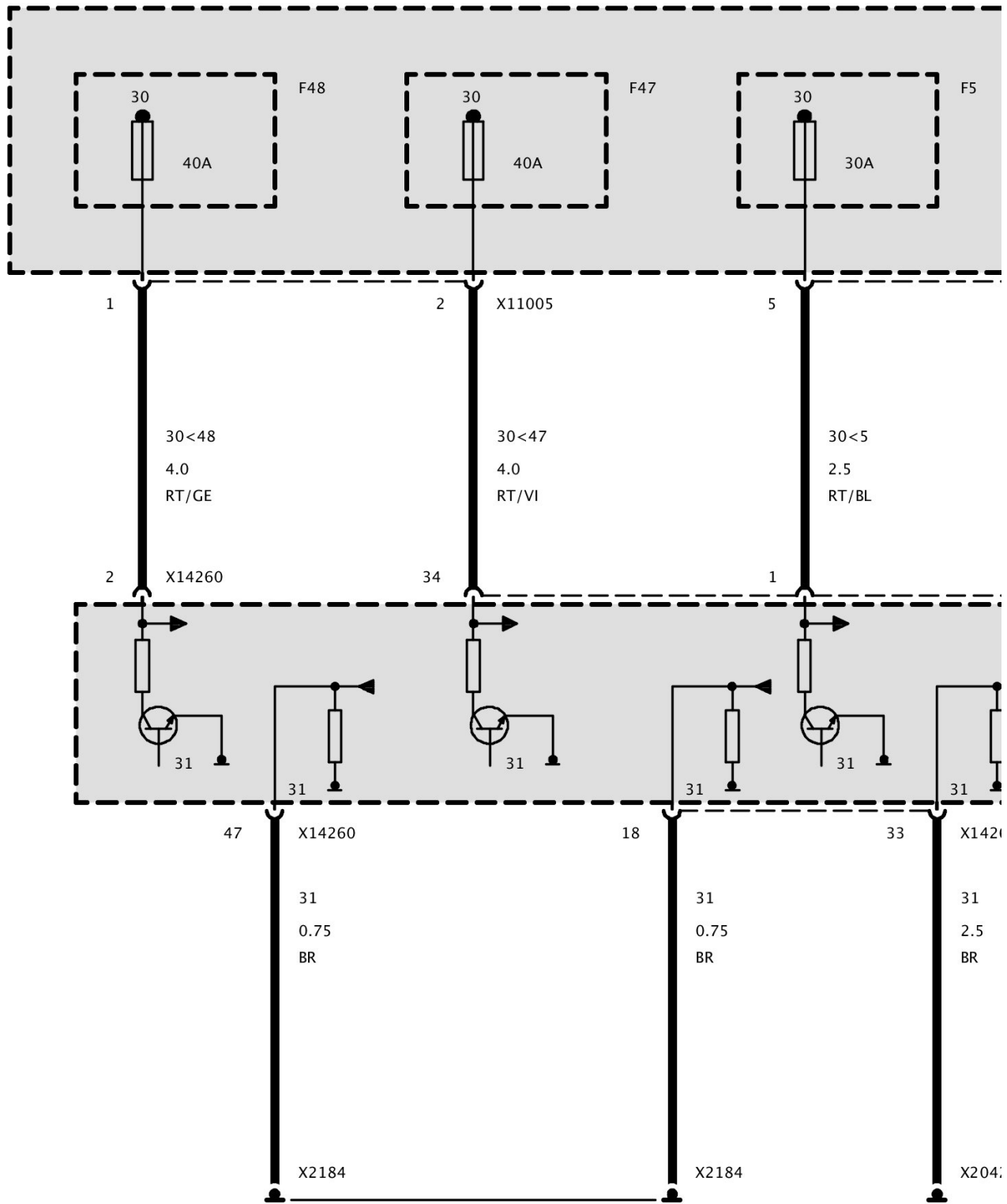
4011

ootwell module

**Part 3**

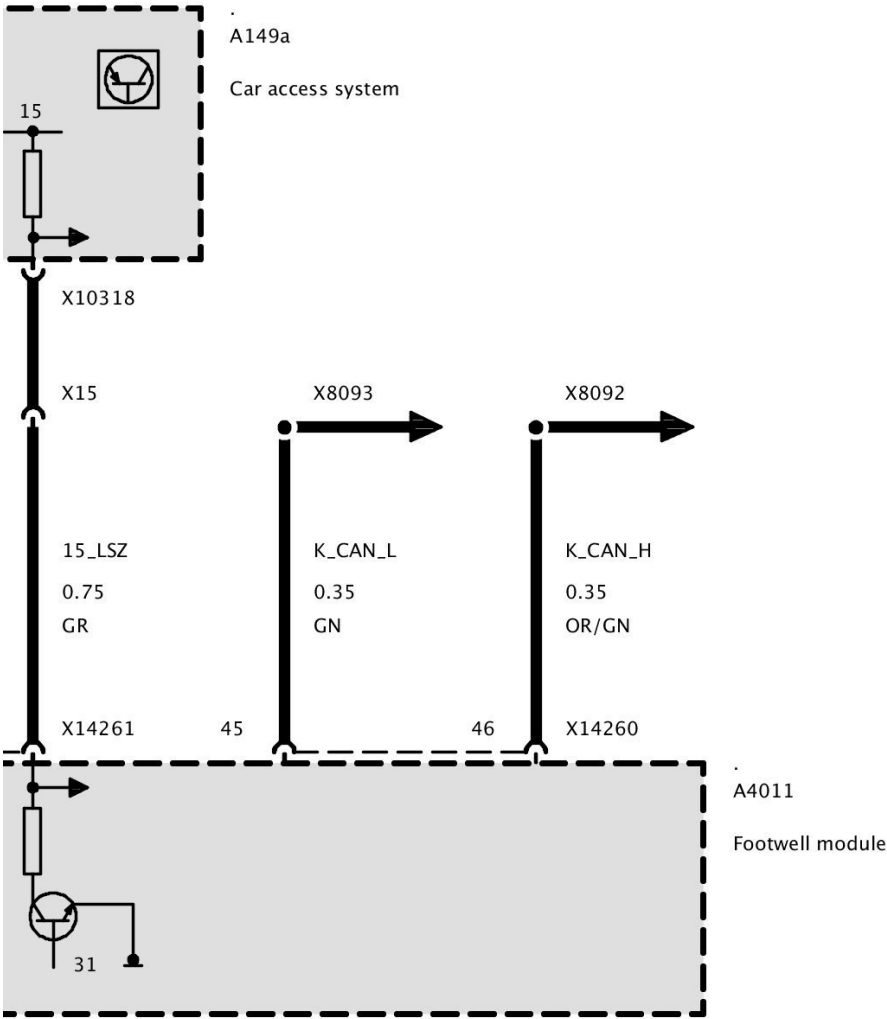
**Power Supply, Footwell Module FRM (Up To 12/08)**

Power Supply, Footwell Module FRM (Up To 12/08)



Part 1

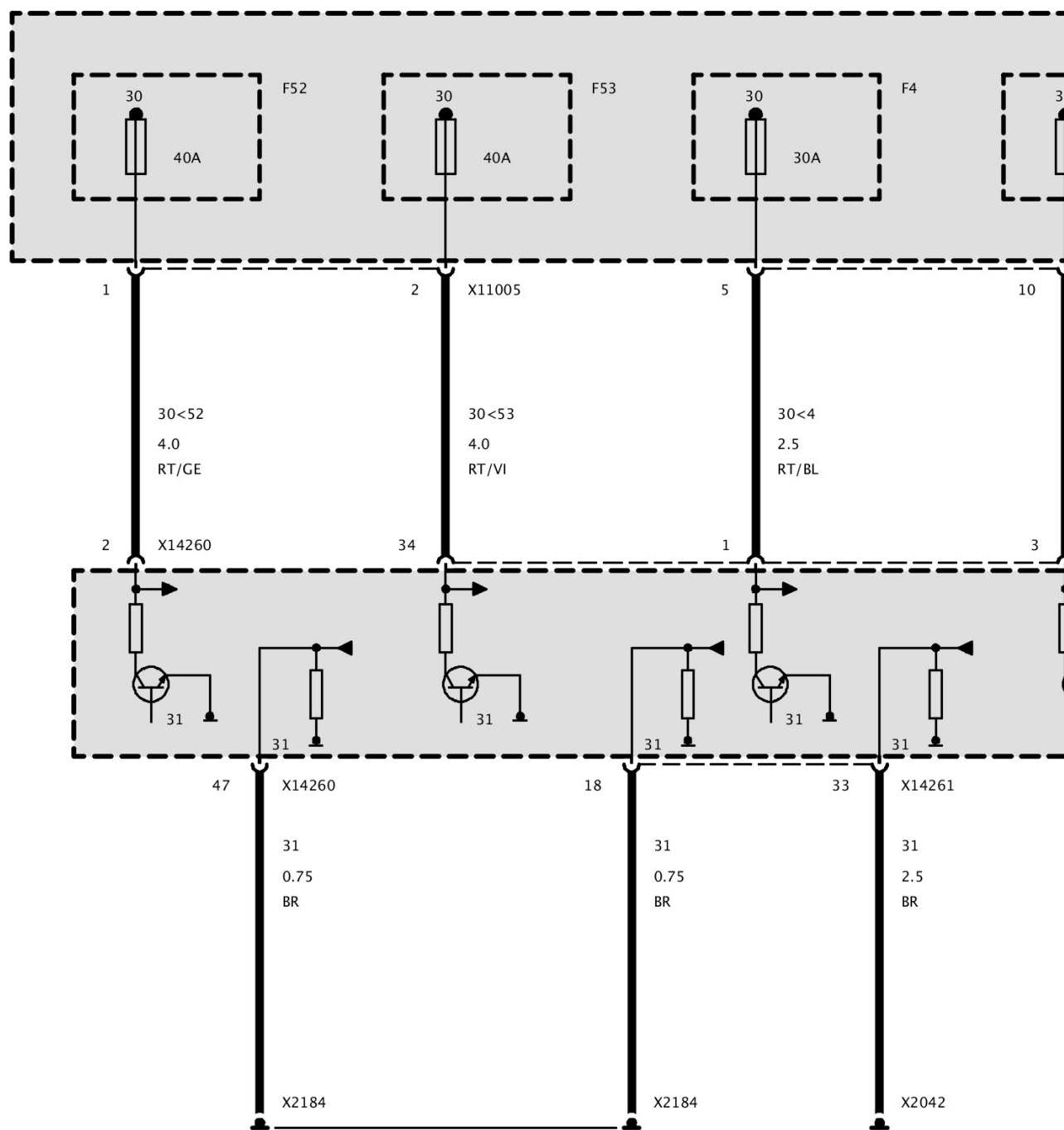




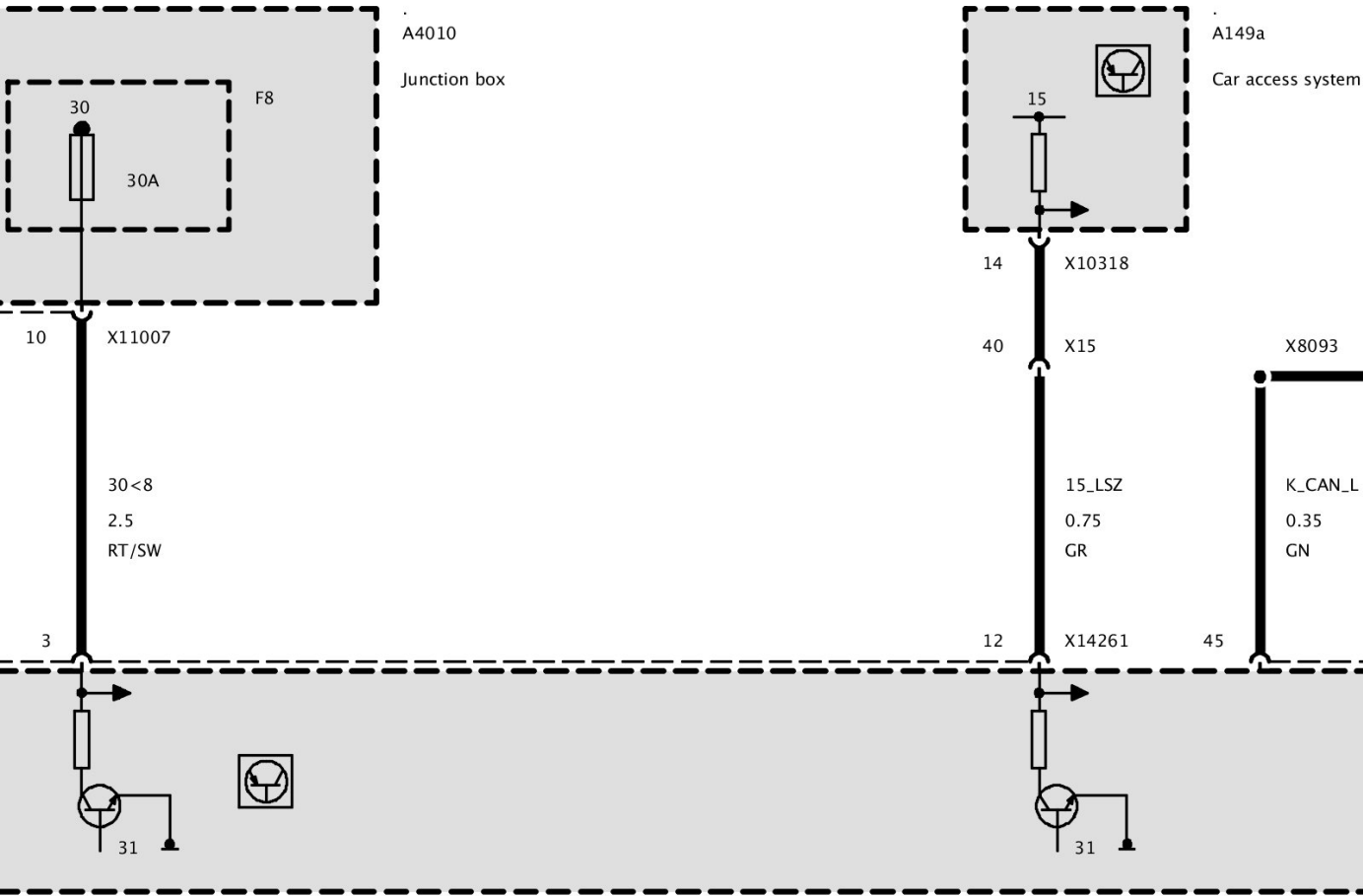
Part 3

Power Supply, Footwell Module FRM (As Of 12/08)

Power Supply, Footwell Module FRM (As Of 12/08)

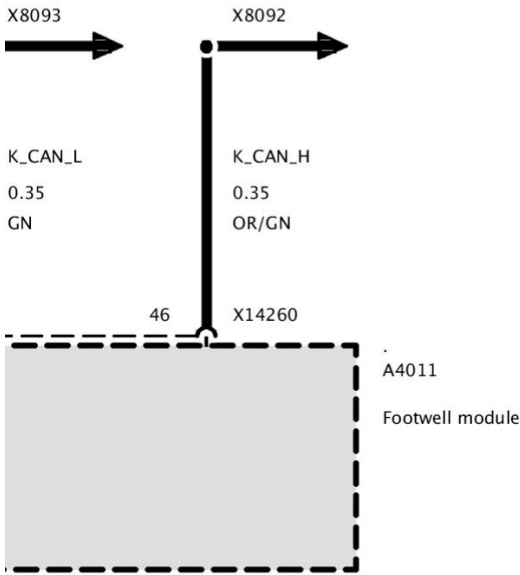


Part 1



Part 2

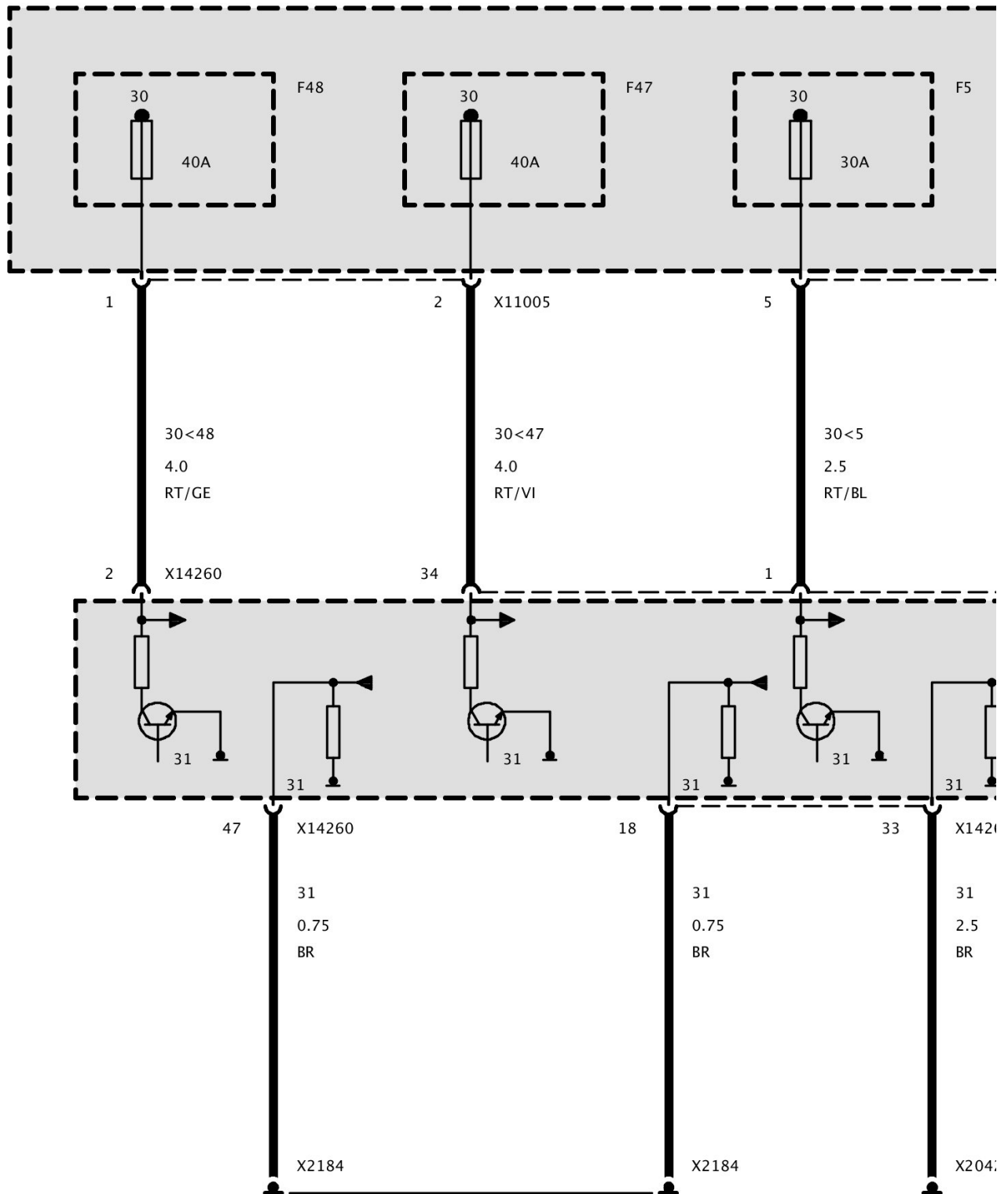
ss system



Part 3

Power Supply, Footwell Module FRM (Up To 12/08)

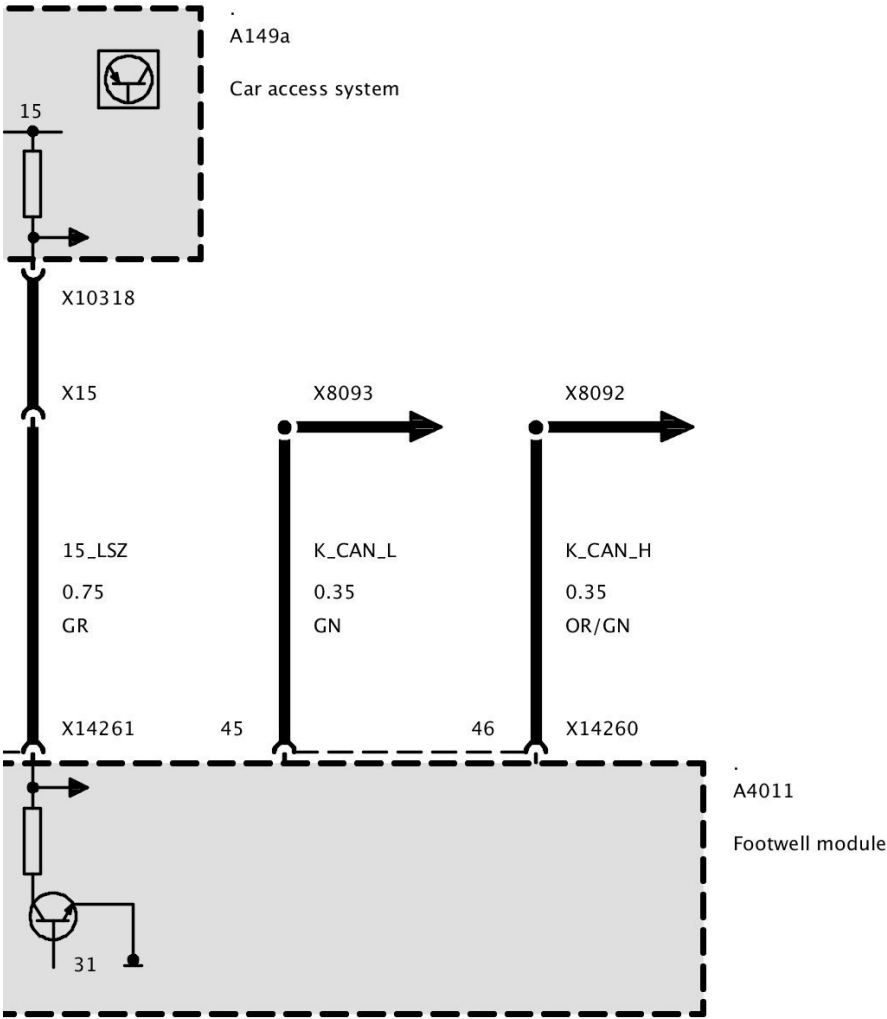
Power Supply, Footwell Module FRM (Up To 12/08)



Part 1



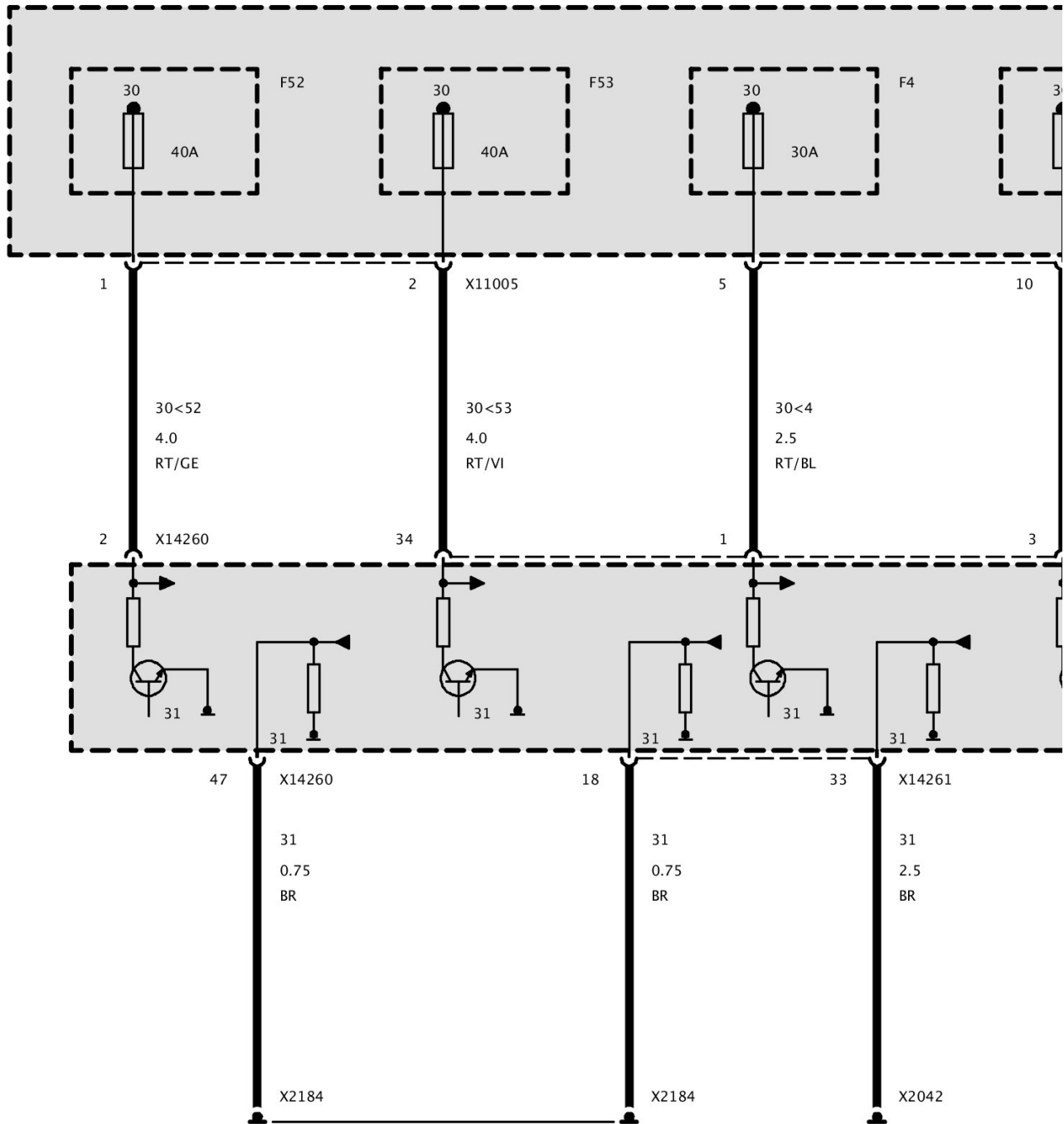




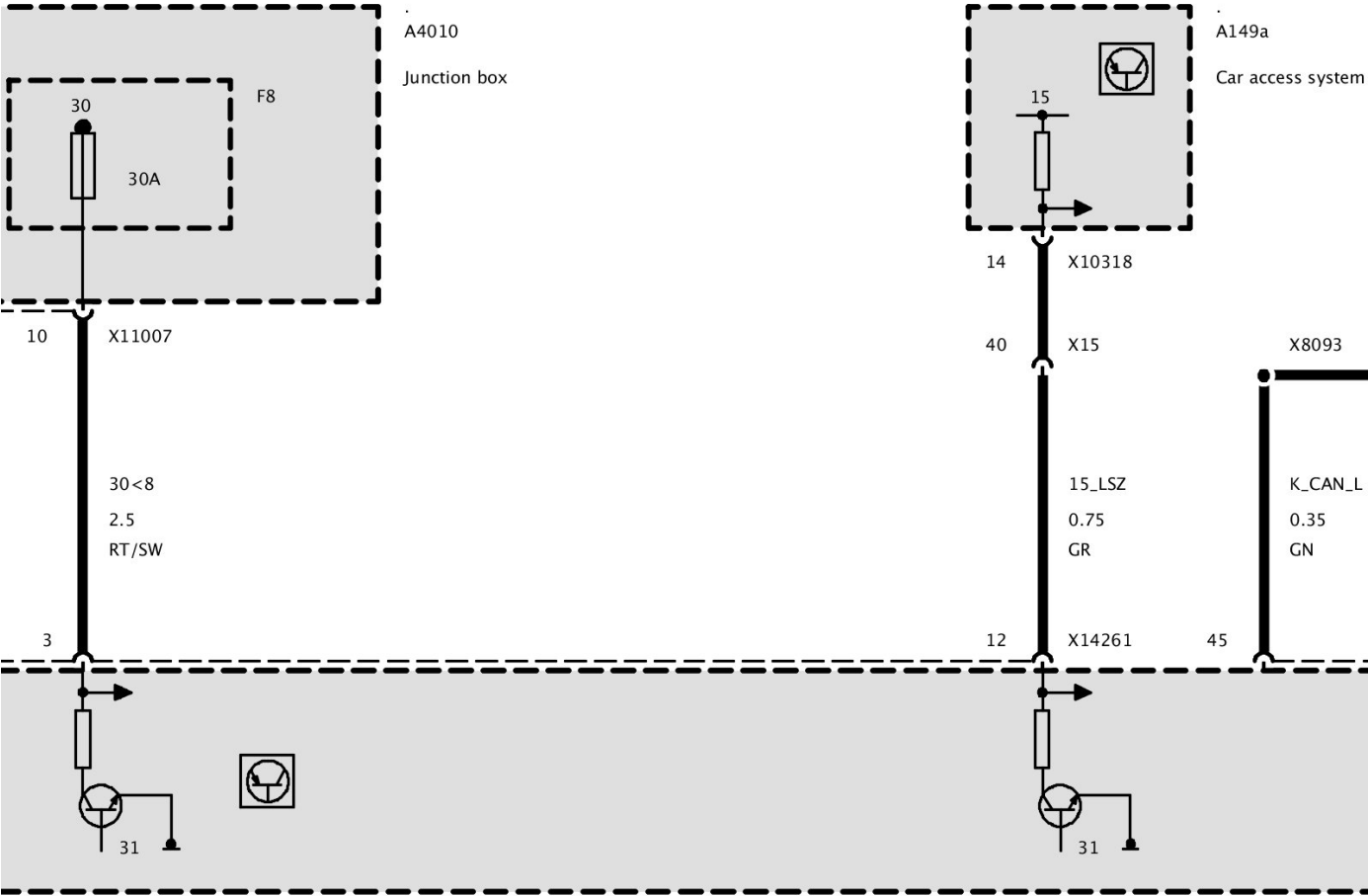
Part 3

Power Supply, Footwell Module FRM (As Of 12/08)

Power Supply, Footwell Module FRM (As Of 12/08)

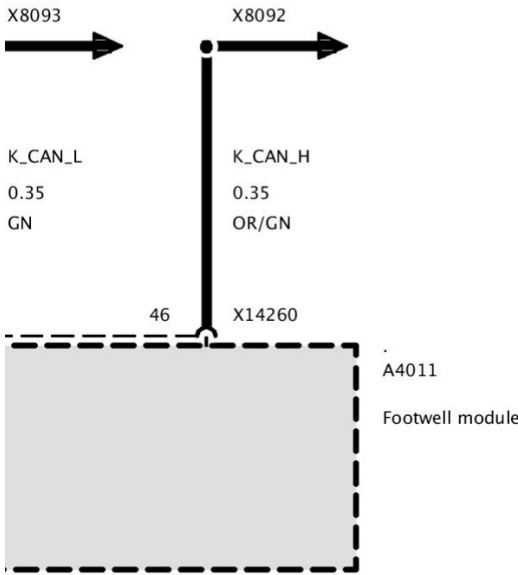


Part 1



Part 2

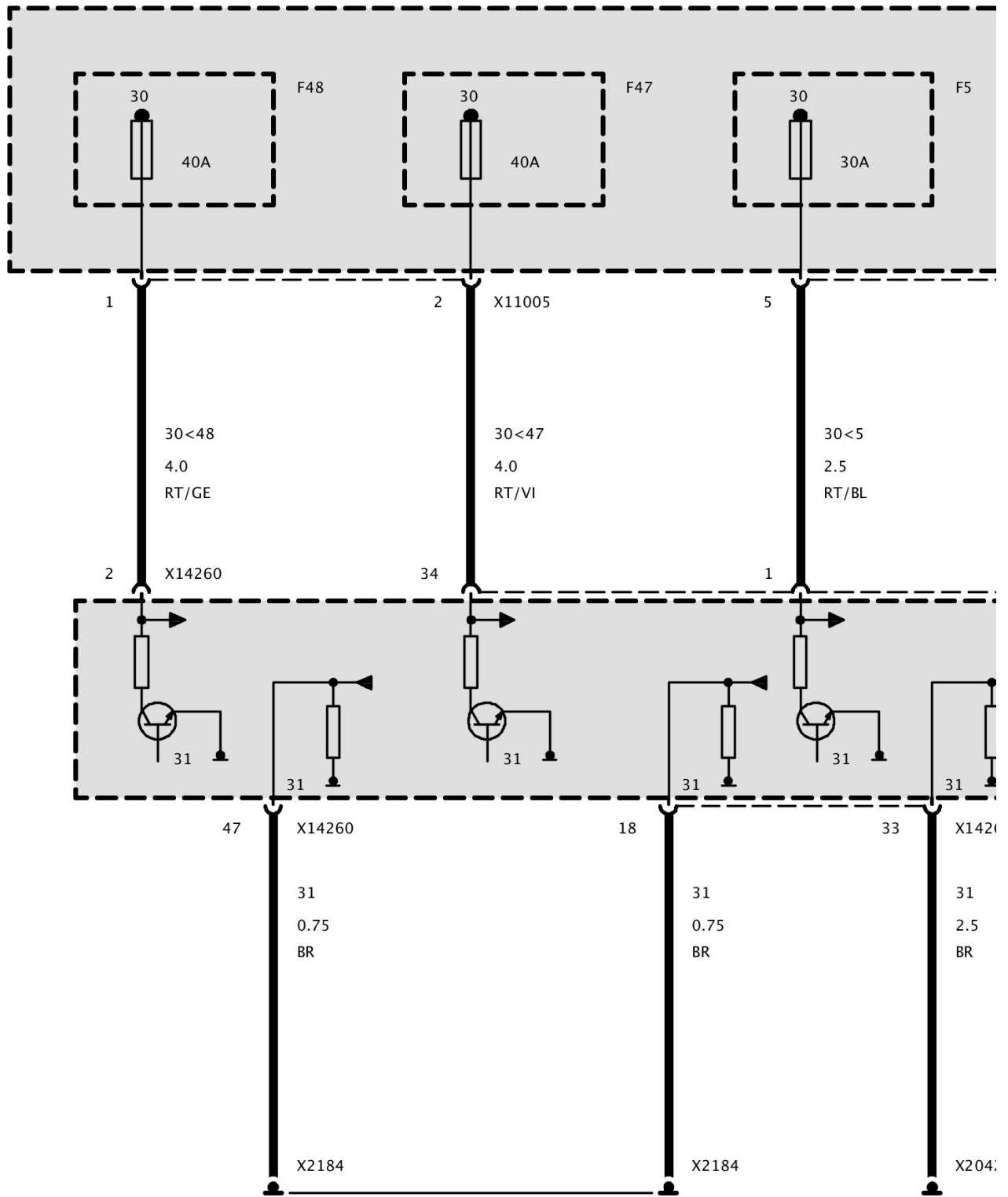
ss system



Part 3

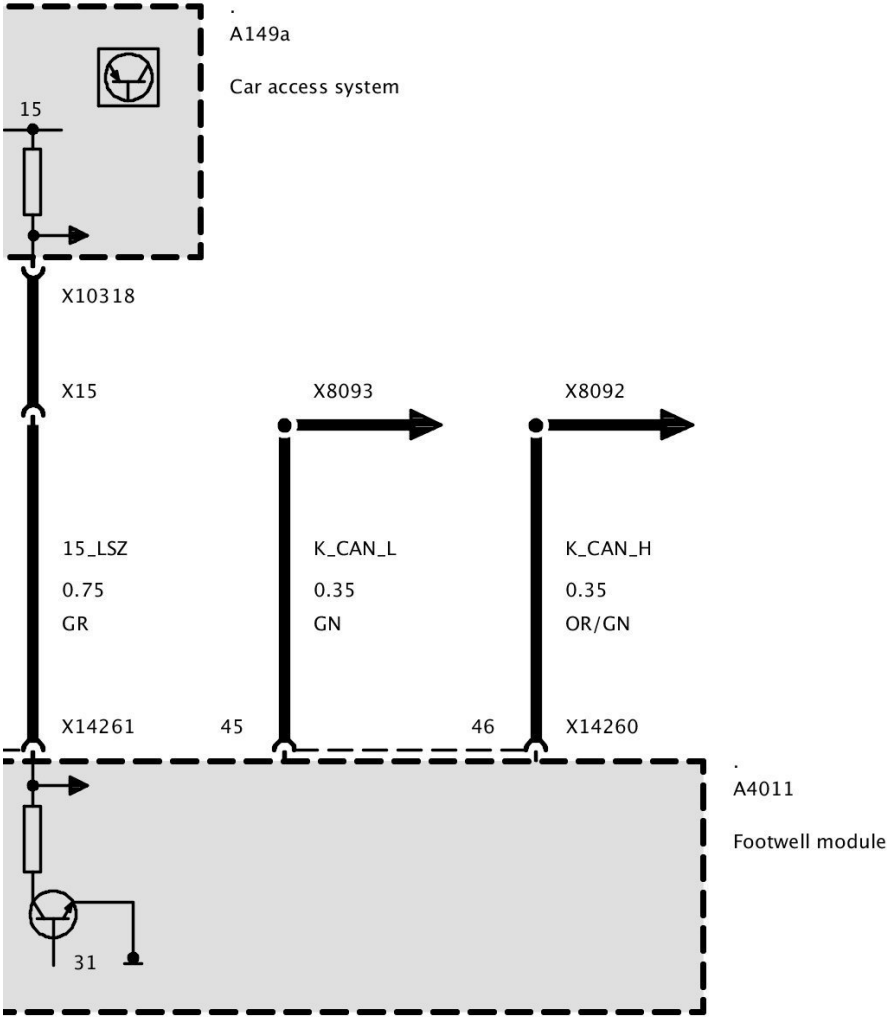
Power Supply, Footwell Module FRM (Up To 12/08)

Power Supply, Footwell Module FRM (Up To 12/08)



Part 1



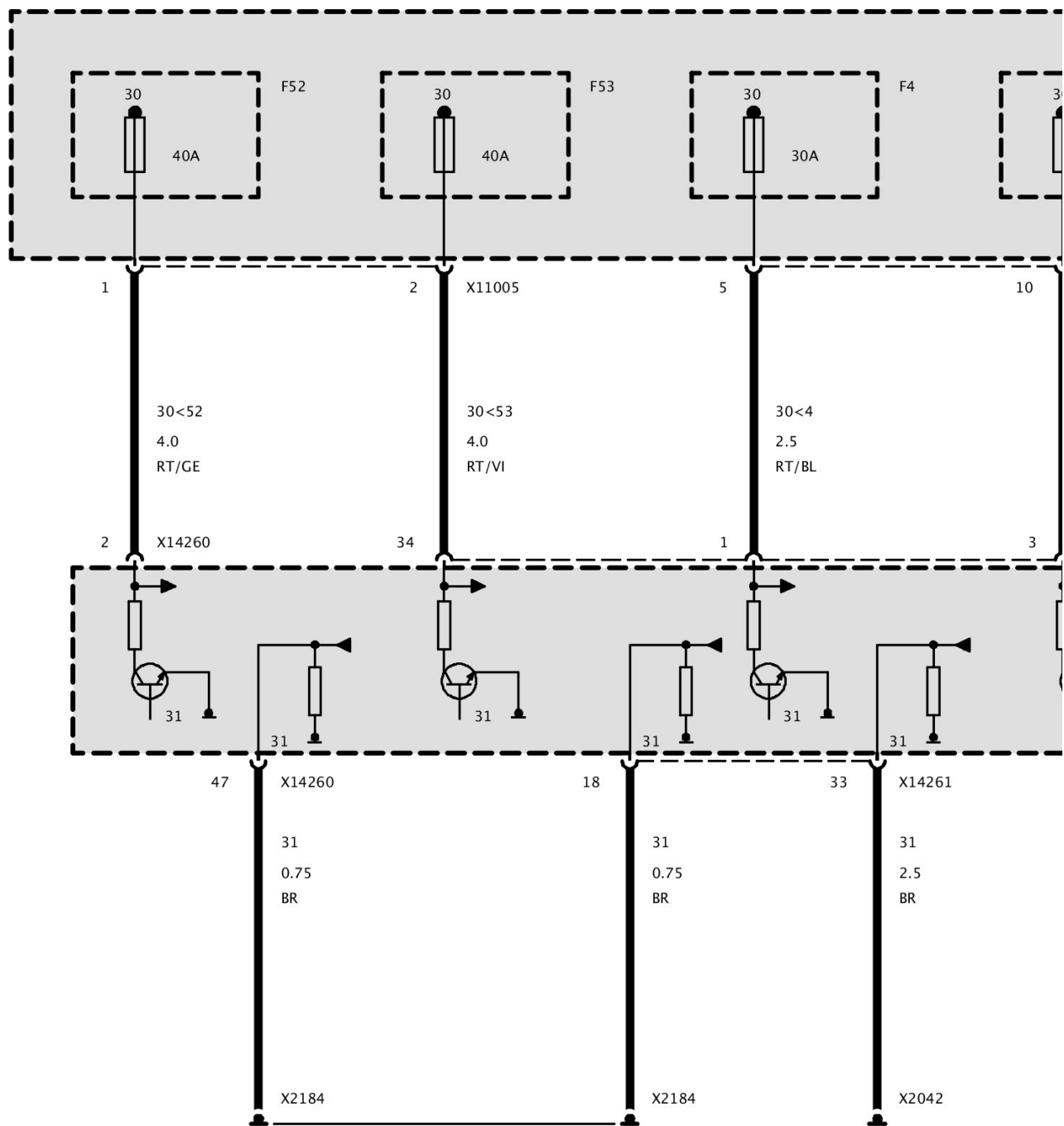


Part 3

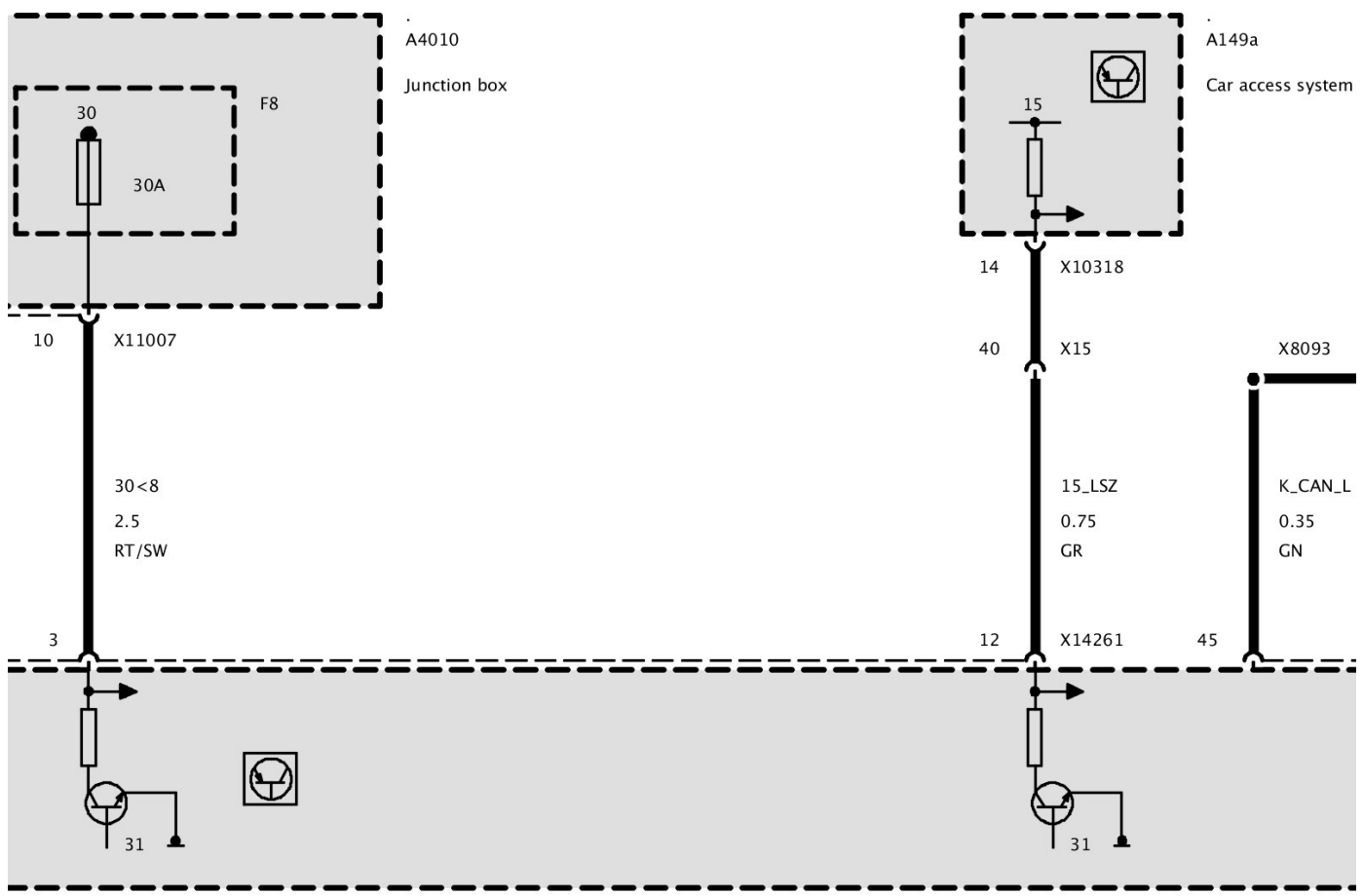
Power Supply, Footwell Module FRM (As Of 12/08)

Power Supply, Footwell Module FRM (As Of 12/08)



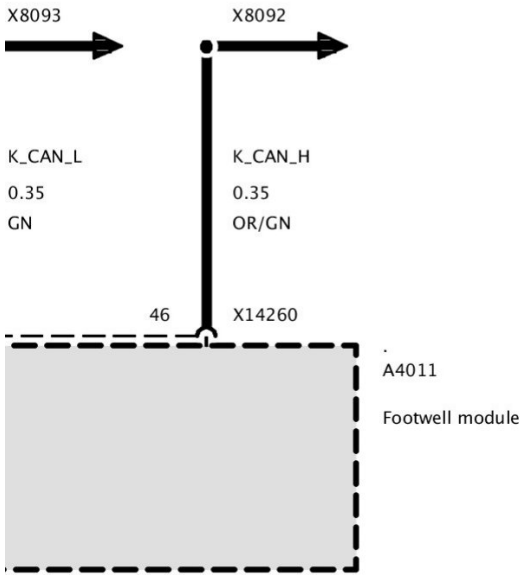


Part 1



Part 2

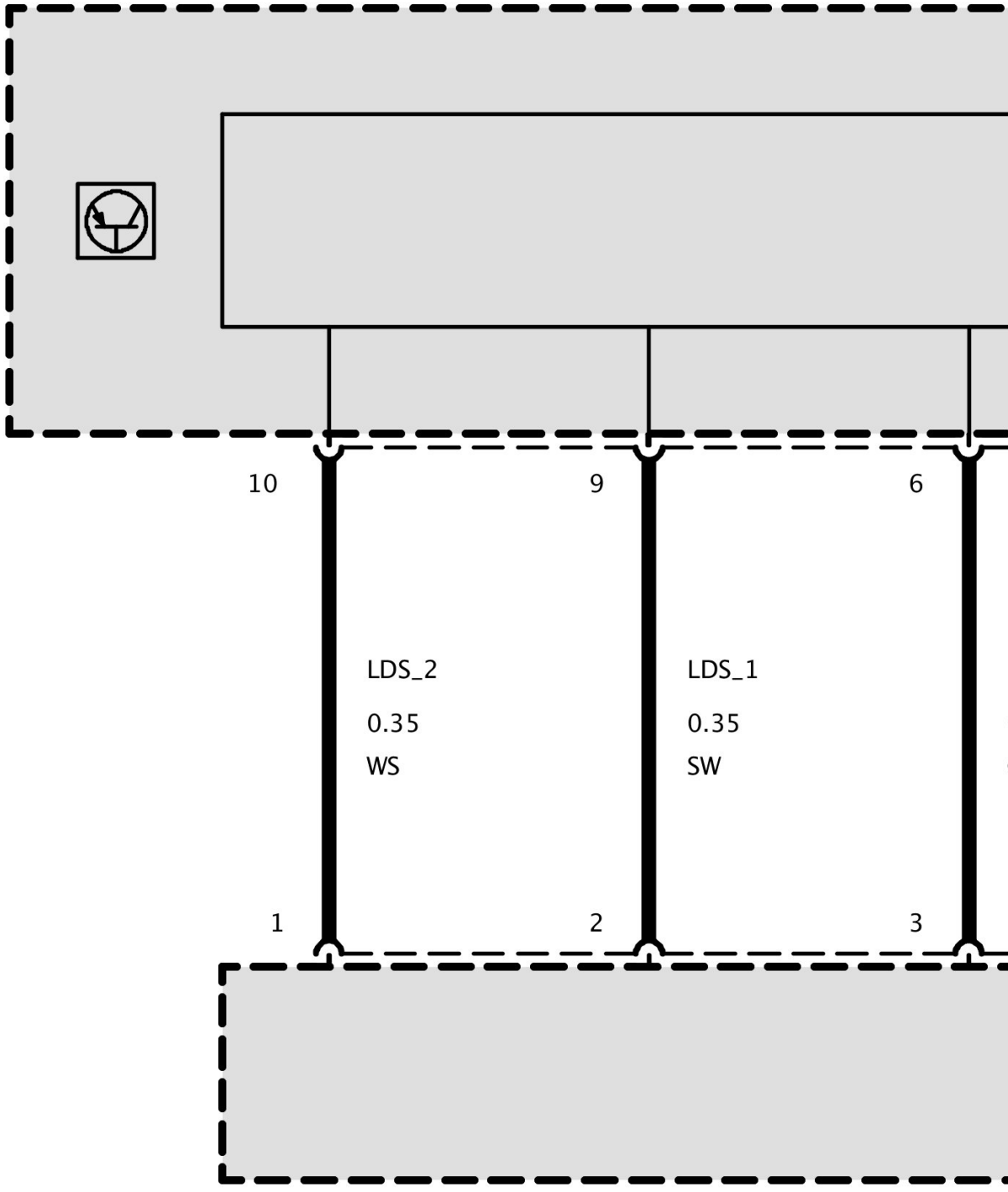
ss system



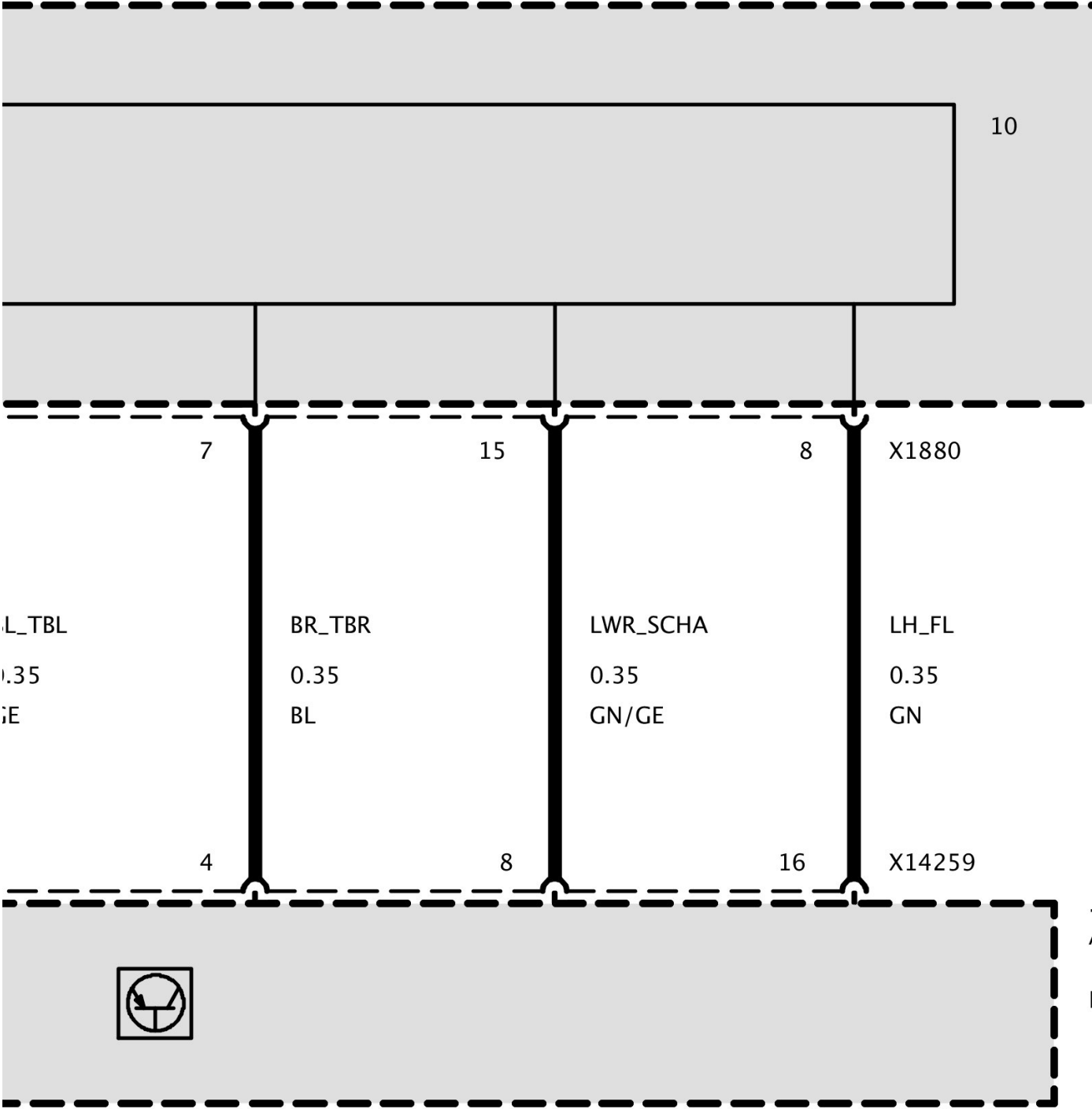
Part 3

Light Switch

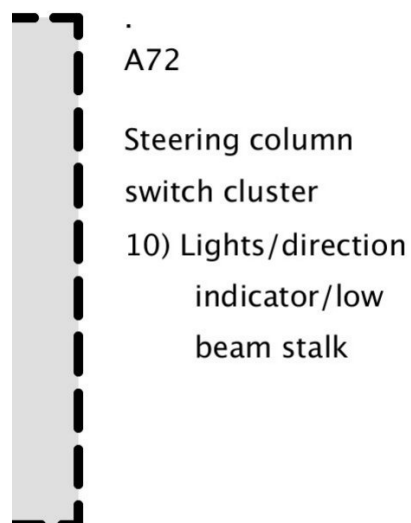
Lights/Direction Indicator/Low Beam Stalk



Part 1



Part 2



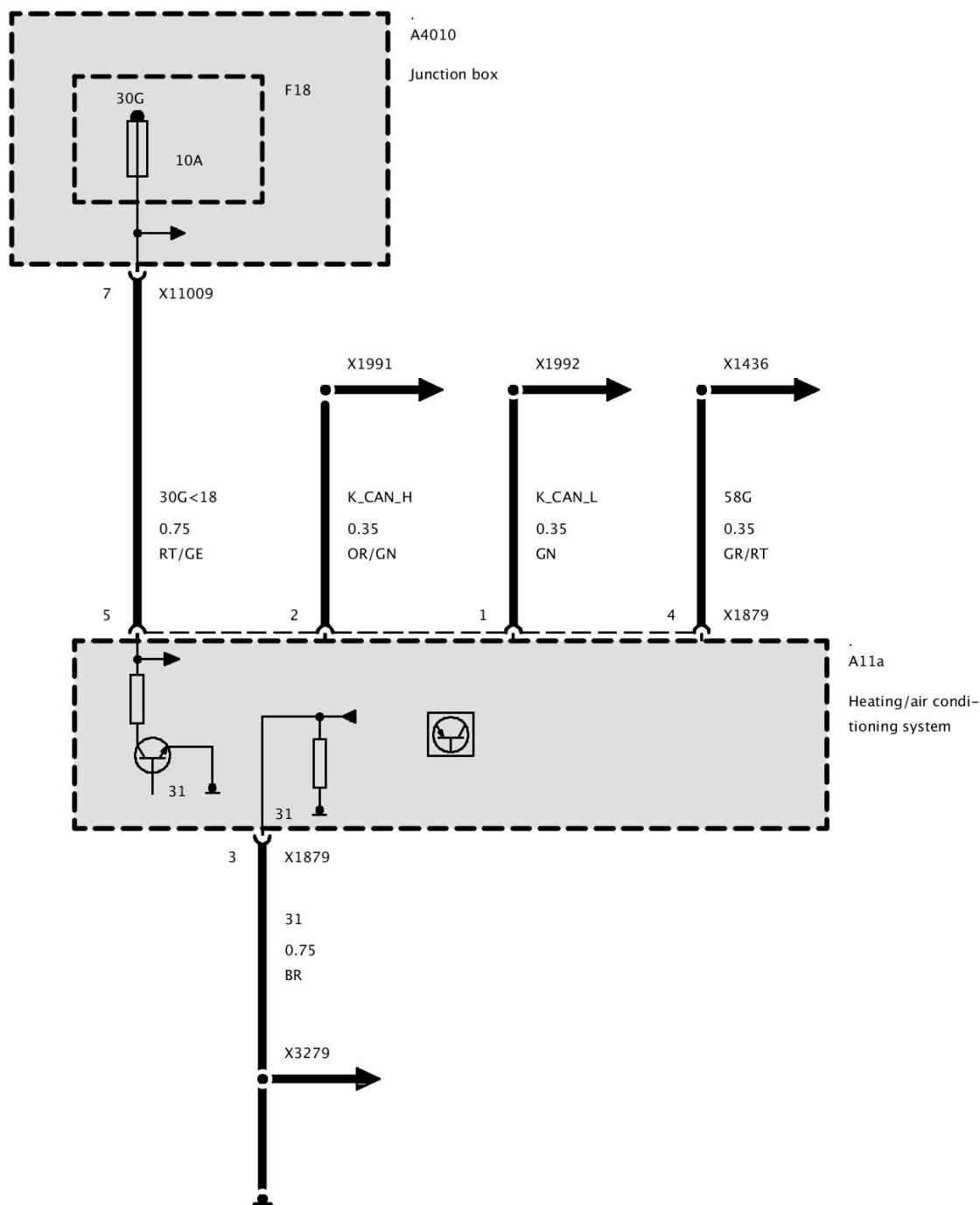
4011

ootwell module

### Part 3

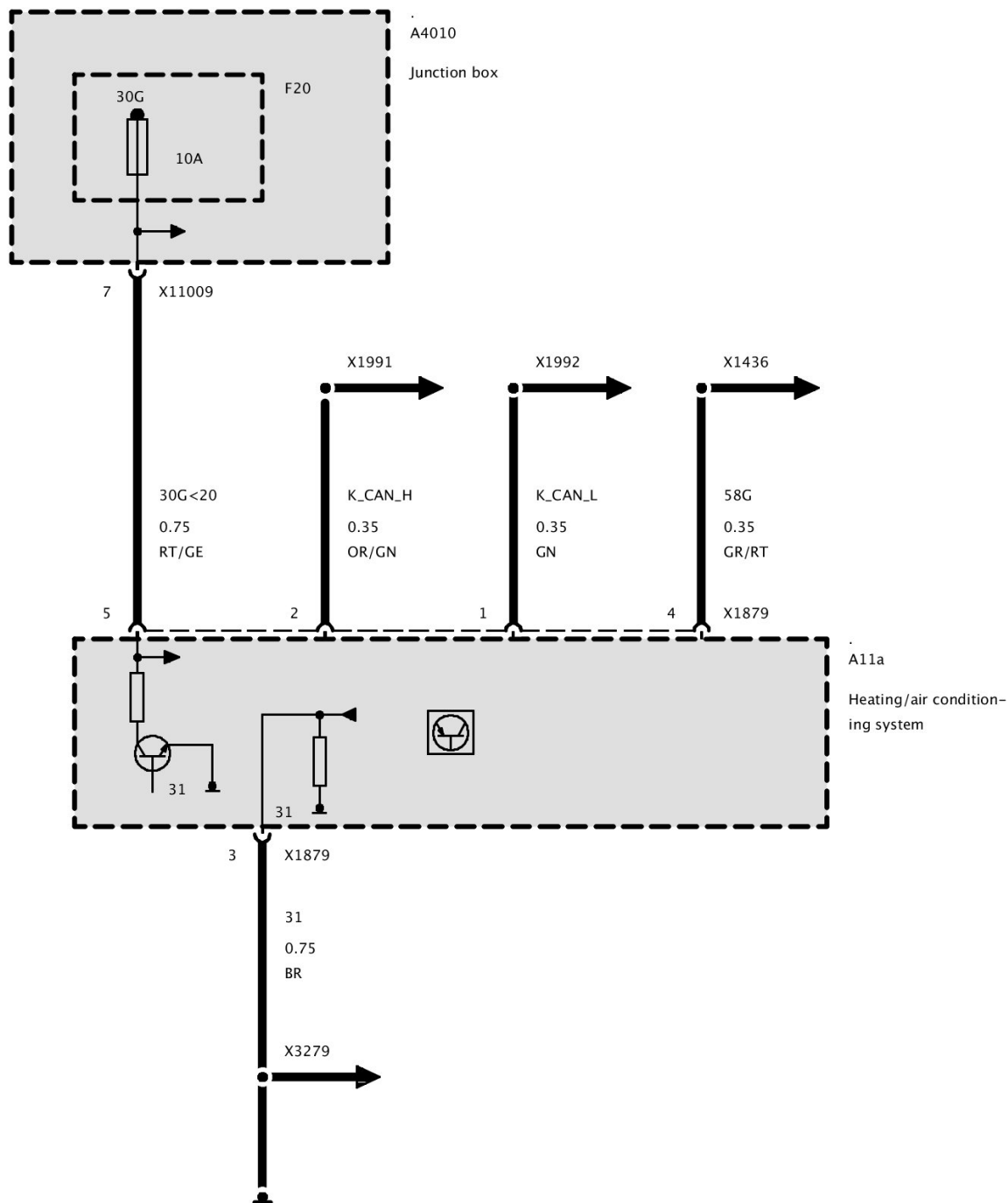
**Supply, Heating And Air Conditioning Control Unit (Up To 12/08)**

Supply, Heating And Air Conditioning Control Unit (Up To 12/08)



Supply, Heating And Air Conditioning Control Unit (As Of 12/08)

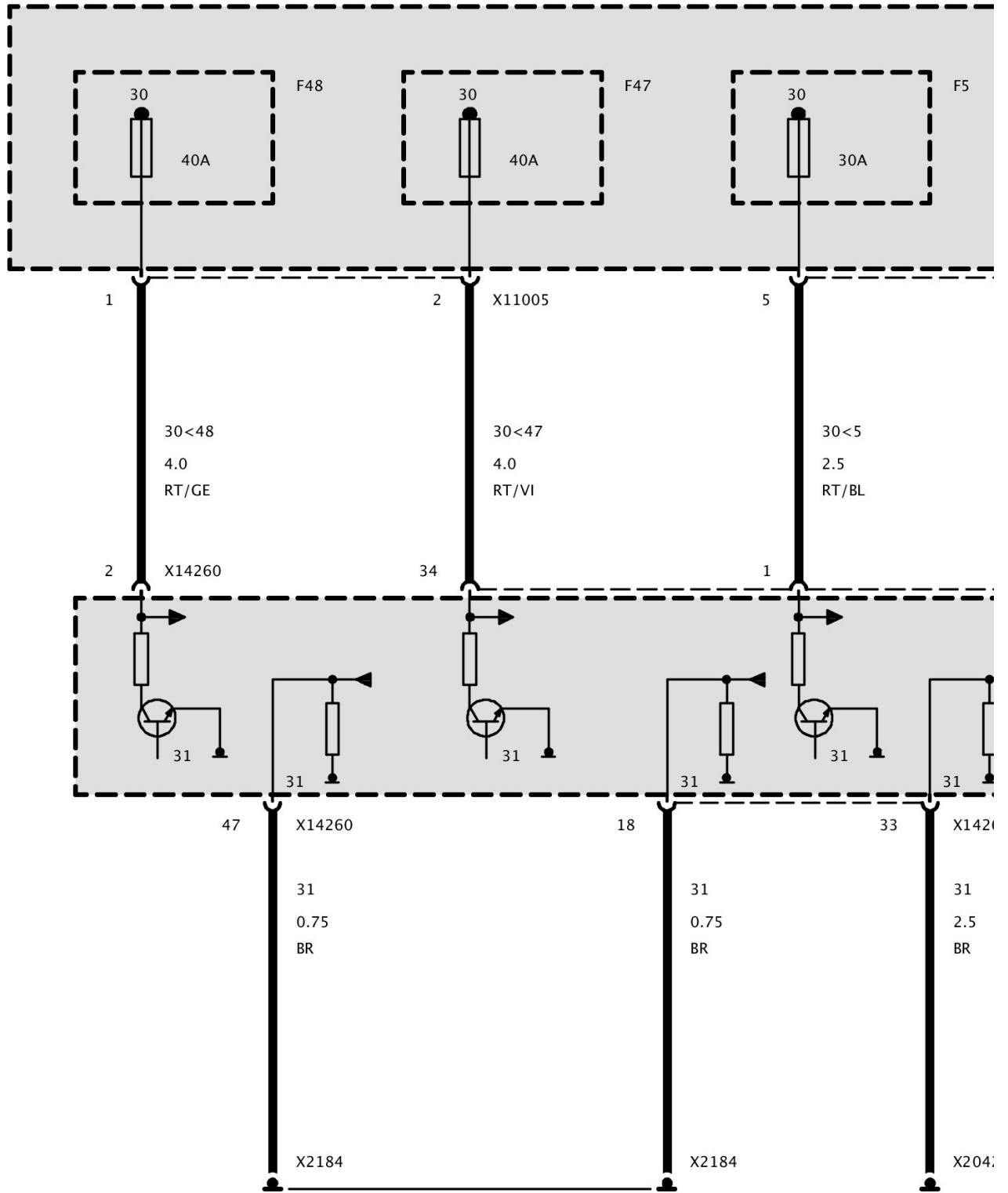
Supply, Heating And Air Conditioning Control Unit (As Of 12/08)



Power Supply, Footwell Module FRM (Up To 12/08)

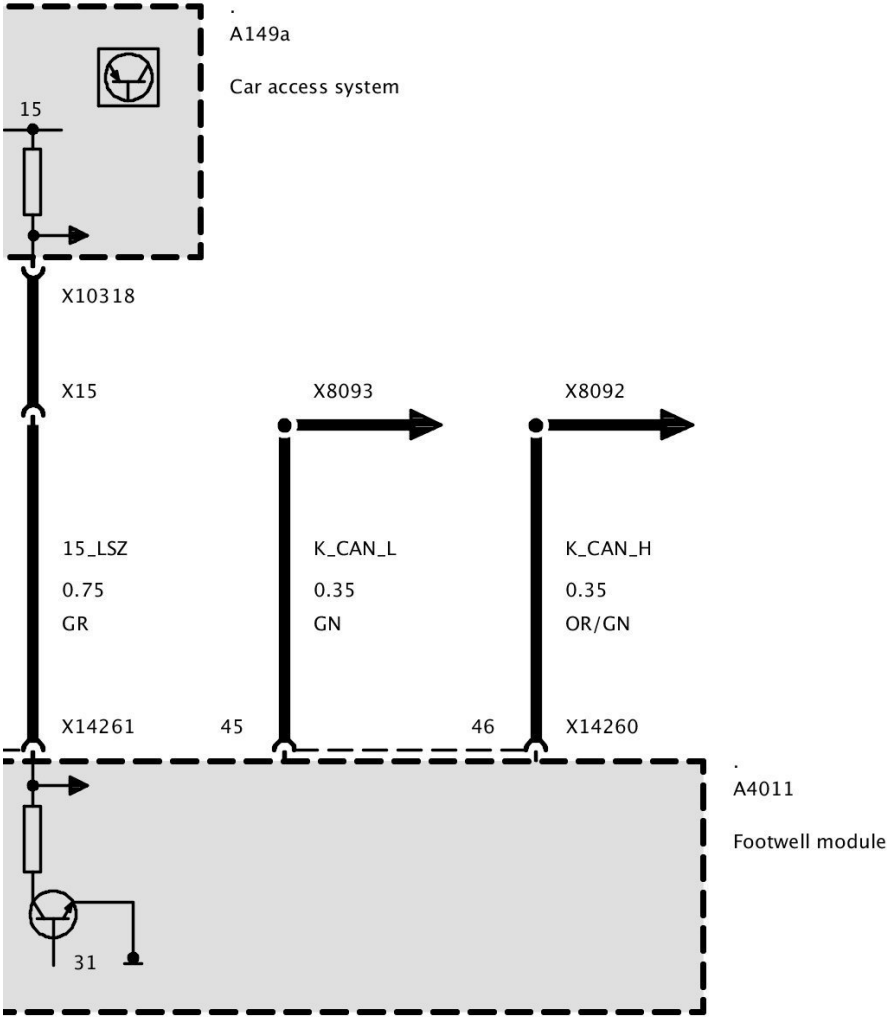
Power Supply, Footwell Module FRM (Up To 12/08)





Part 1

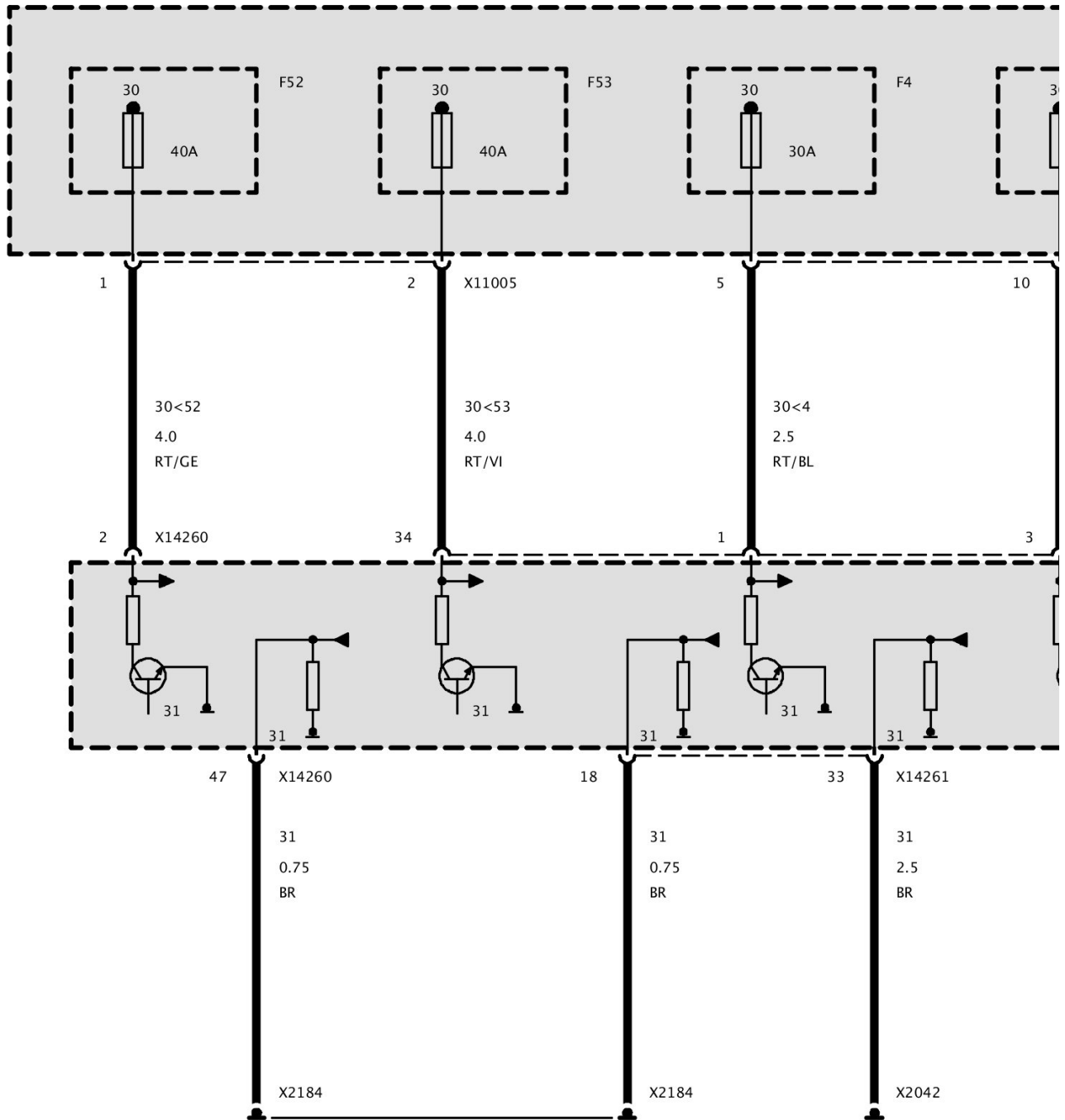




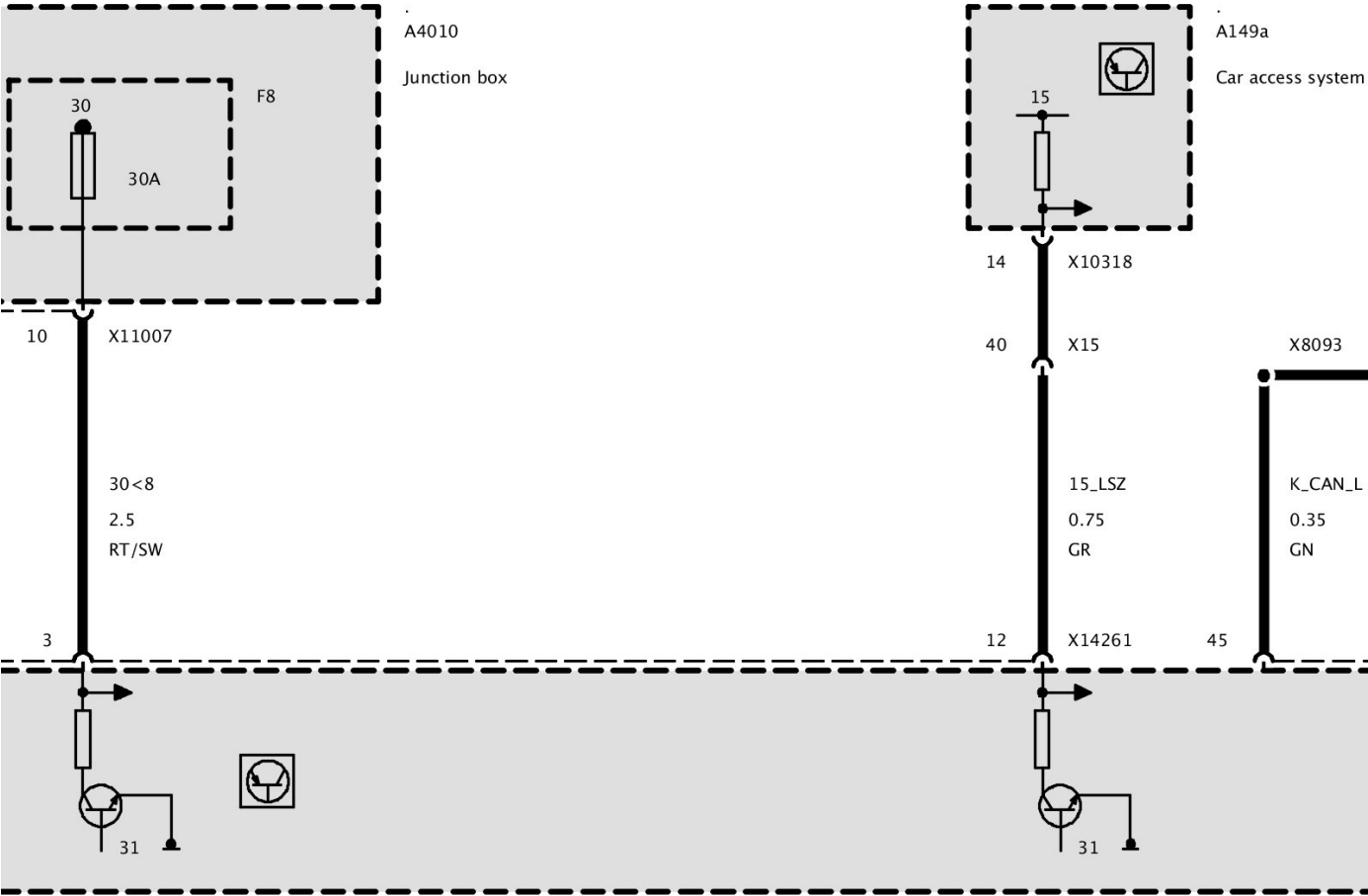
Part 3

Power Supply, Footwell Module FRM (As Of 12/08)

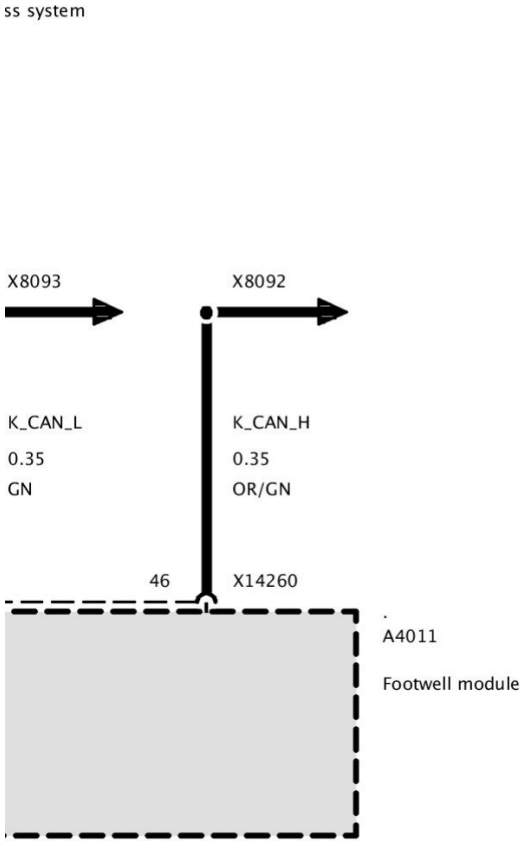
Power Supply, Footwell Module FRM (As Of 12/08)



Part 1



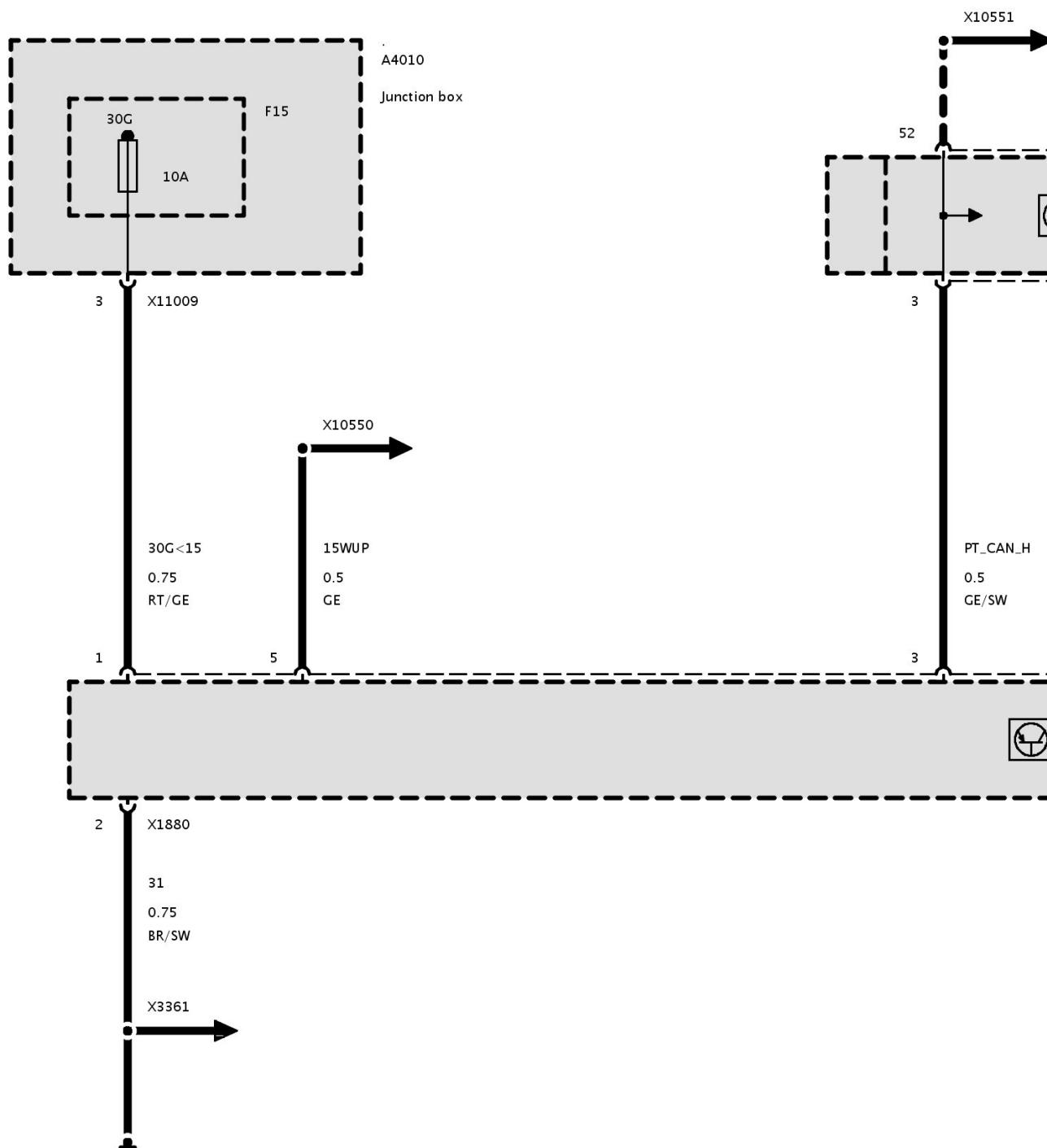
Part 2



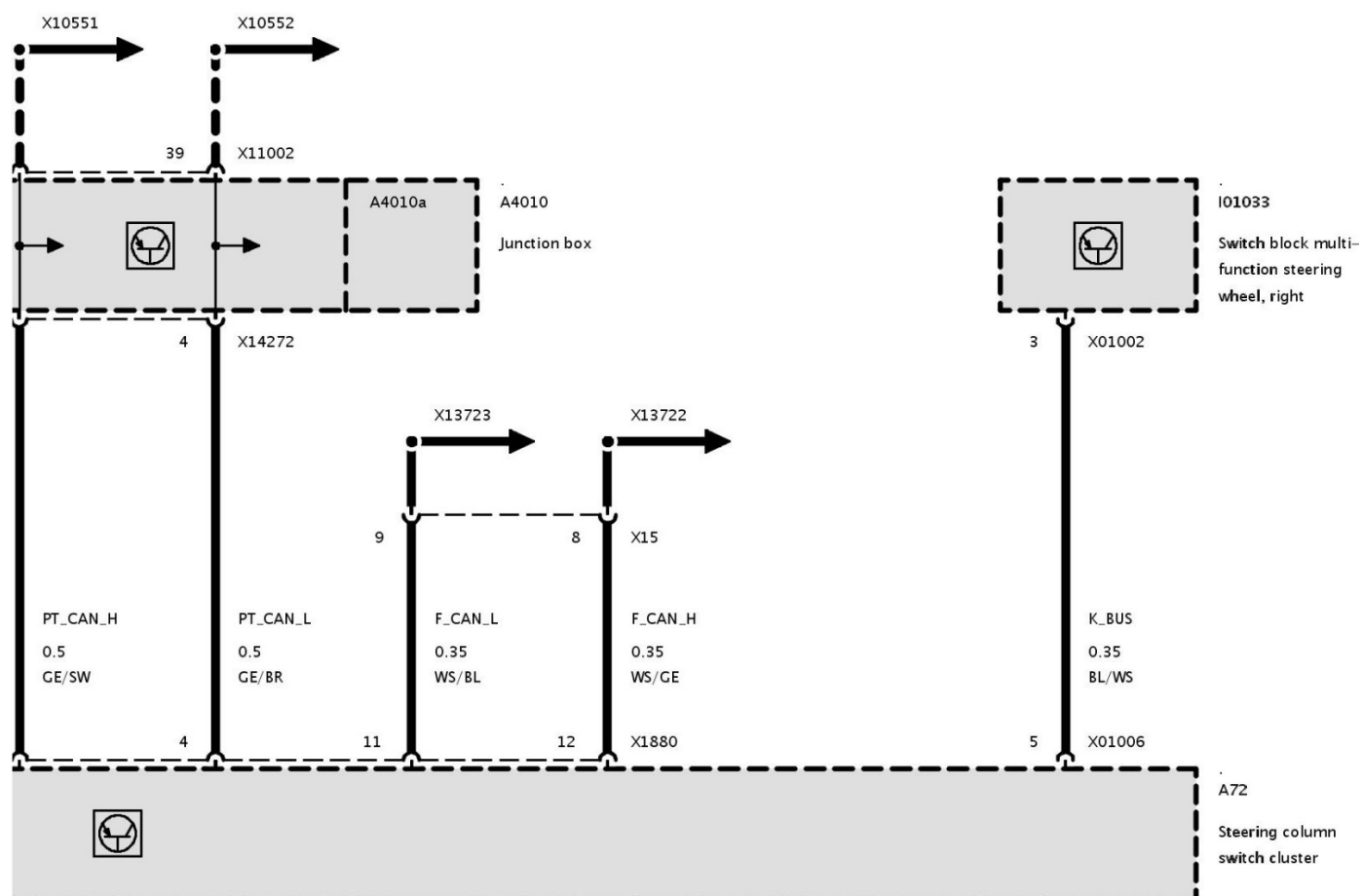
Part 3

Supply, Steering Column Switch Cluster SZL (Up To 12/08)

Supply, Steering Column Switch Cluster SZL (Up To 12/08)



Part 1

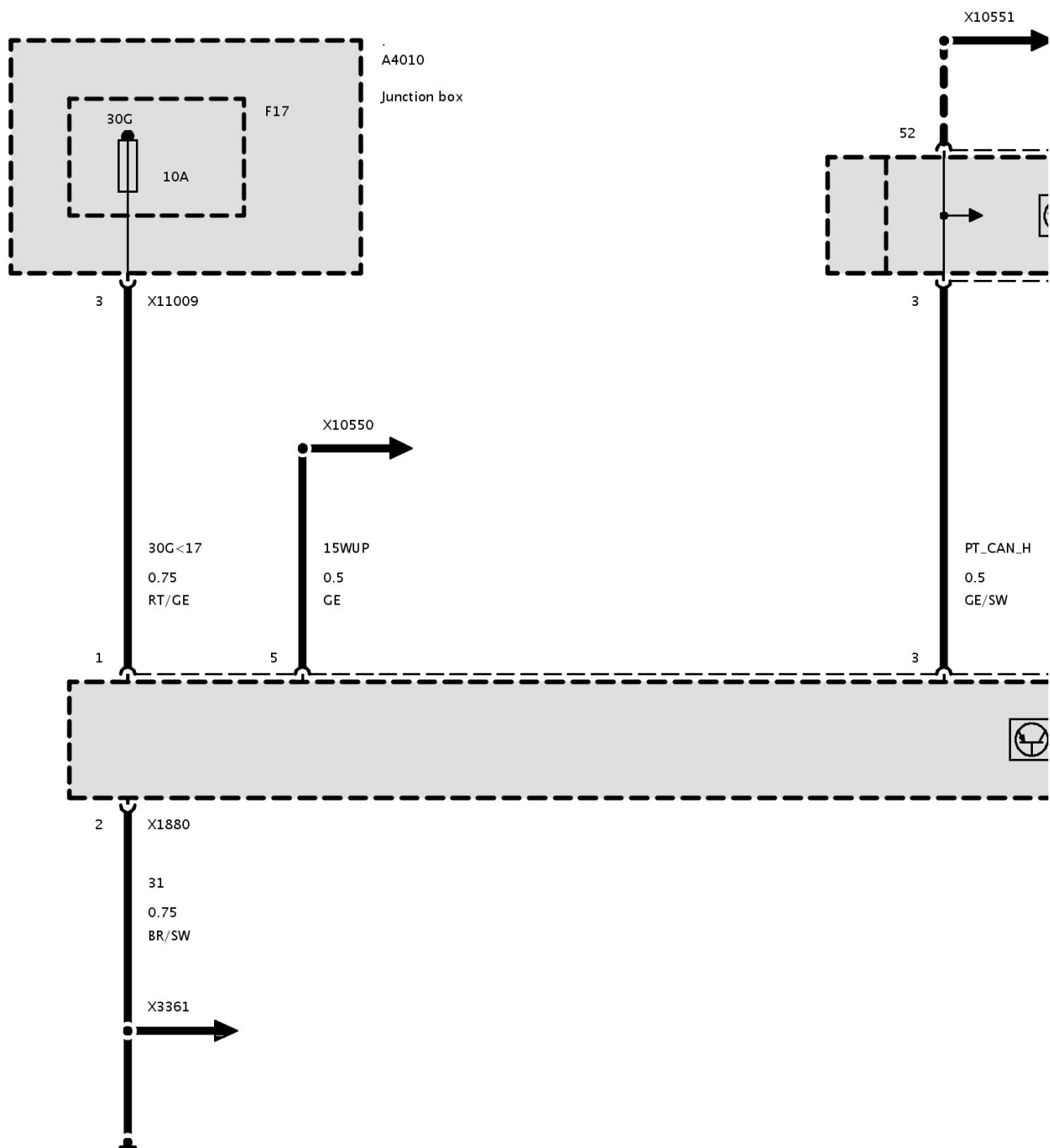


## Part 2

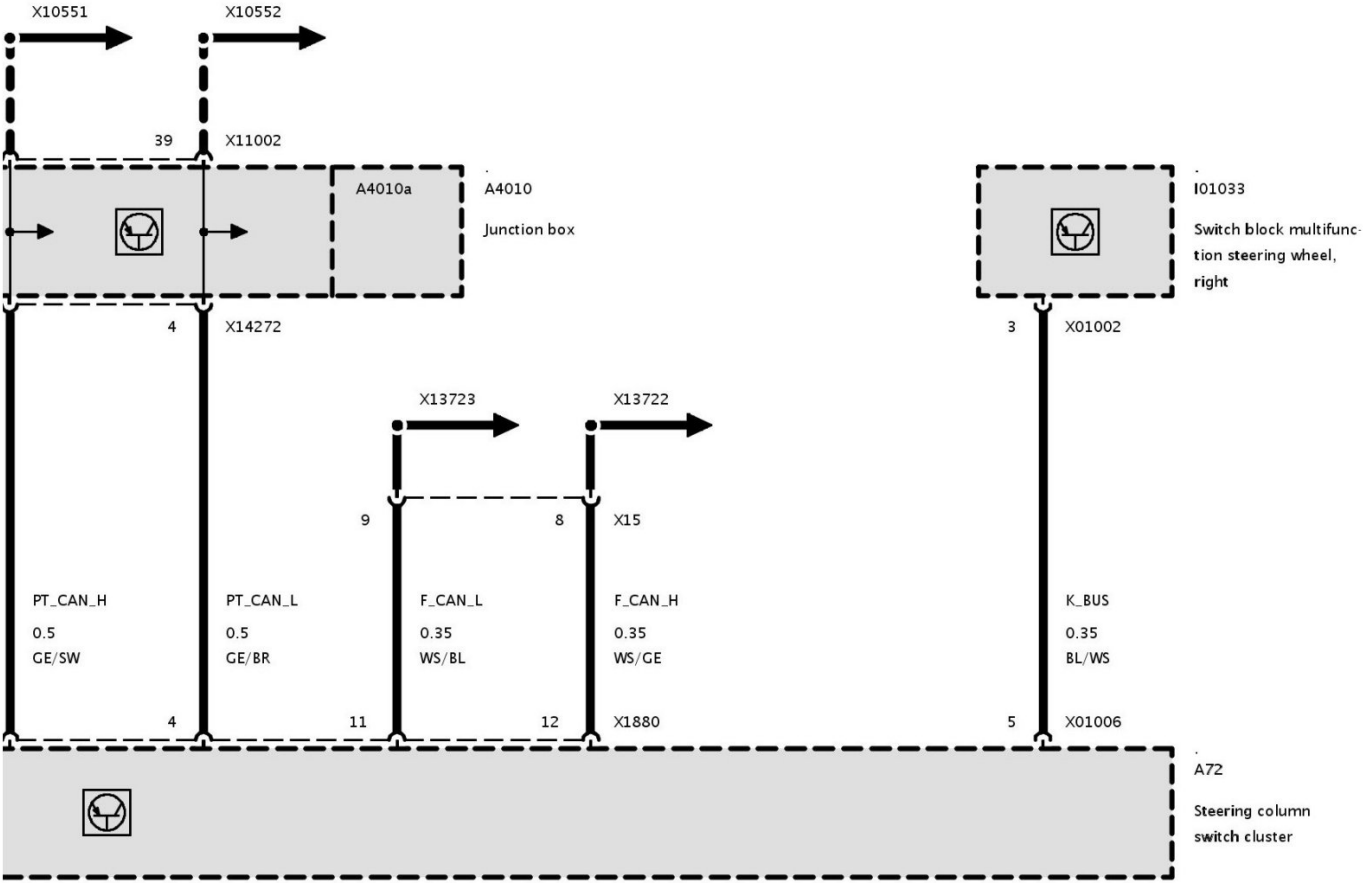
**Supply, Steering Column Switch Cluster SZL (As Of 12/08)**

**Supply, Steering Column Switch Cluster SZL (As Of 12/08)**





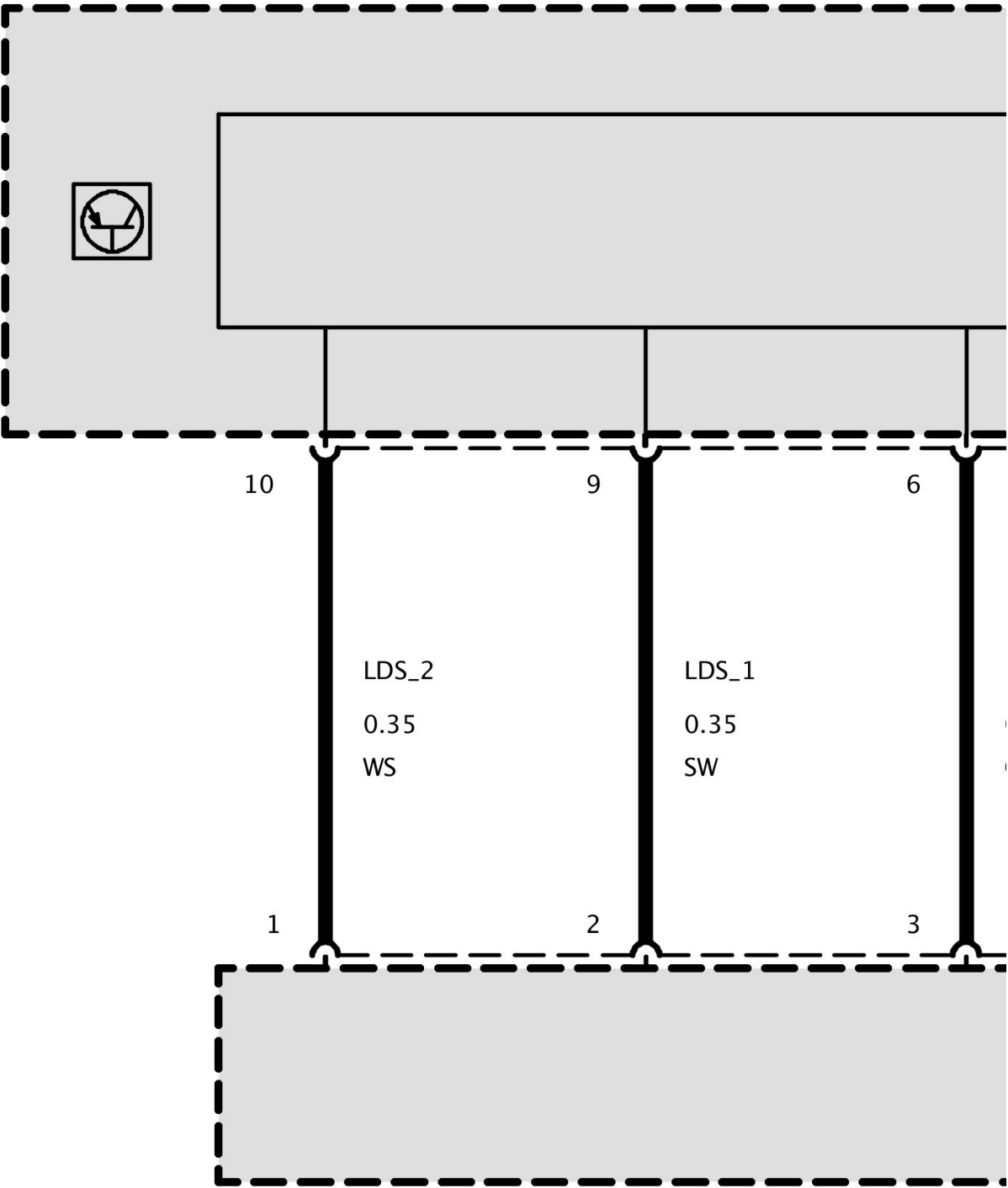
Part 1



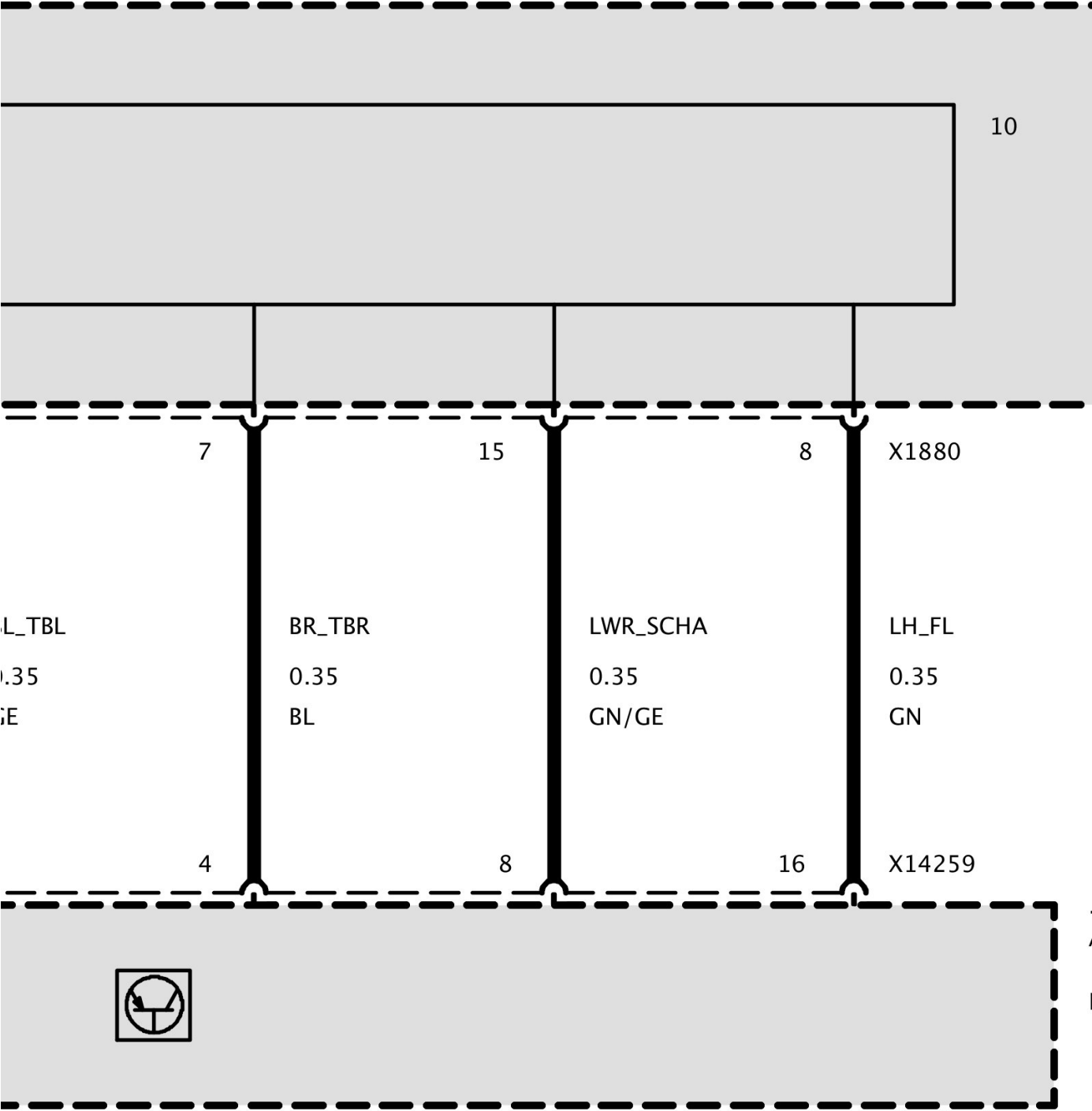
Part 2

Direction Indicator/High Beam Headlight Switch

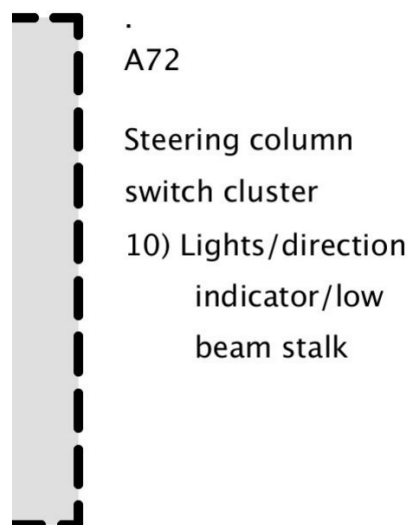
Lights/Direction Indicator/Low Beam Stalk



Part 1



Part 2



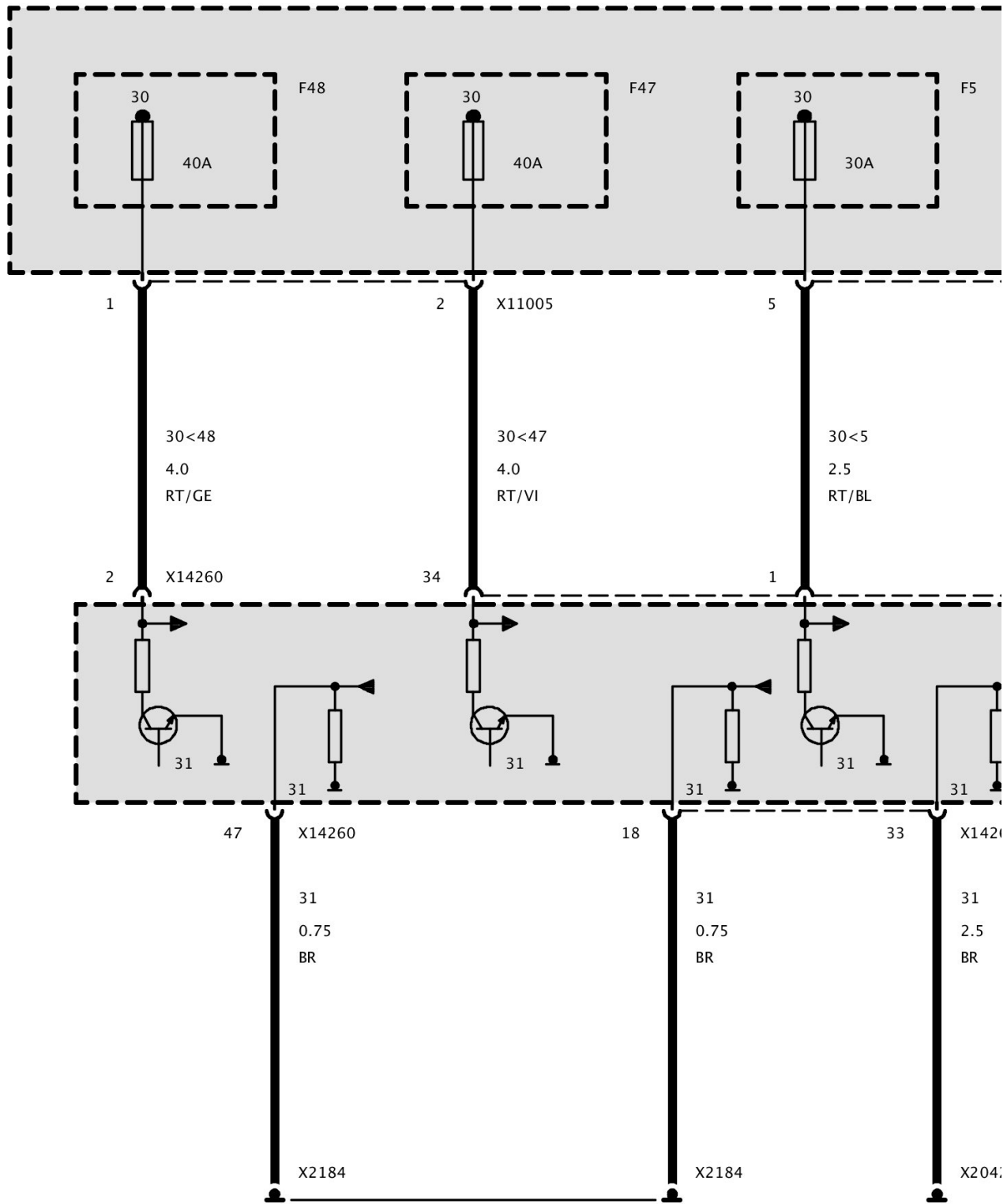
4011

ootwell module

### Part 3

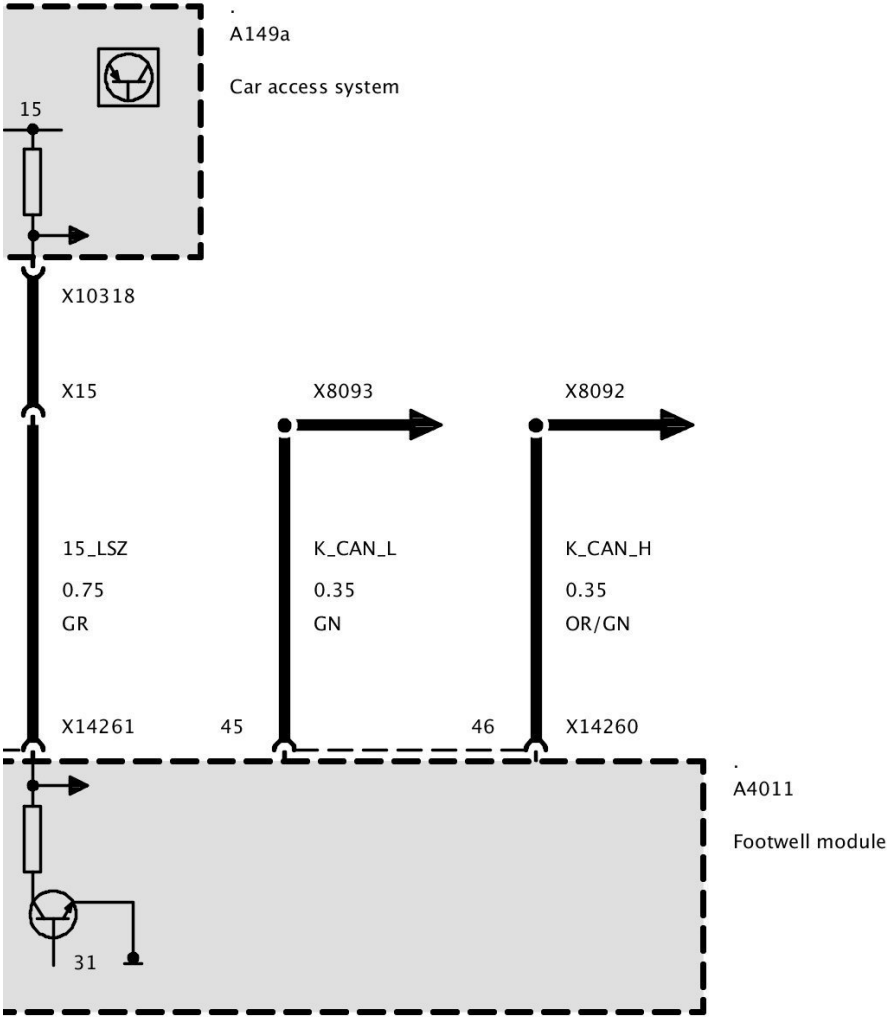
## Power Supply, Footwell Module FRM (Up To 12/08)

Power Supply, Footwell Module FRM (Up To 12/08)



Part 1



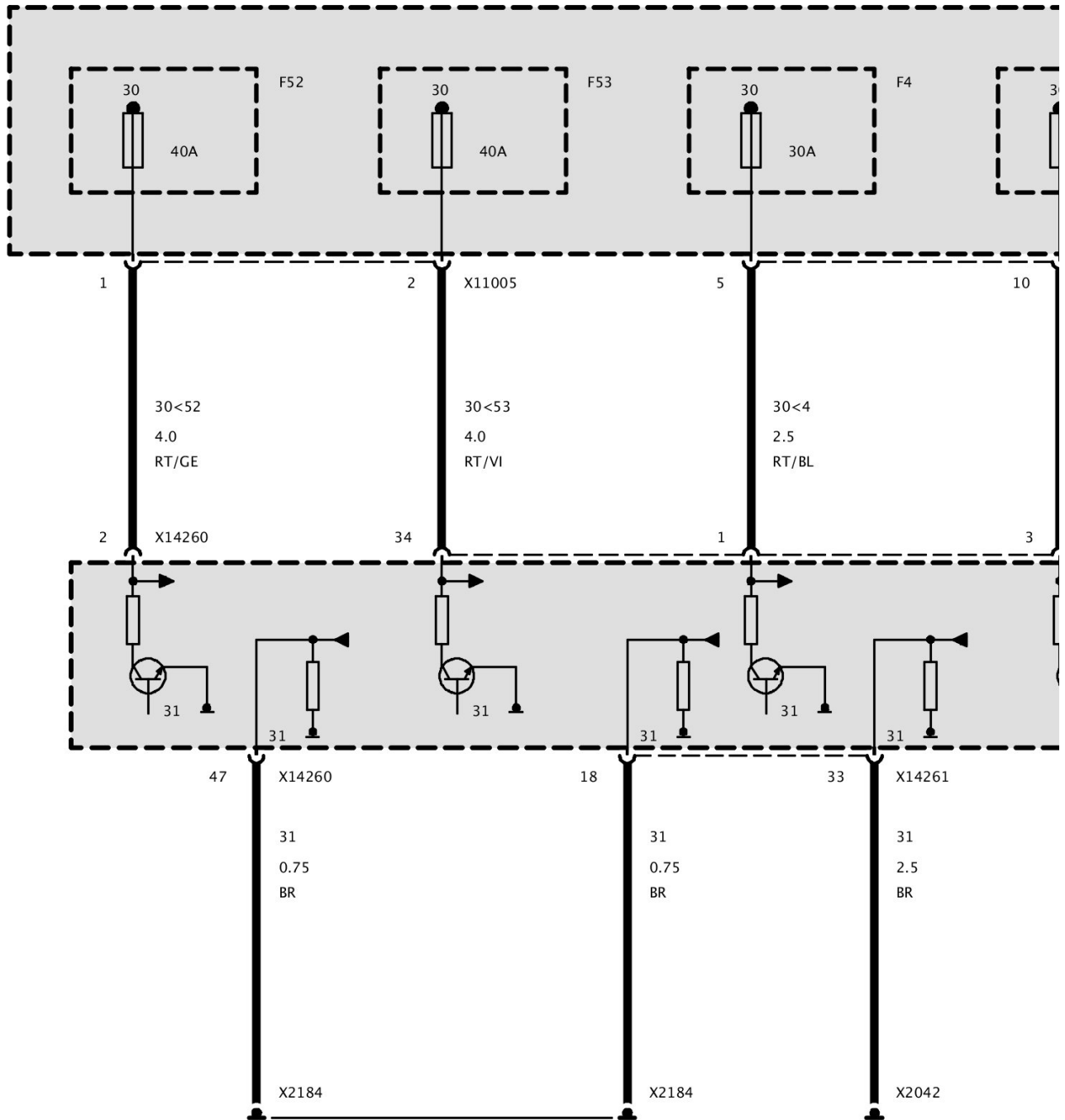


Part 3

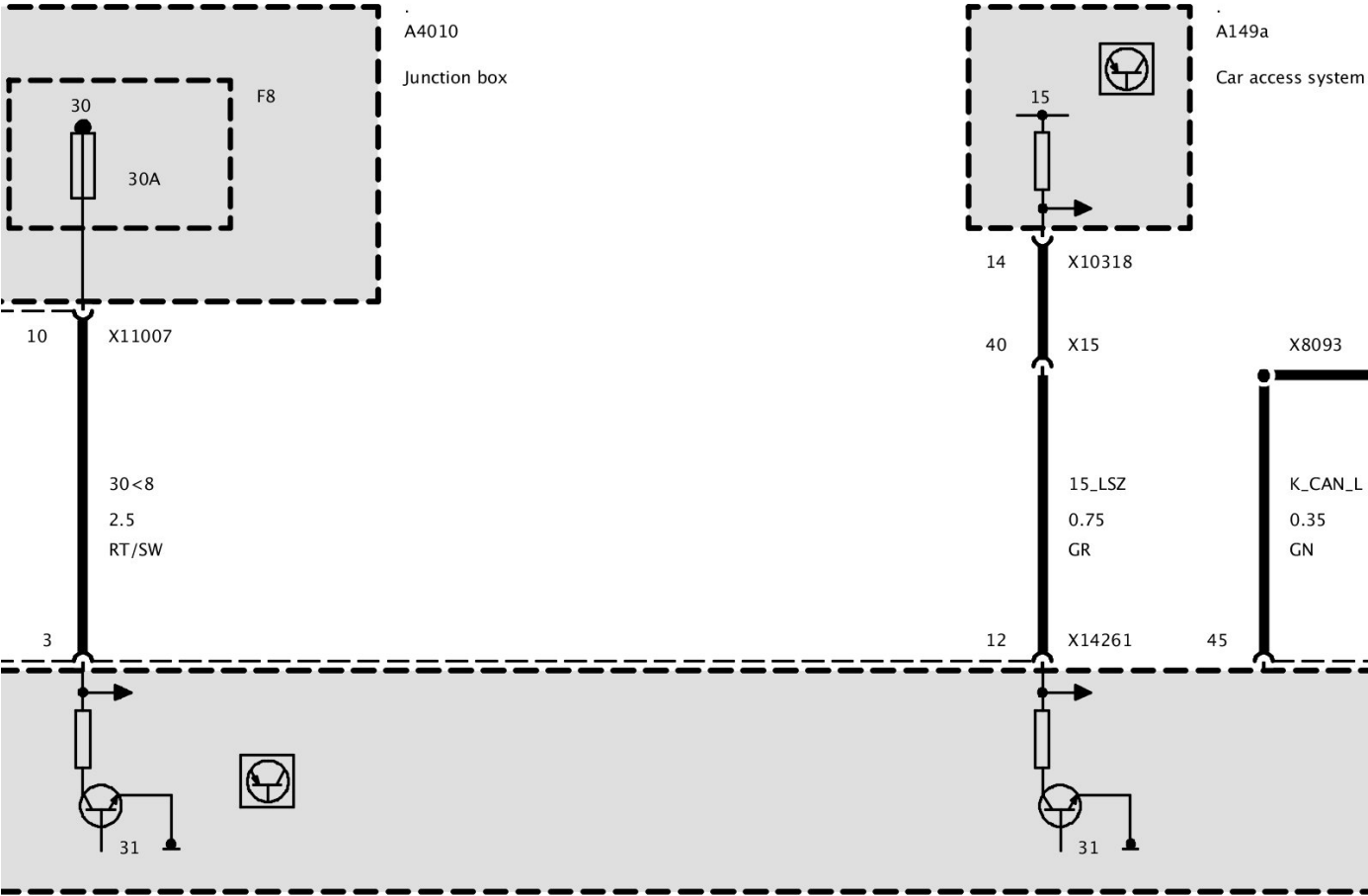
Power Supply, Footwell Module FRM (As Of 12/08)

Power Supply, Footwell Module FRM (As Of 12/08)



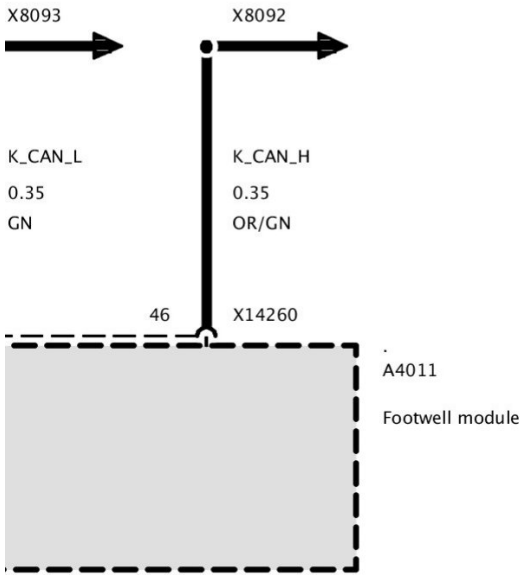


Part 1



Part 2

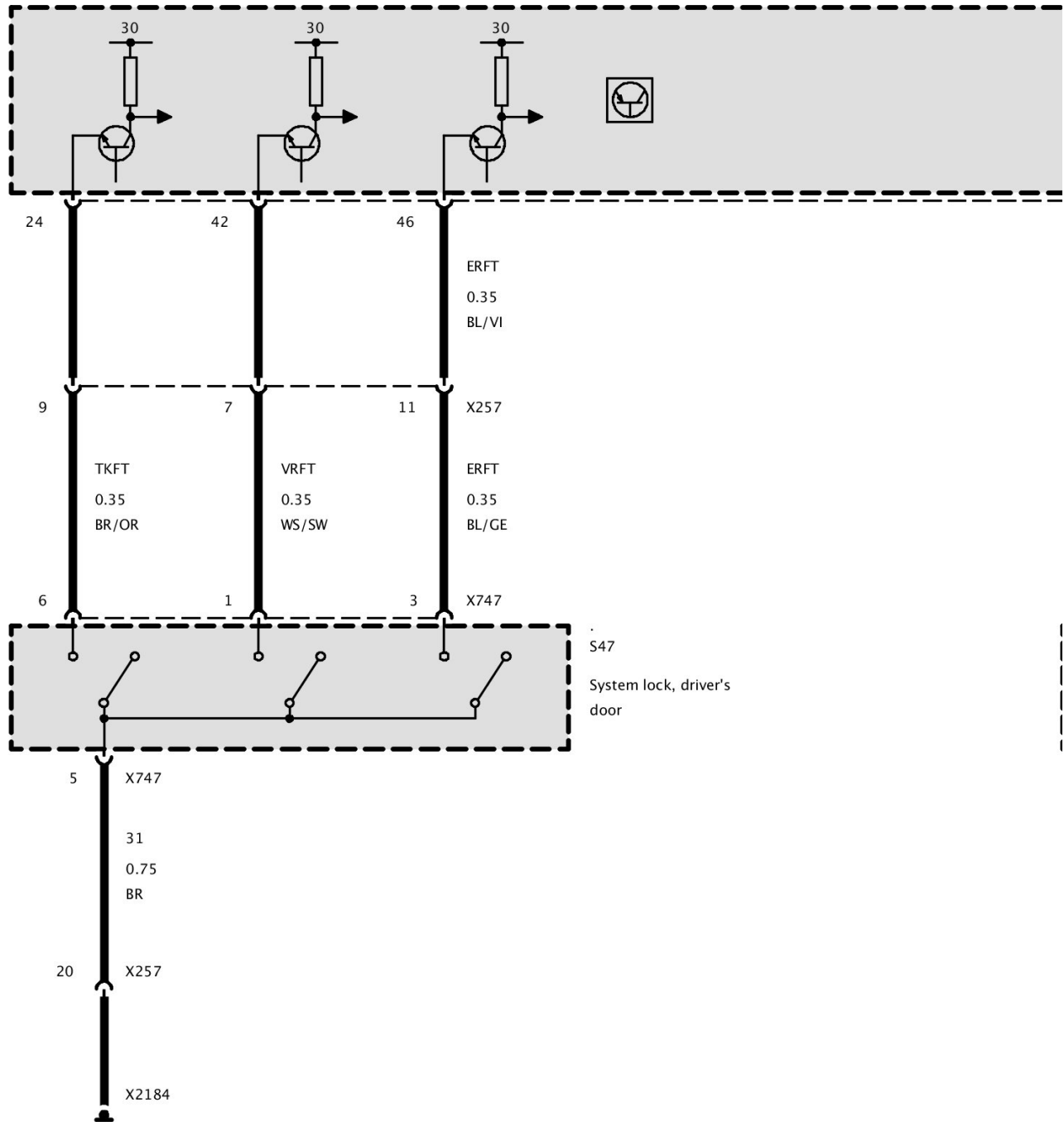
ss system



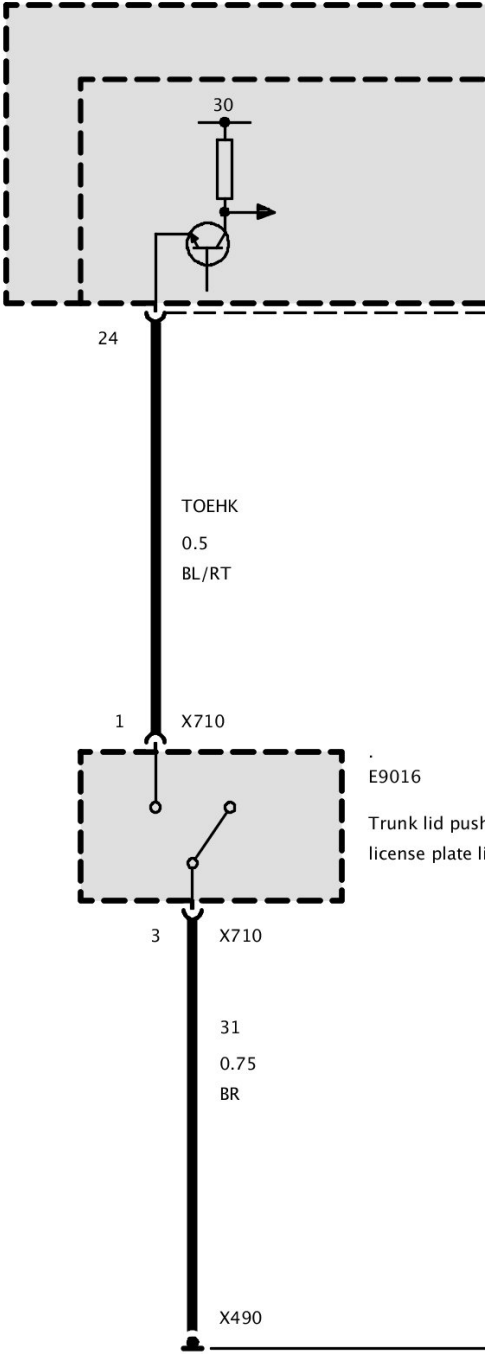
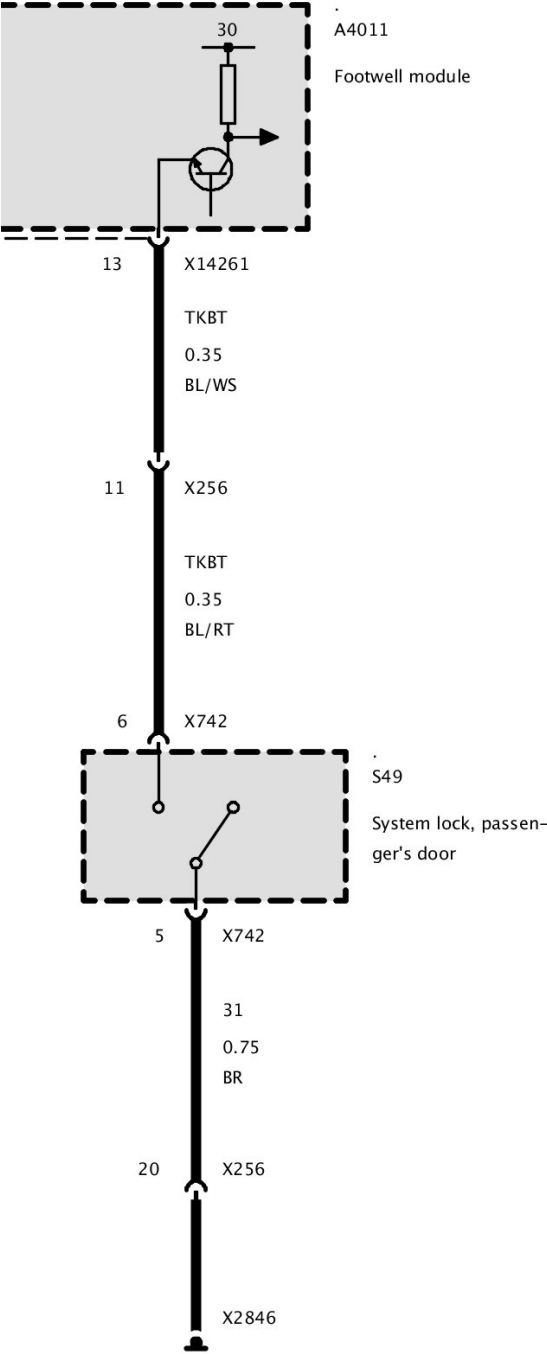
Part 3

Trunk Lid Button (Without Clubman)

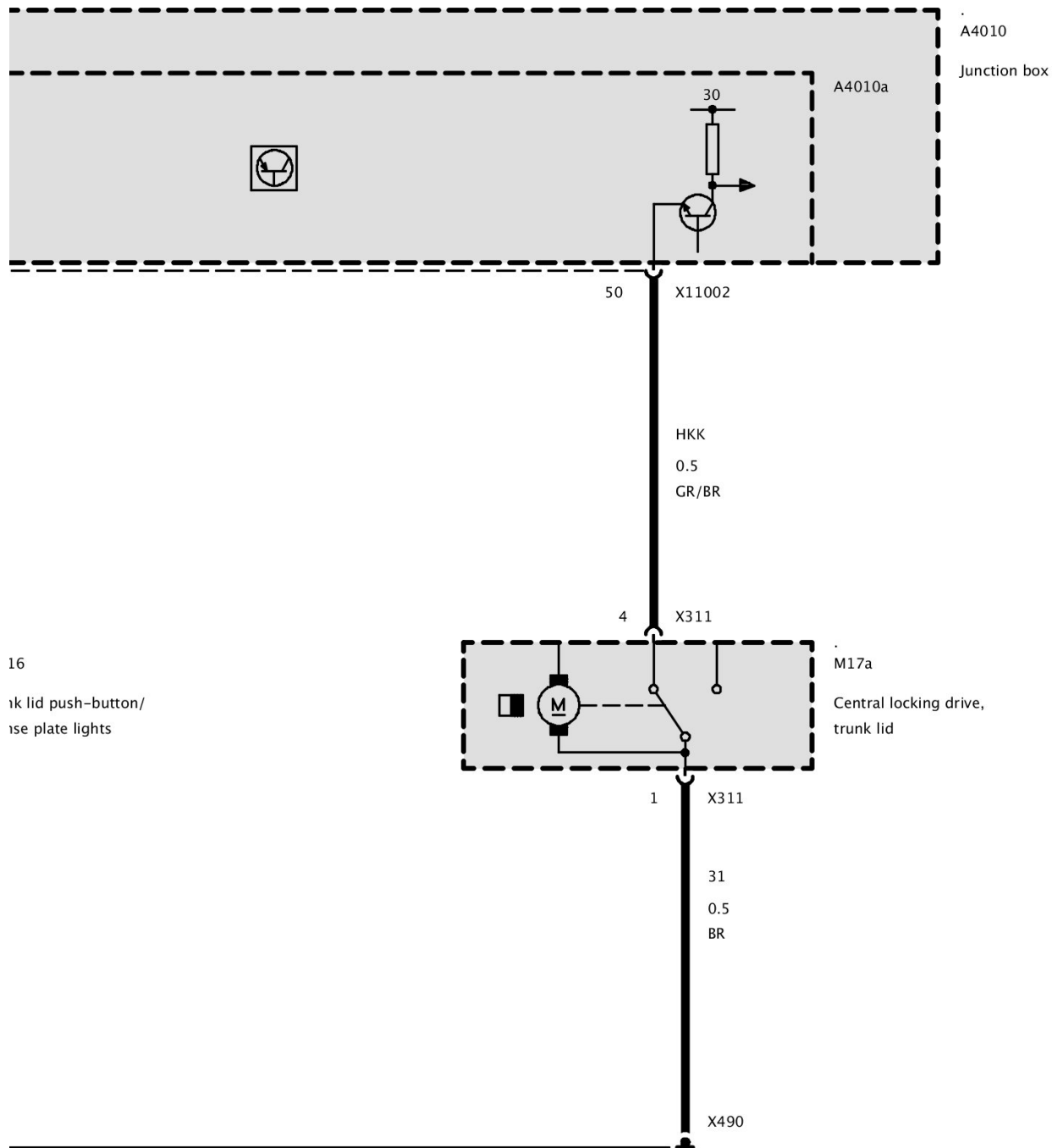
Central Locking Inputs (Left-Hand Drive)



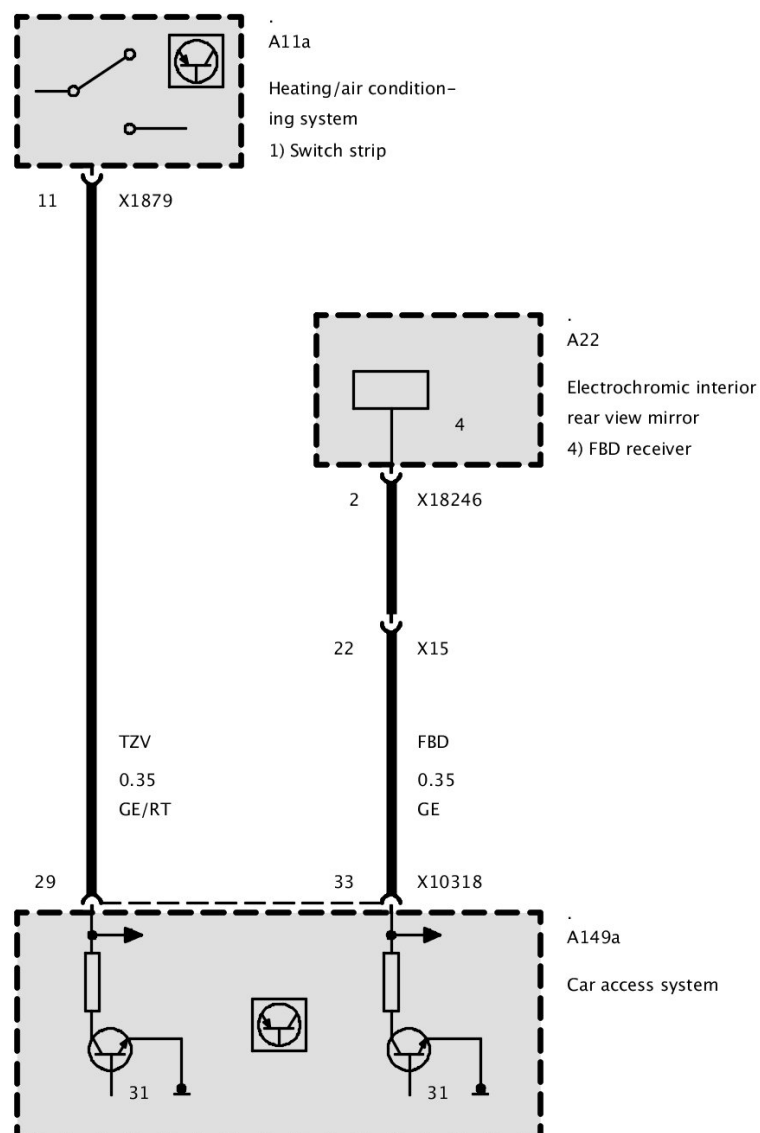
Part 1



Part 2



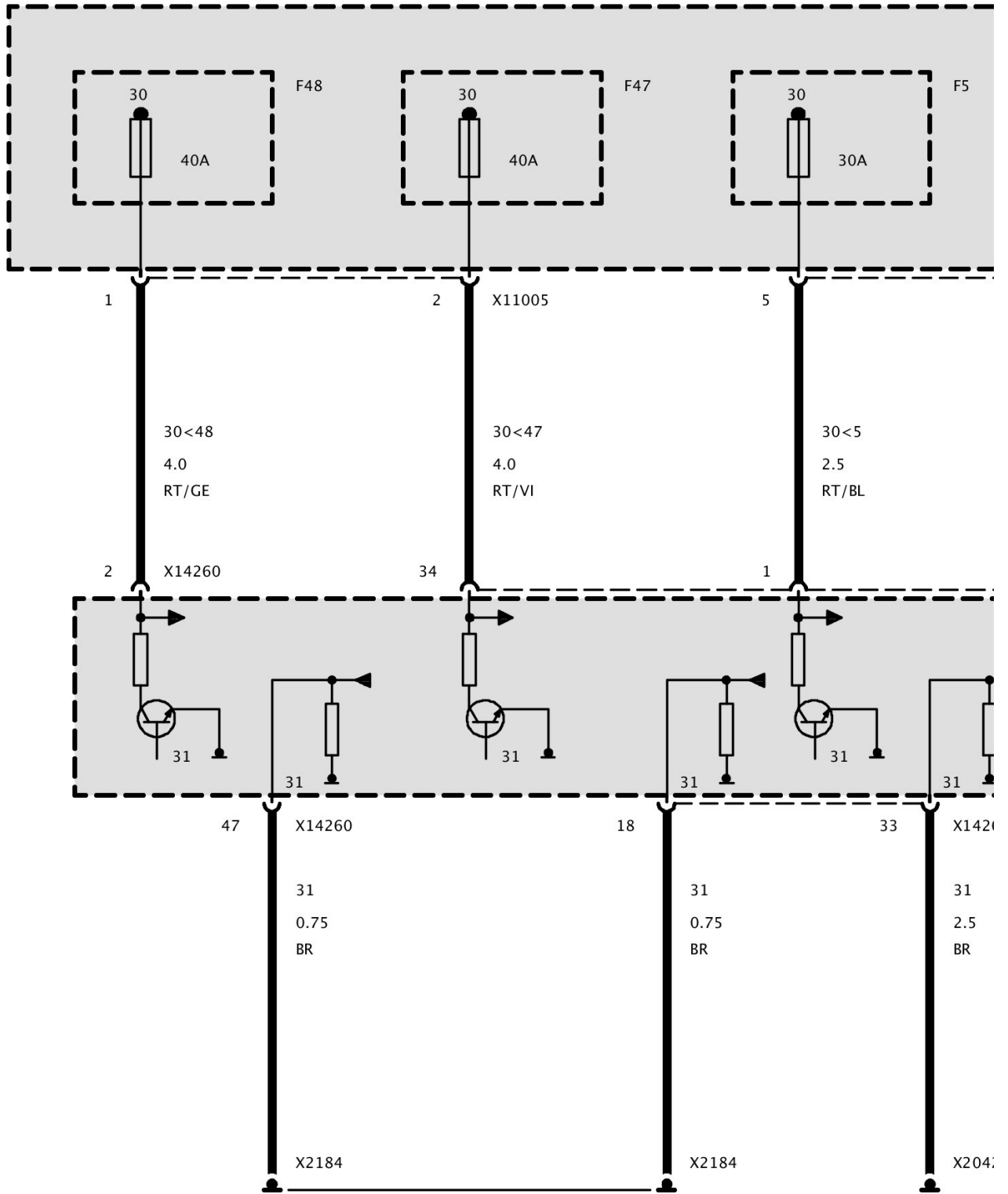
Part 3



#### Part 4

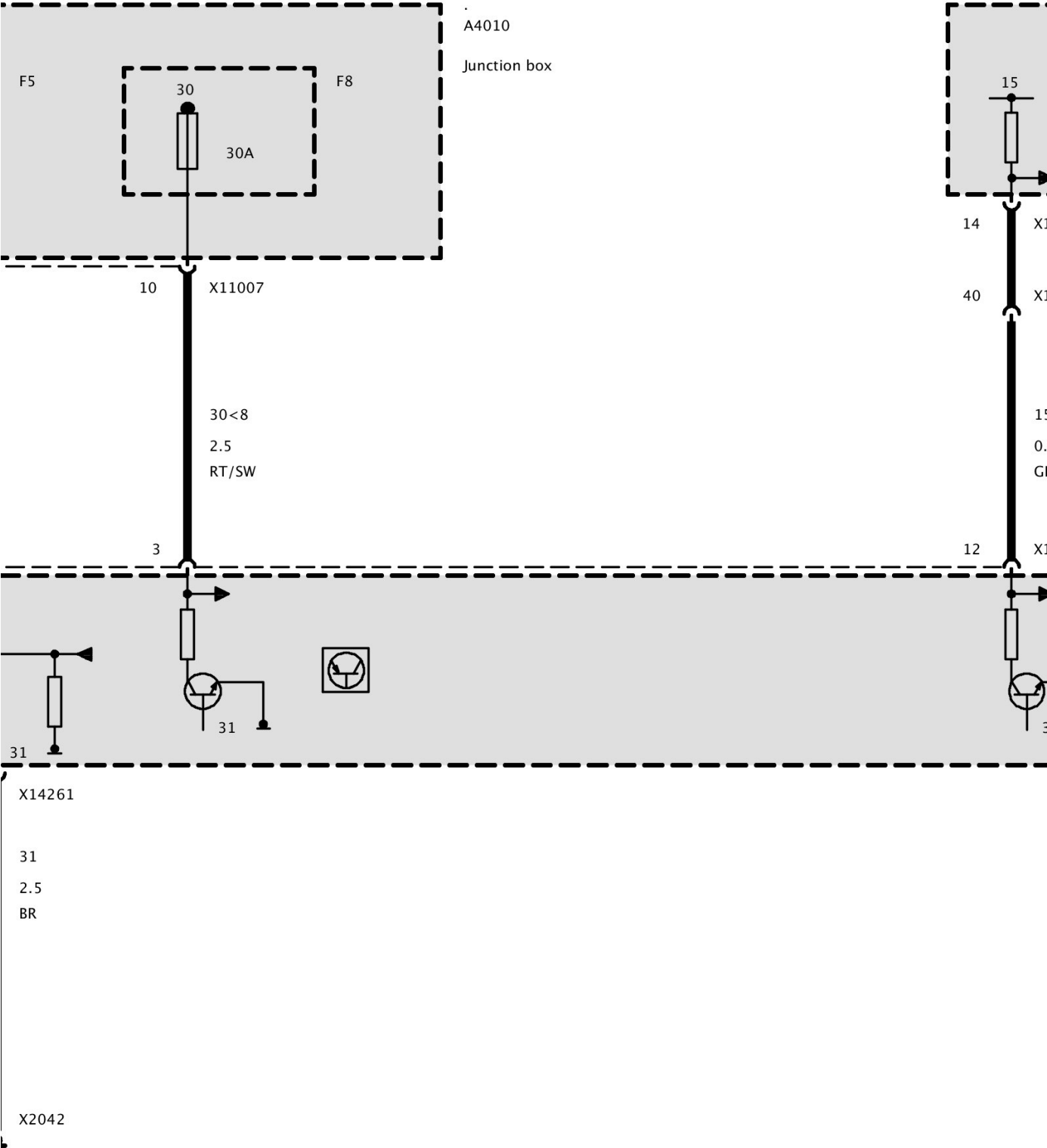
### Power Supply, Footwell Module FRM (Up To 12/08)

Power Supply, Footwell Module FRM (Up To 12/08)

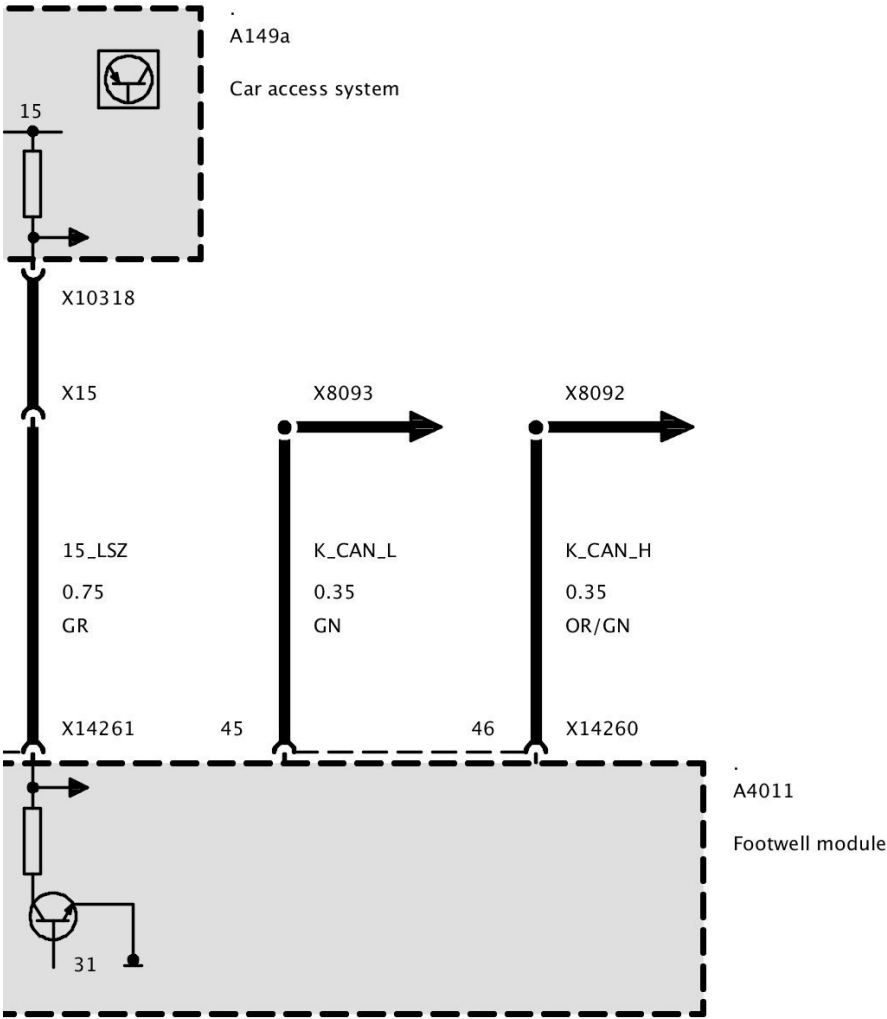


Part 1





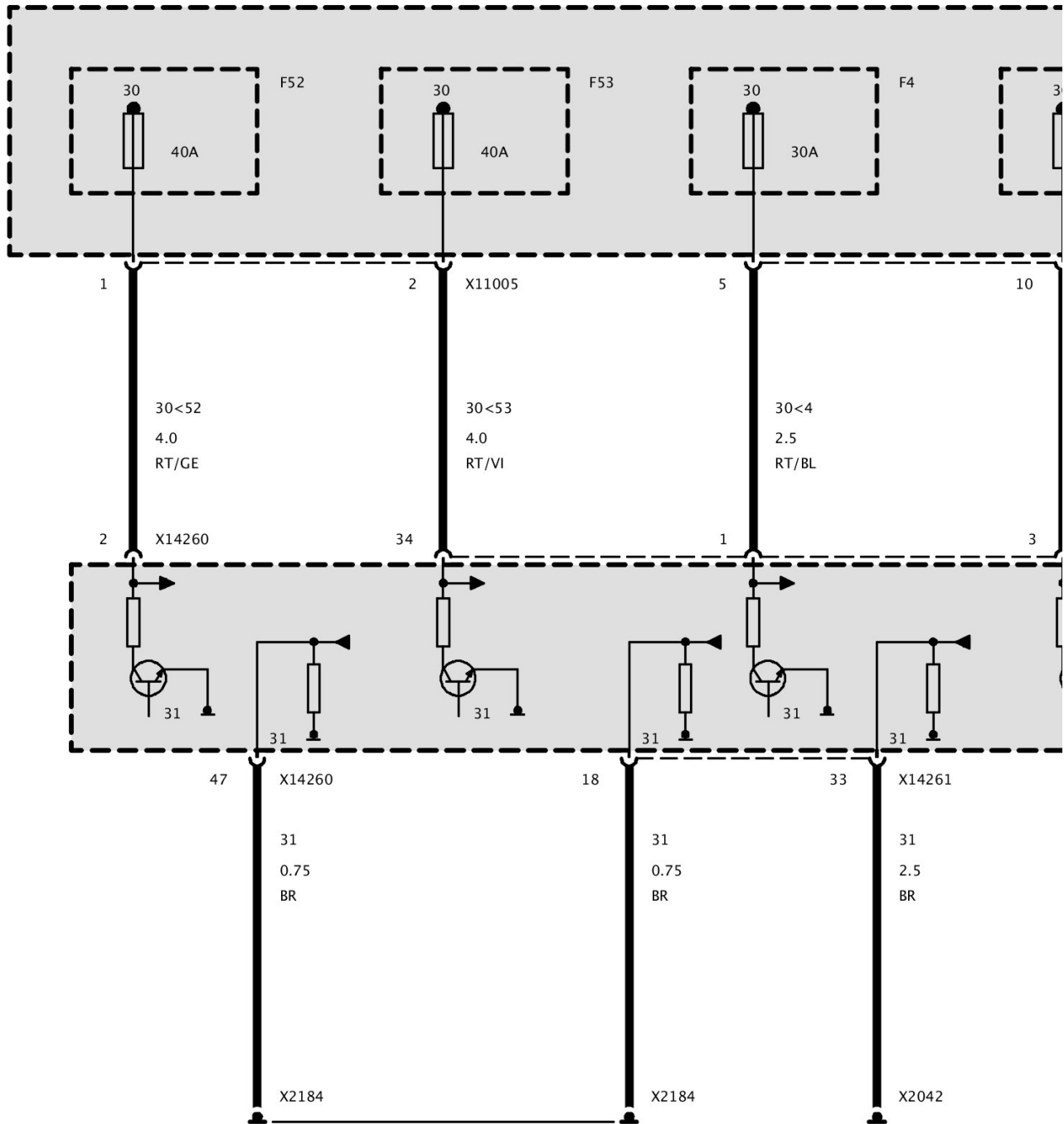
Part 2



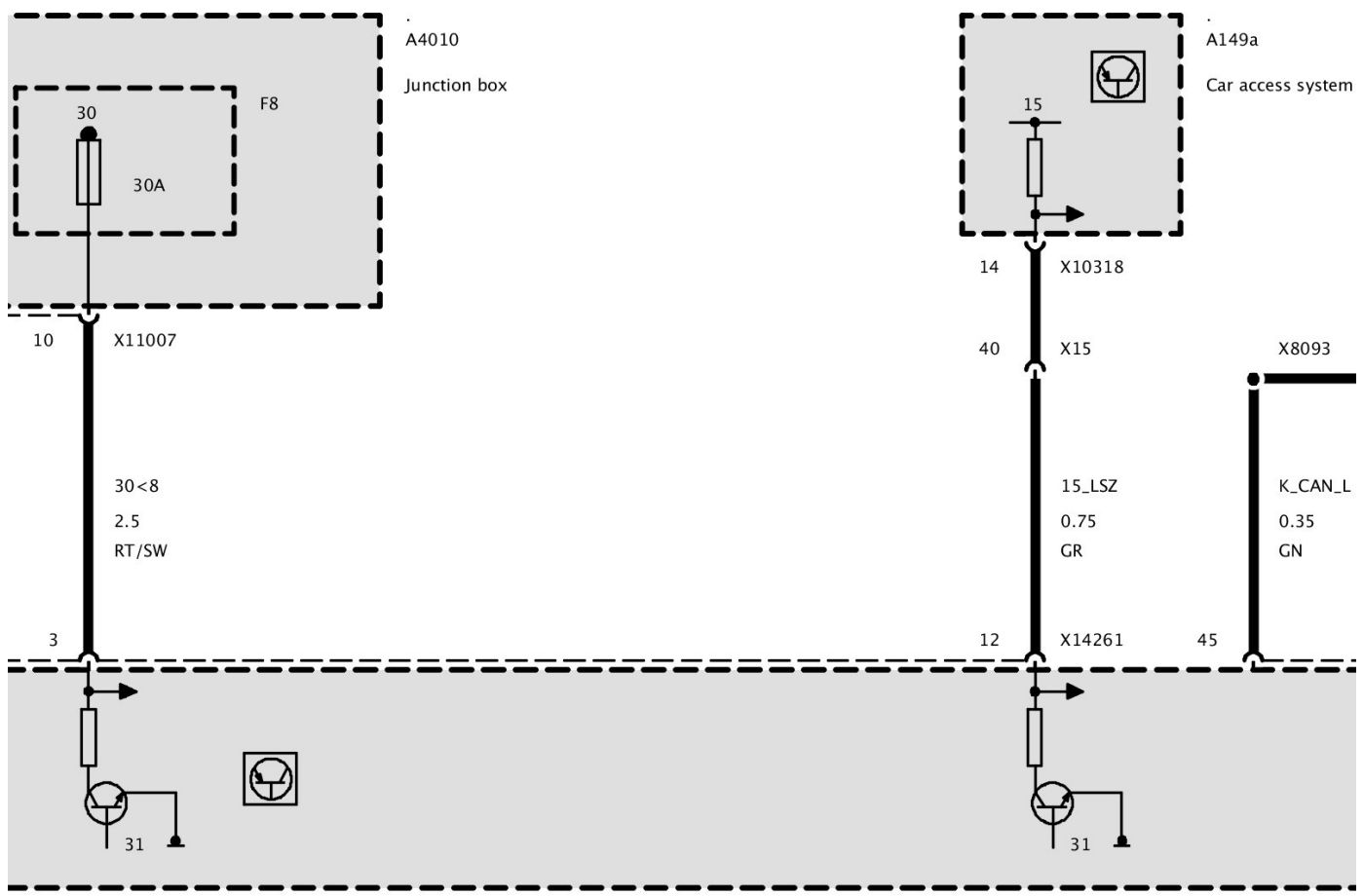
Part 3

Power Supply, Footwell Module FRM (As Of 12/08)

Power Supply, Footwell Module FRM (As Of 12/08)

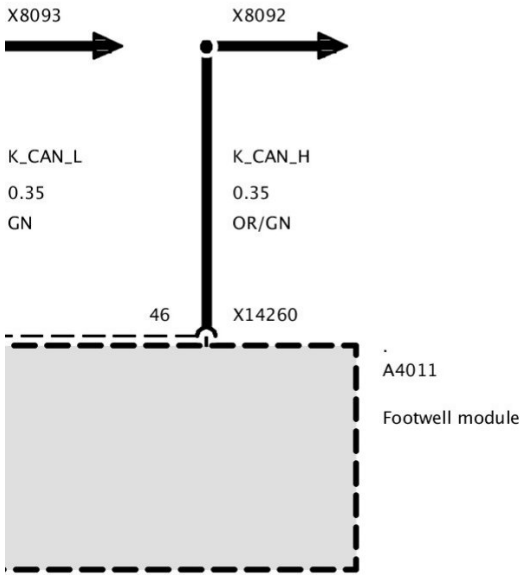


Part 1



Part 2

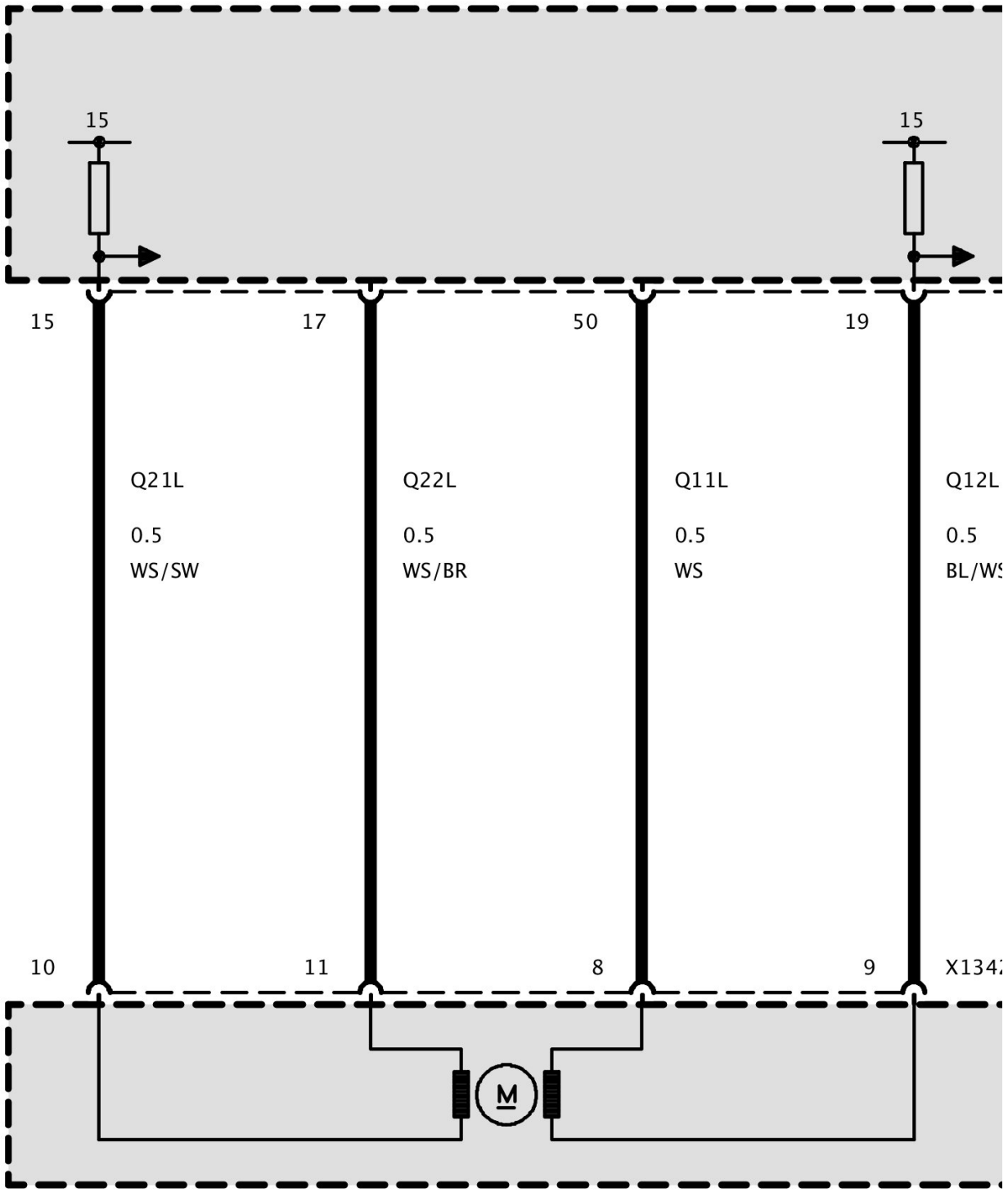
ss system



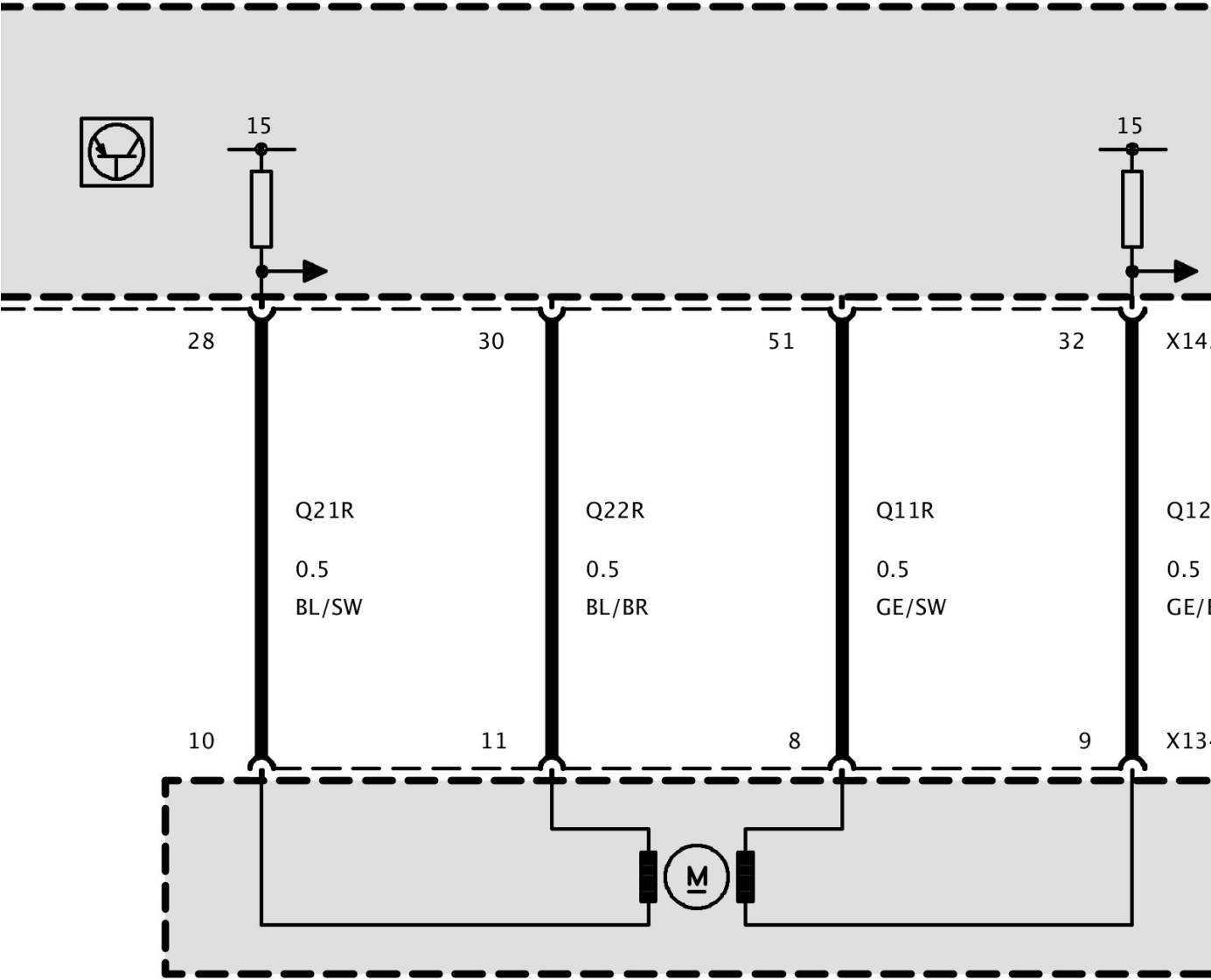
Part 3

Manual Headlight Vertical Aim Control

Manual Headlight Vertical Aim Control

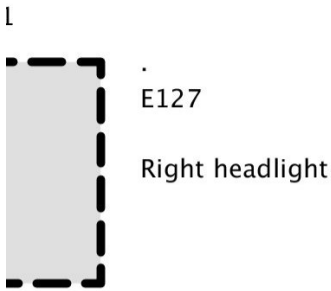
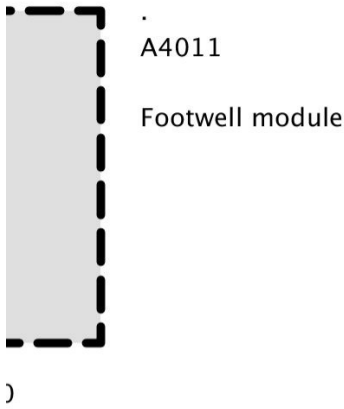


Part 1



E126  
Left headlight

Part 2

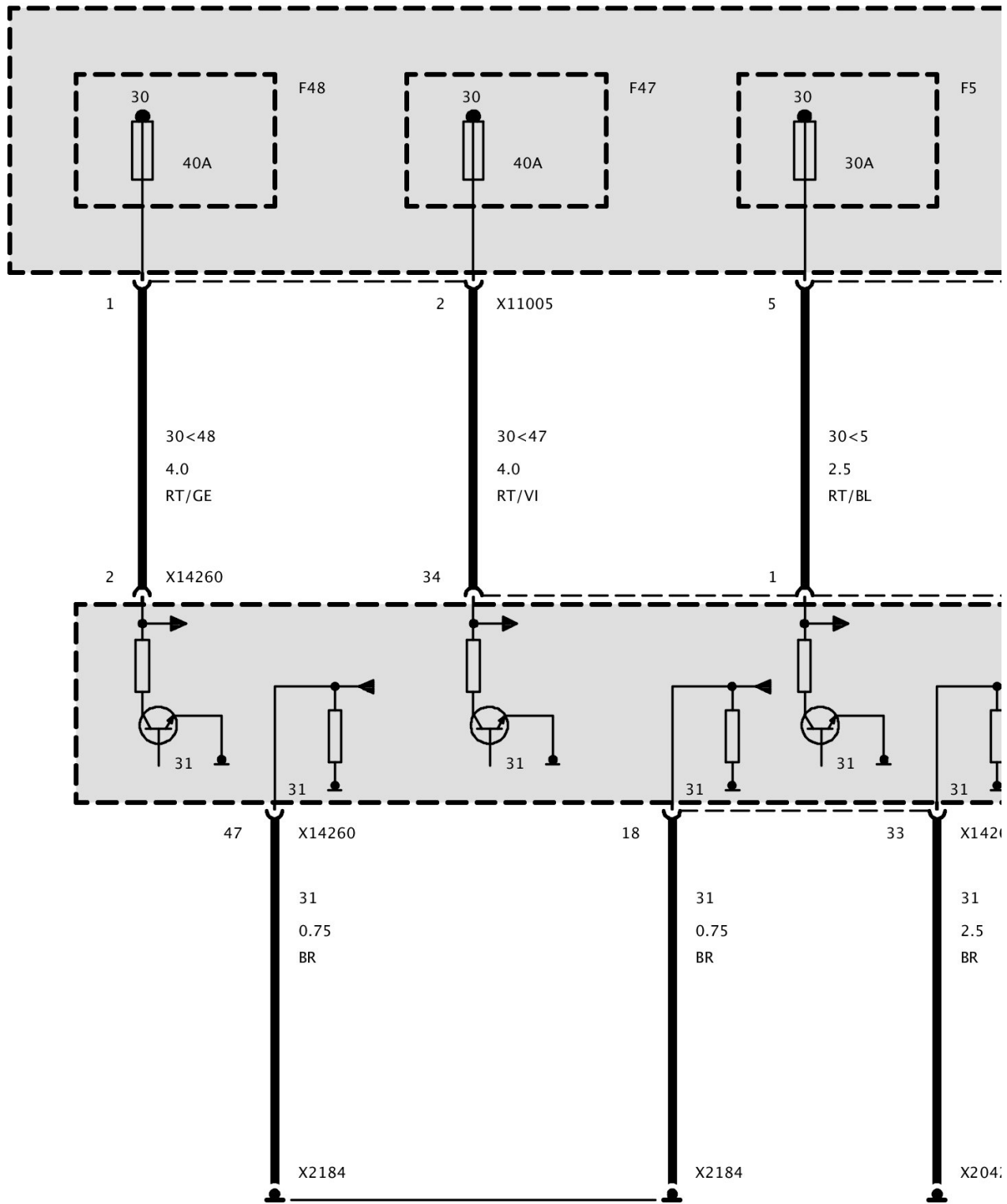


**Part 3**

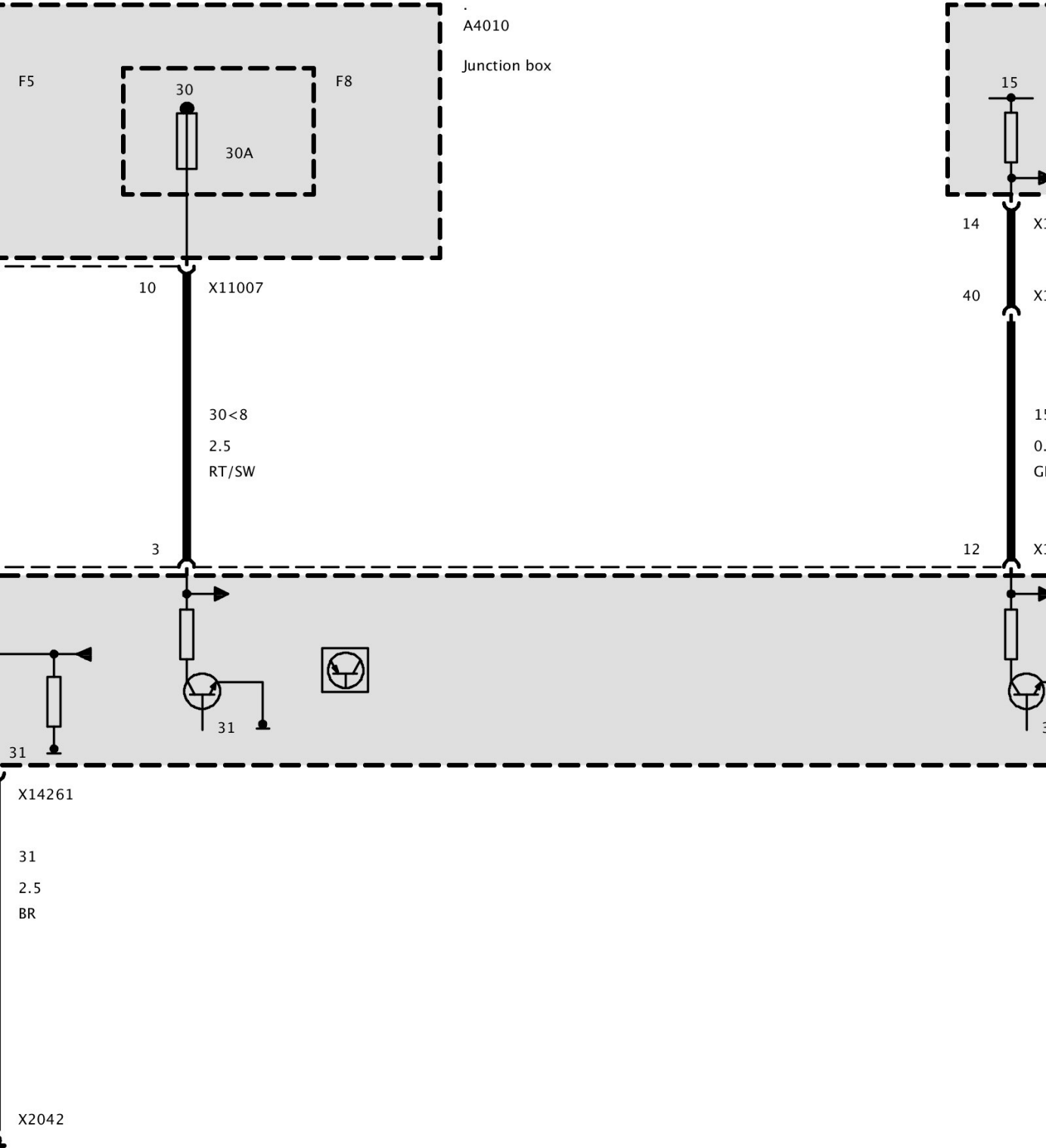
**Power Supply, Footwell Module FRM (Up To 12/08)**

Power Supply, Footwell Module FRM (Up To 12/08)

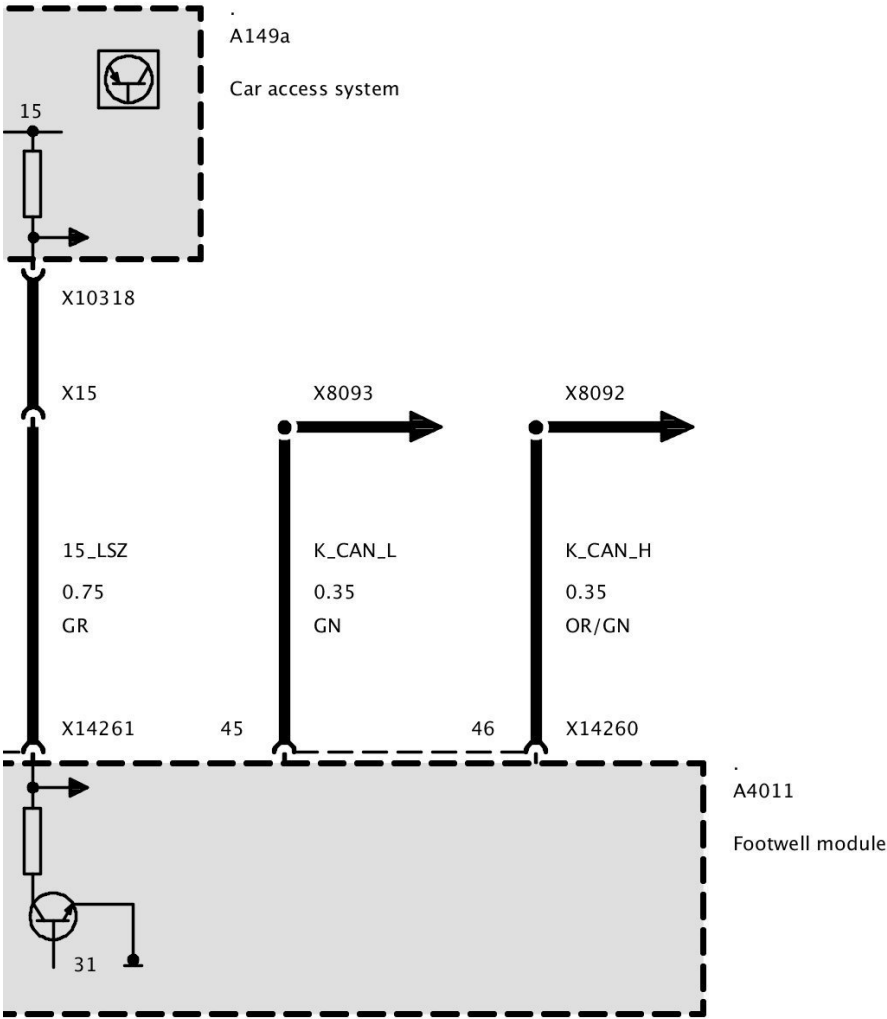




Part 1



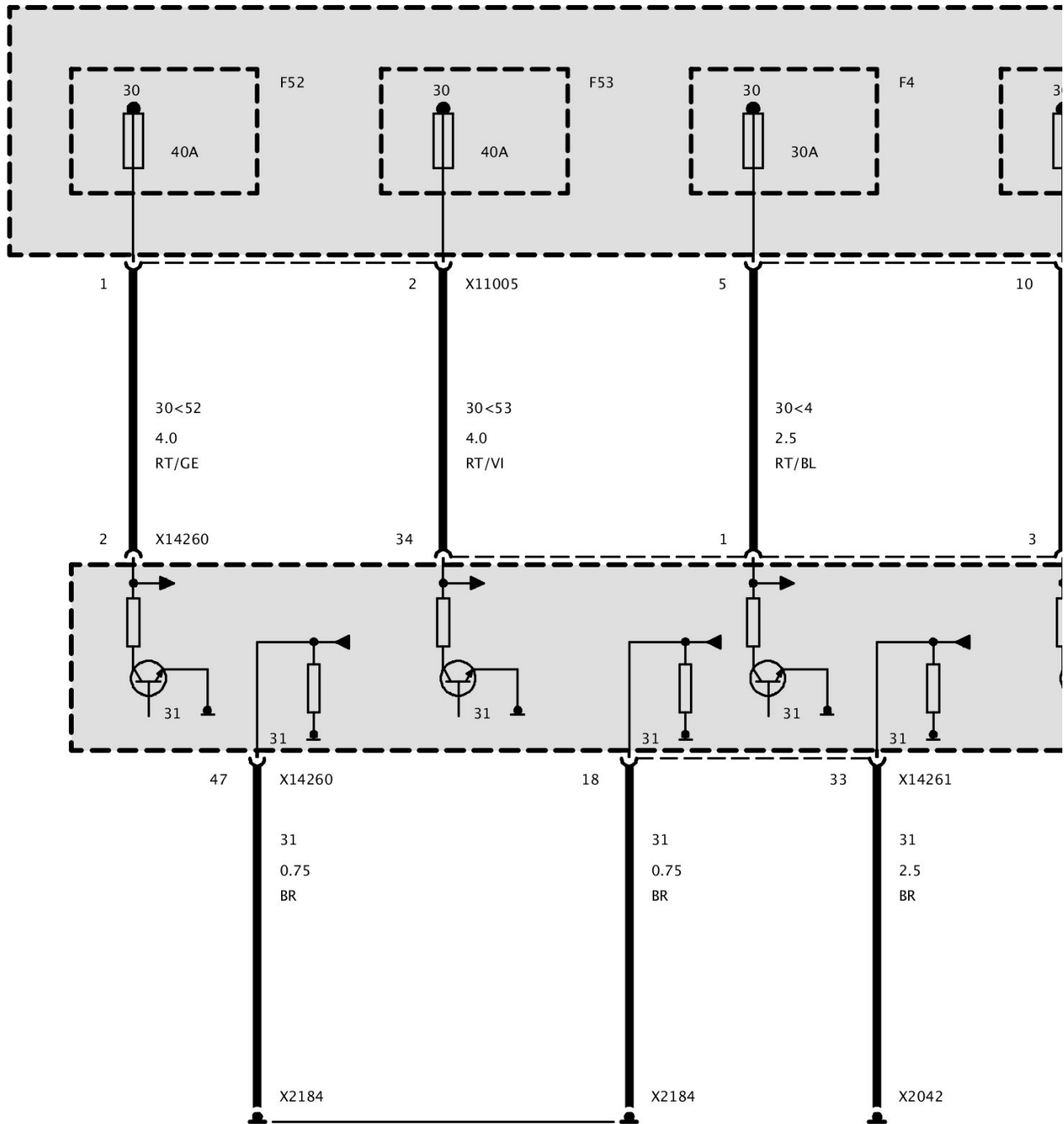
Part 2



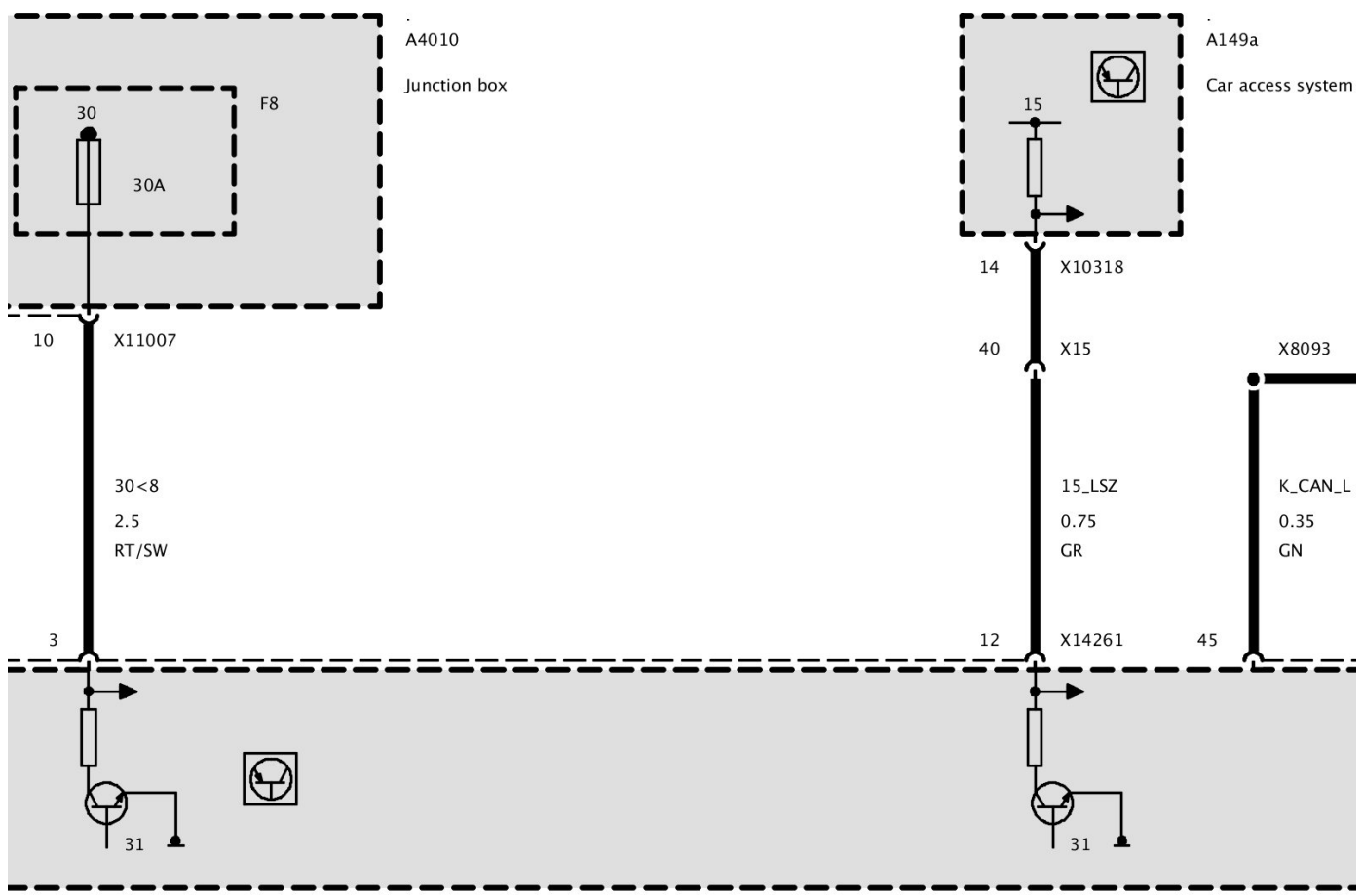
Part 3

Power Supply, Footwell Module FRM (As Of 12/08)

Power Supply, Footwell Module FRM (As Of 12/08)

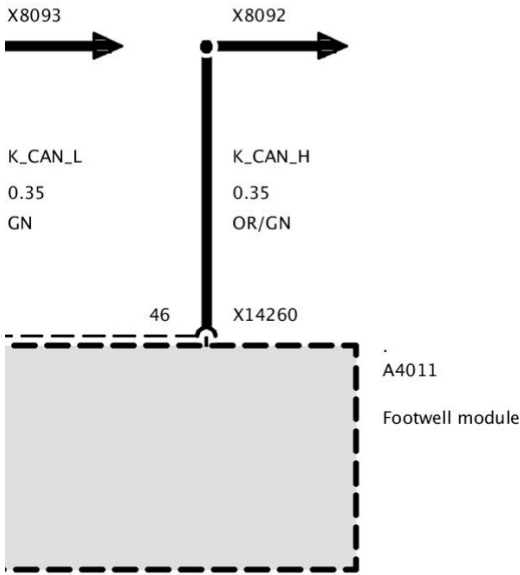


Part 1



Part 2

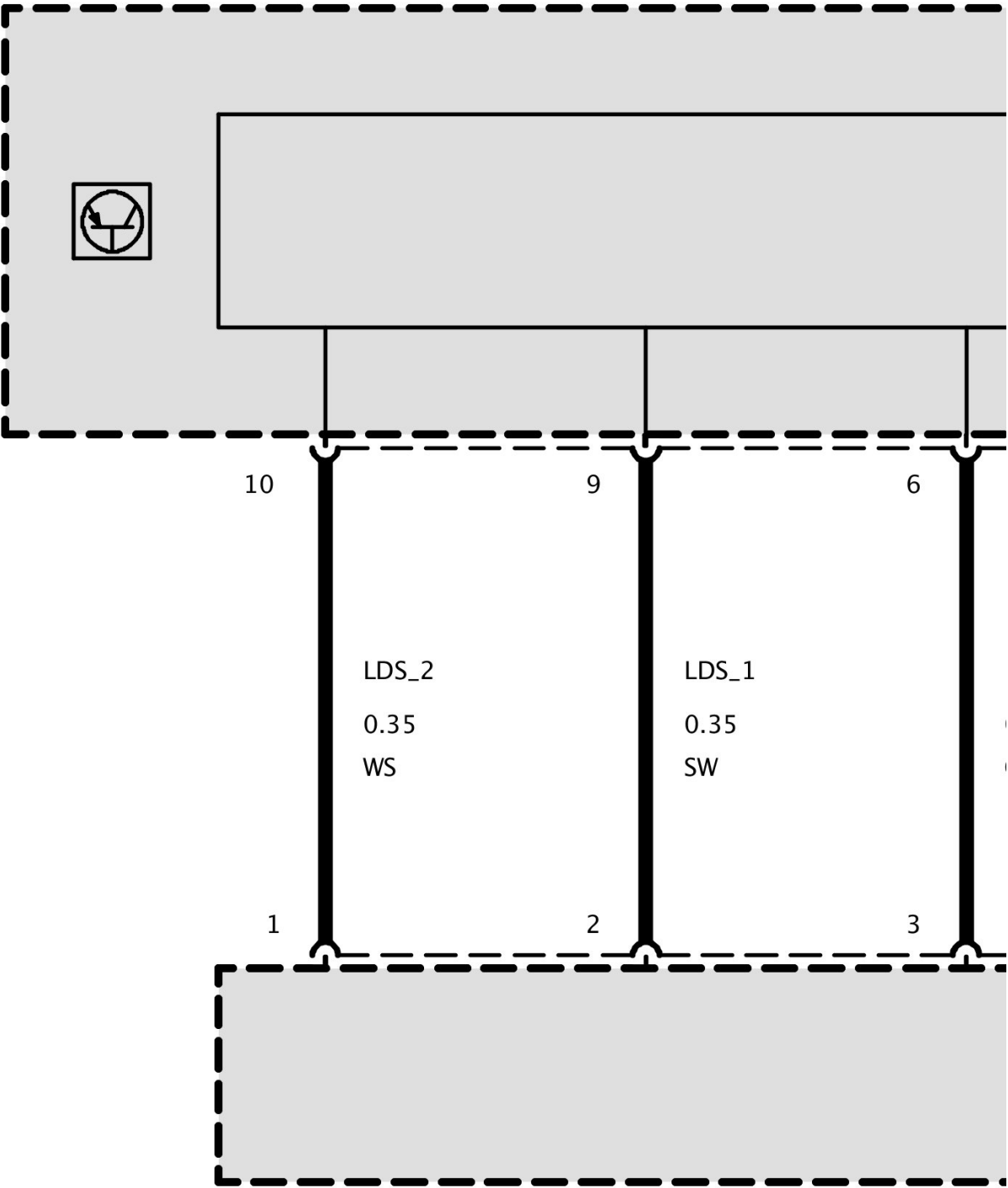
ss system



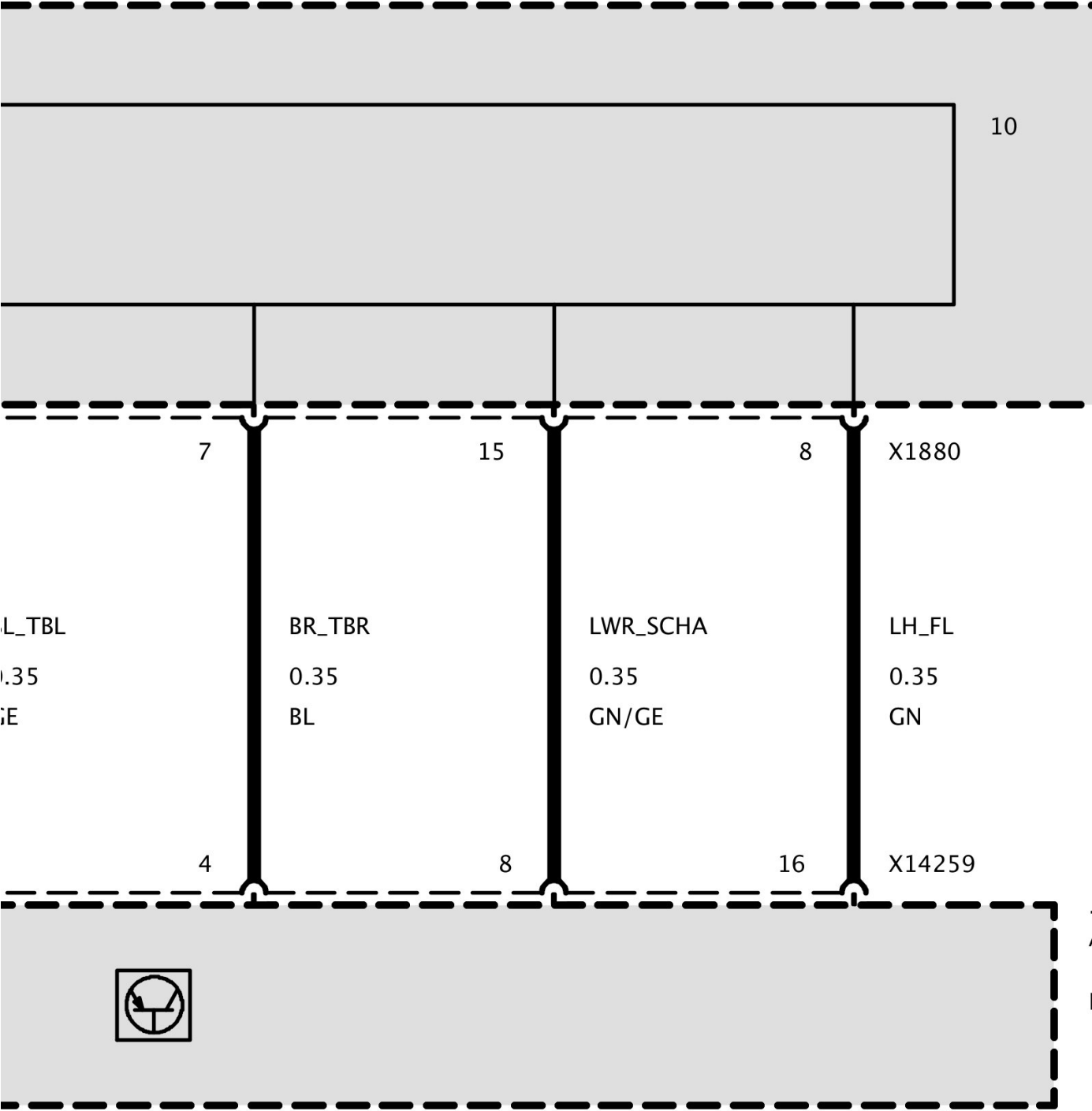
Part 3

Light Switch

Lights/Direction Indicator/Low Beam Stalk

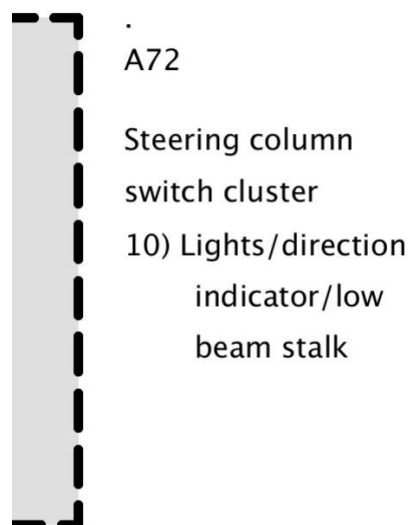


Part 1



Part 2





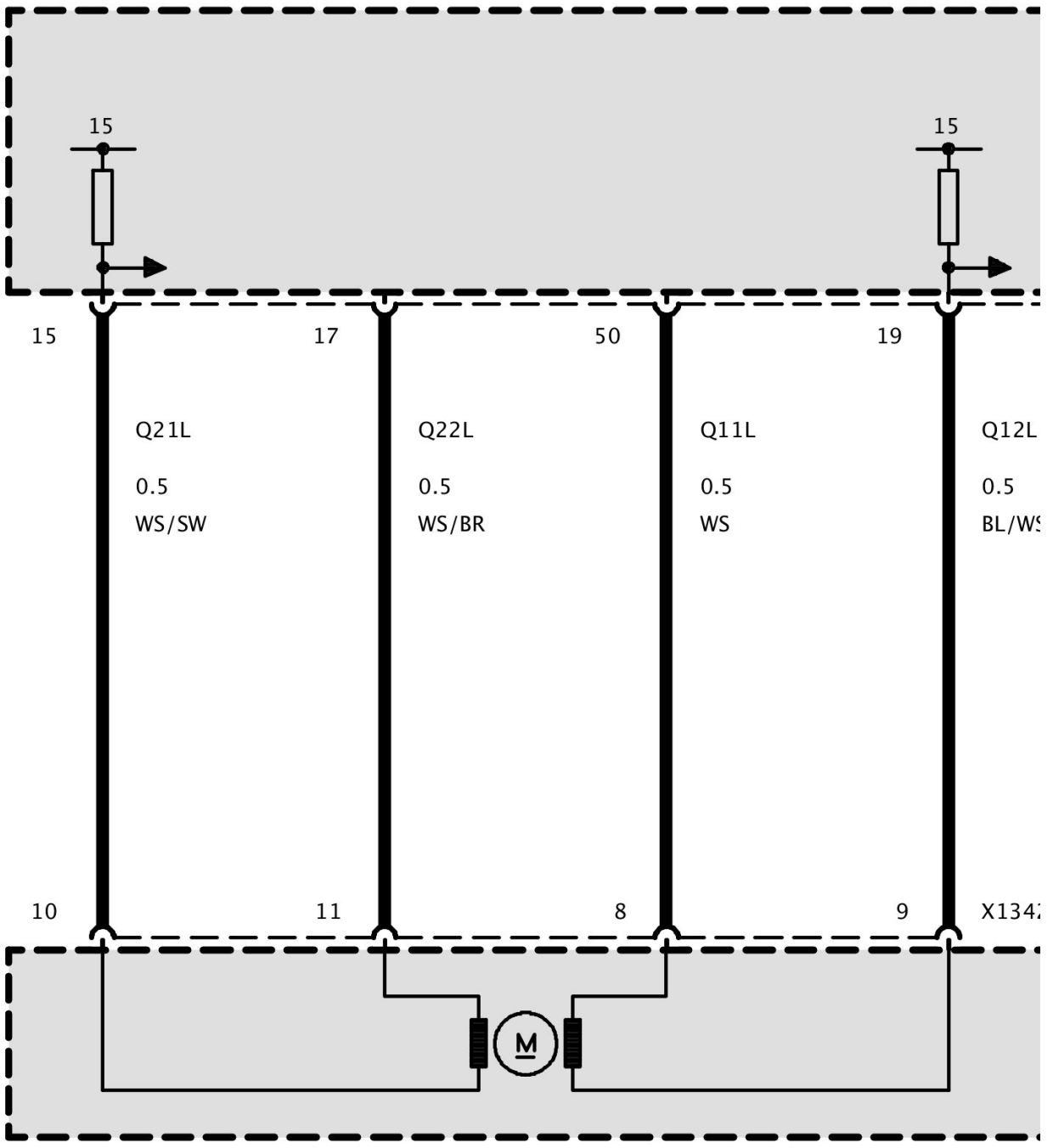
4011

ootwell module

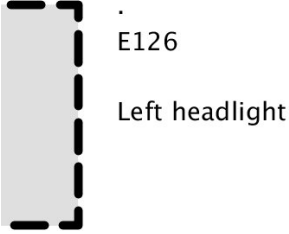
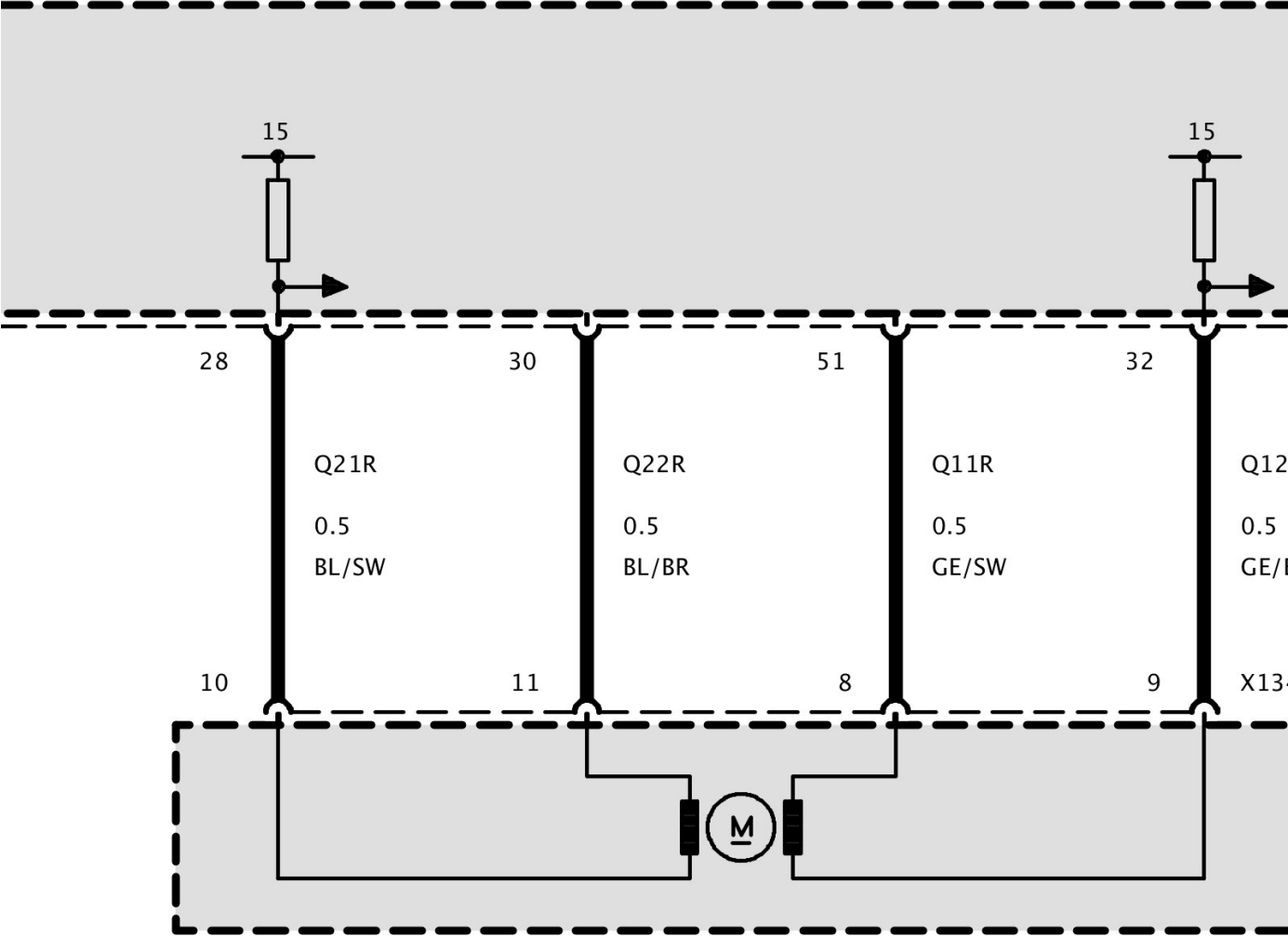
### Part 3

## Automatic Headlight Vertical Aim Control

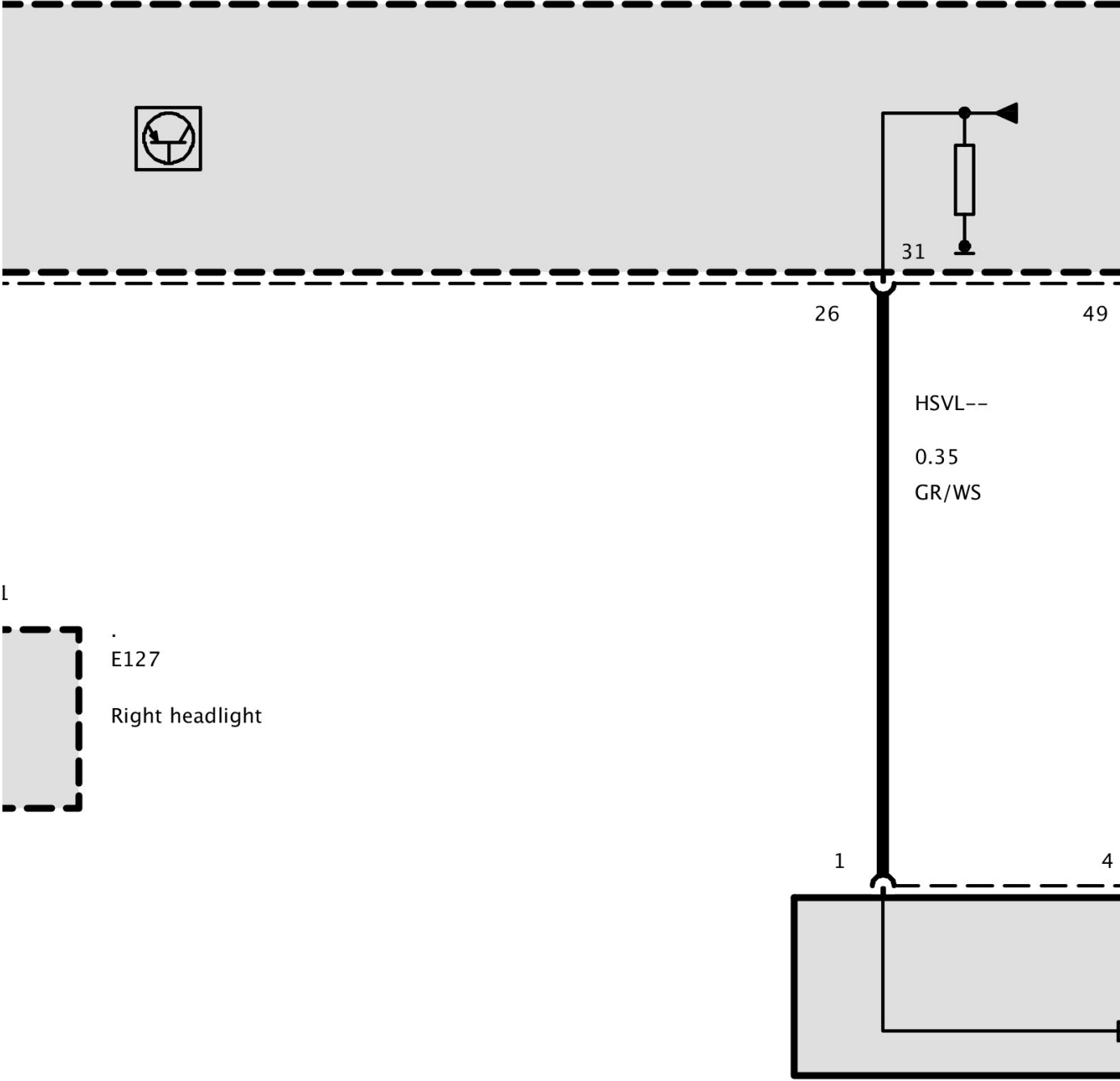
Automatic Headlight Vertical Aim Control



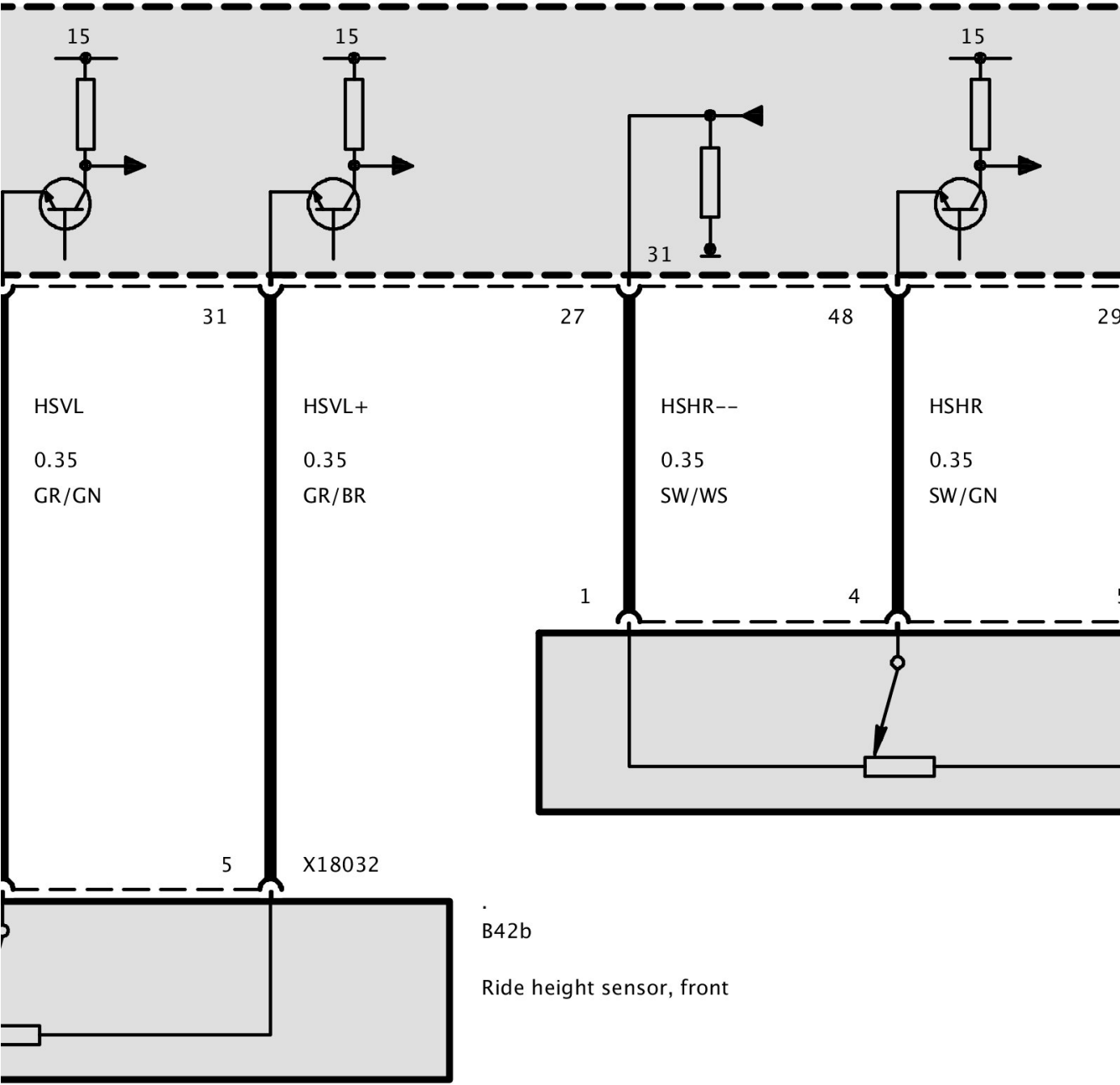
Part 1



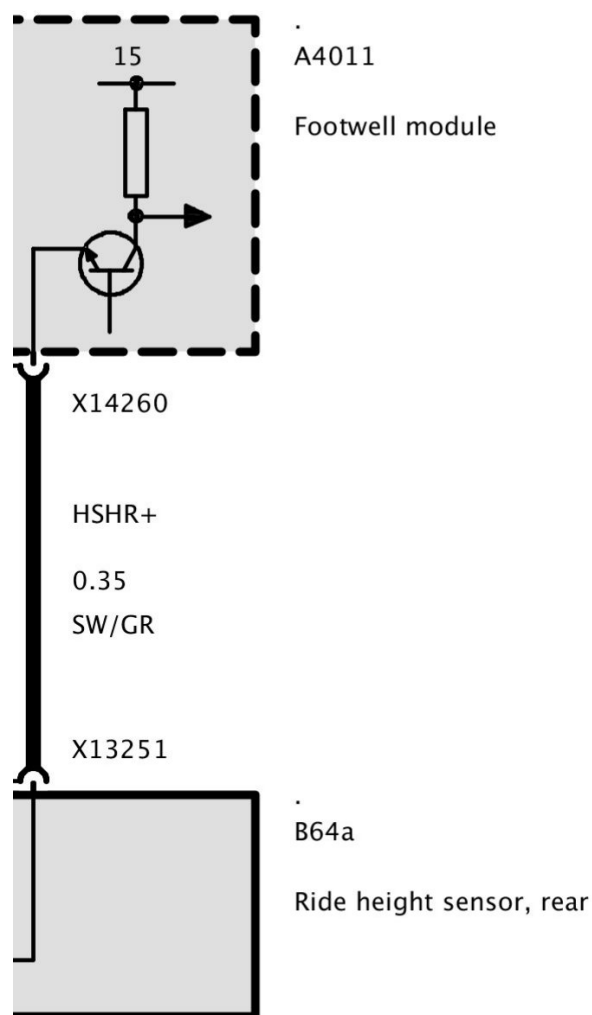
Part 2



Part 3



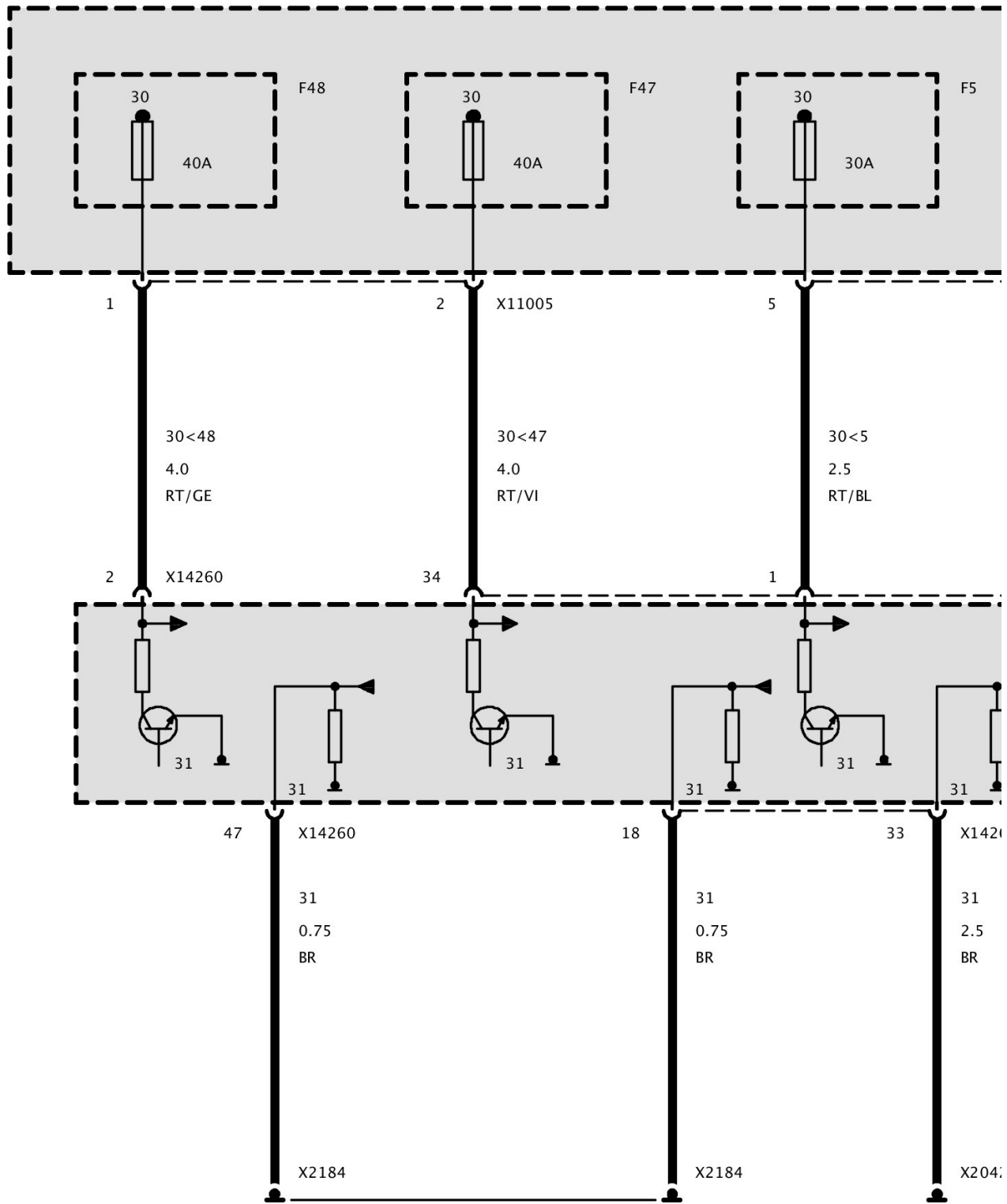
Part 4



Part 5

Power Supply, Footwell Module FRM (Up To 12/08)

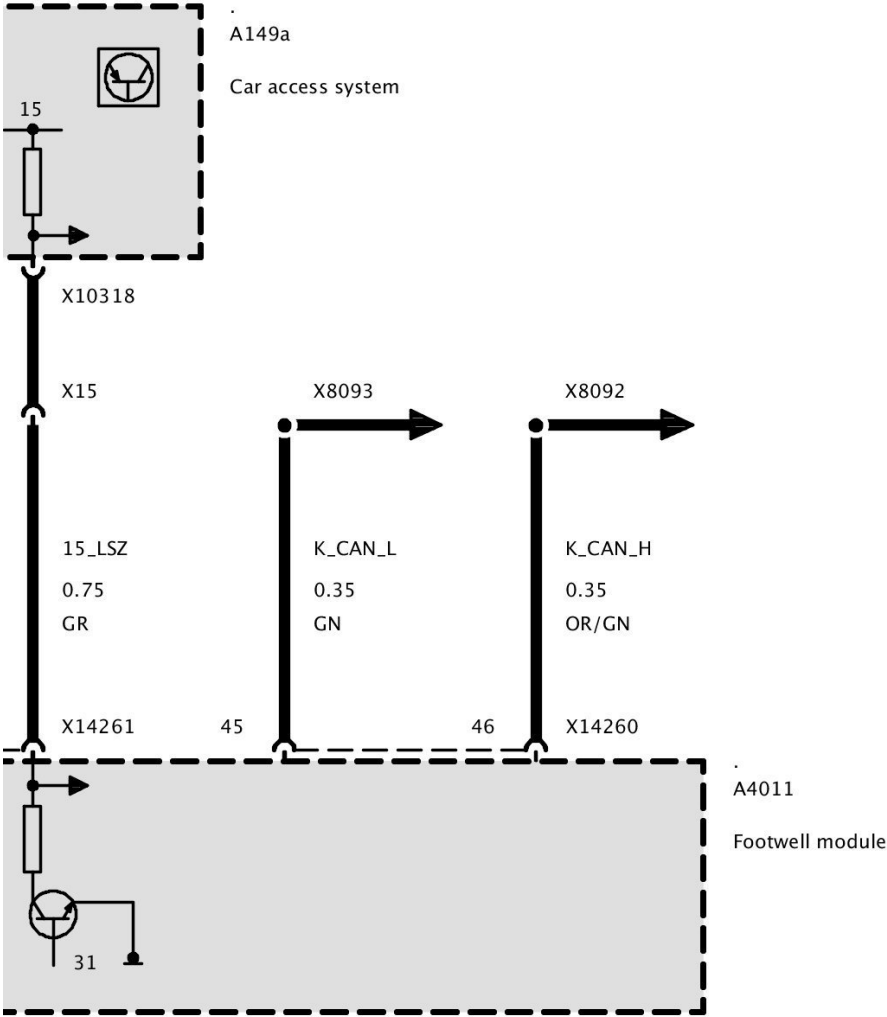
Power Supply, Footwell Module FRM (Up To 12/08)



Part 1



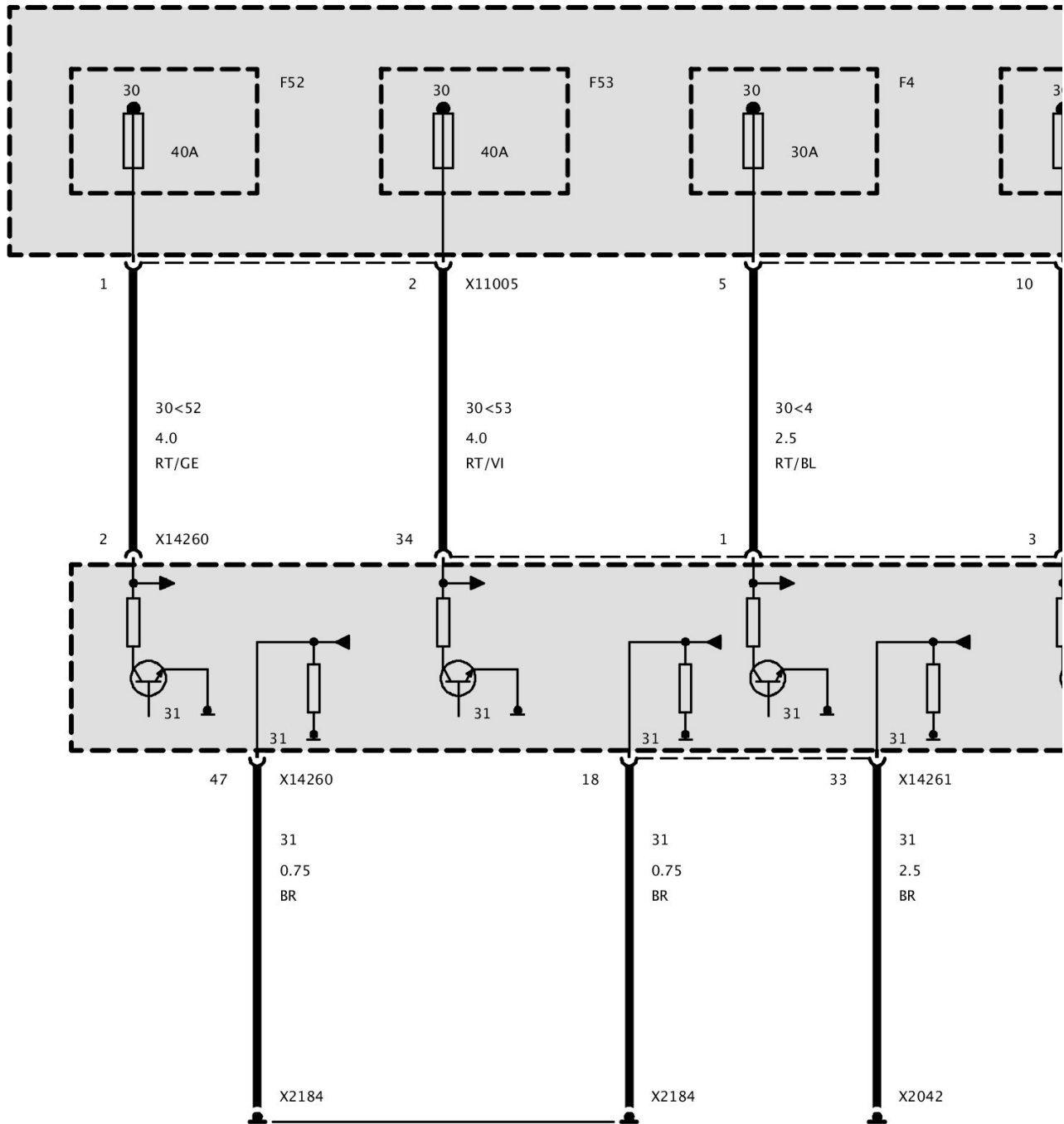




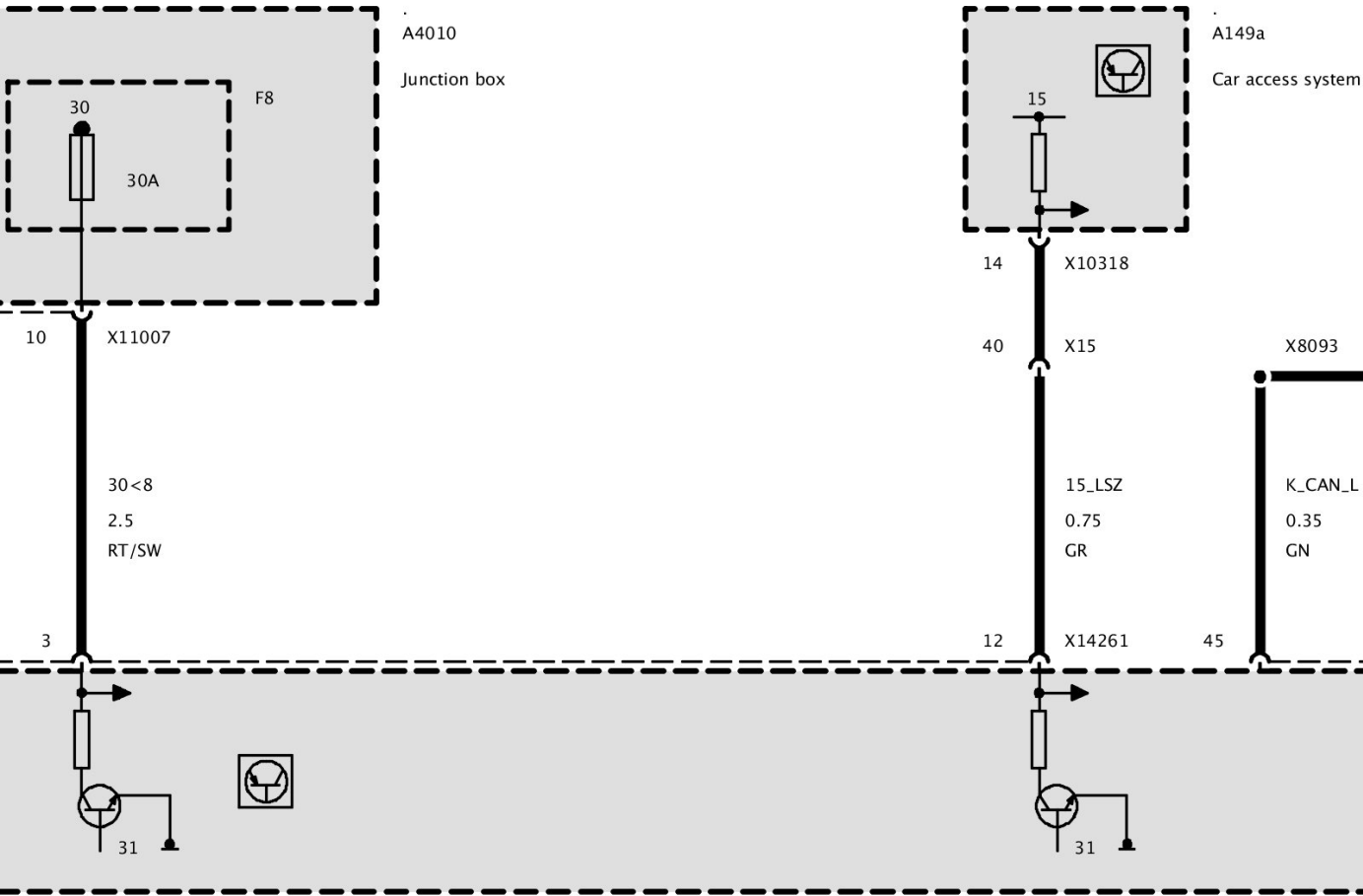
Part 3

Power Supply, Footwell Module FRM (As Of 12/08)

Power Supply, Footwell Module FRM (As Of 12/08)

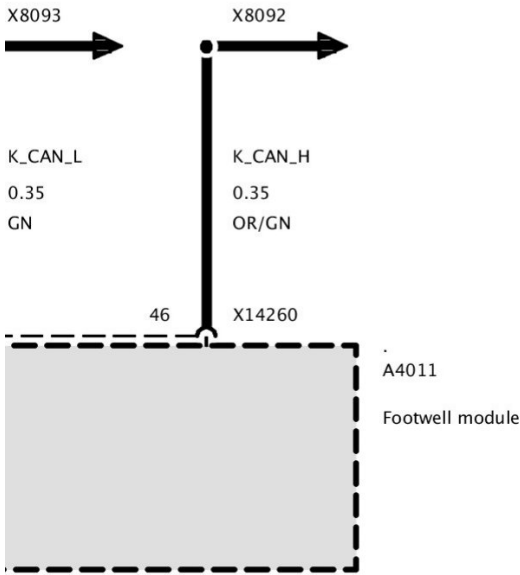


Part 1



Part 2

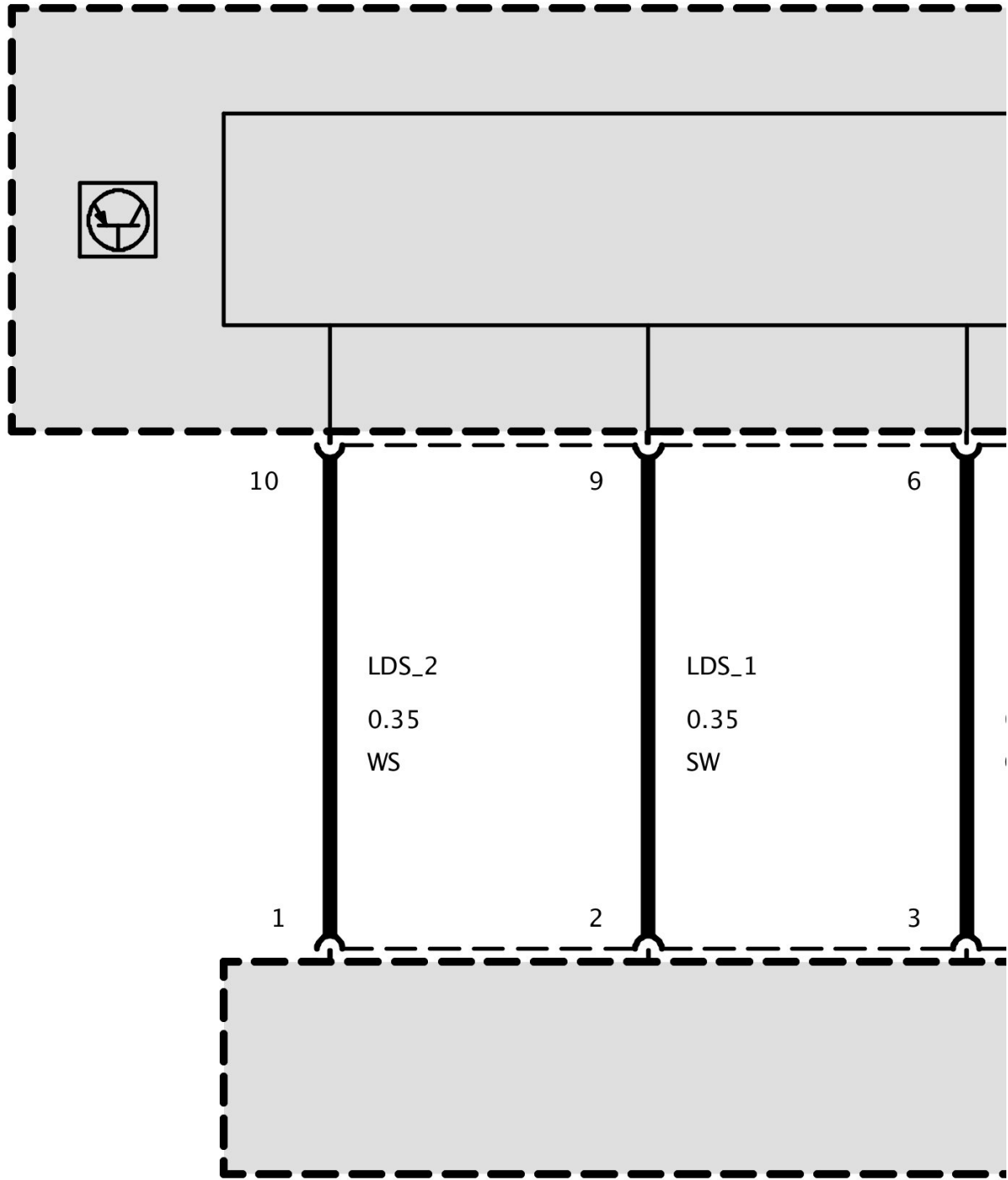
ss system



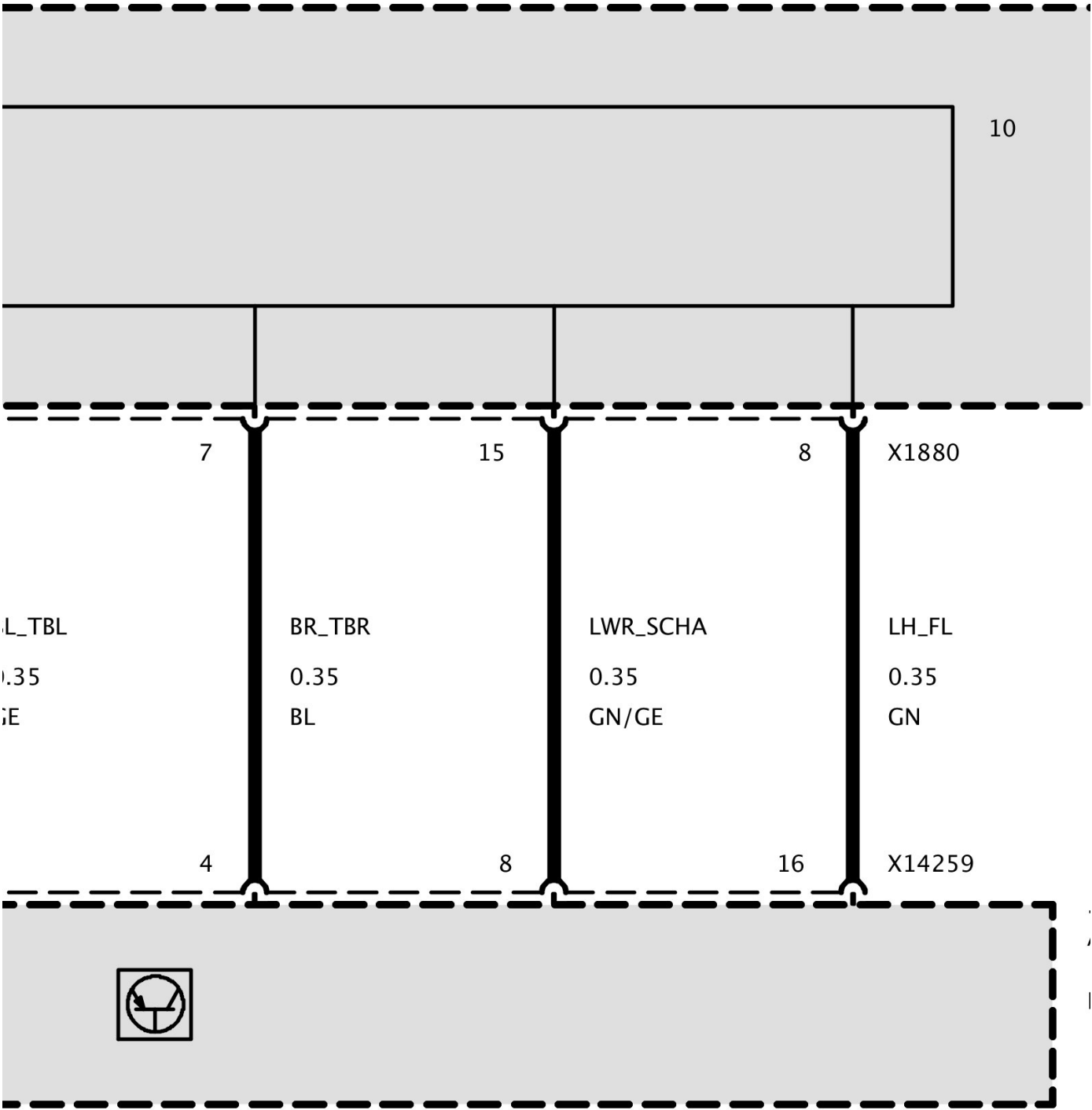
Part 3

Light Switch

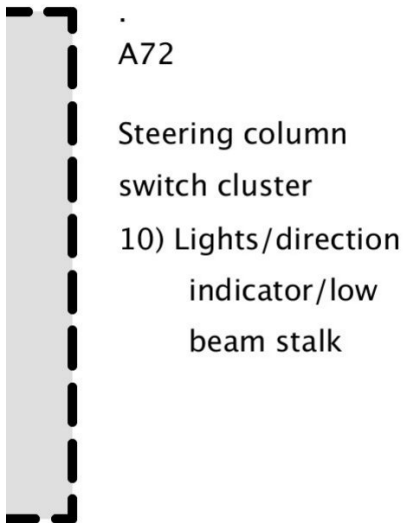
Lights/Direction Indicator/Low Beam Stalk



Part 1



Part 2



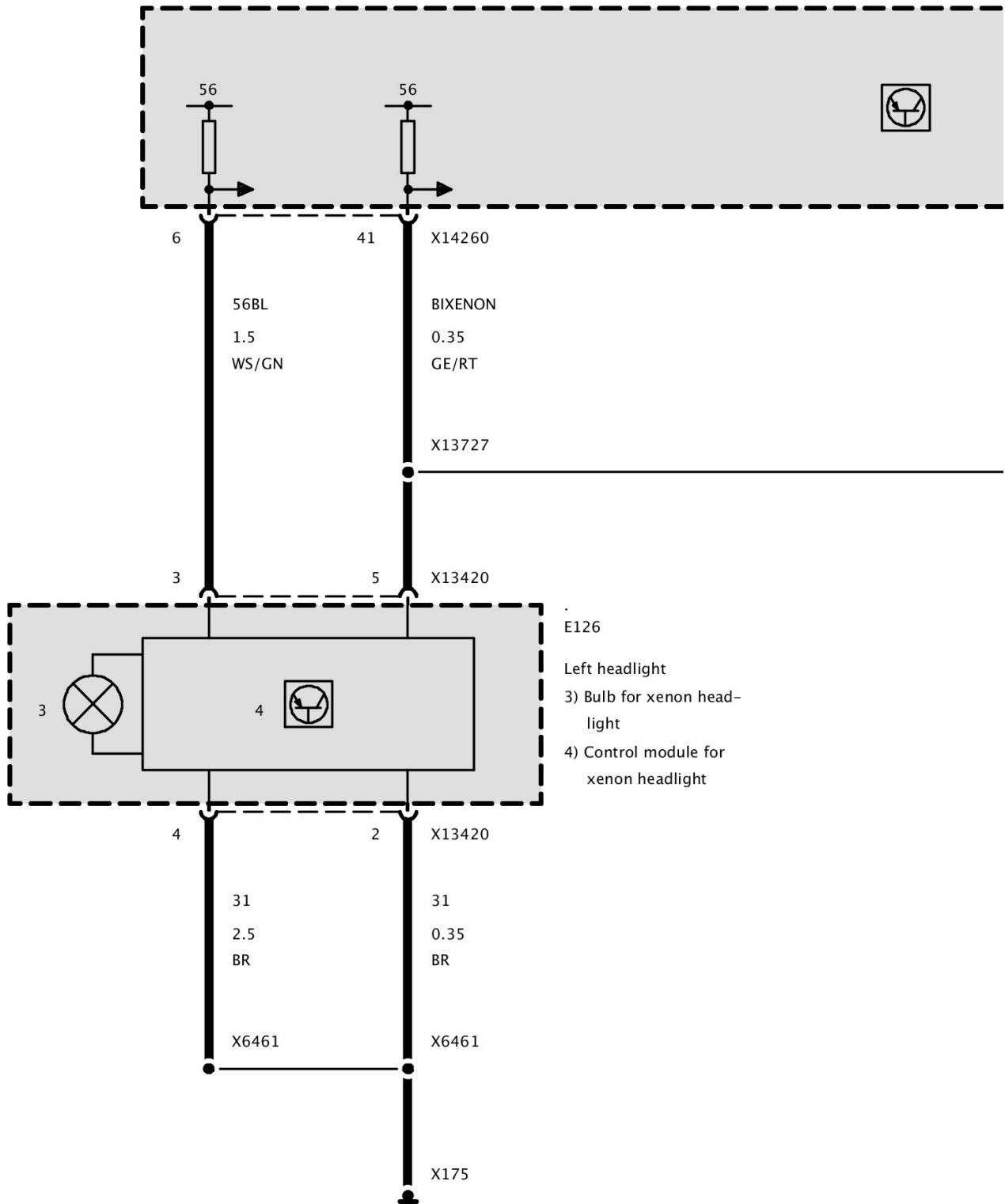
4011

ootwell module

**Part 3**

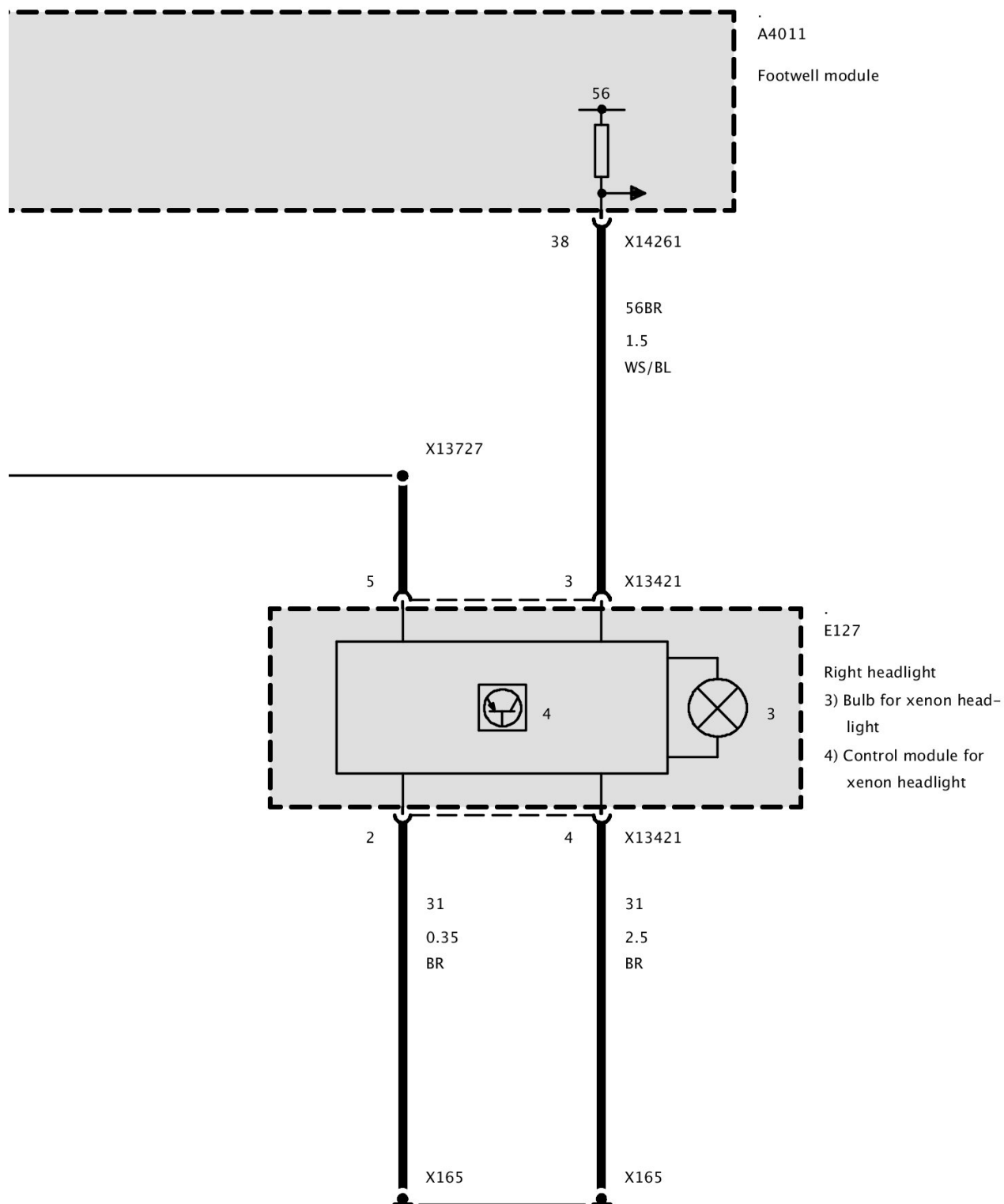
**Low Beam/High Beam (Xenon Lights)**

Low Beam/High Beam (Xenon Lights)



Part 1

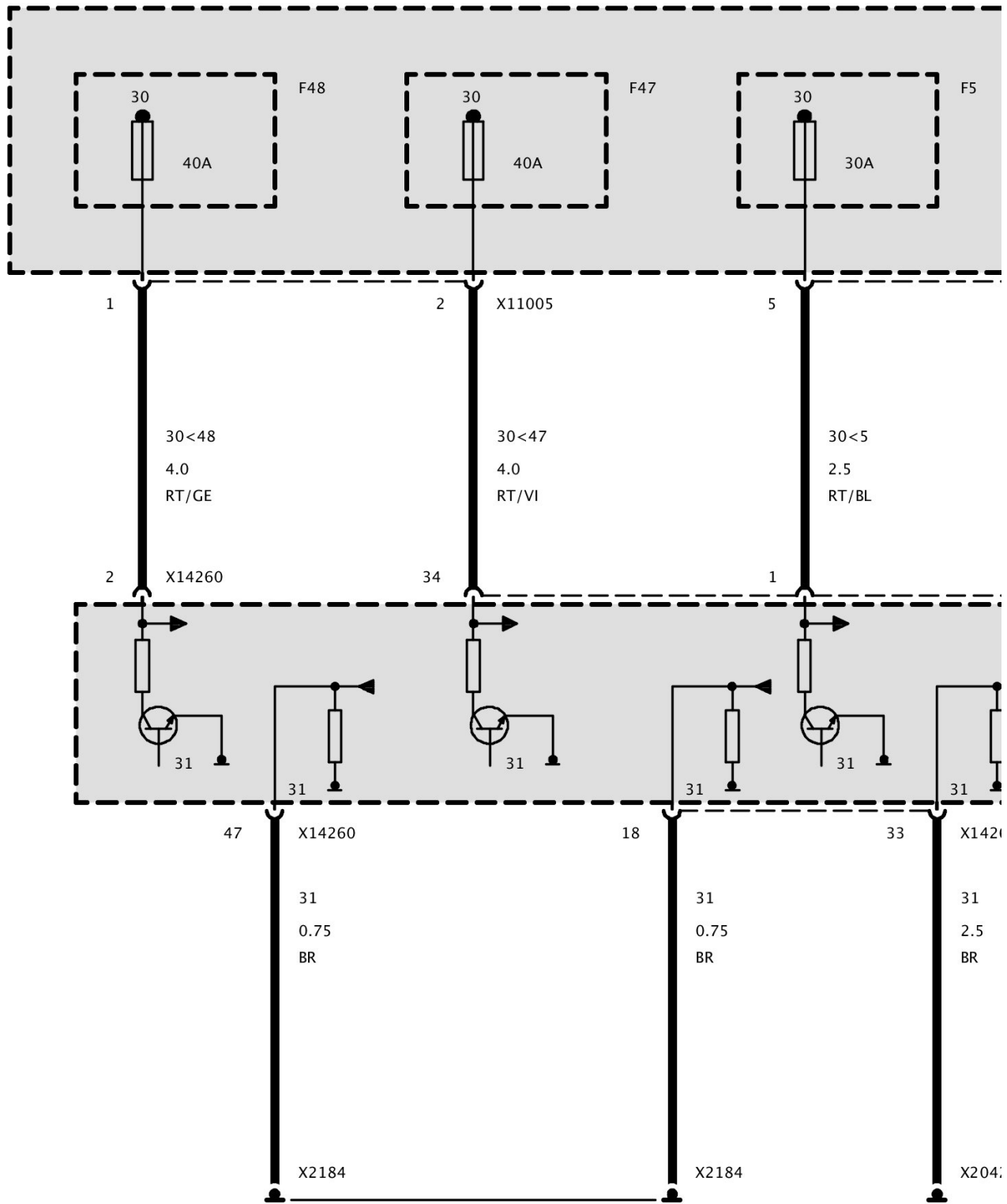




## Part 2

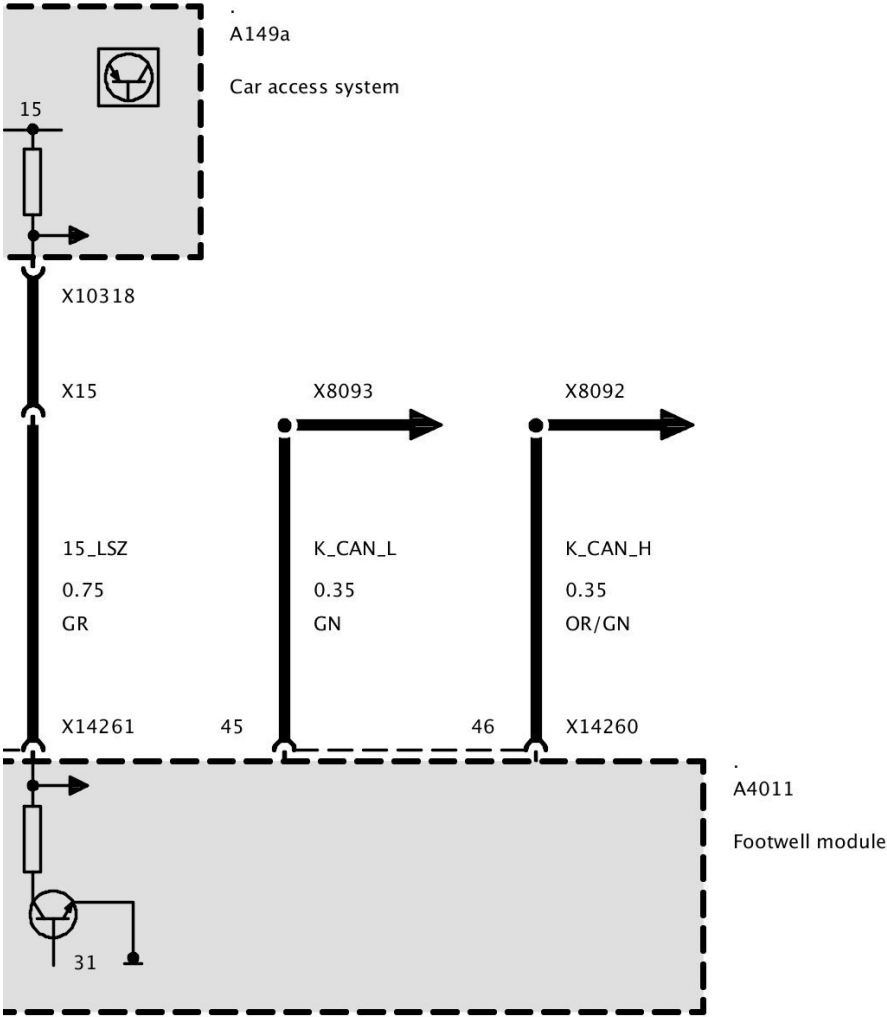
### Power Supply, Footwell Module FRM (Up To 12/08)

Power Supply, Footwell Module FRM (Up To 12/08)



Part 1

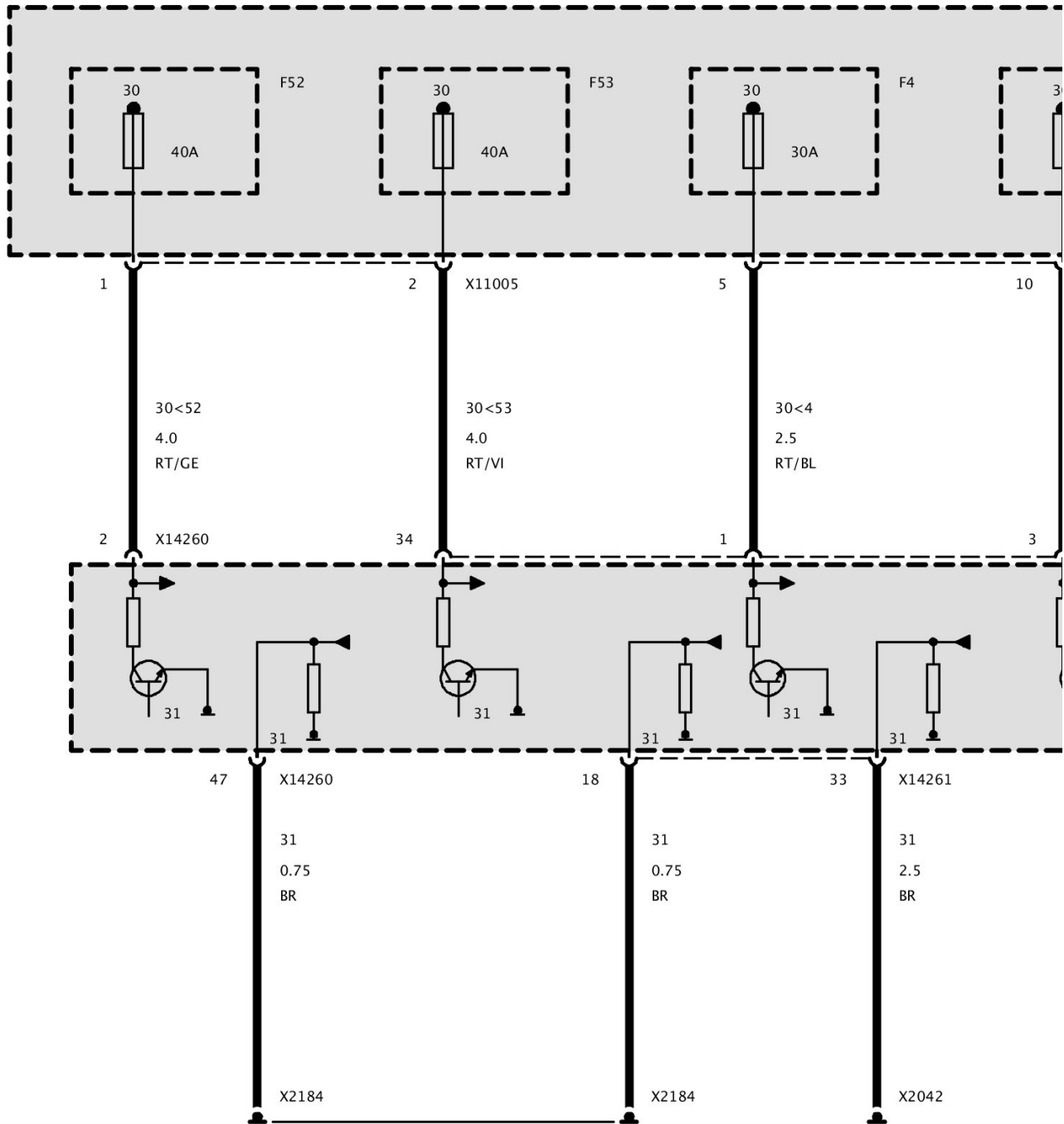




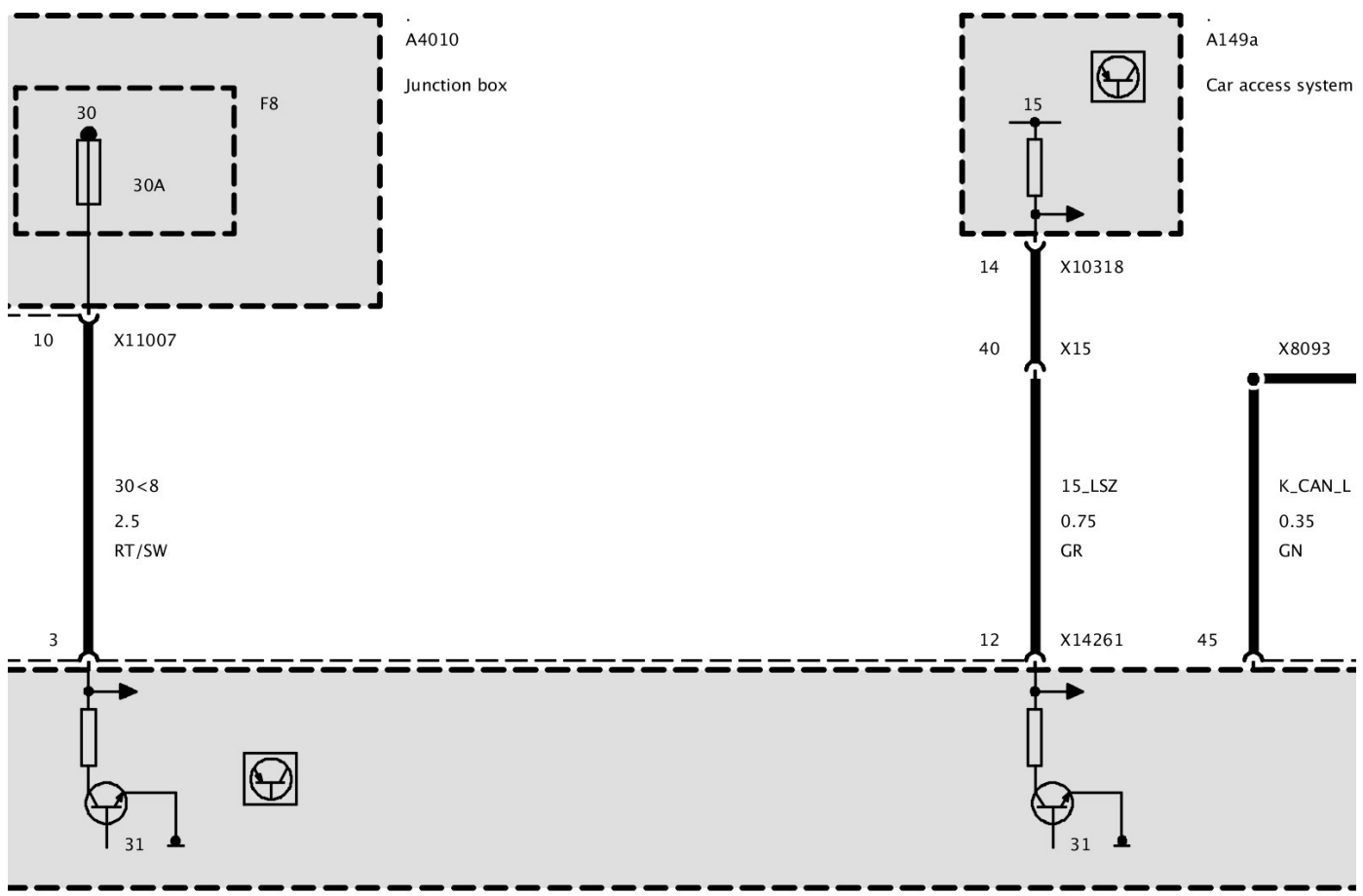
Part 3

Power Supply, Footwell Module FRM (As Of 12/08)

Power Supply, Footwell Module FRM (As Of 12/08)

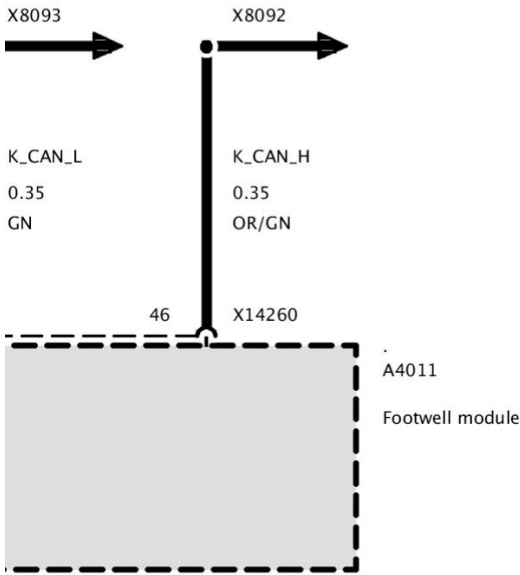


Part 1



Part 2

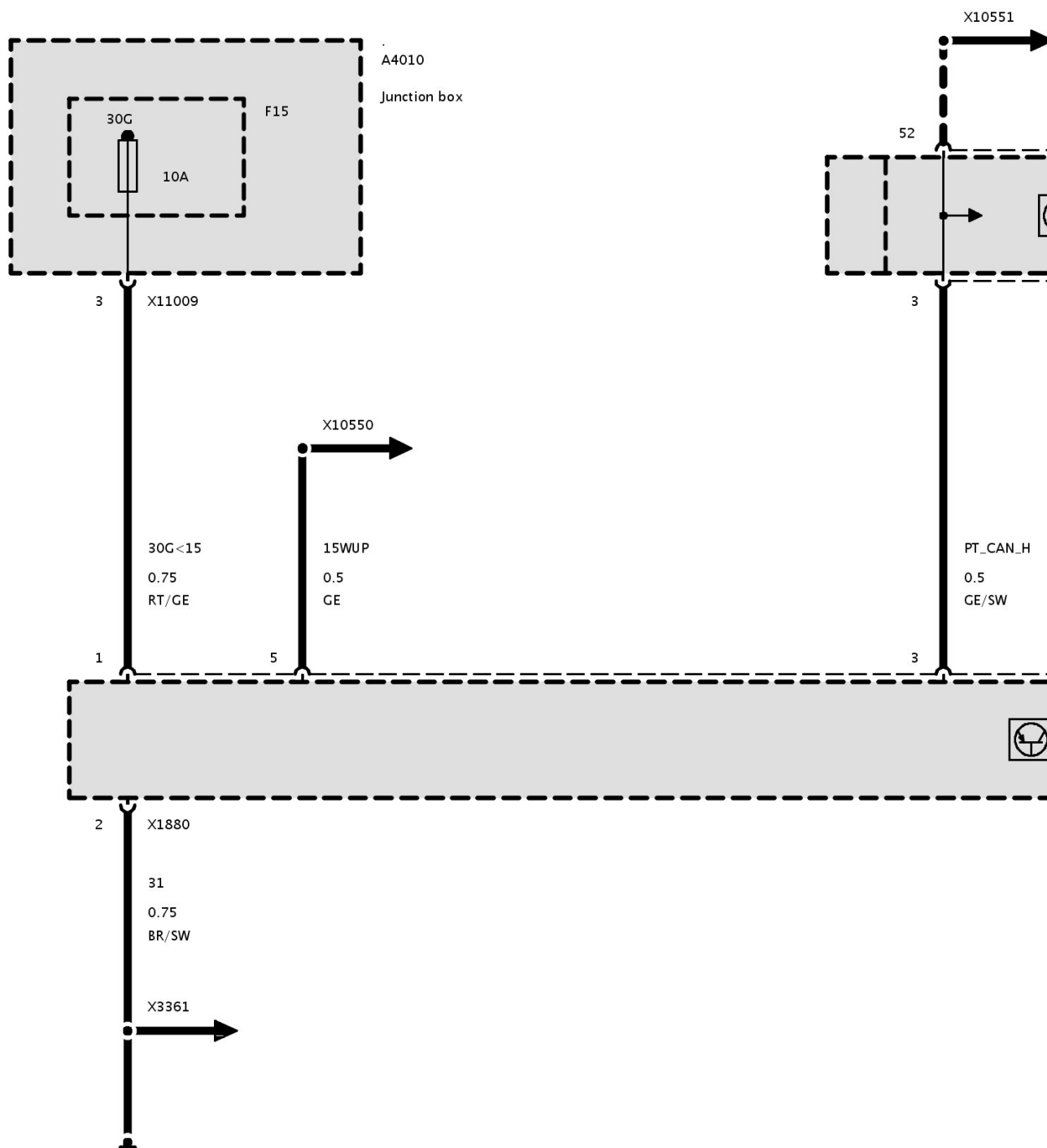
ss system



Part 3

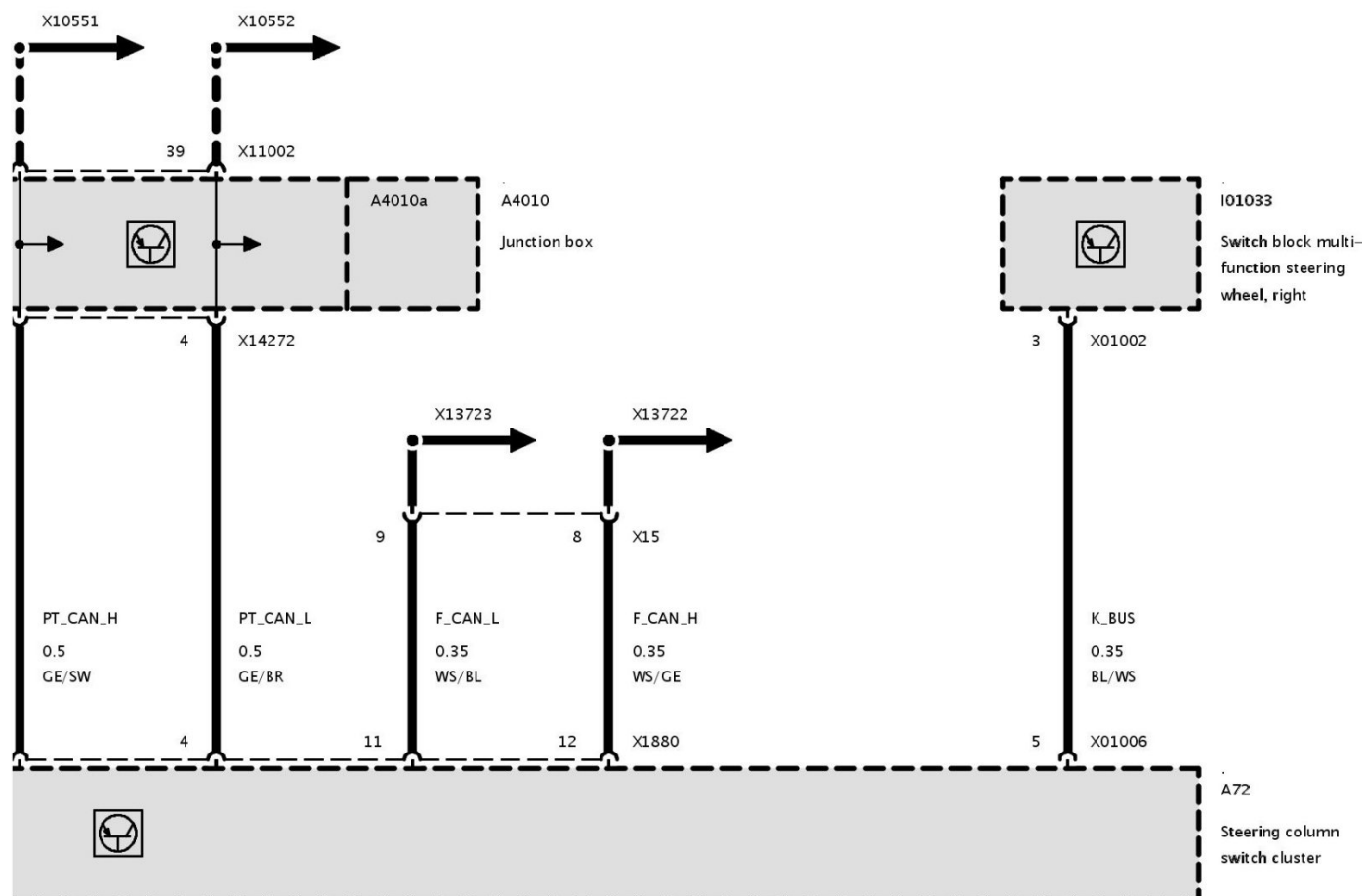
Supply, Steering Column Switch Cluster SZL (Up To 12/08)

Supply, Steering Column Switch Cluster SZL (Up To 12/08)



Part 1

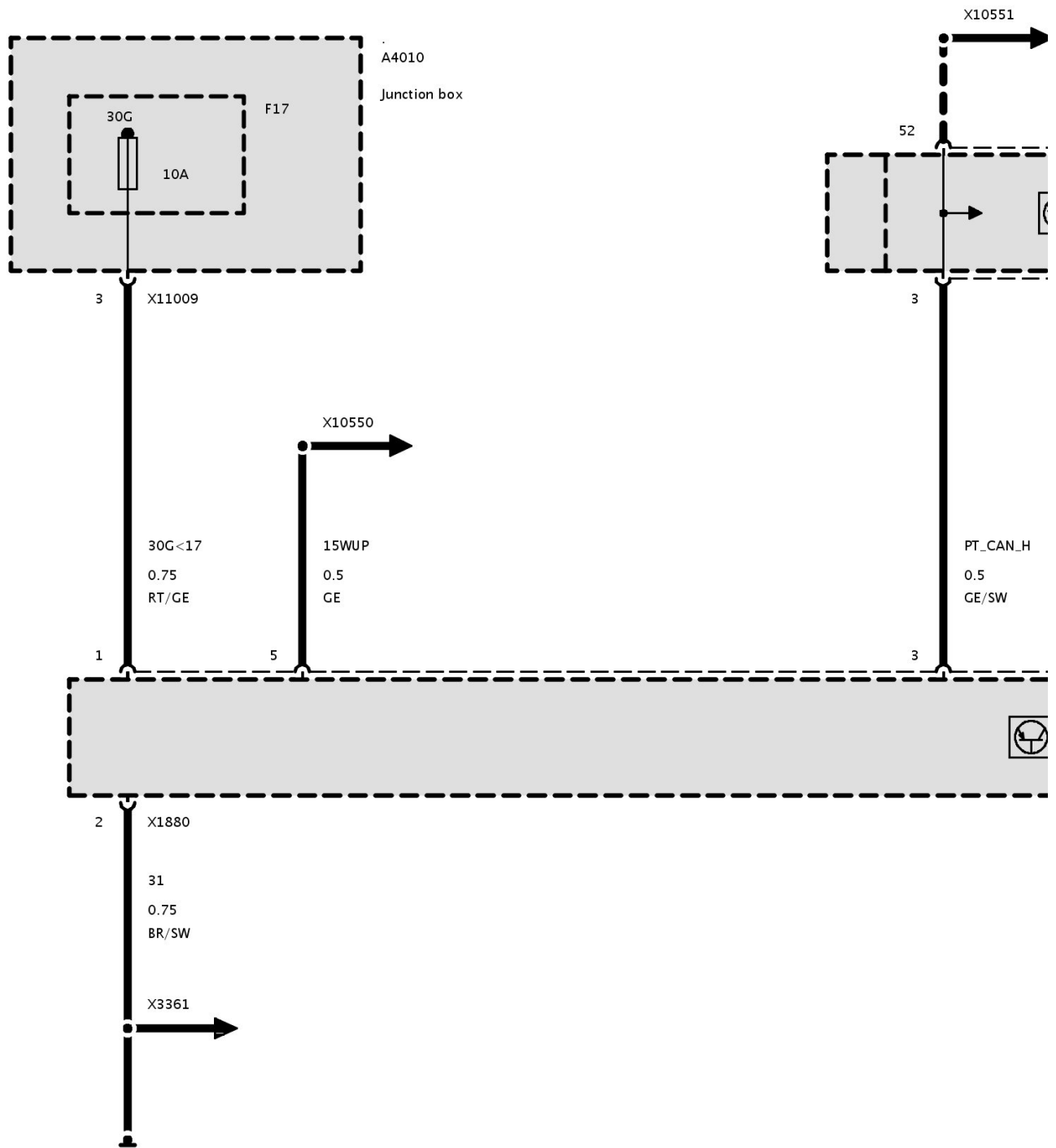




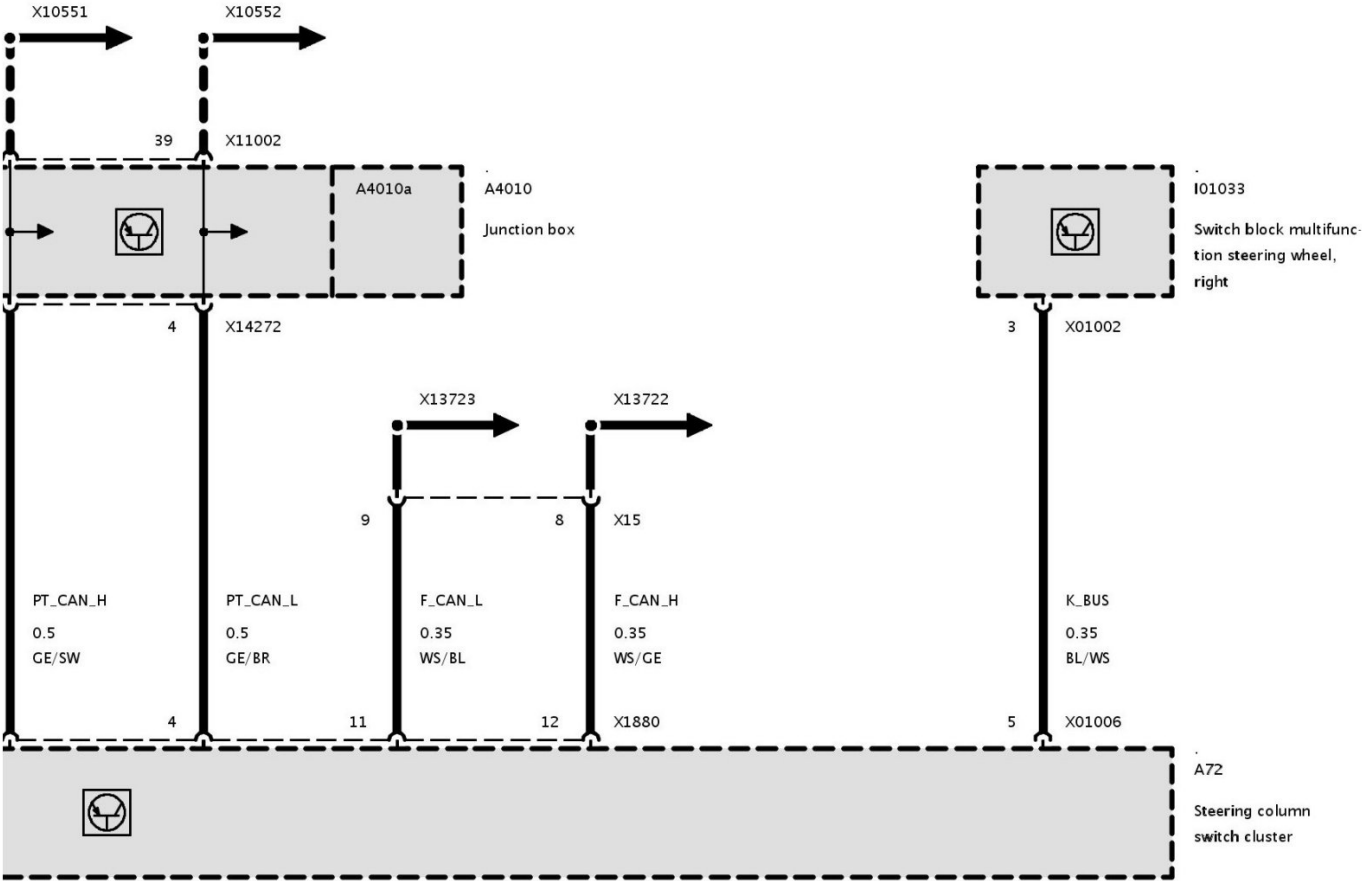
## Part 2

Supply, Steering Column Switch Cluster SZL (As of 12/08)

Supply, Steering Column Switch Cluster SZL (As of 12/08)



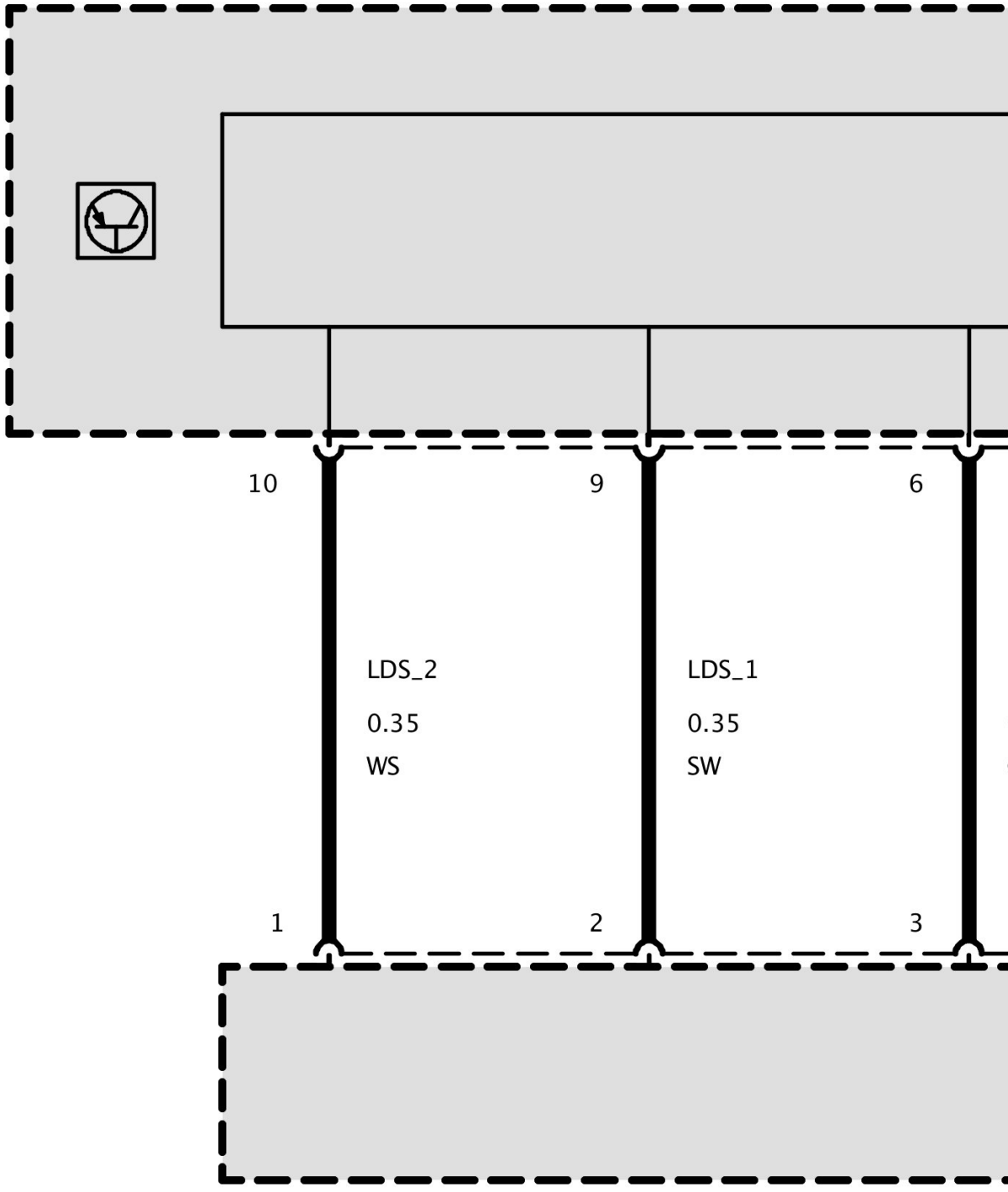
Part 1



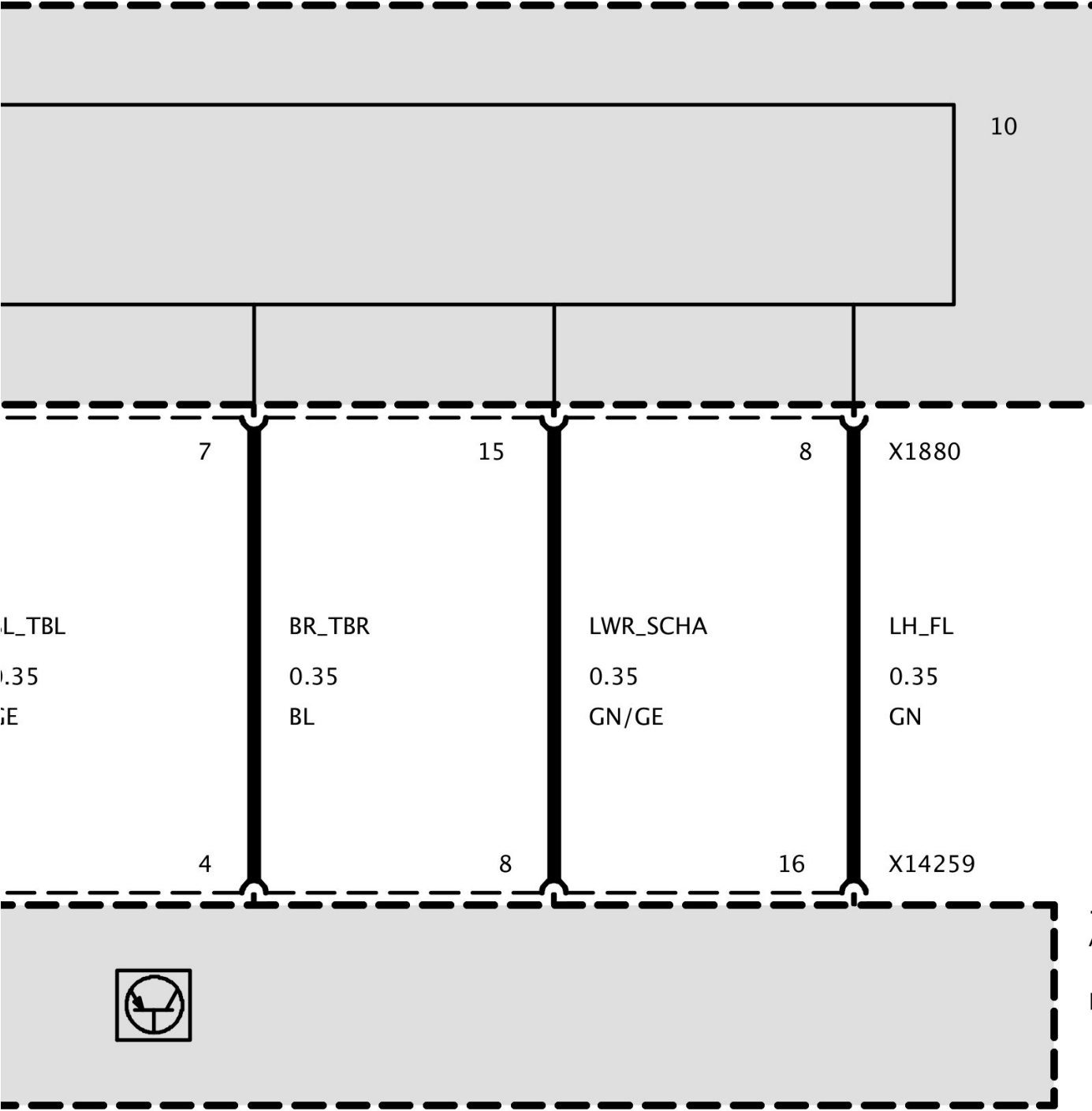
Part 2

Direction Indicator/High Beam Headlight Switch

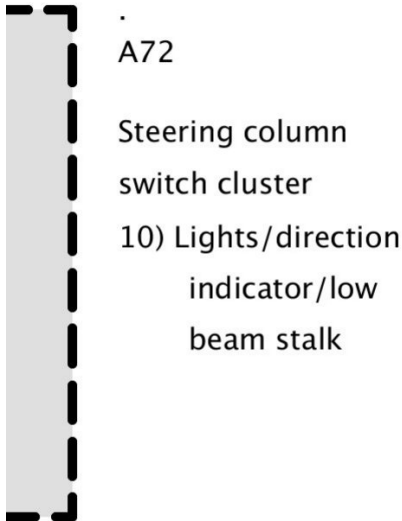
Lights/Direction Indicator/Low Beam Stalk



Part 1



Part 2



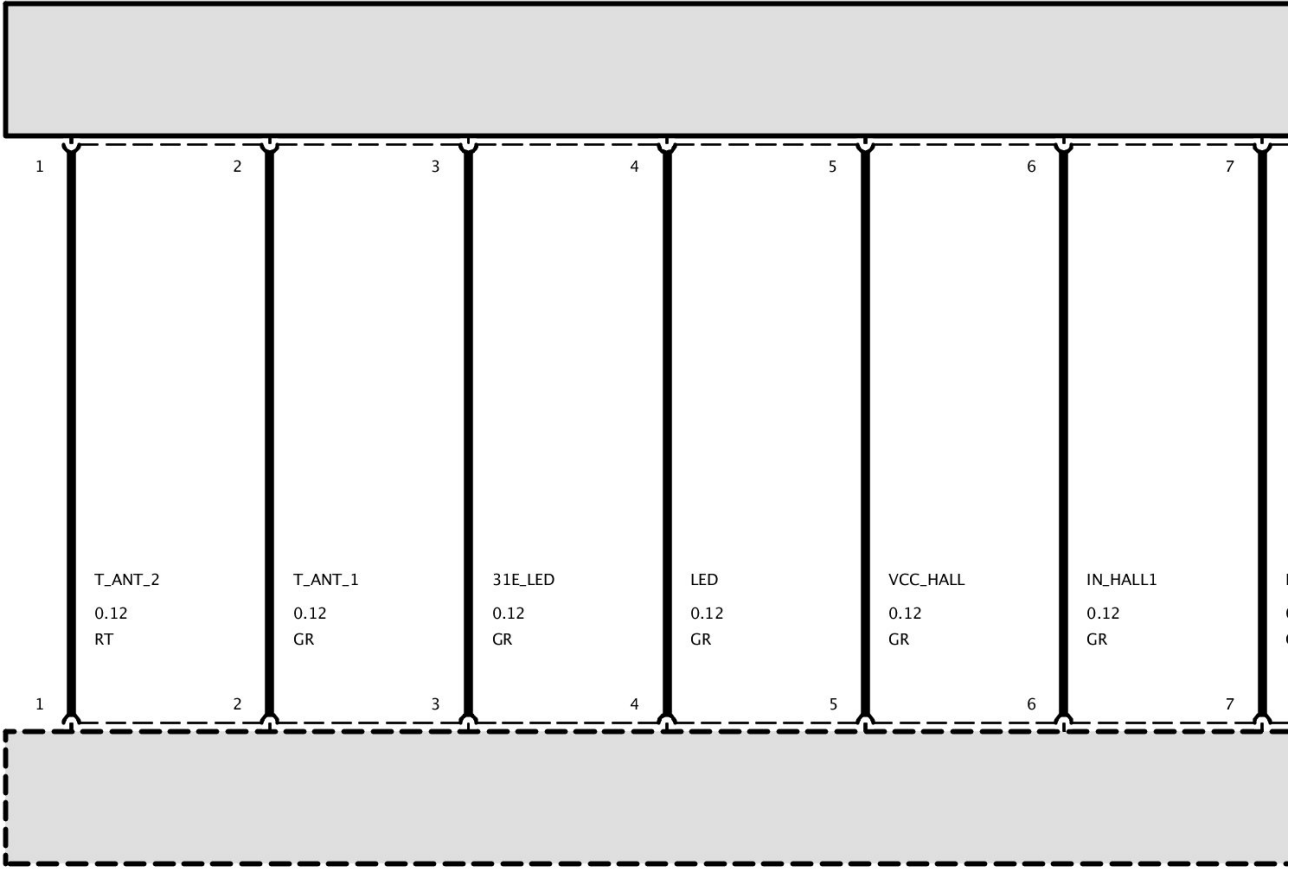
4011

ootwell module

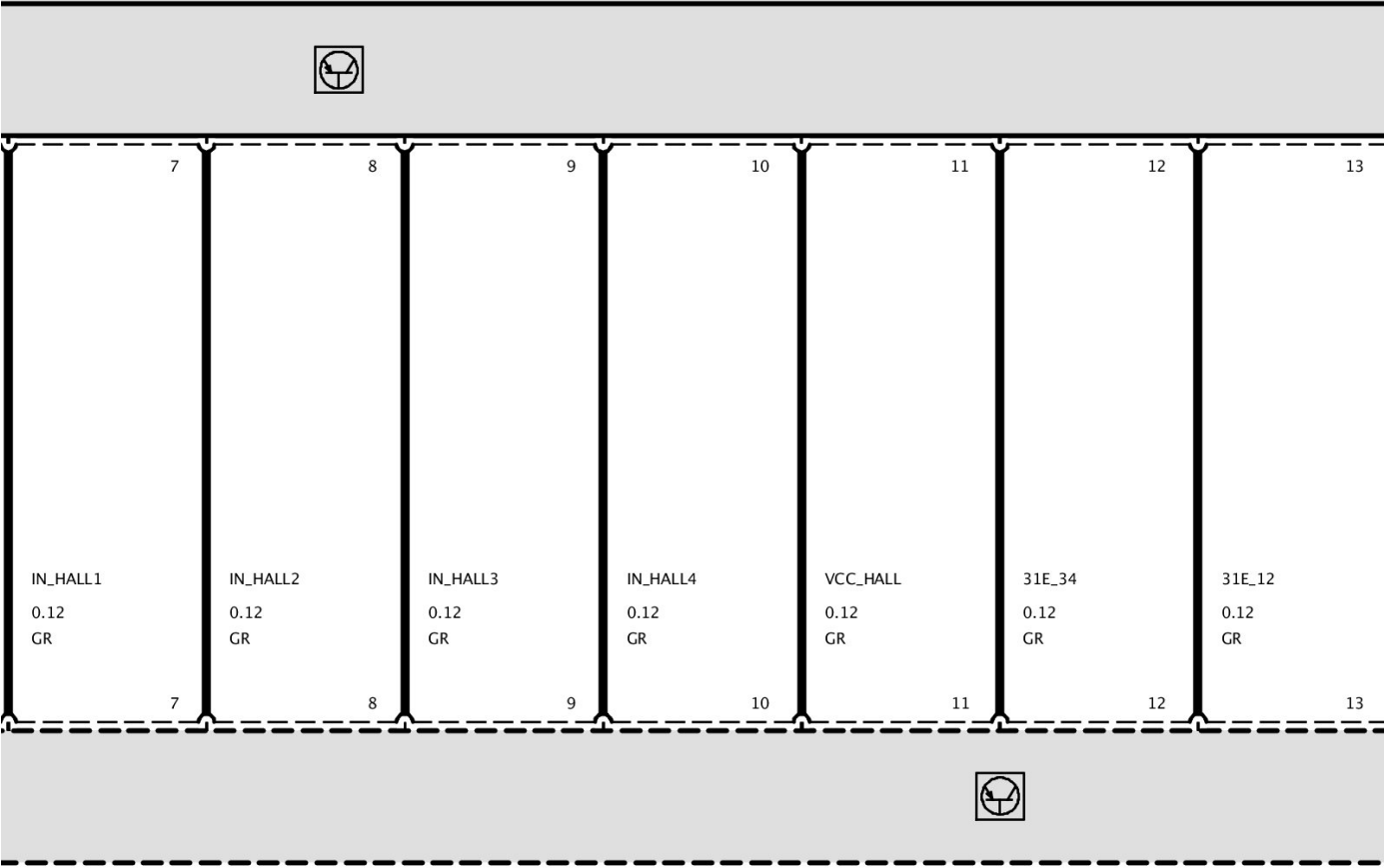
**Part 3**

**Convenient Access System Inputs (As Of 08/07)**

Convenient Access System Inputs (As Of 08/07)

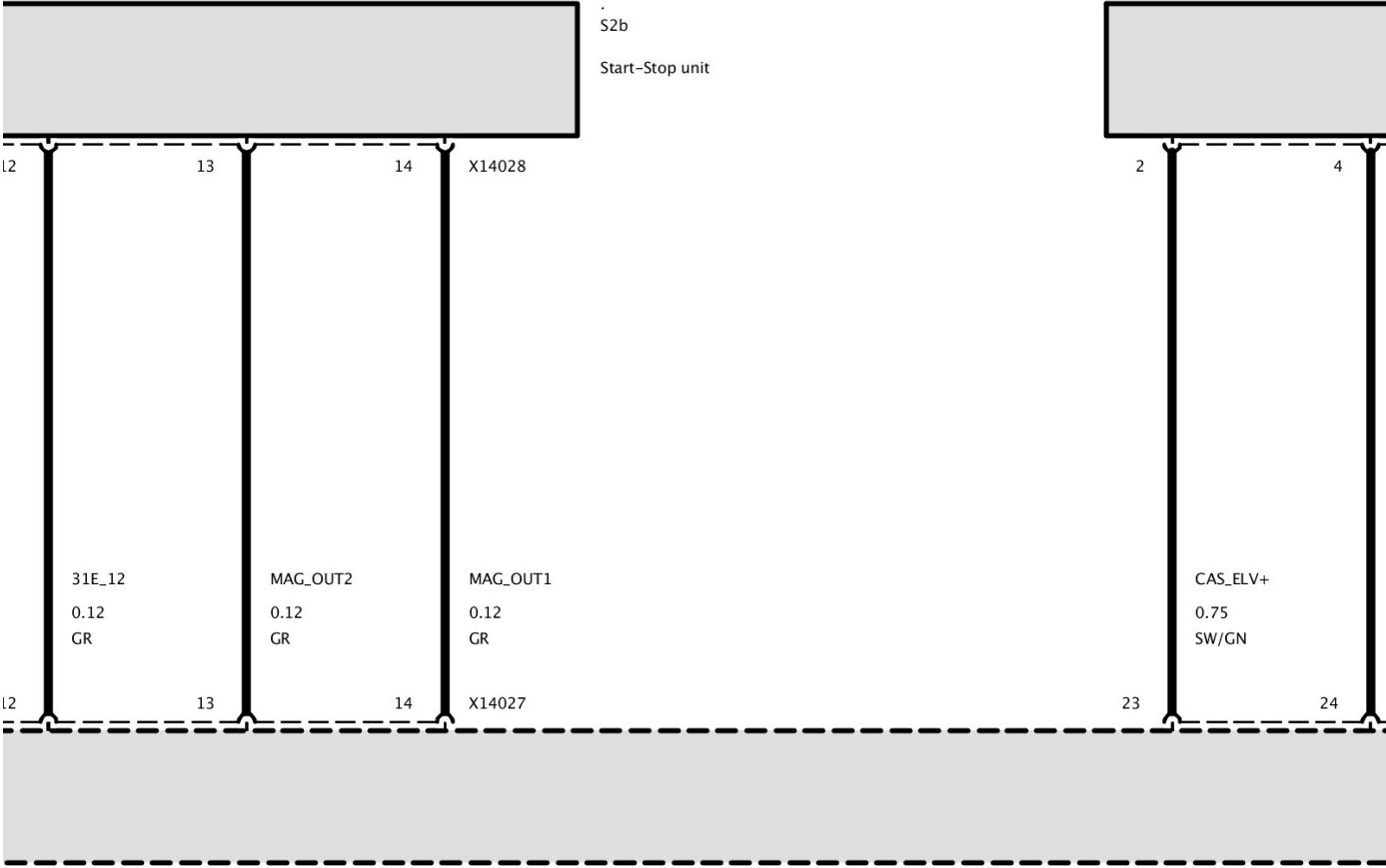


Part 1

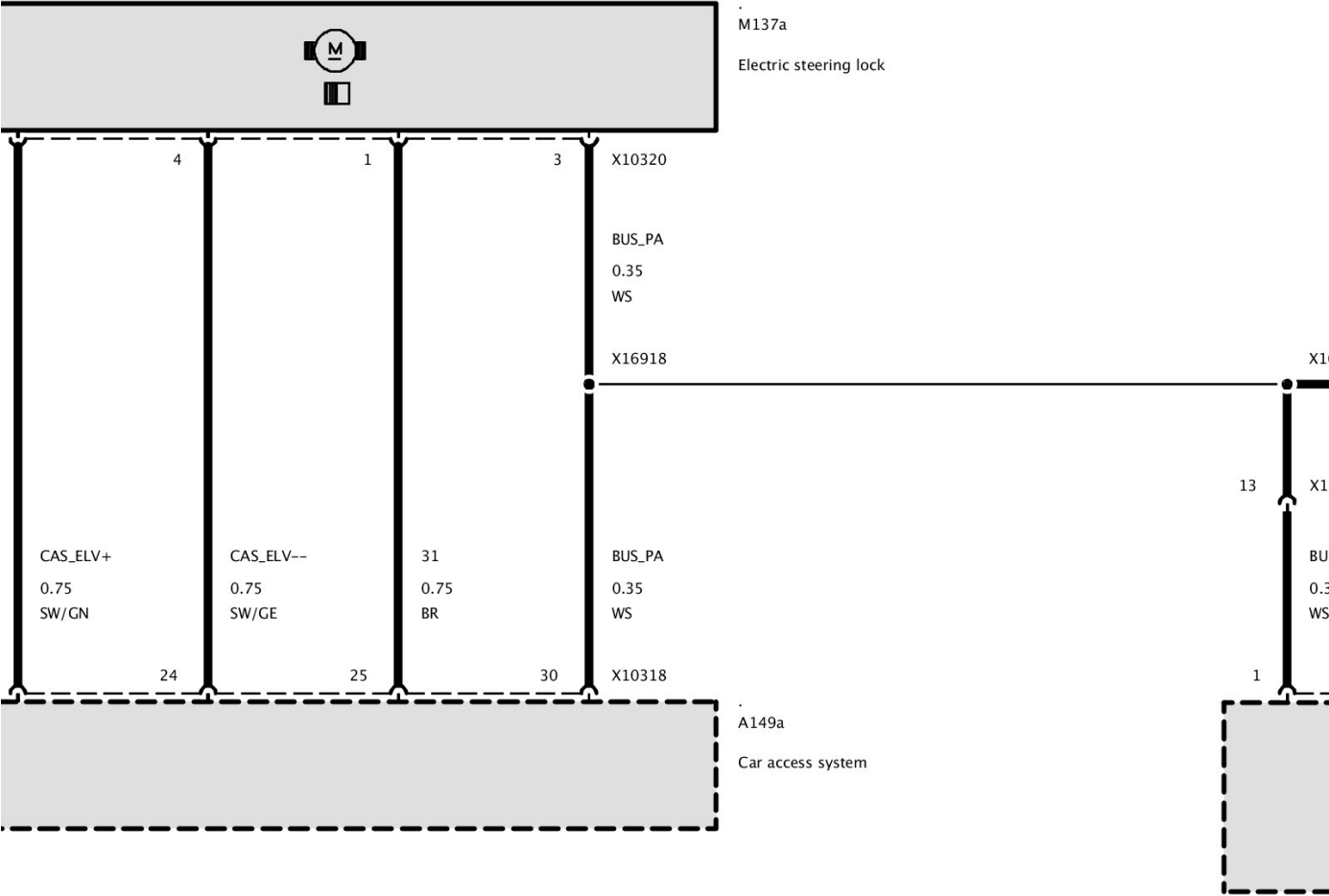


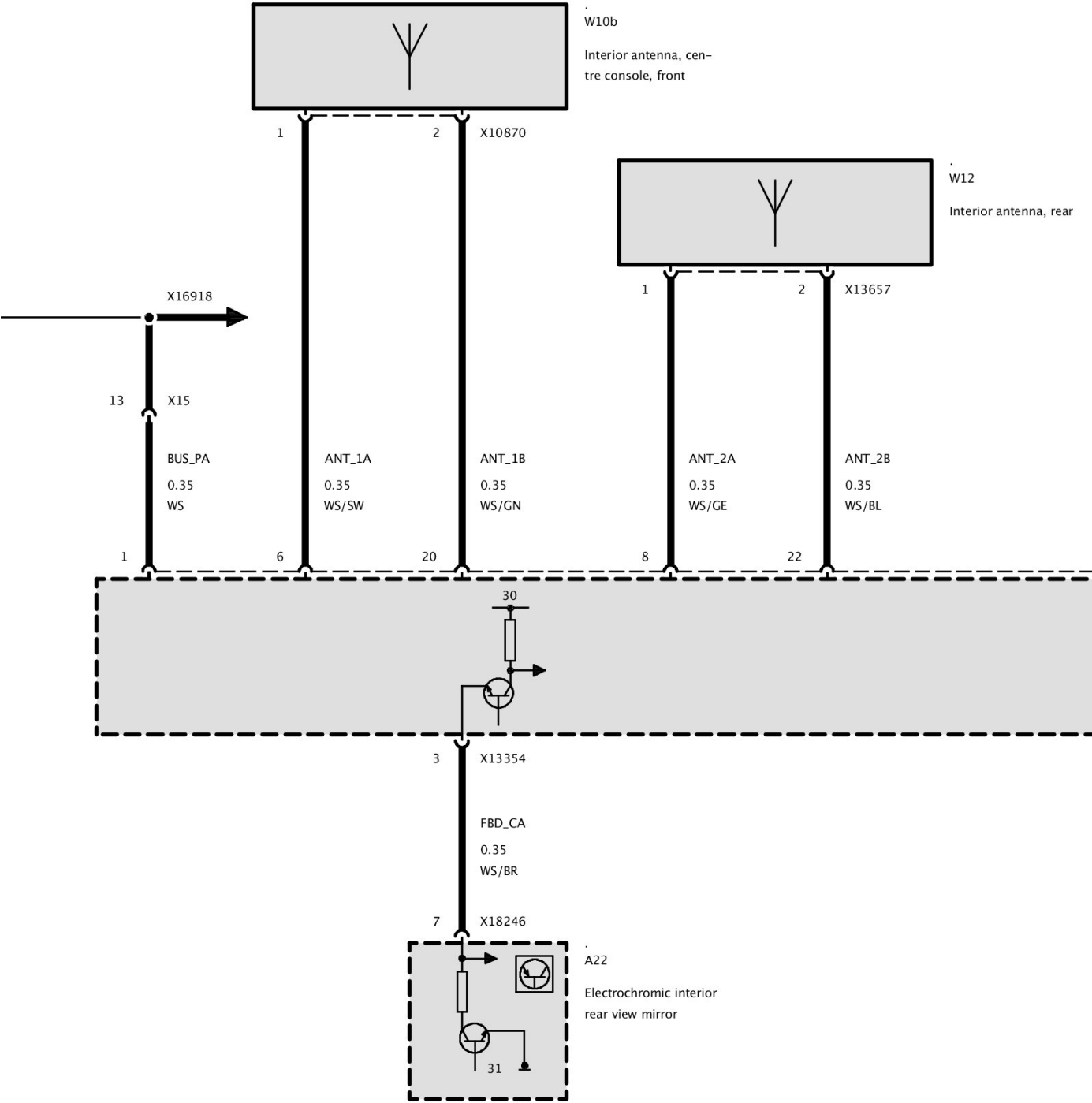
Part 2



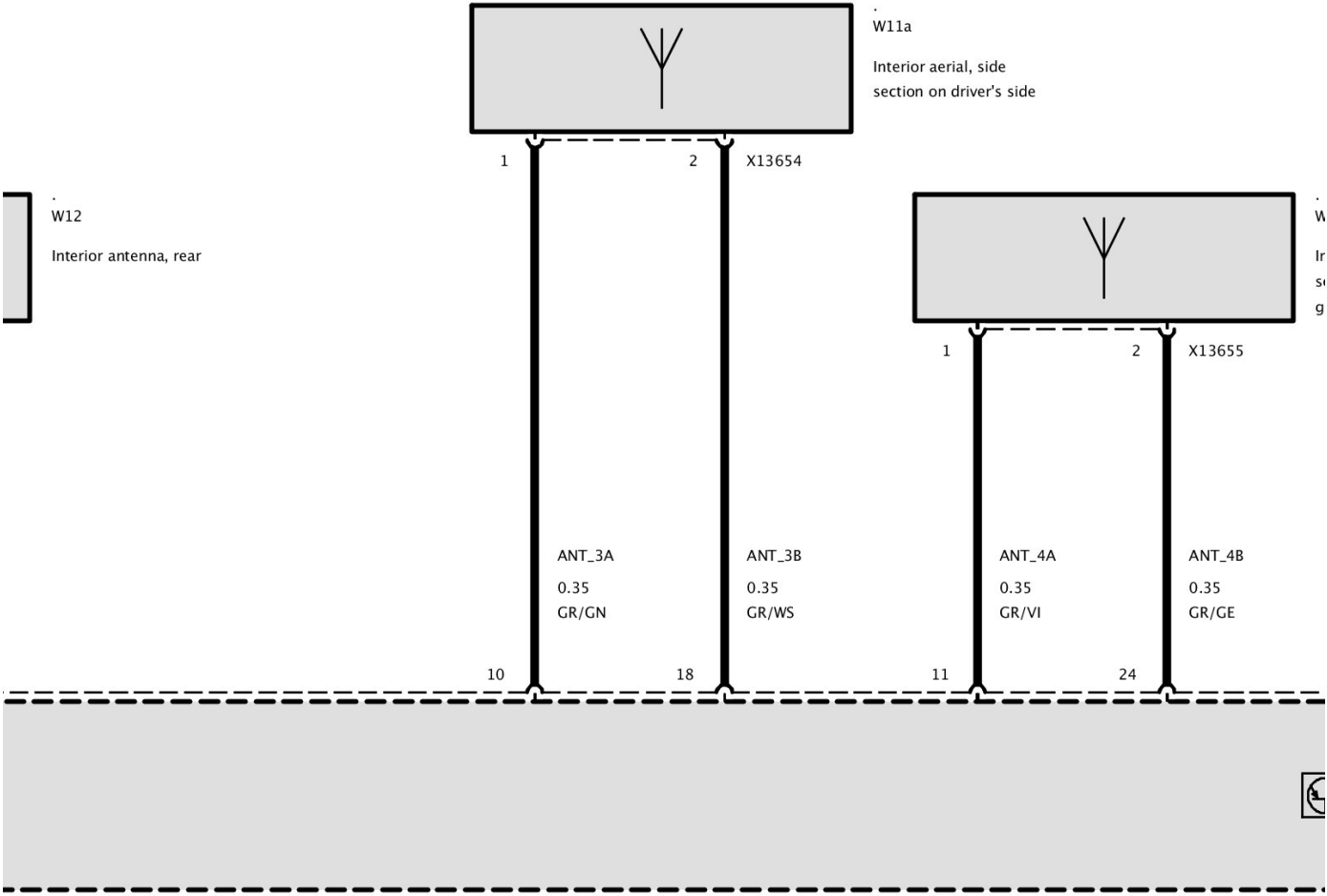


Part 3

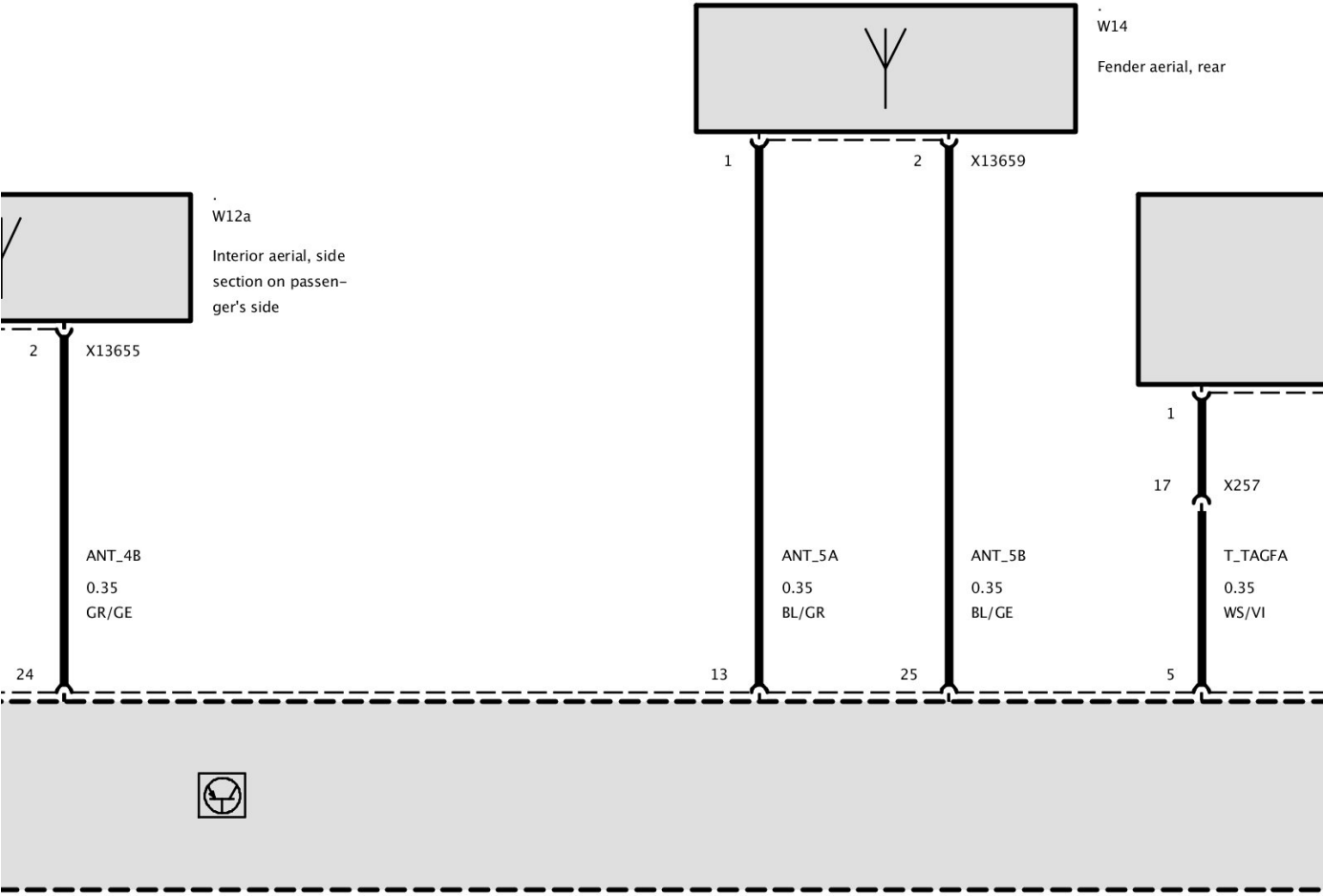




Part 5



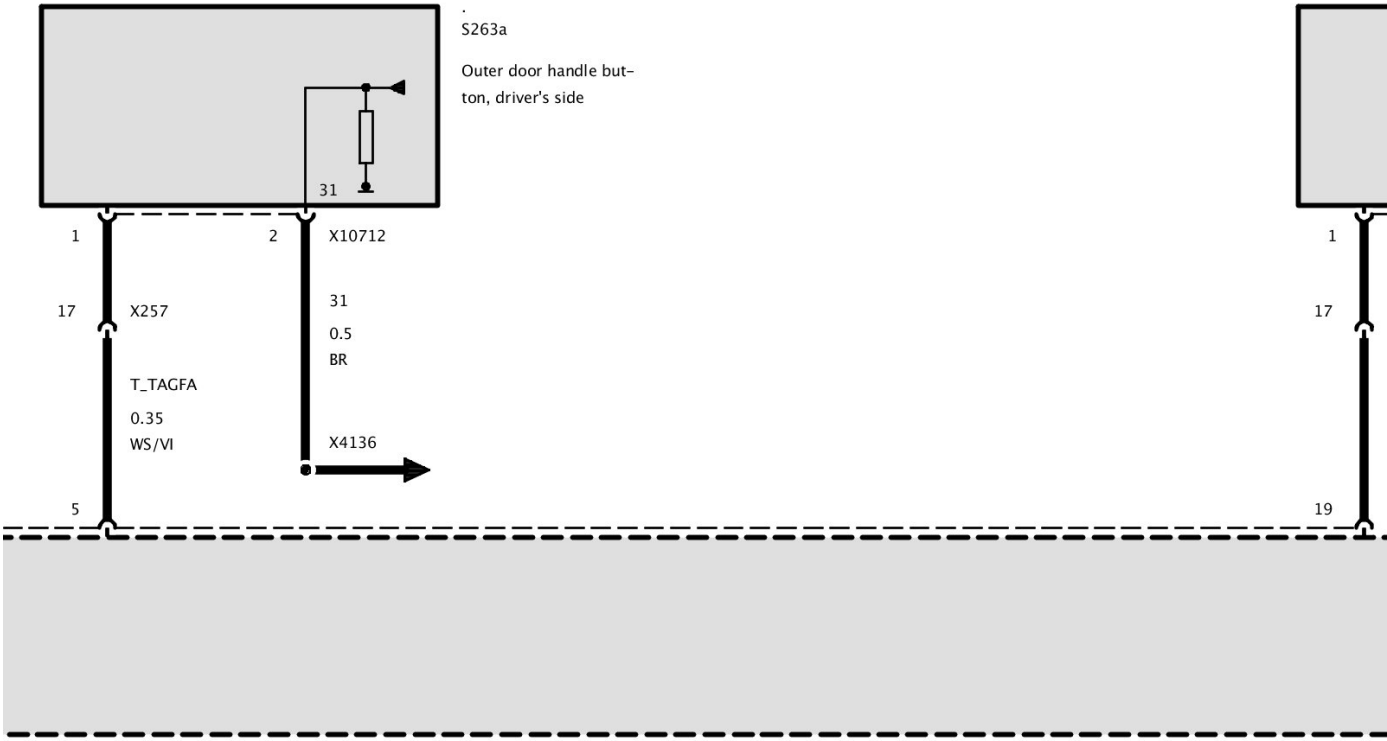
Part 6



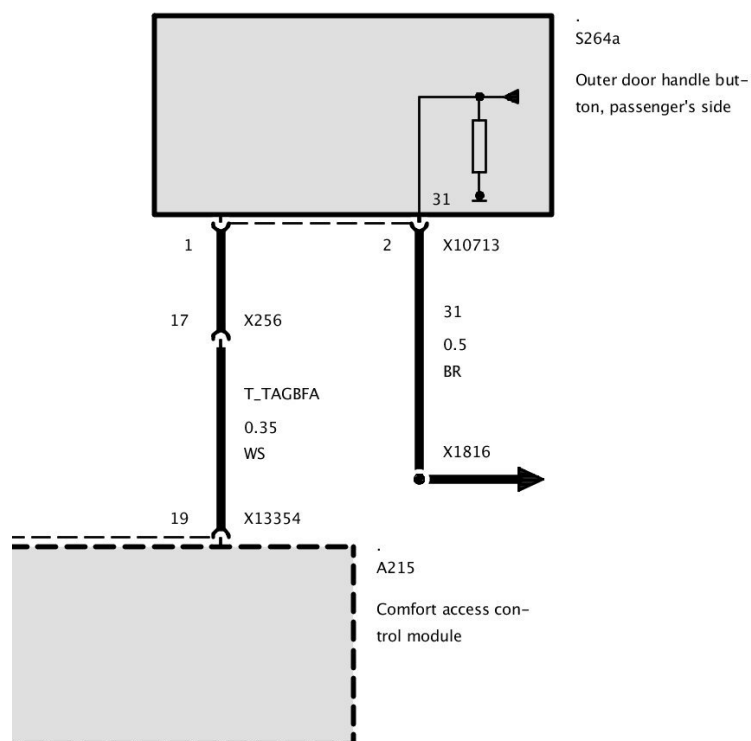
Part 7

V14

ender aerial, rear



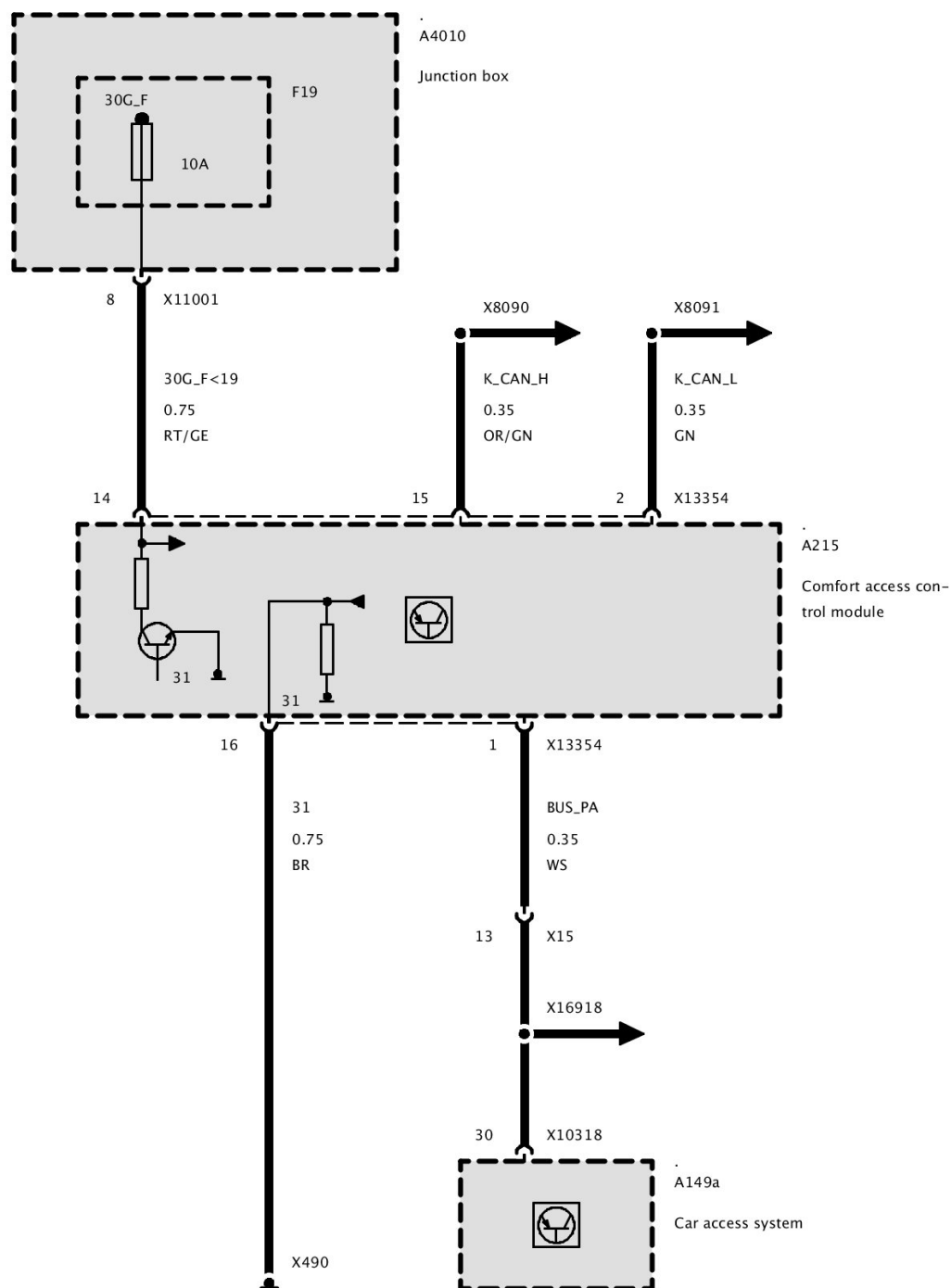
Part 8



### Part 9

## Power Supply, CA Convenient Access System (As Of 08/07 Up To 12/08)

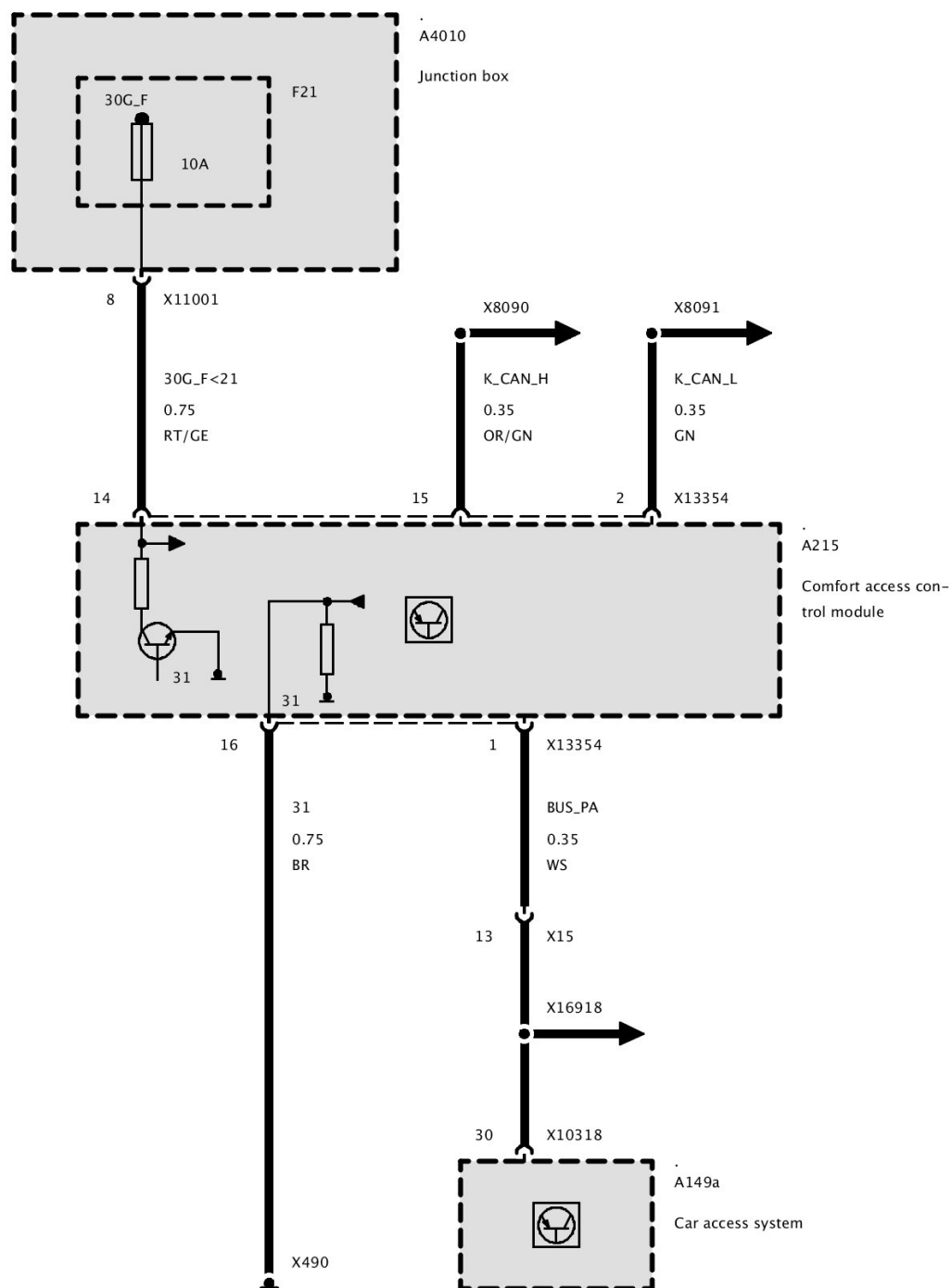
### Power Supply, CA Convenient Access System (As Of 08/07 Up To 12/08)



**Power Supply, CA Convenient Access System (As Of 12/08)**

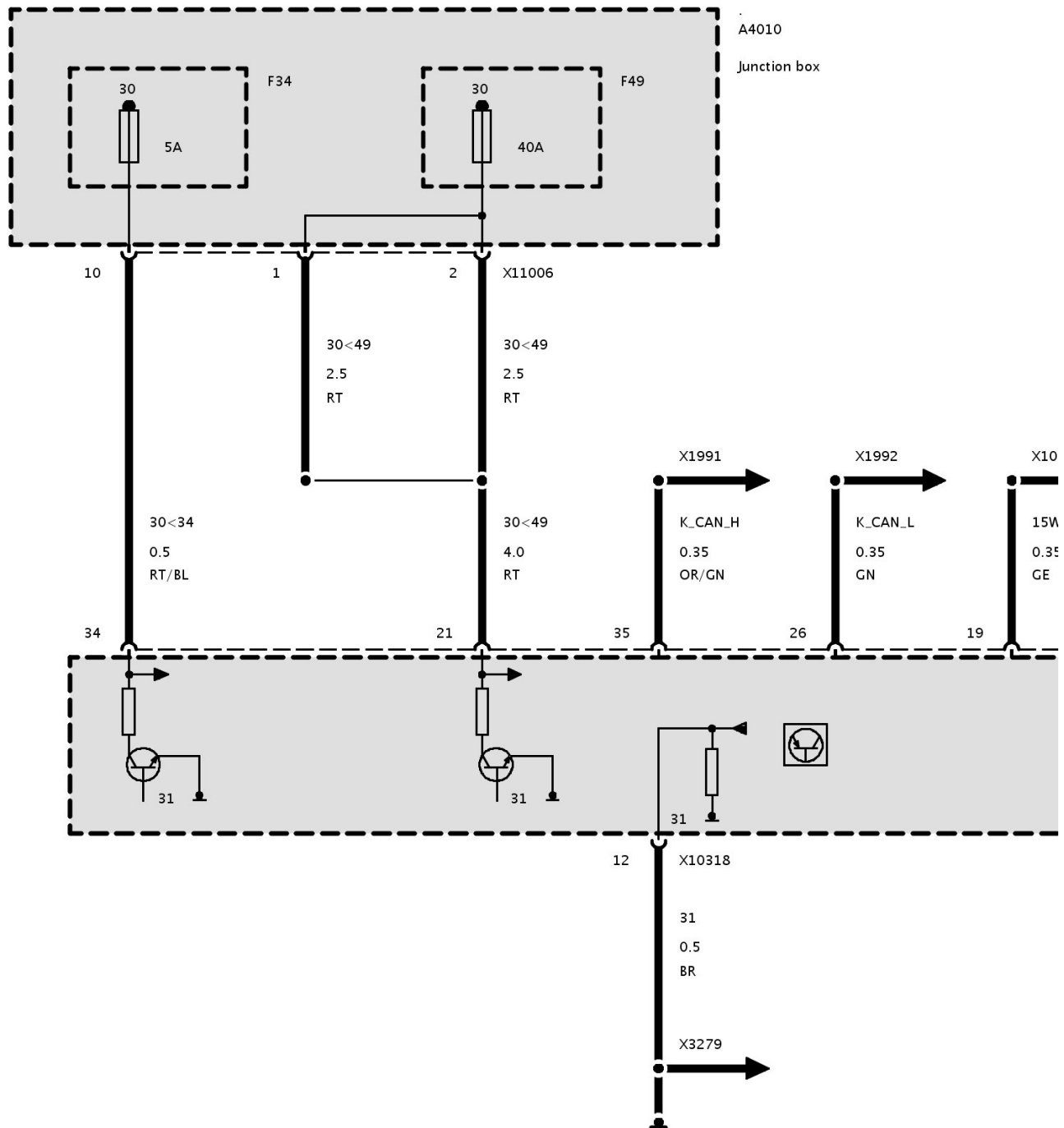
**Power Supply, CA Convenient Access System (As Of 12/08)**



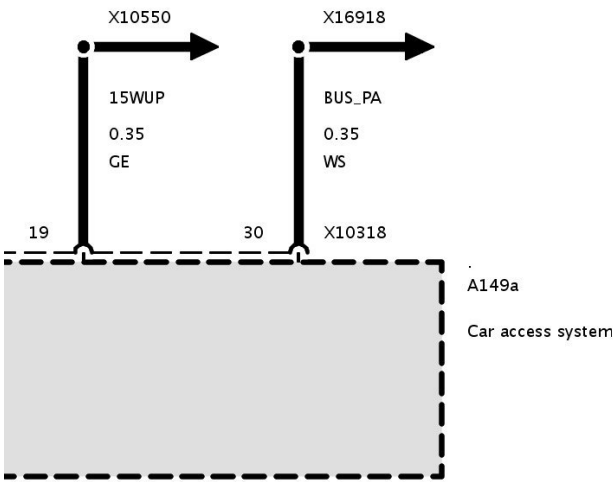


**Power Supply, Car Access System CAS (As Of 08/07 Up To 12/08)**

**Power Supply, Car Access System CAS (As Of 08/07 Up To 12/08)**



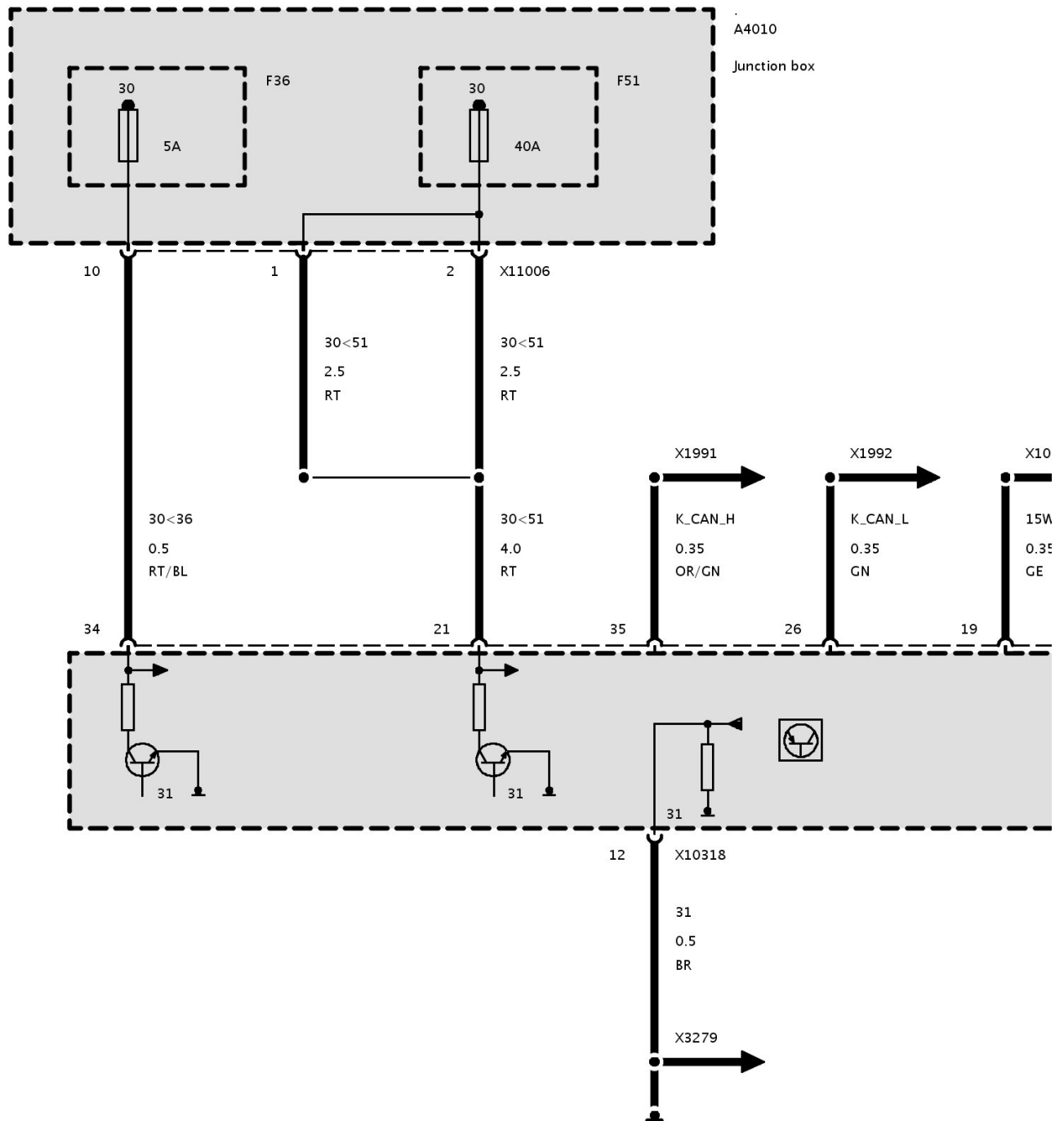
Part 1



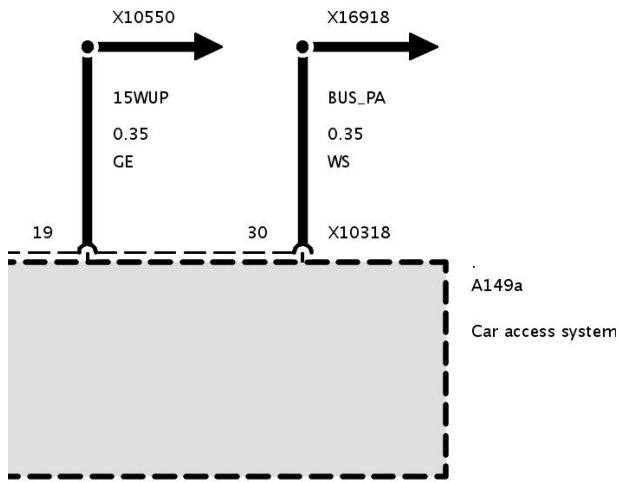
Part 2

Power Supply, Car Access System CAS (As Of 12/08)

Power Supply, Car Access System CAS (As Of 12/08)



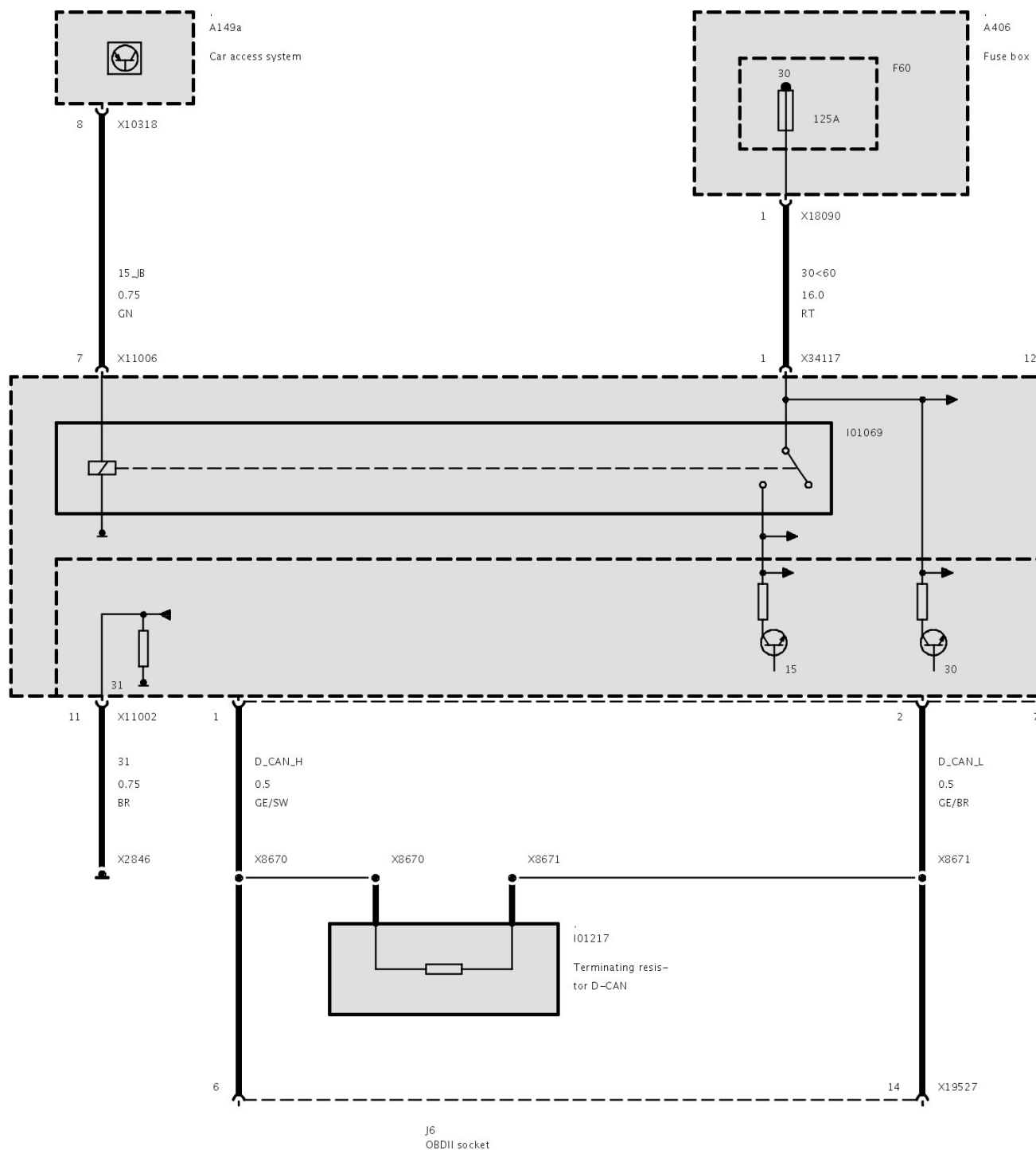
Part 1

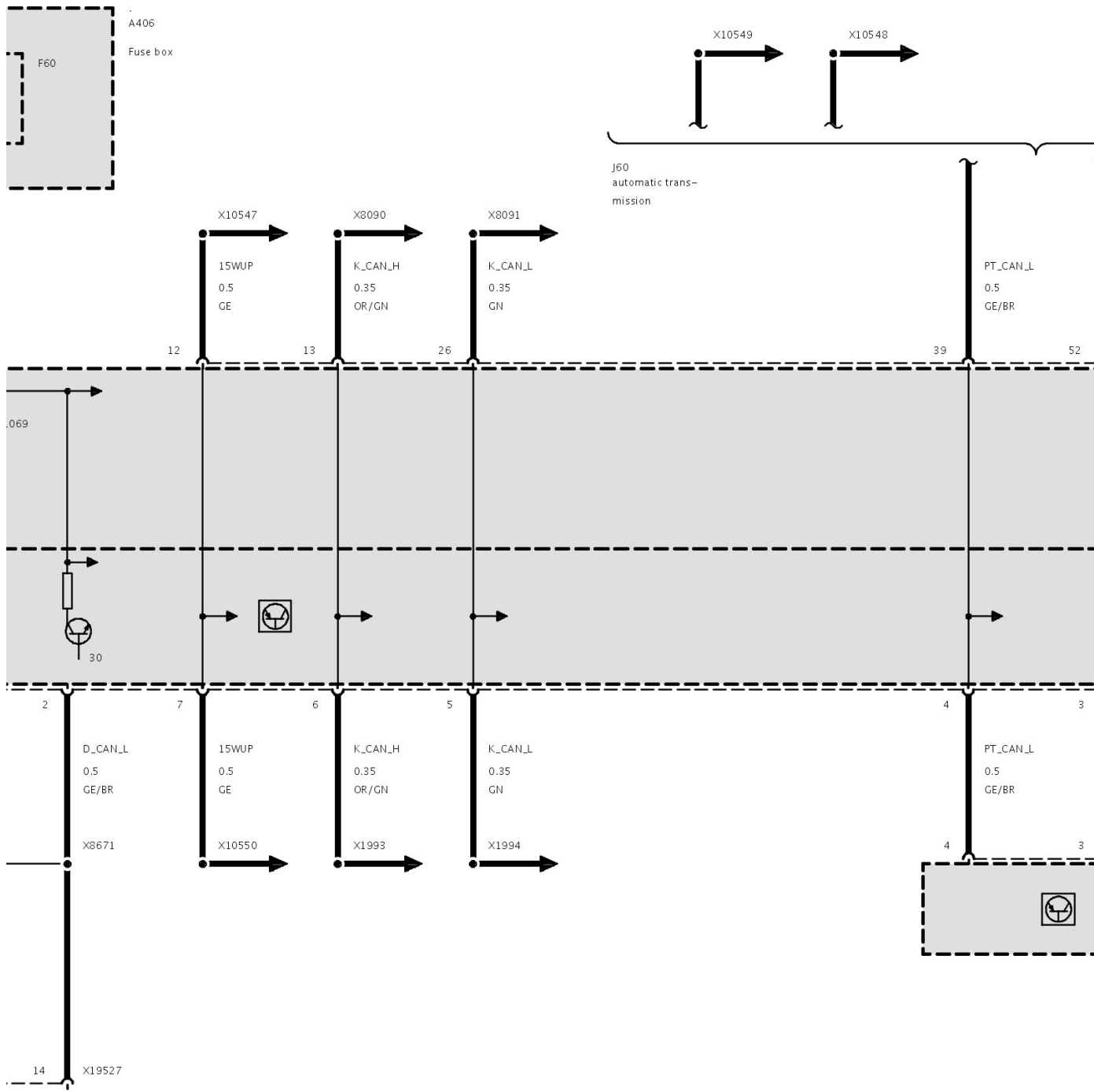


Part 2

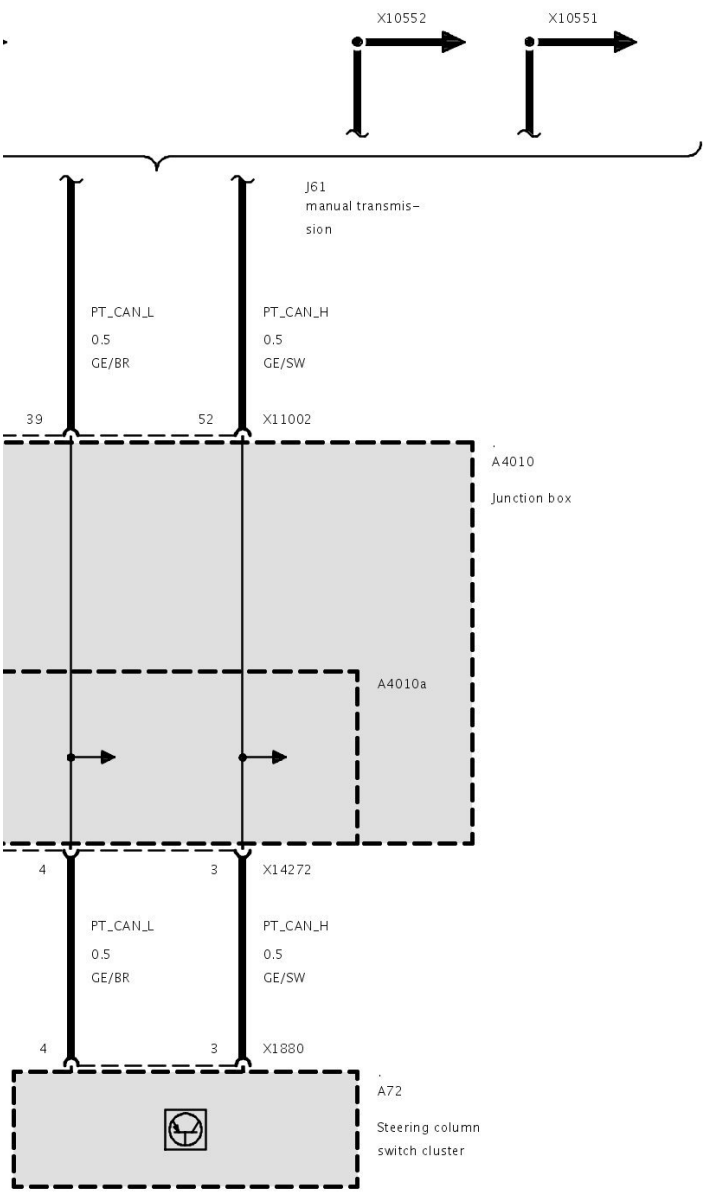
Supply, JBE Junction-Box Electronics

Power Supply JBE Junction Box, Electronics

**Part 1**



Part 2

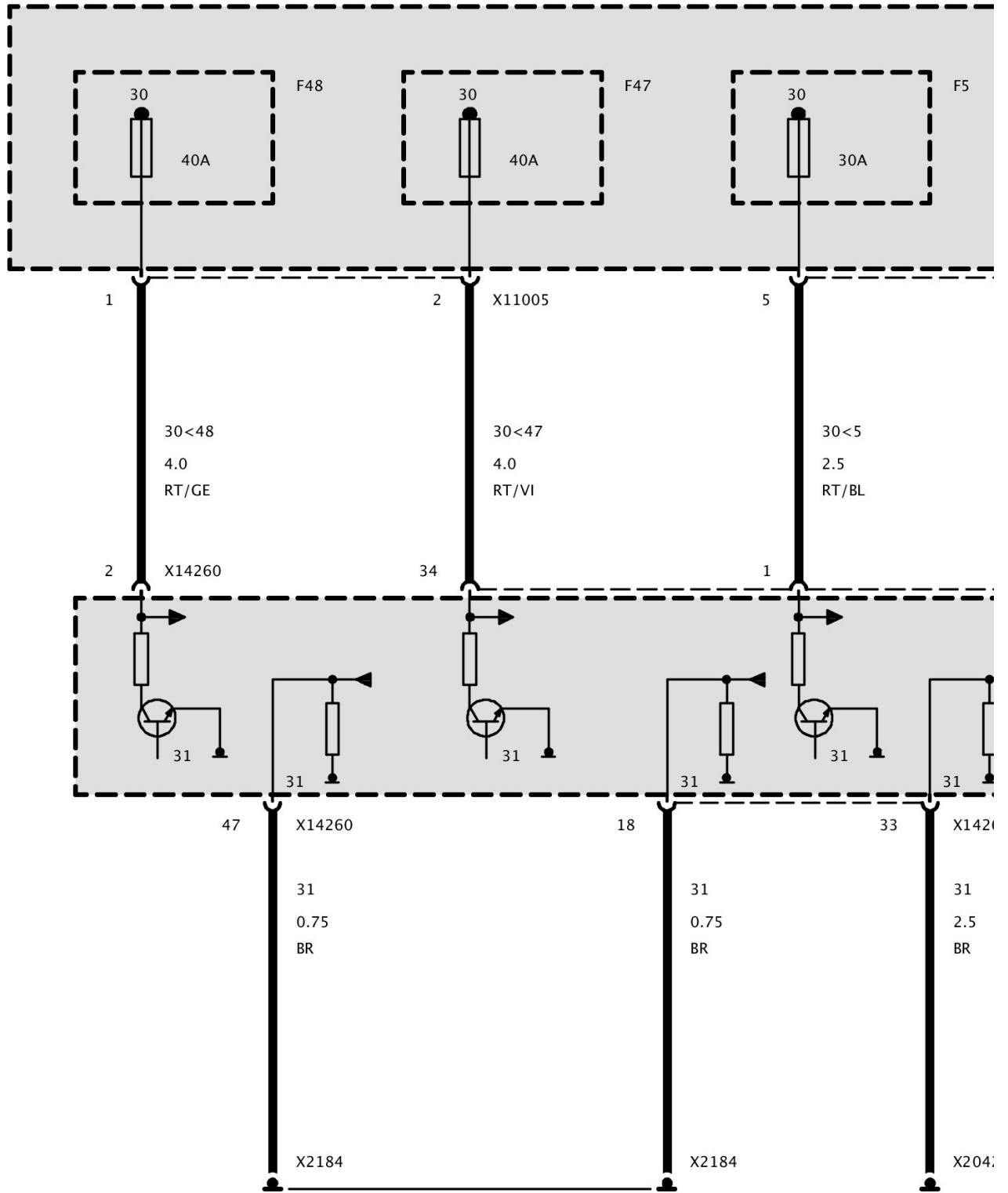


Part 3

Power Supply, Footwell Module FRM (Up To 12/08)

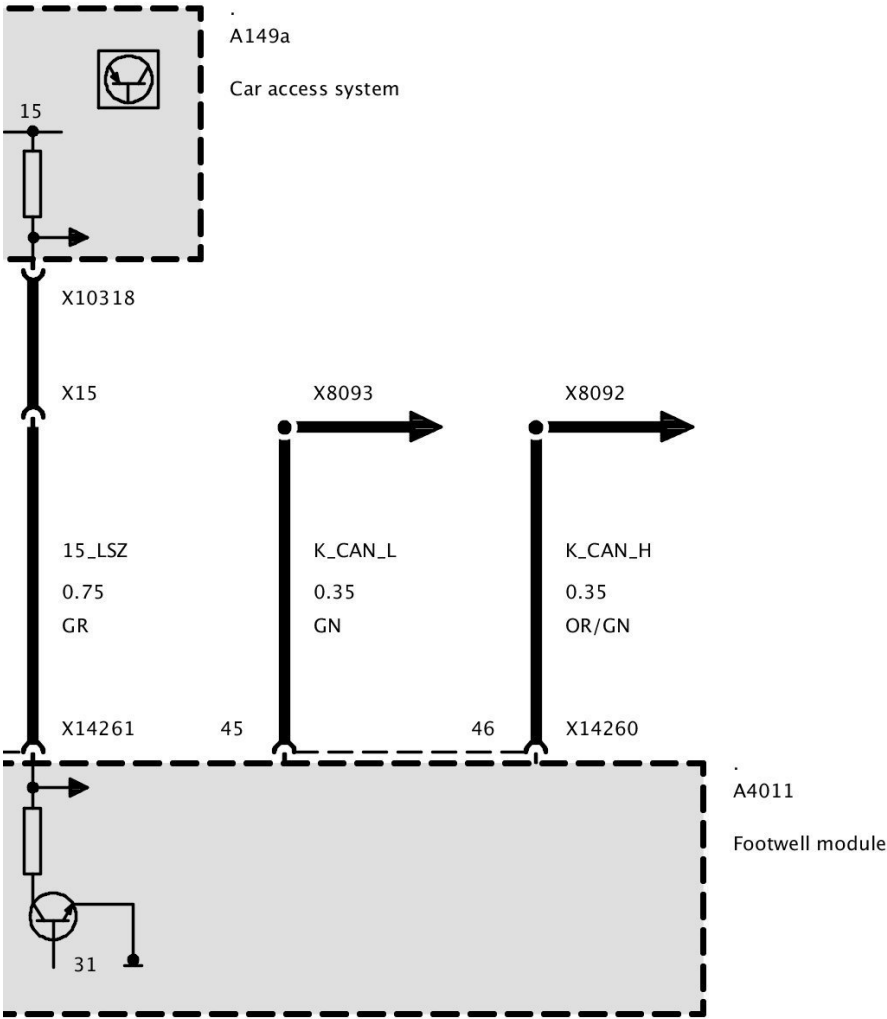
Power Supply, Footwell Module FRM (Up To 12/08)





Part 1

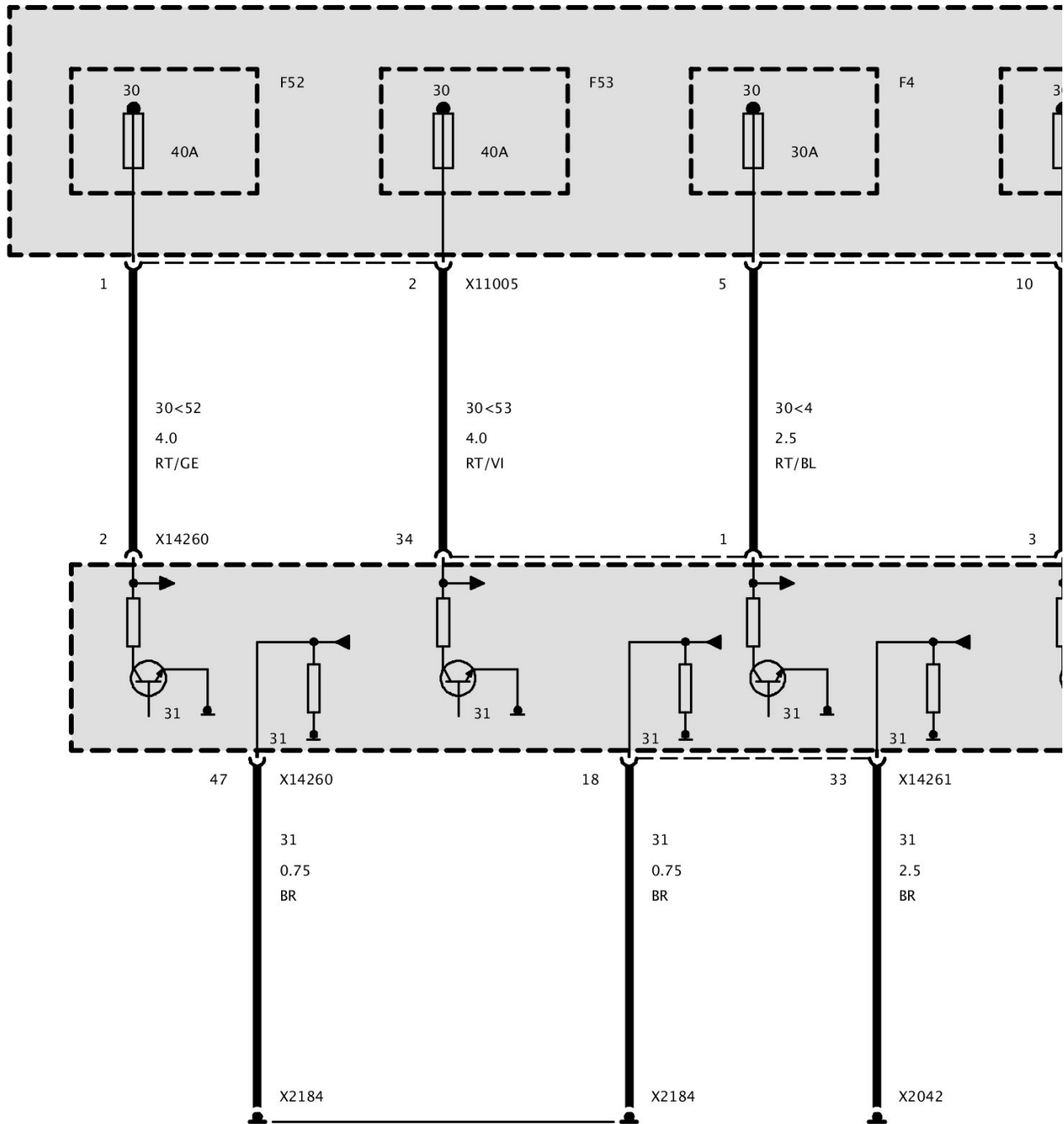




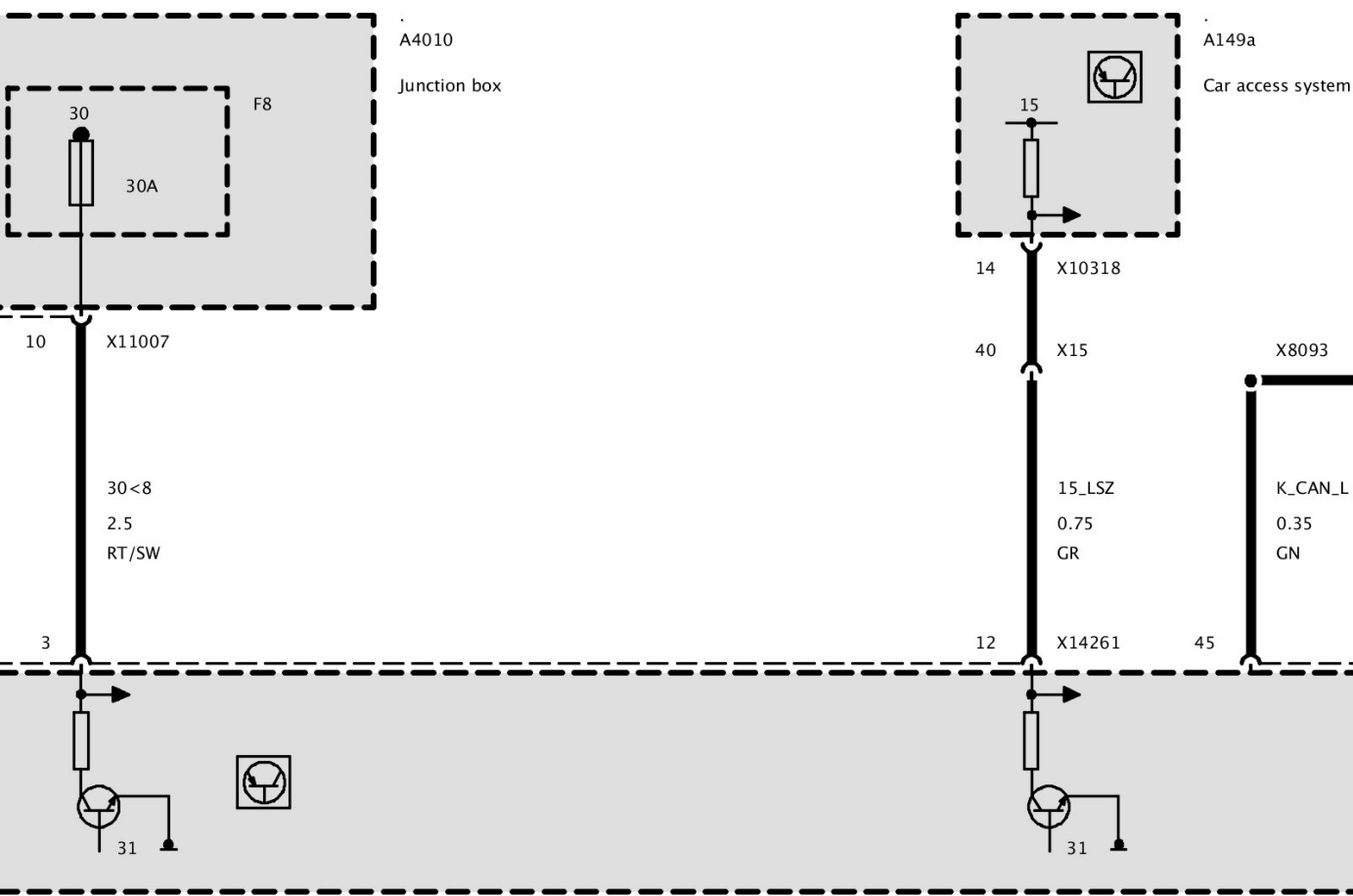
Part 3

Power Supply, Footwell Module FRM (As Of 12/08)

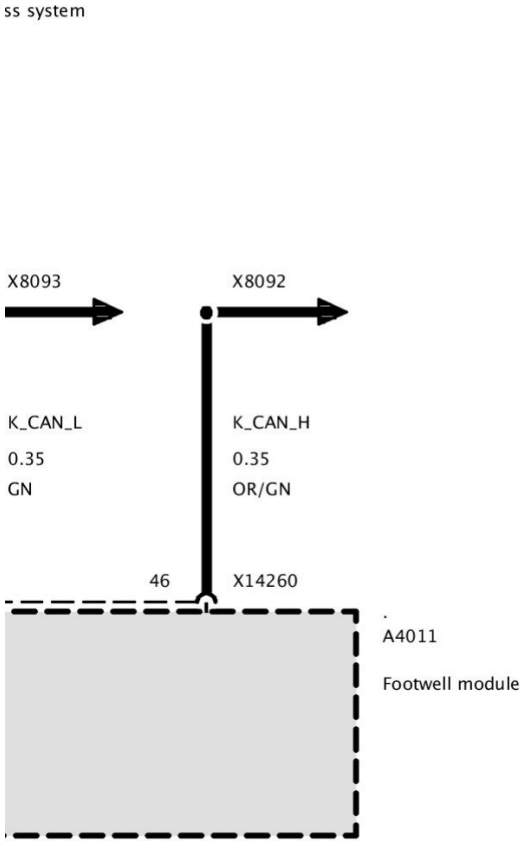
Power Supply, Footwell Module FRM (As Of 12/08)



Part 1



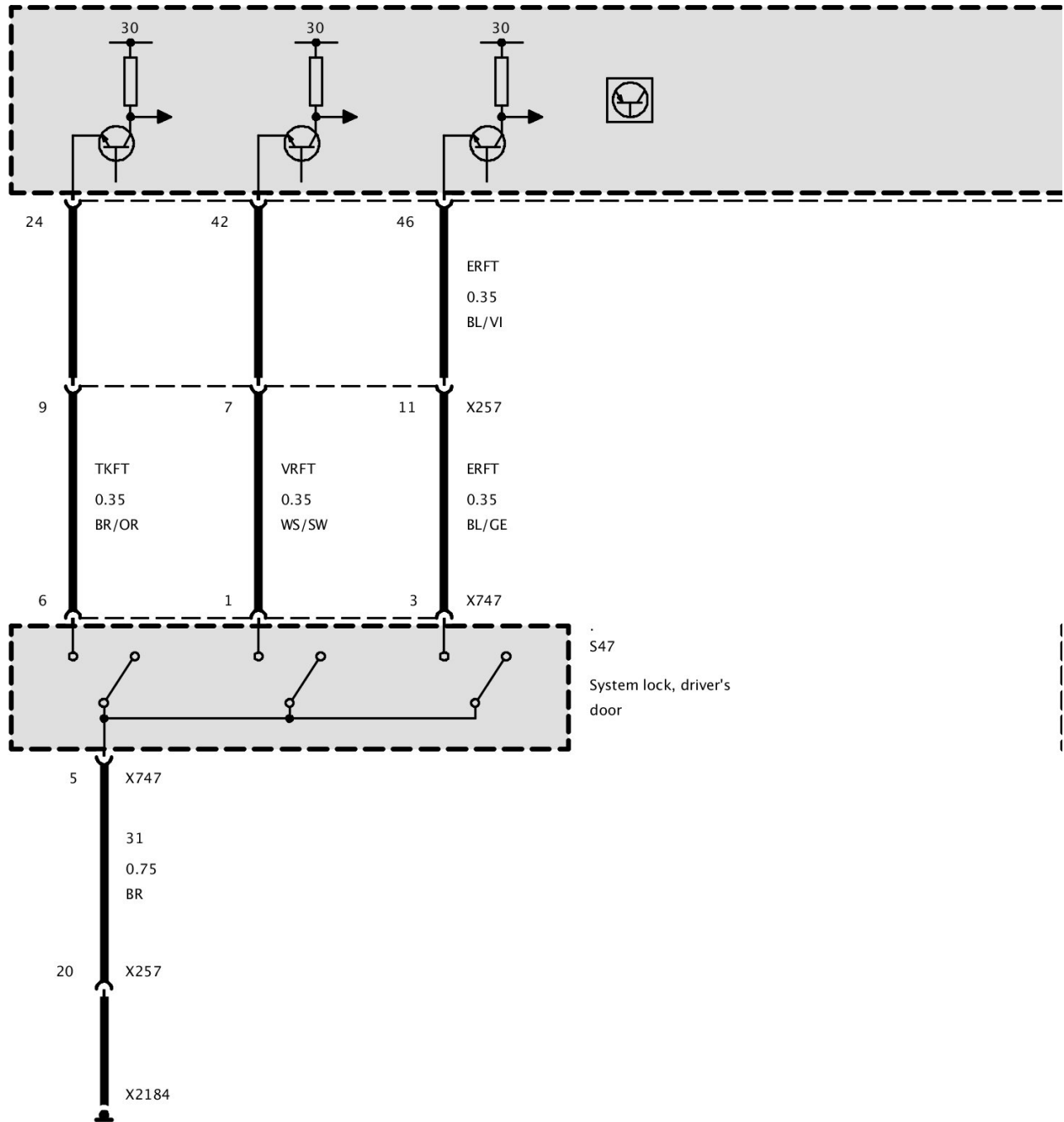
Part 2



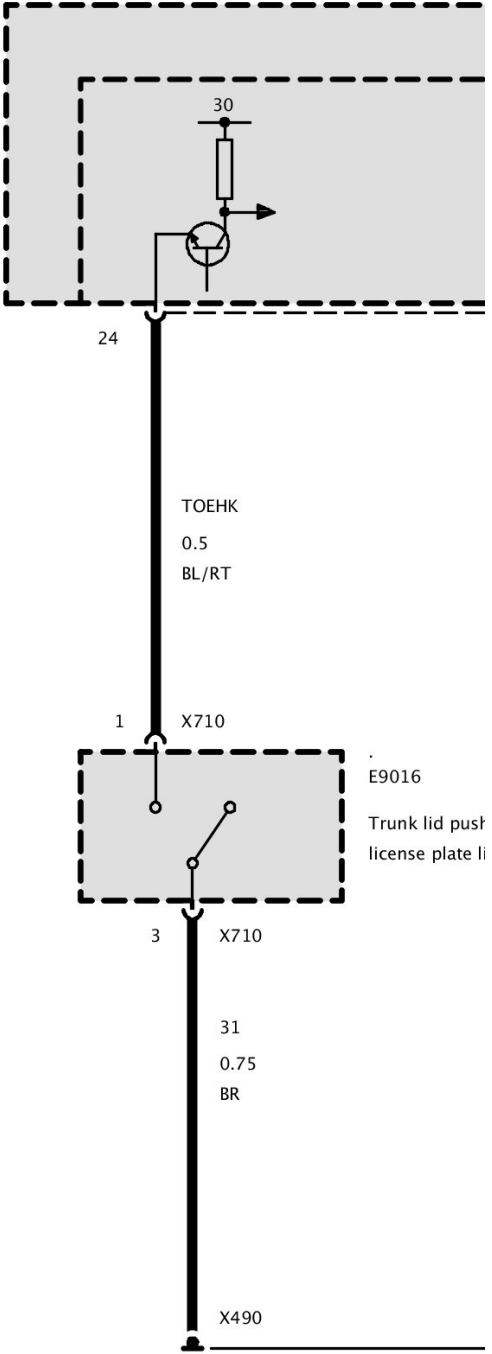
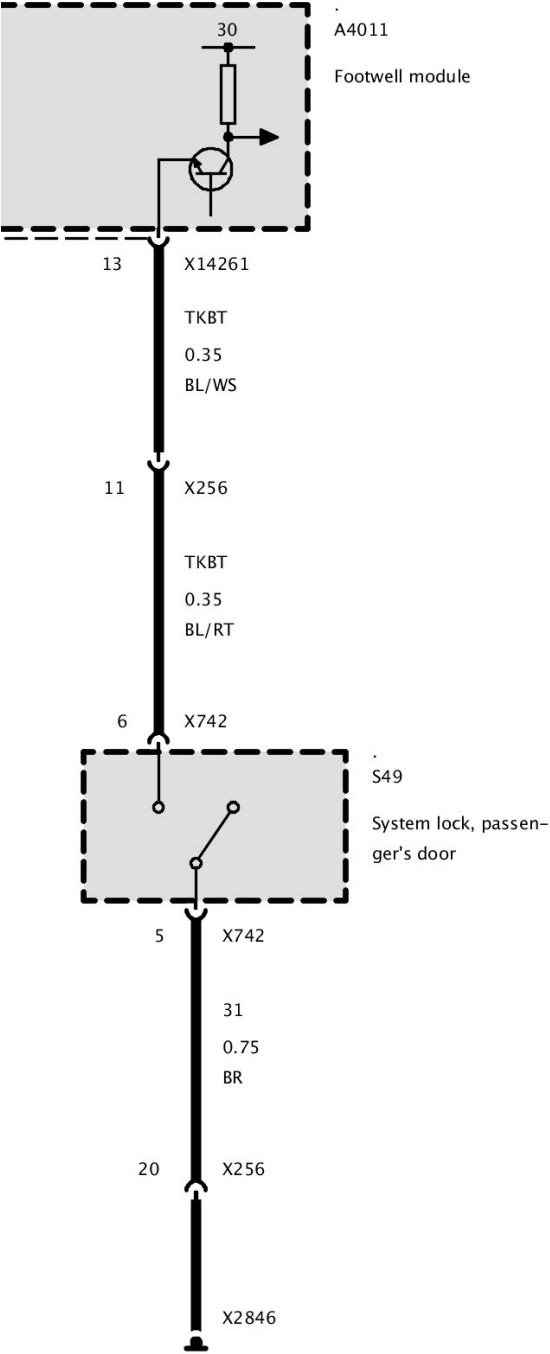
Part 3

Button, Outside Door handles

Central Locking Inputs (Left-Hand Drive)

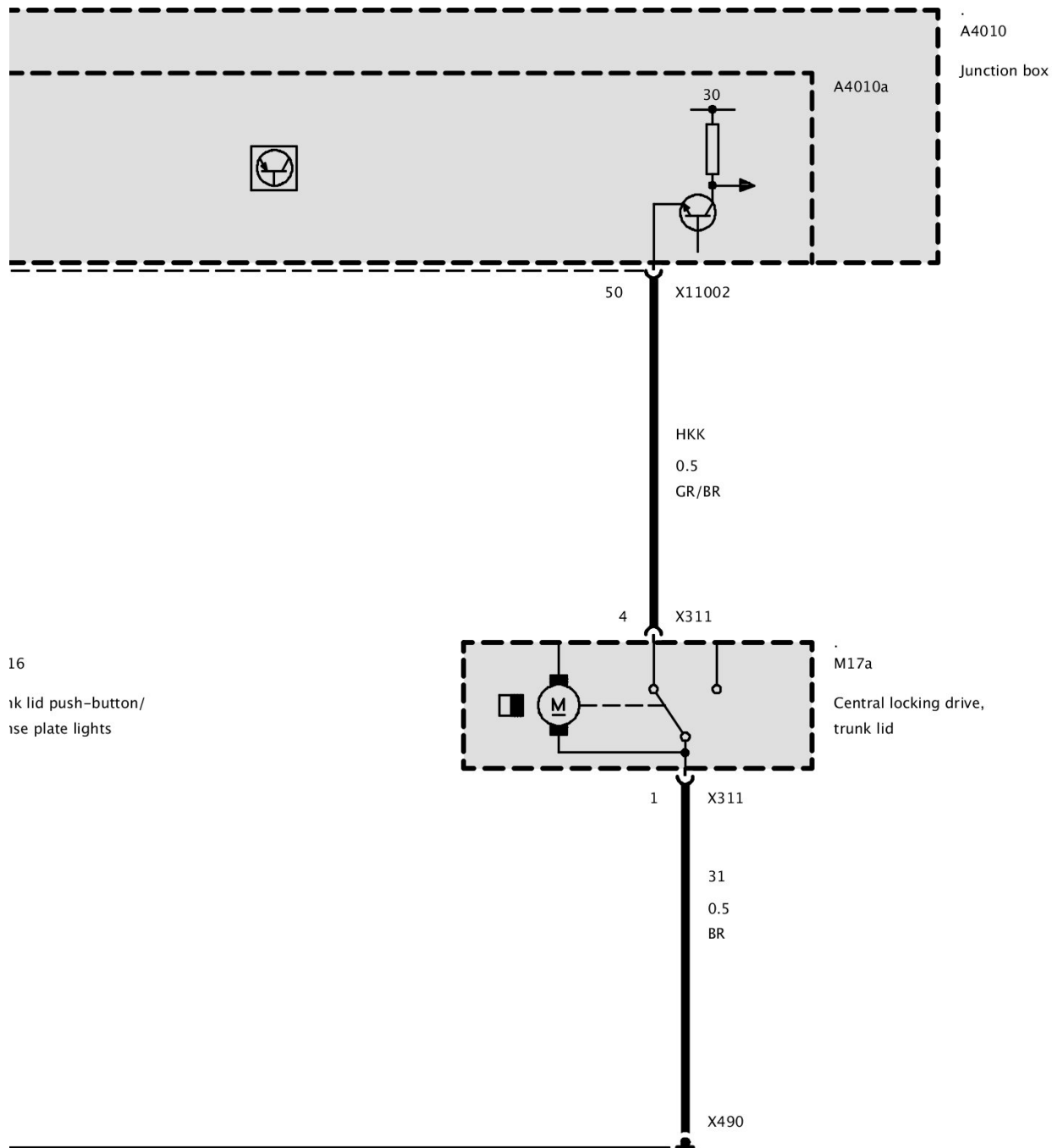


Part 1

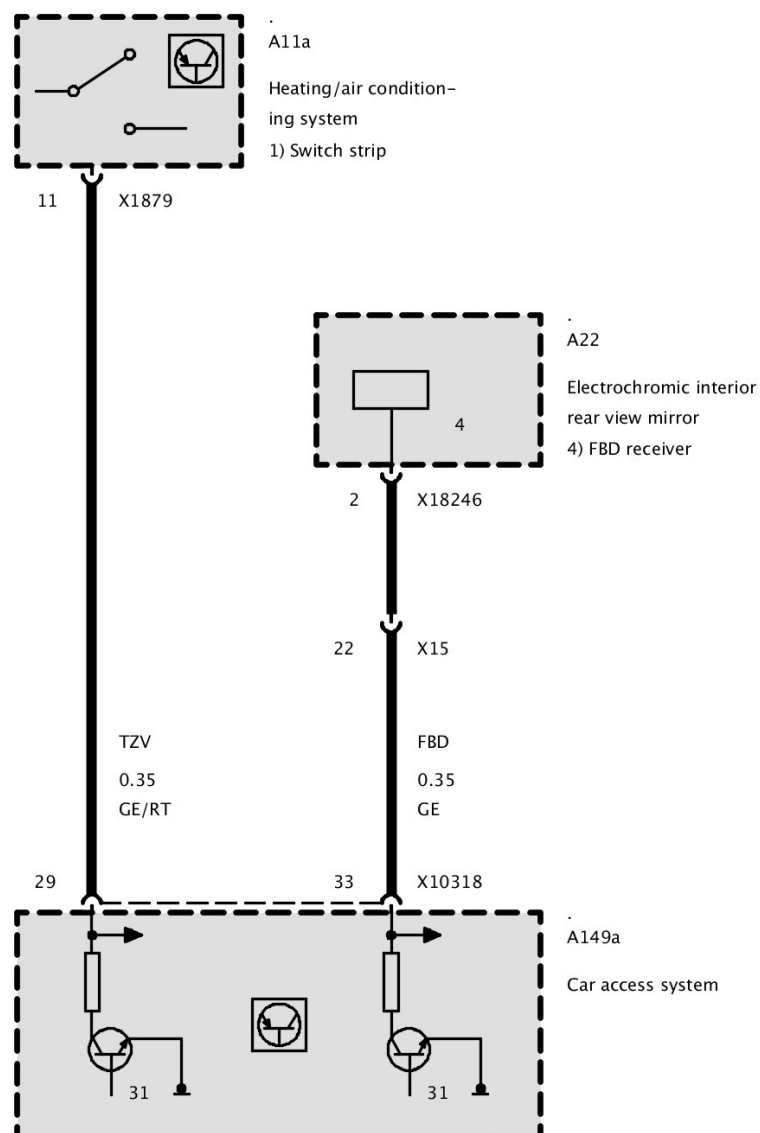


Part 2





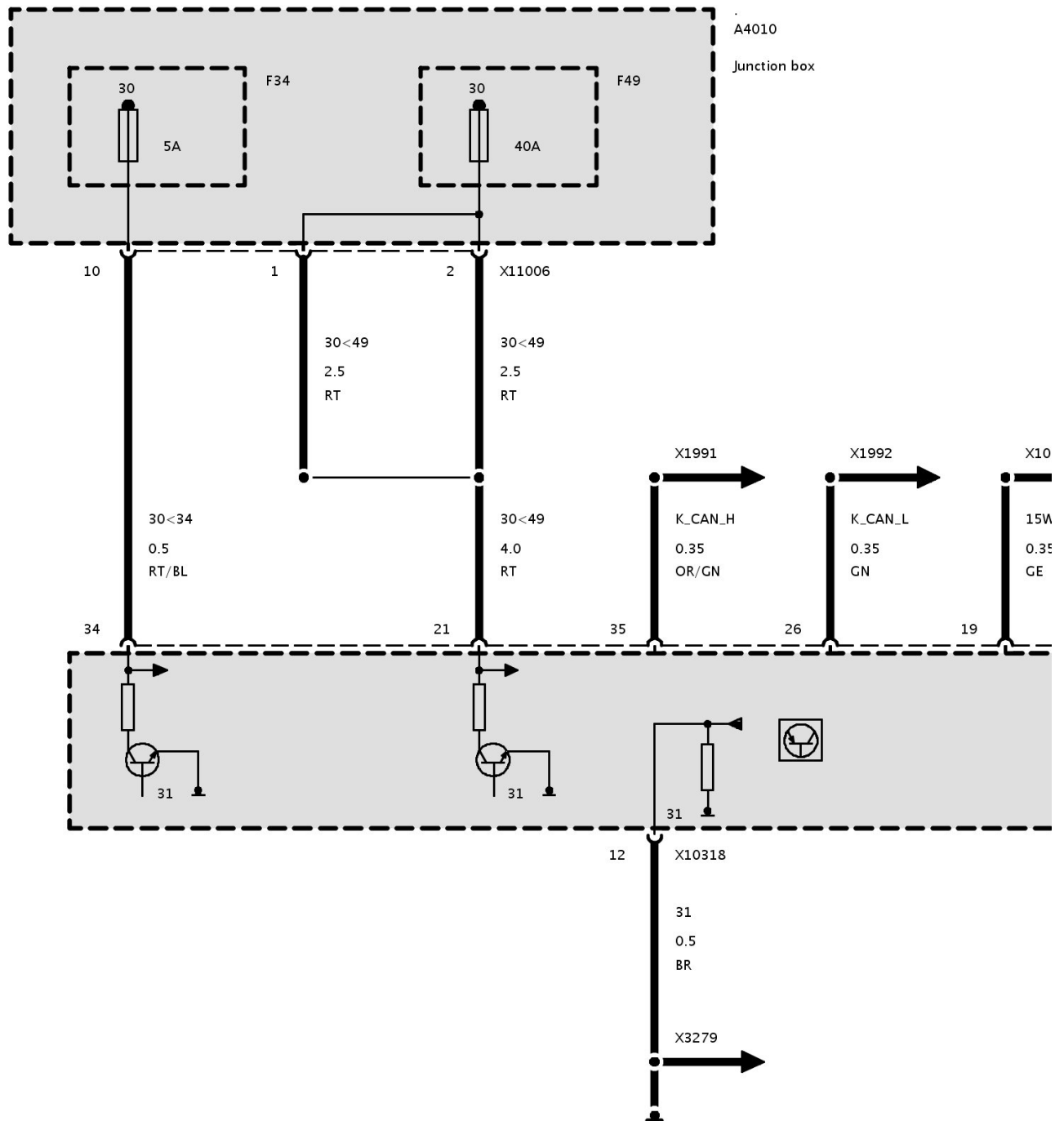
Part 3



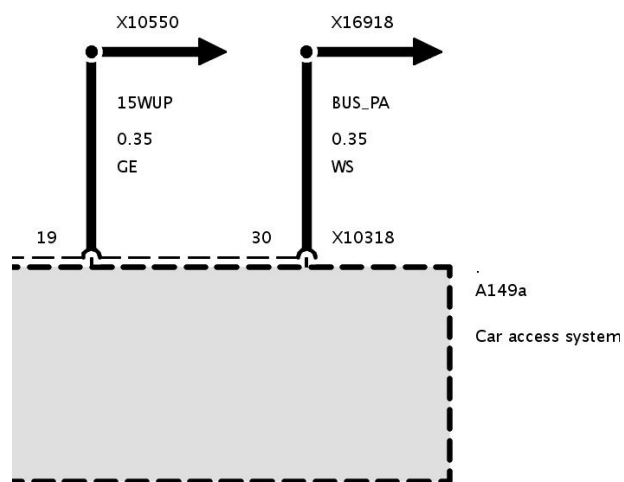
#### Part 4

### Power Supply, Car Access System CAS (As Of 08/07 Up To 12/08)

Power Supply, Car Access System CAS (As Of 08/07 Up To 12/08)



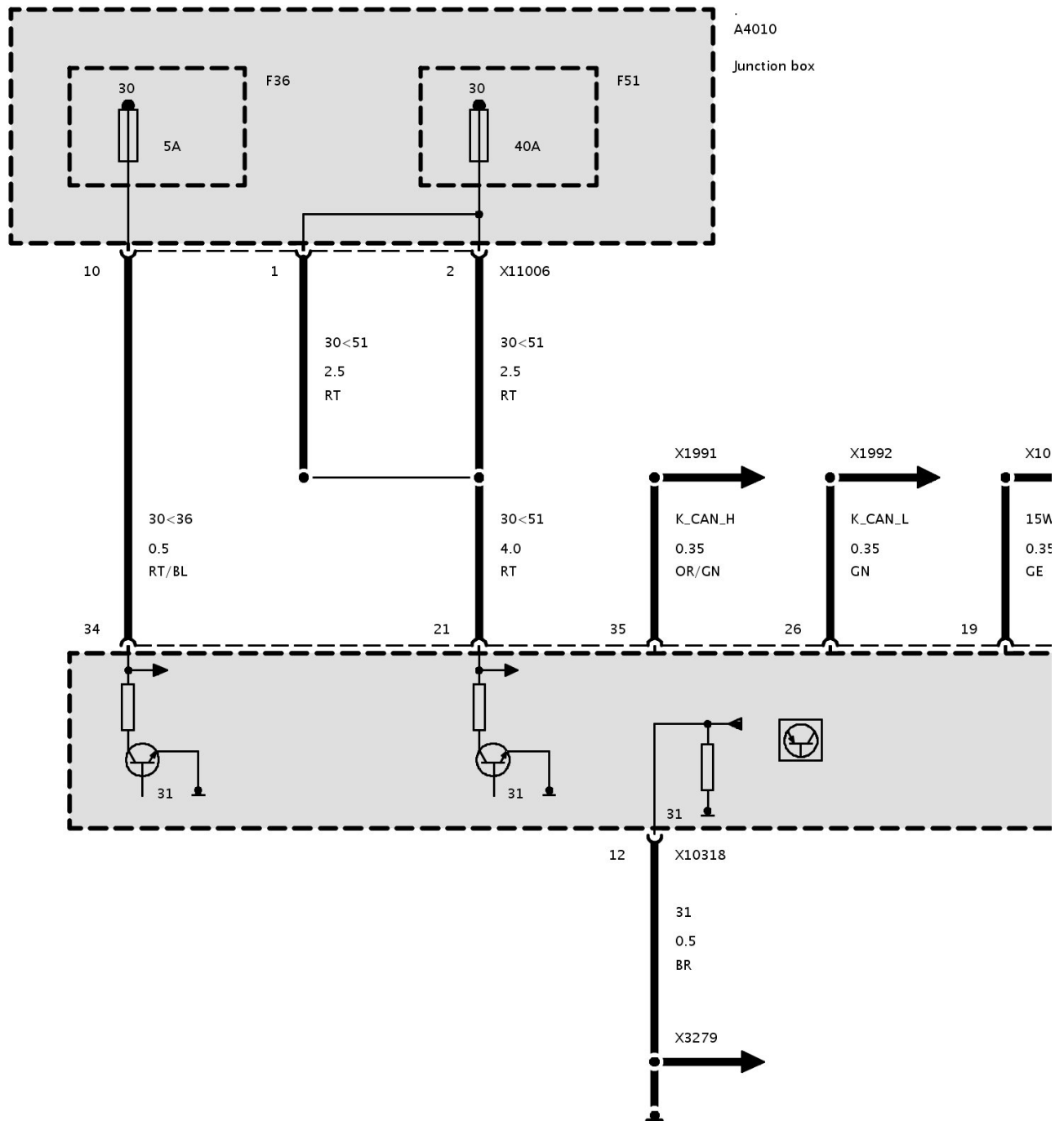
Part 1



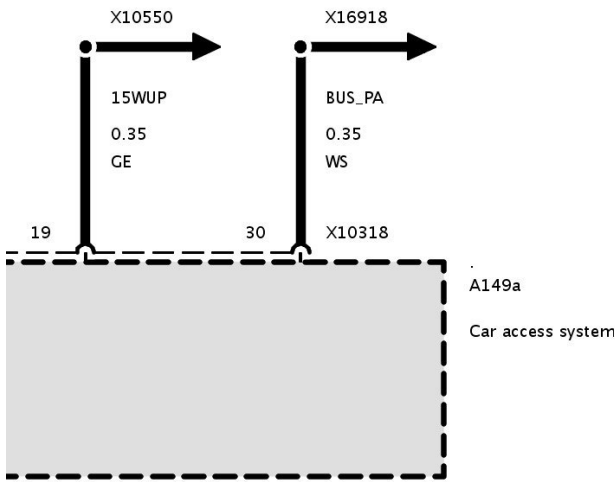
**Part 2**

**Power Supply, Car Access System CAS (As Of 12/08)**

Power Supply, Car Access System CAS (As Of 12/08)



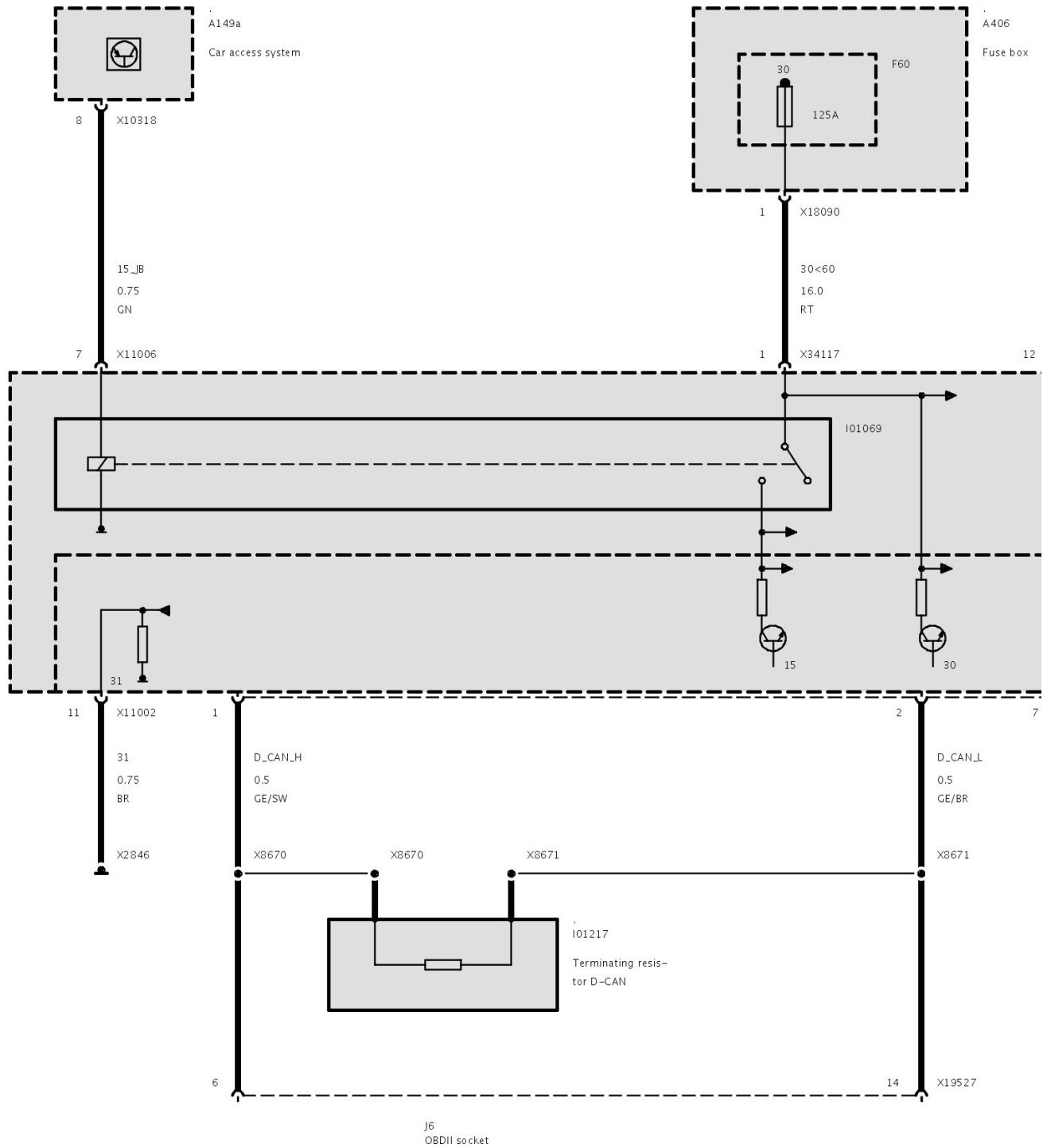
Part 1



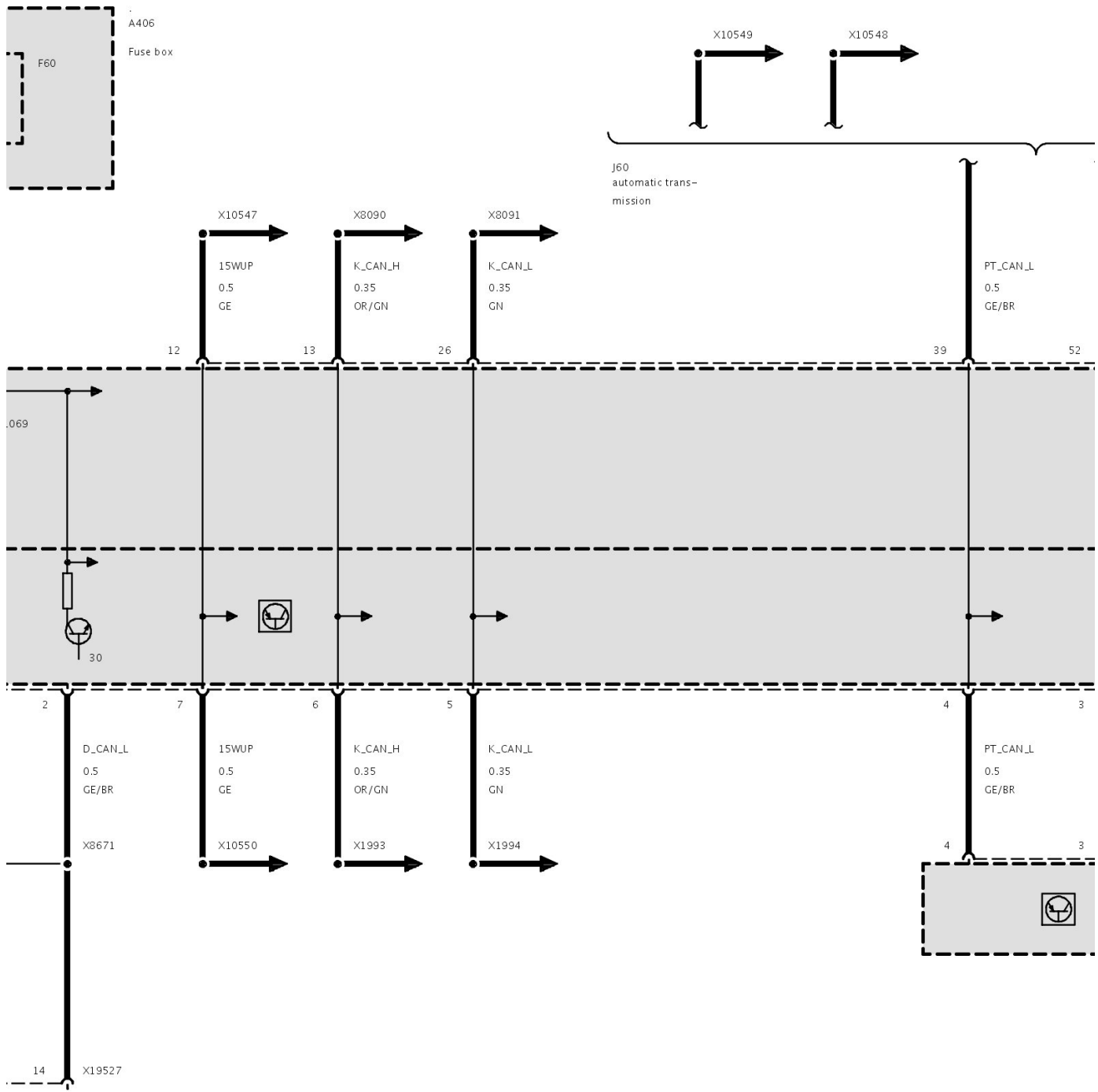
Part 2

Supply, JBE Junction-Box Electronics

Power Supply JBE Junction Box, Electronics

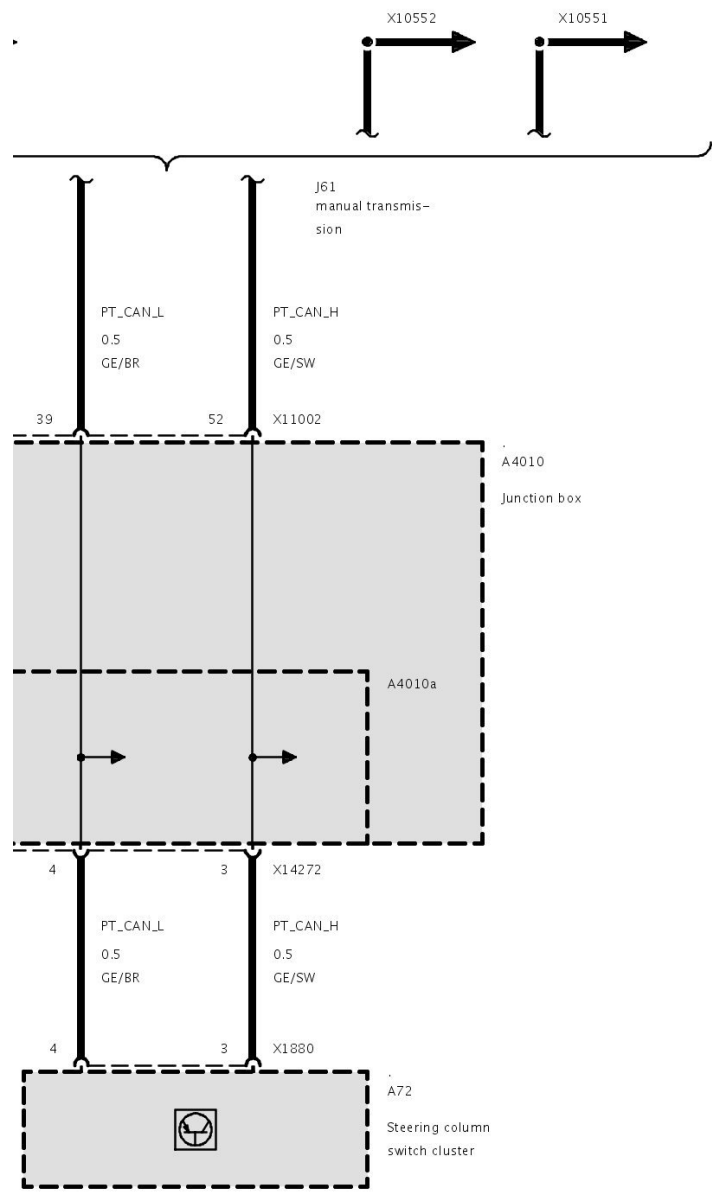


Part 1



Part 2

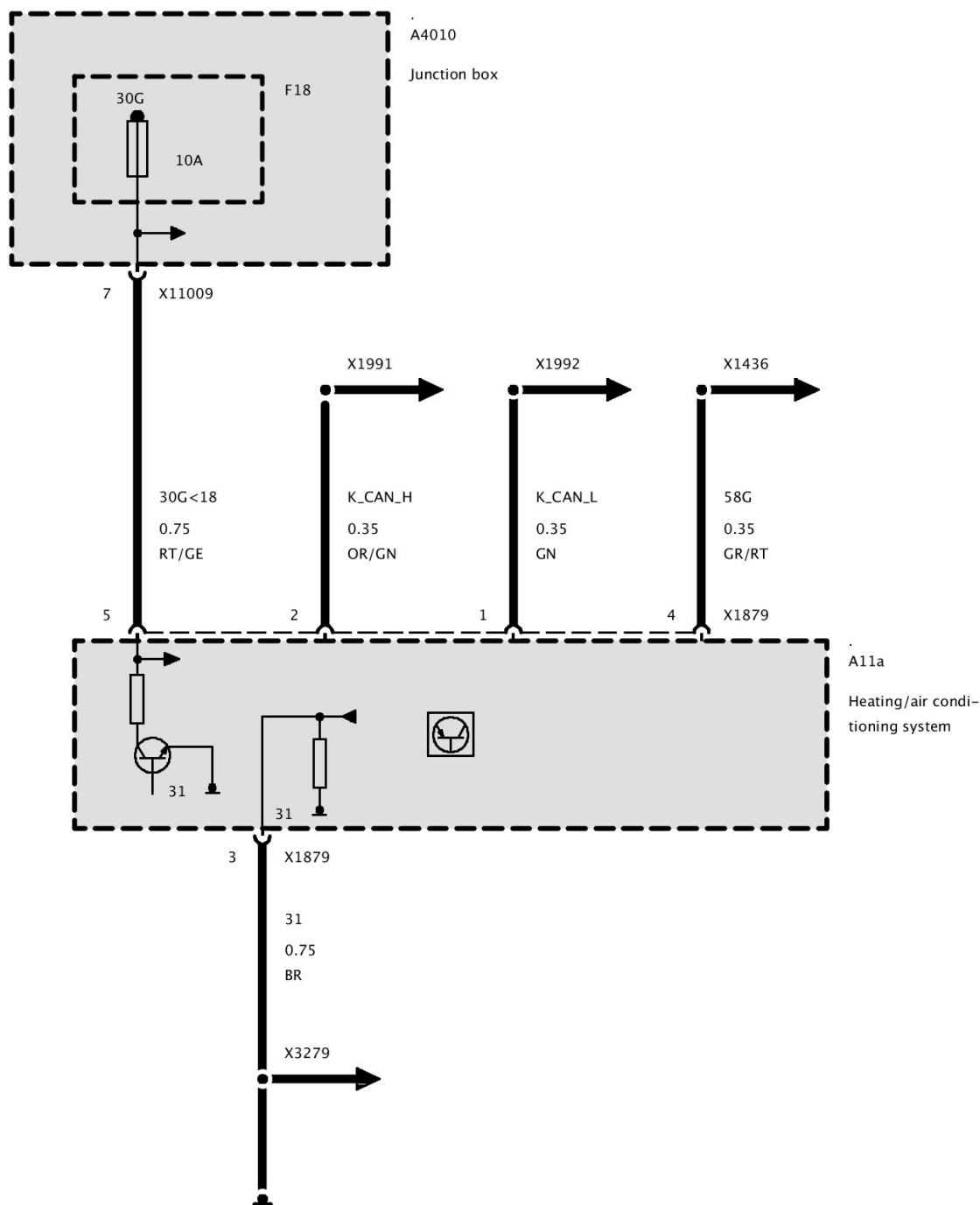




**Part 3**

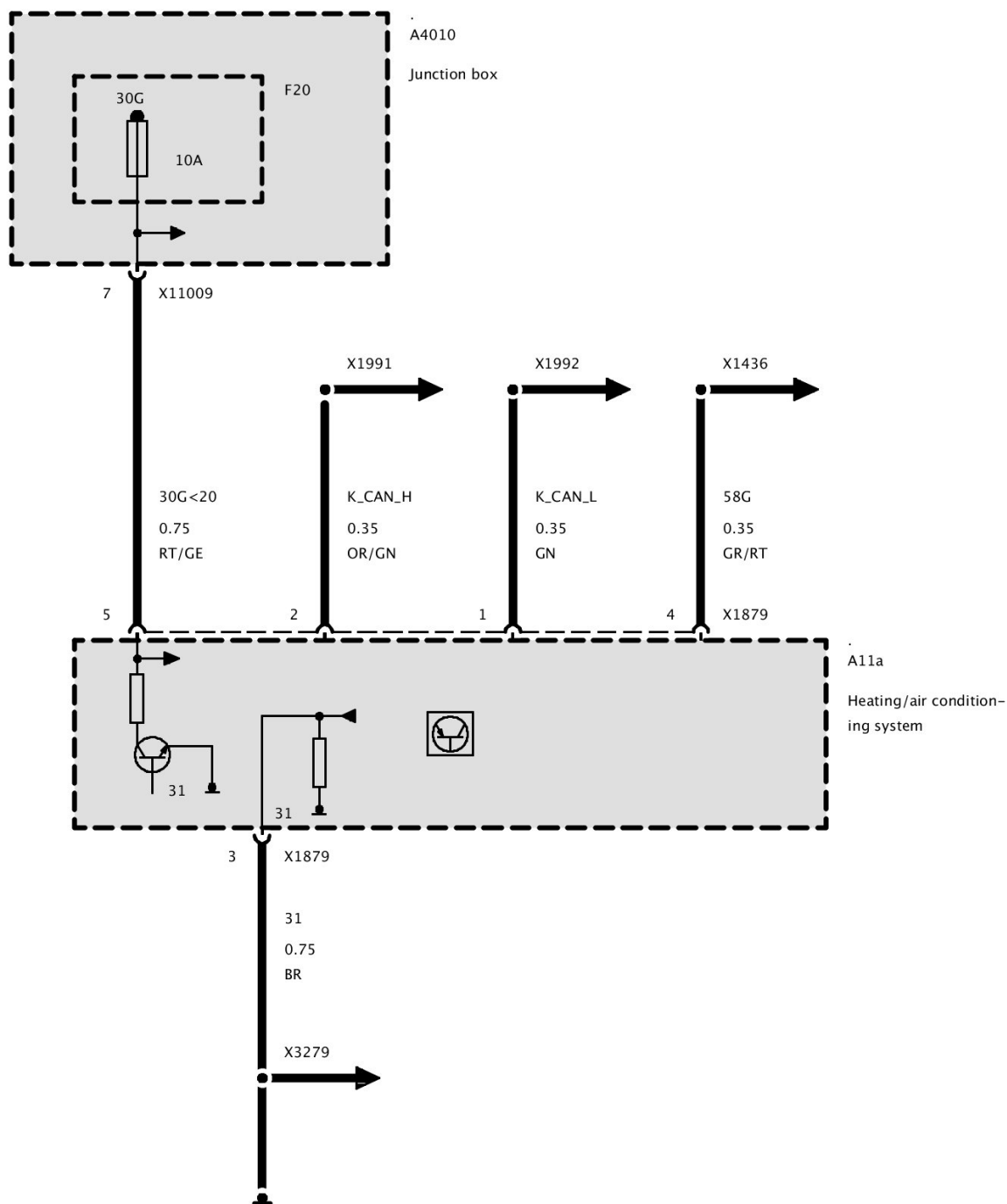
**Supply, Heating And Air Conditioning Control Unit (Up To 12/08)**

Supply, Heating And Air Conditioning Control Unit (Up To 12/08)



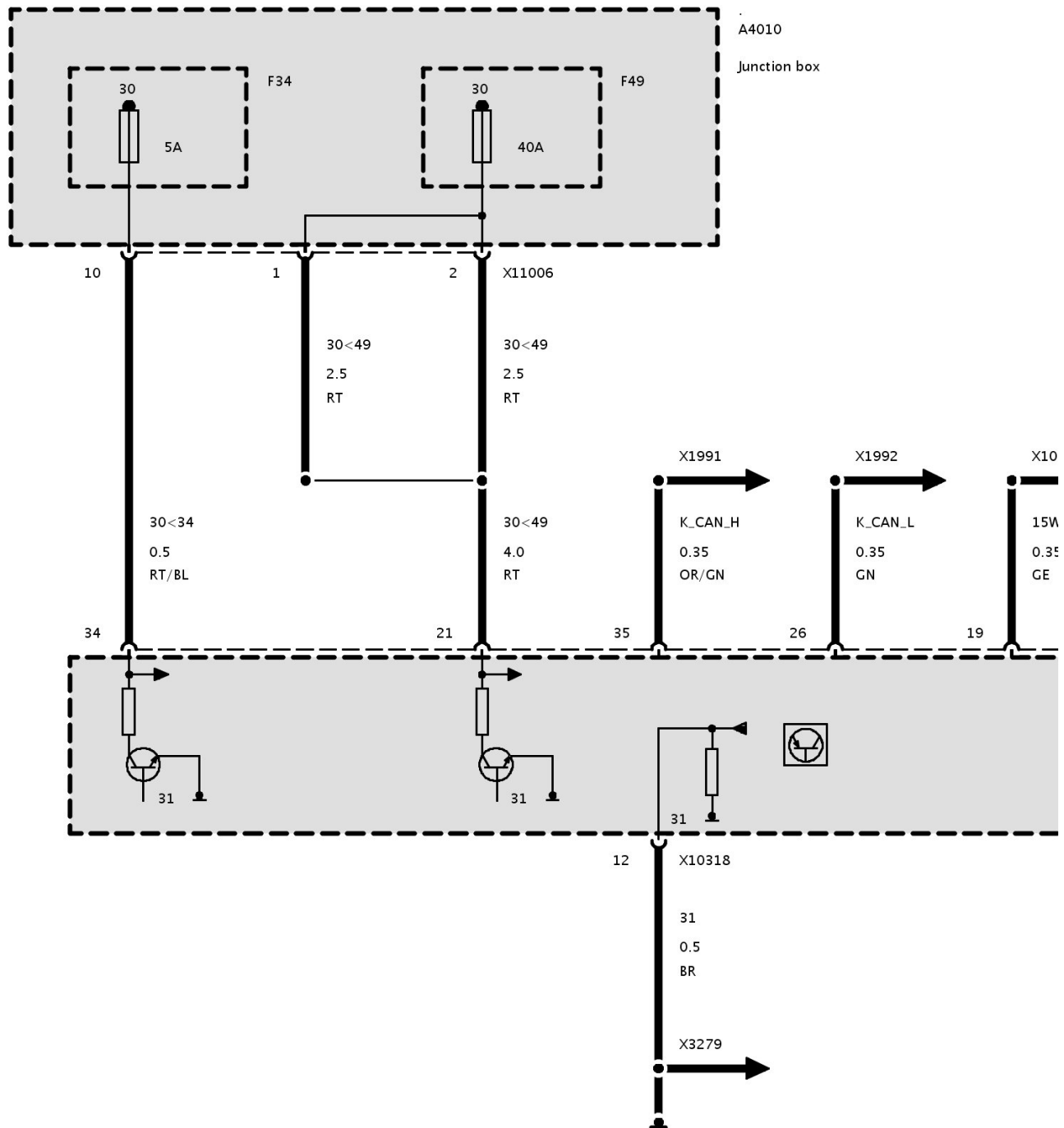
Supply, Heating And Air Conditioning Control Unit (As Of 12/08)

Supply, Heating And Air Conditioning Control Unit (As Of 12/08)

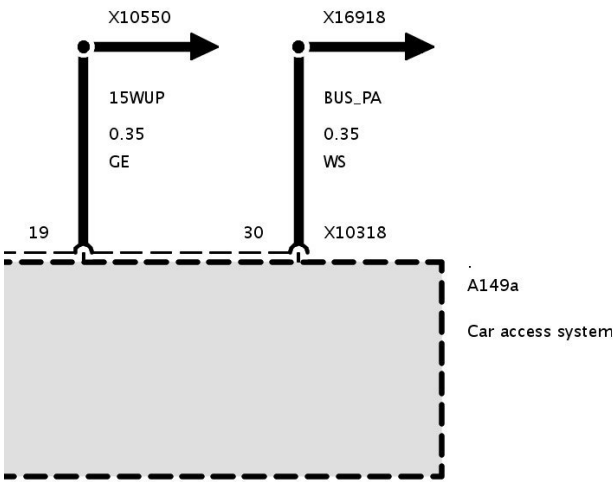


Power Supply, Car Access System CAS (As Of 08/07 Up To 12/08)

Power Supply, Car Access System CAS (As Of 08/07 Up To 12/08)



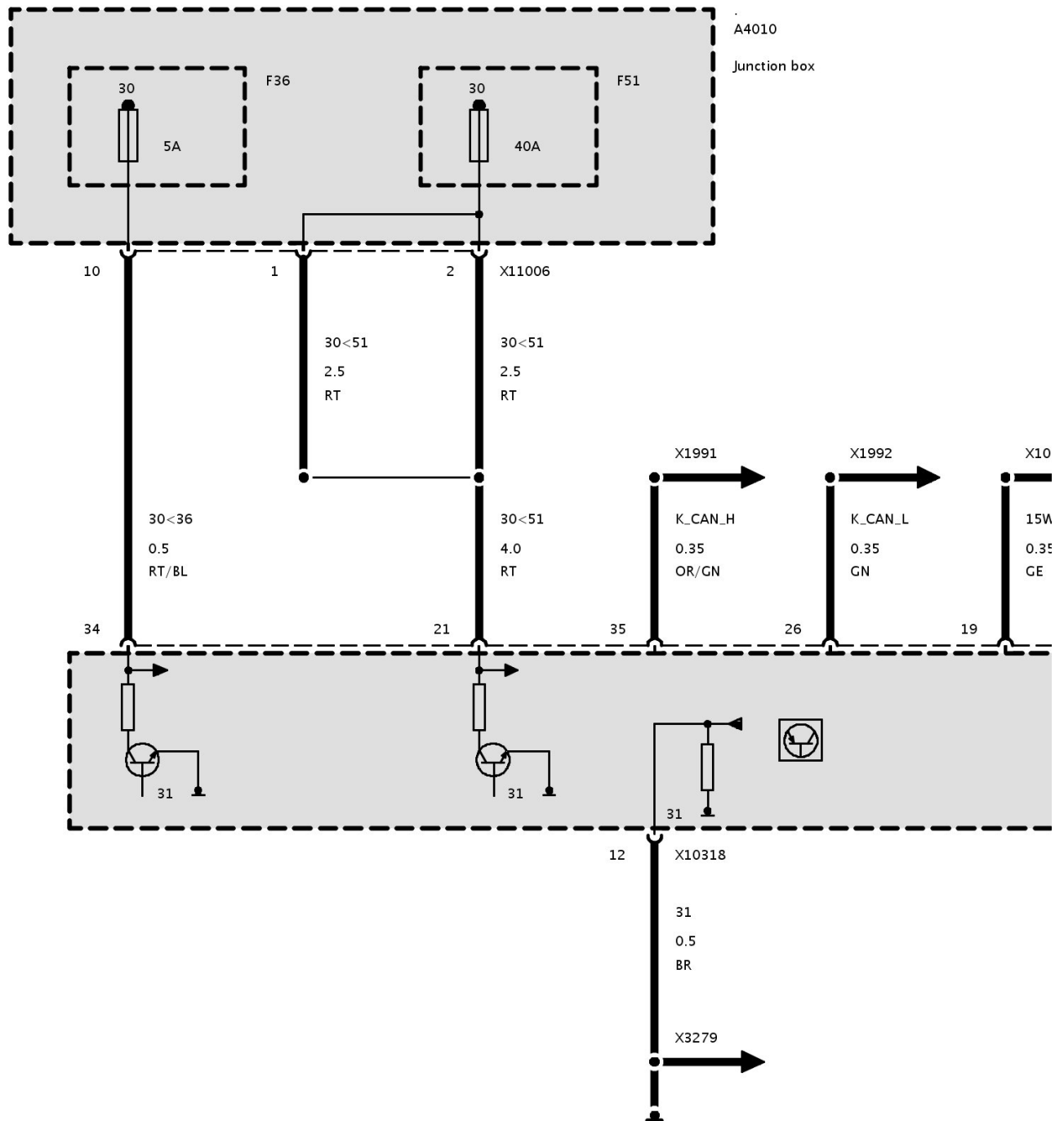
Part 1



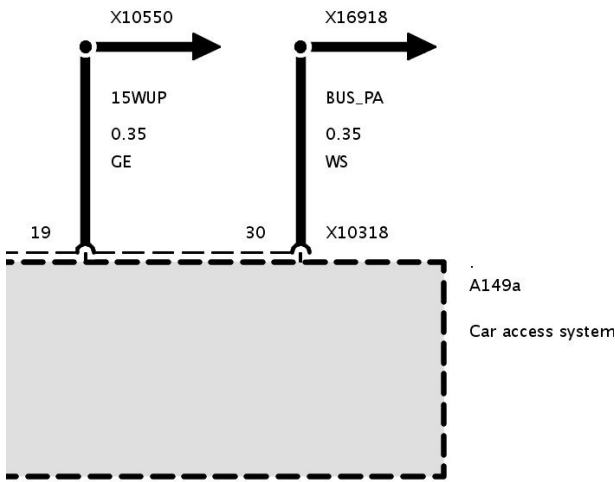
Part 2

Power Supply, Car Access System CAS (As Of 12/08)

Power Supply, Car Access System CAS (As Of 12/08)



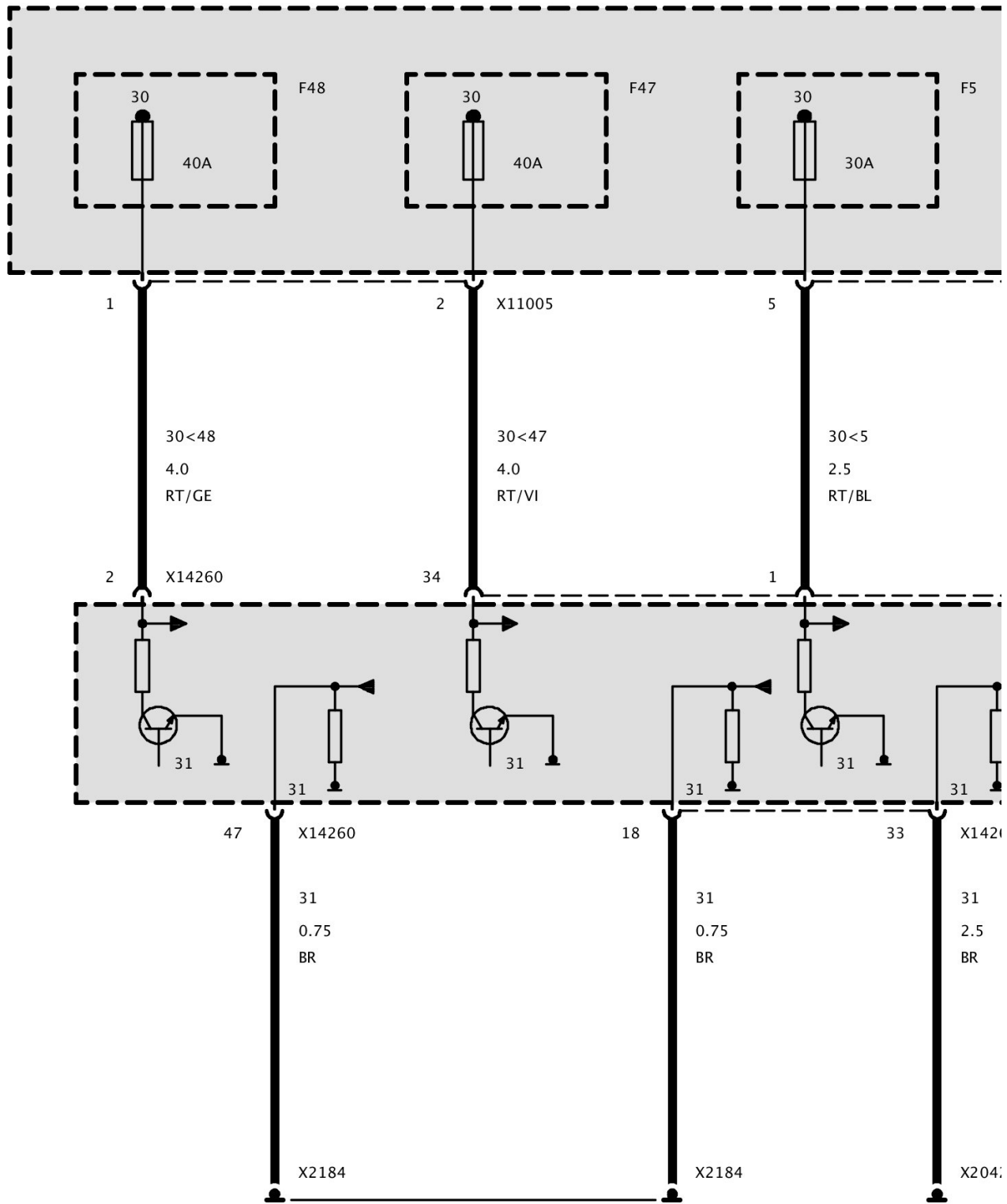
Part 1



Part 2

Power Supply, Footwell Module FRM (Up To 12/08)

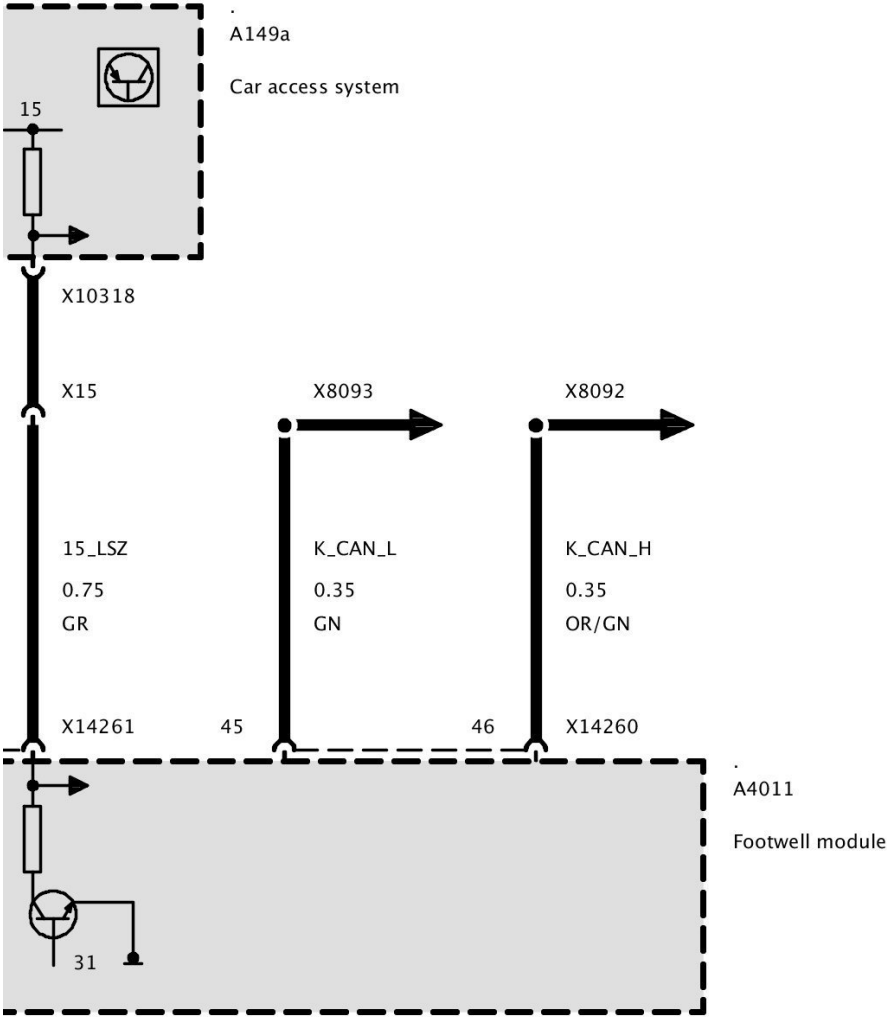
Power Supply, Footwell Module FRM (Up To 12/08)



Part 1



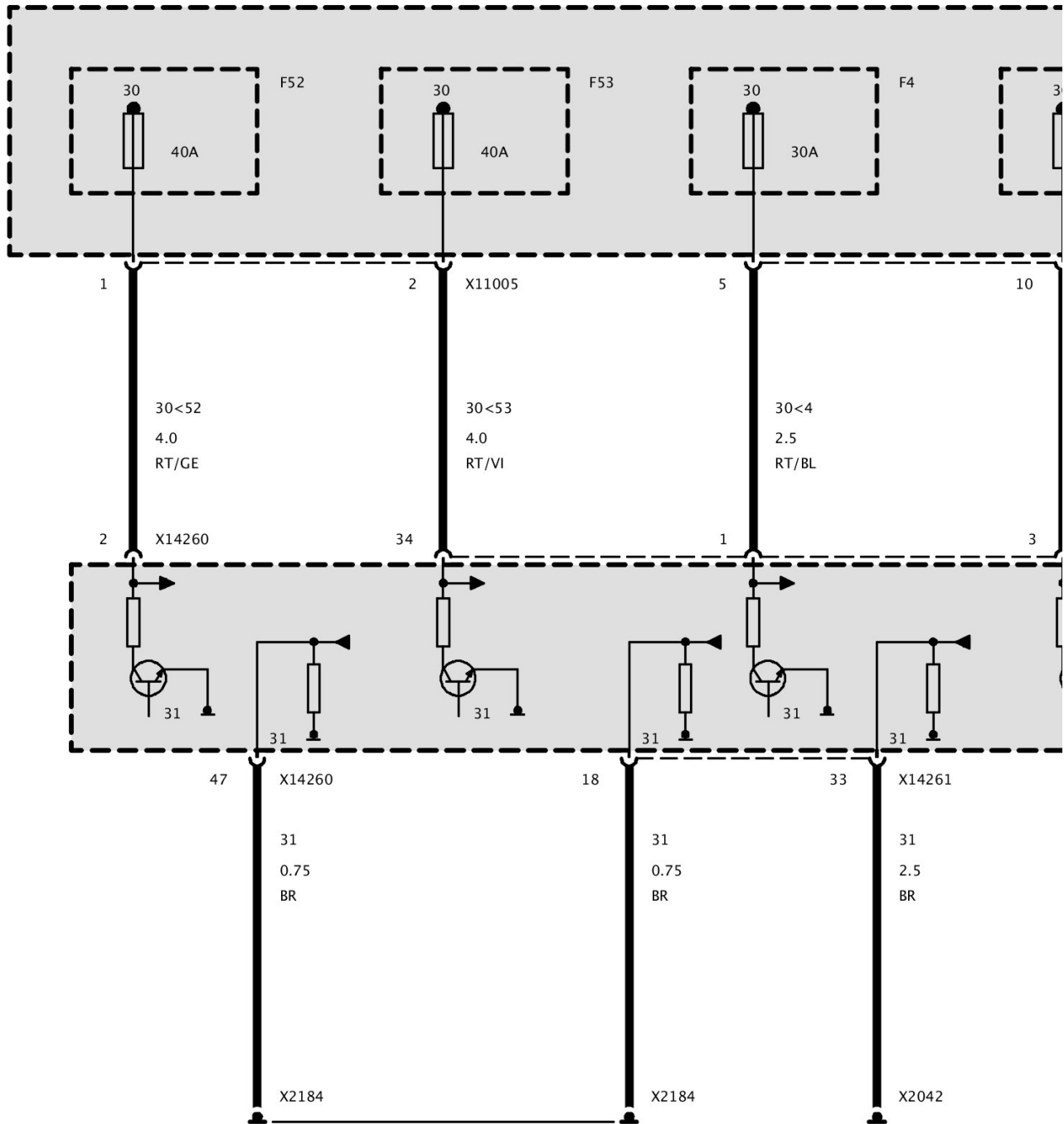




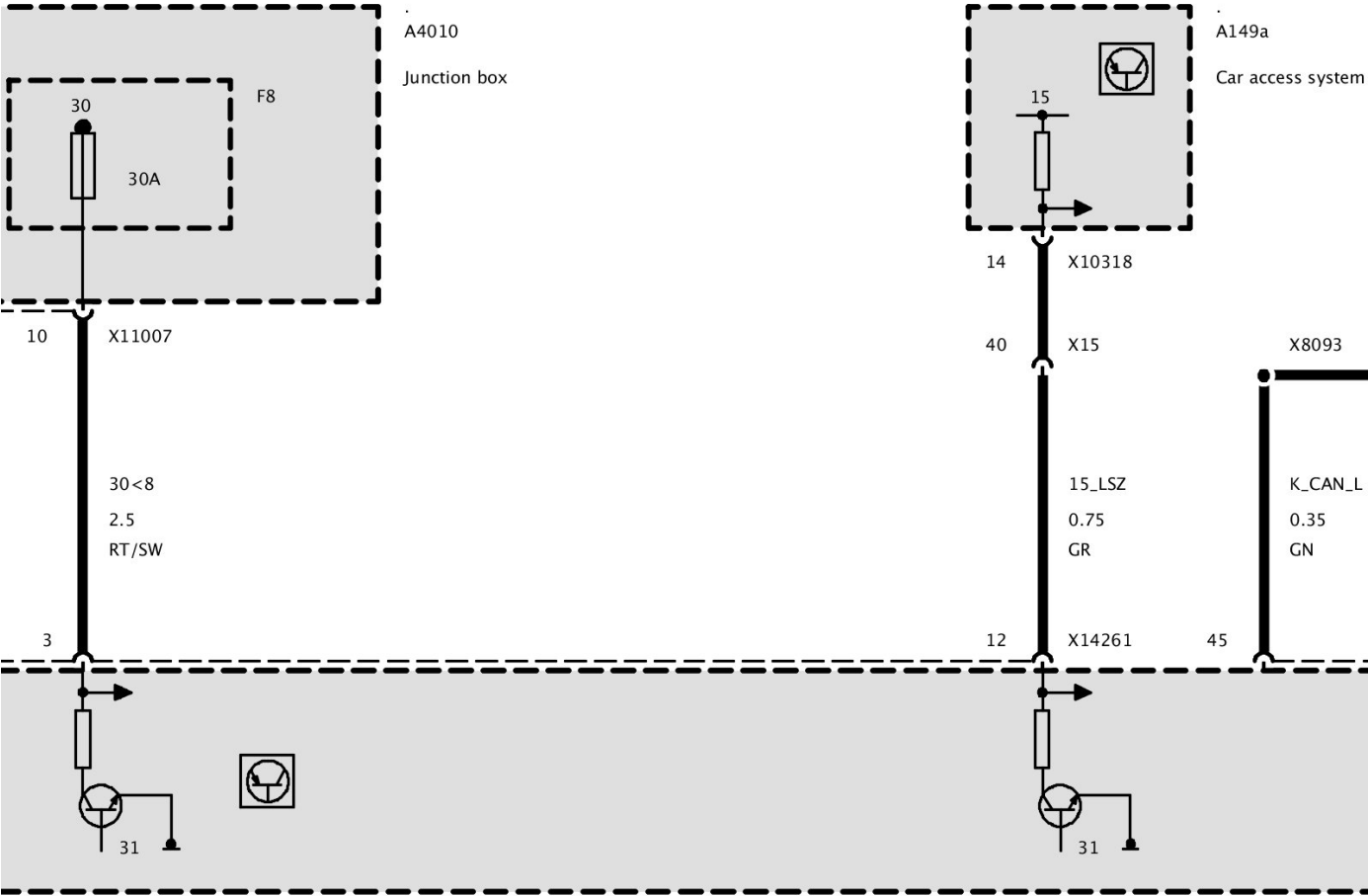
Part 3

Power Supply, Footwell Module FRM (As Of 12/08)

Power Supply, Footwell Module FRM (As Of 12/08)

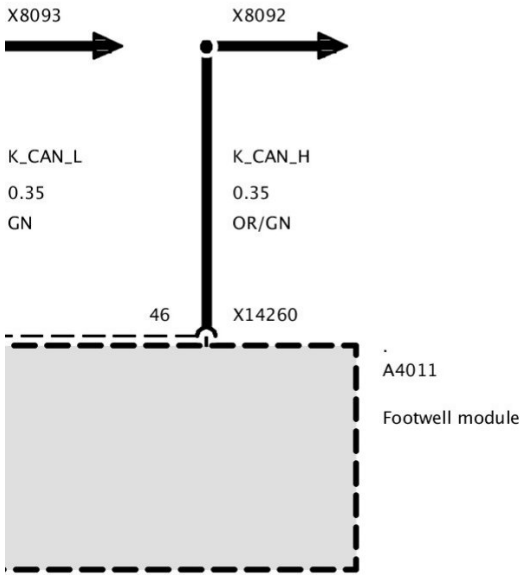


Part 1



Part 2

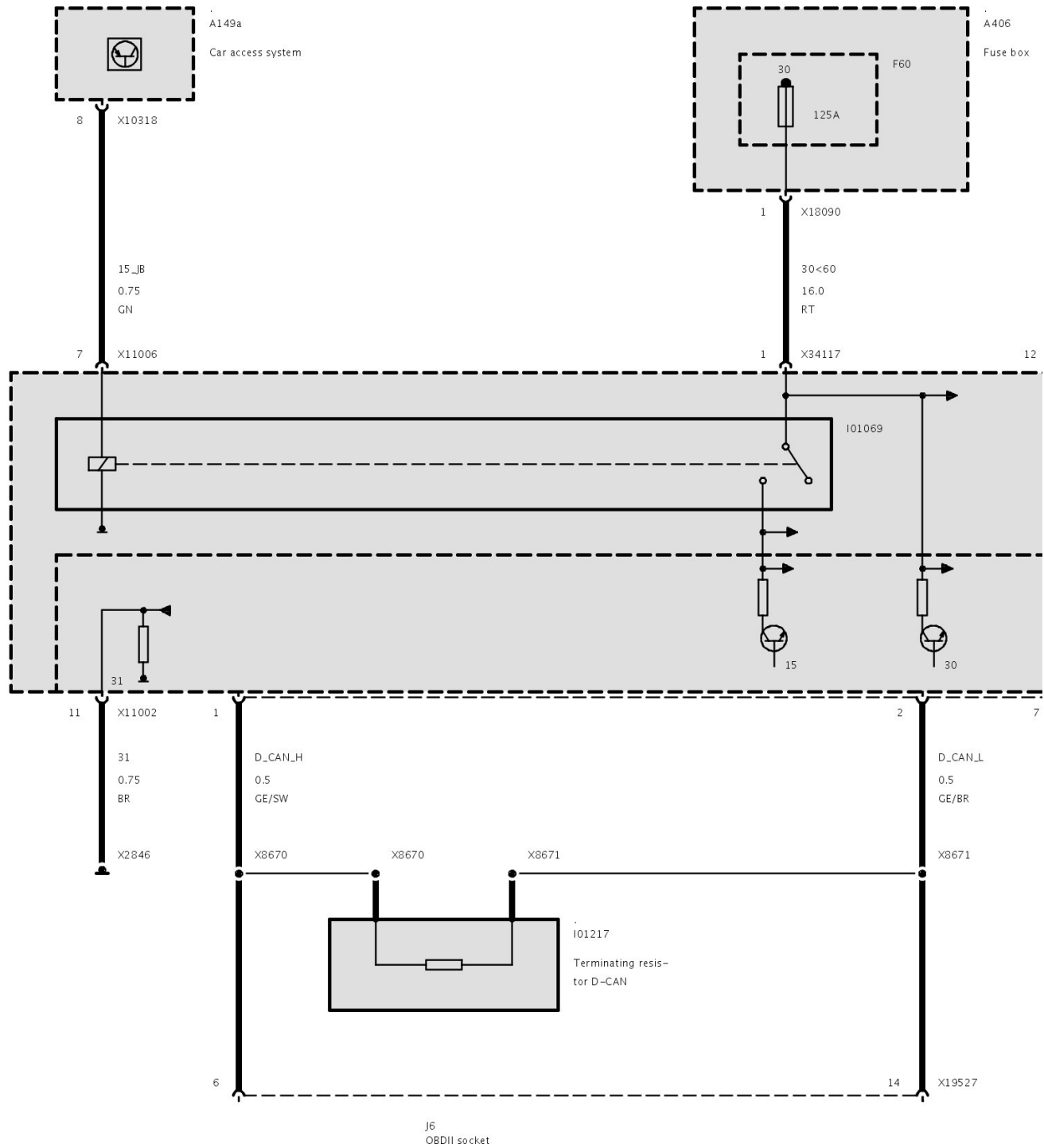
ss system



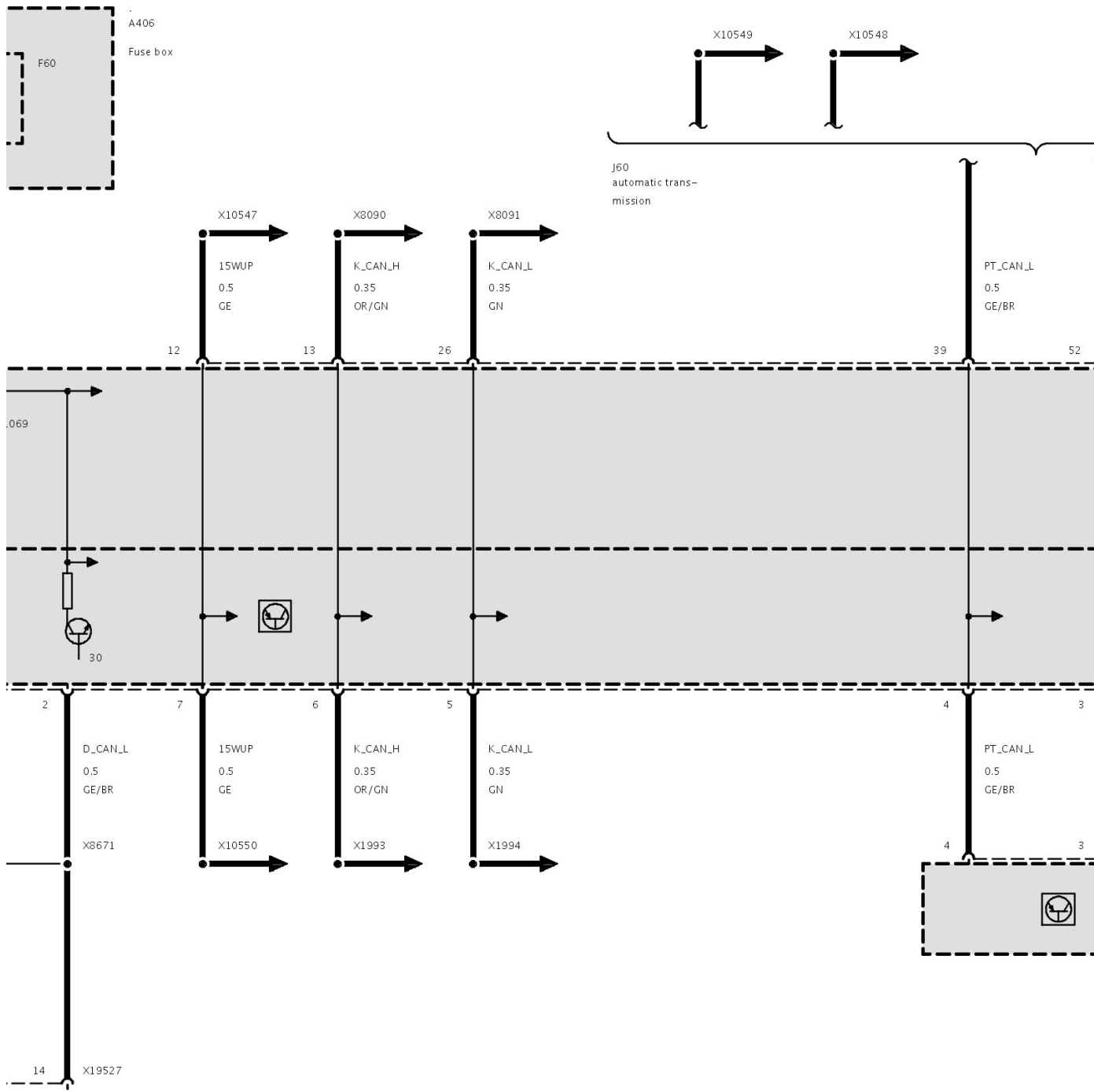
Part 3

Supply, JBE Junction-Box Electronics

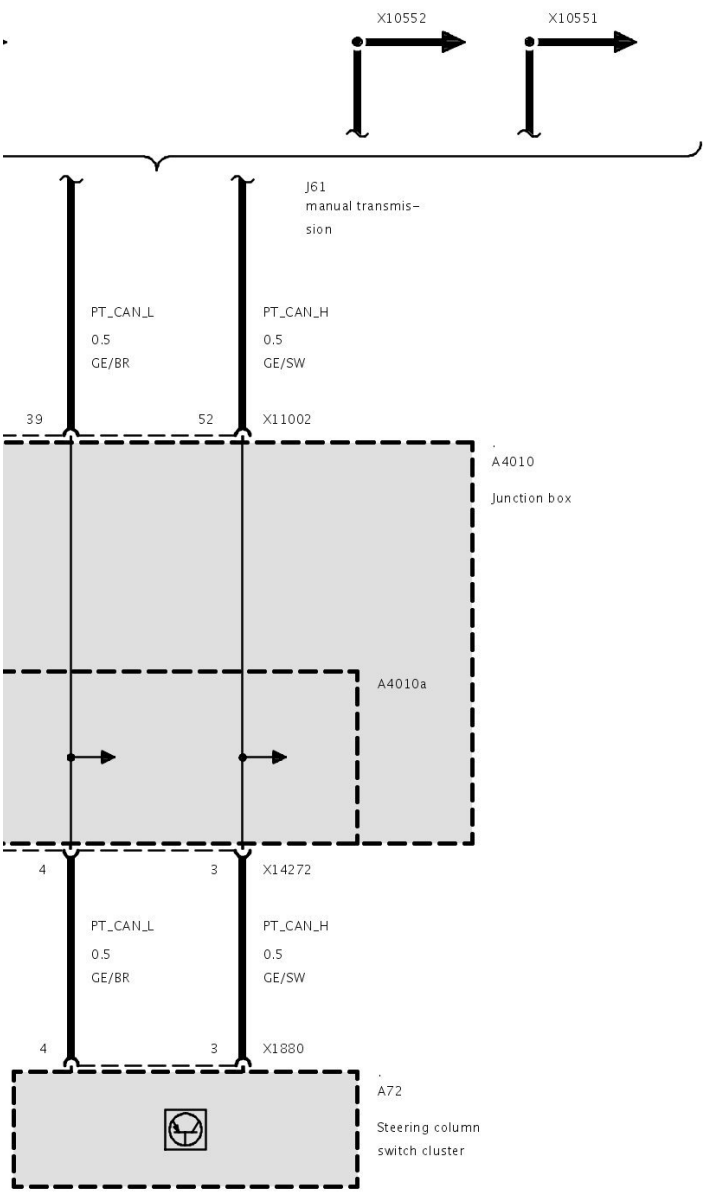
Power Supply JBE Junction Box, Electronics



Part 1



Part 2

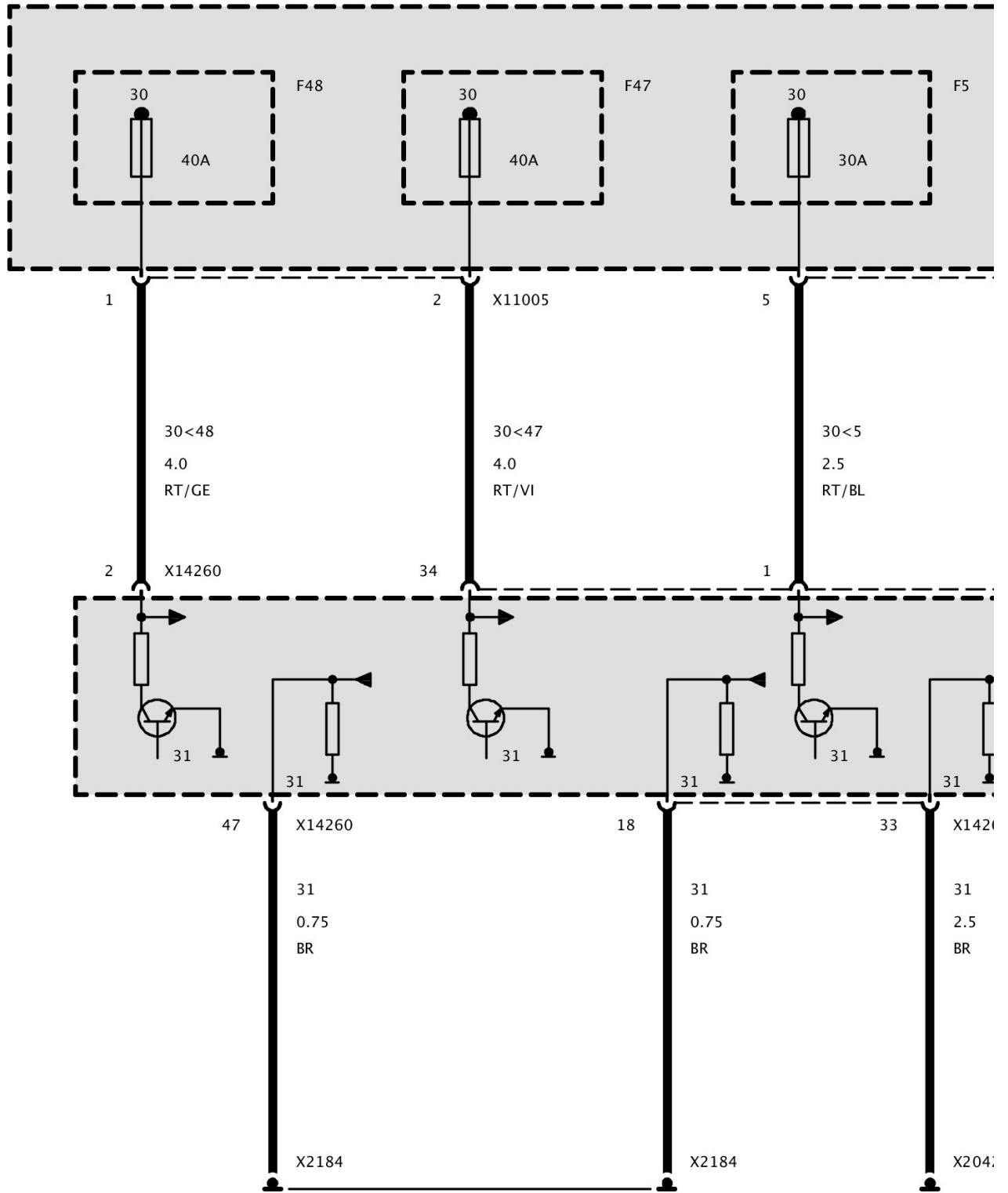


Part 3

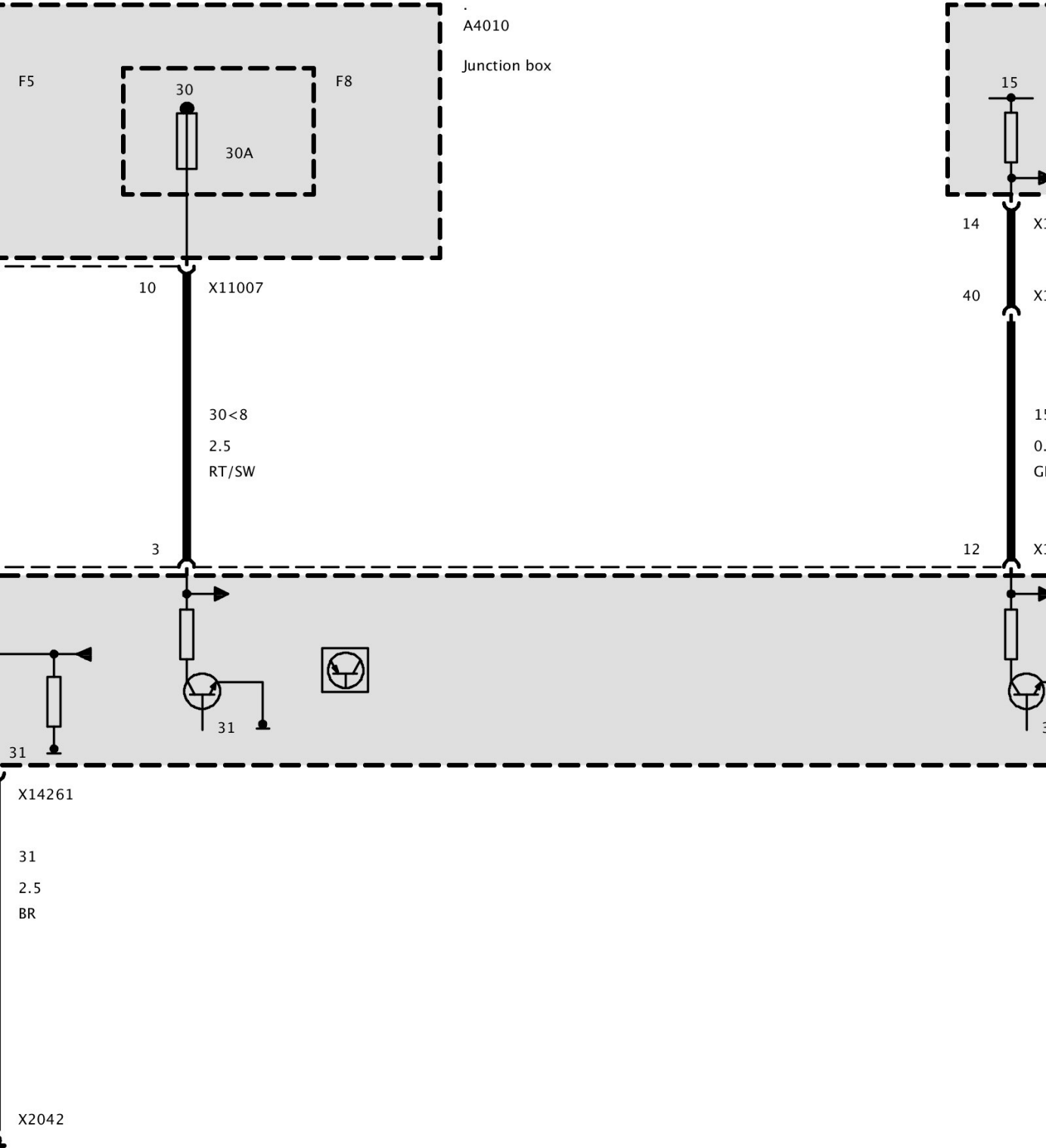
Power Supply, Footwell Module FRM (Up To 12/08)

Power Supply, Footwell Module FRM (Up To 12/08)

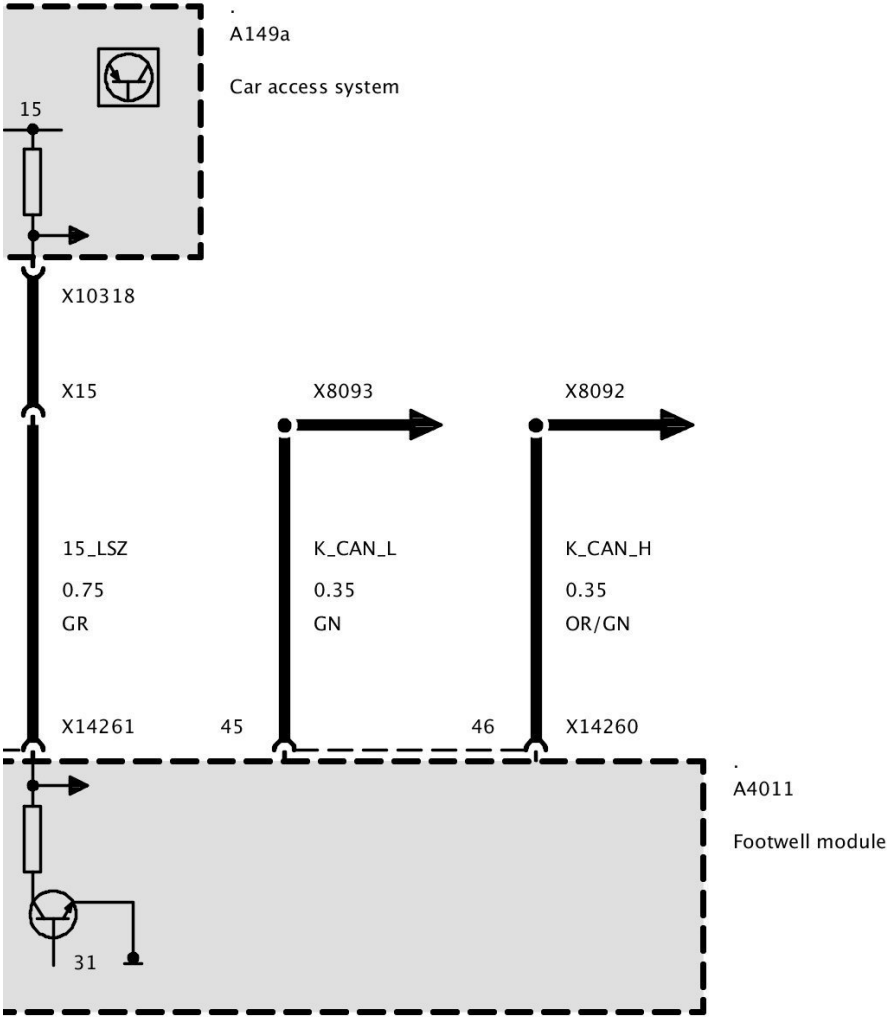




Part 1



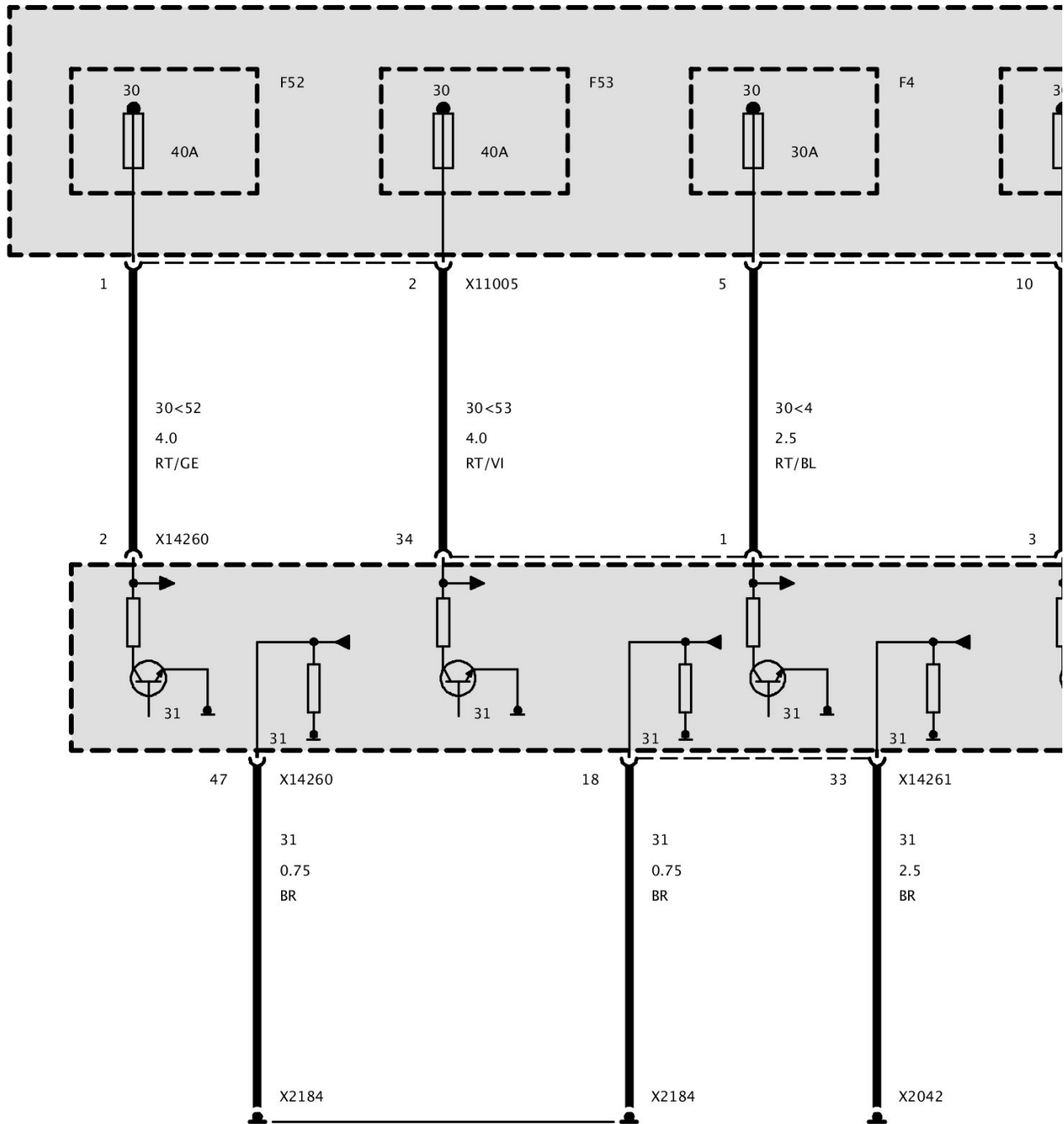
Part 2



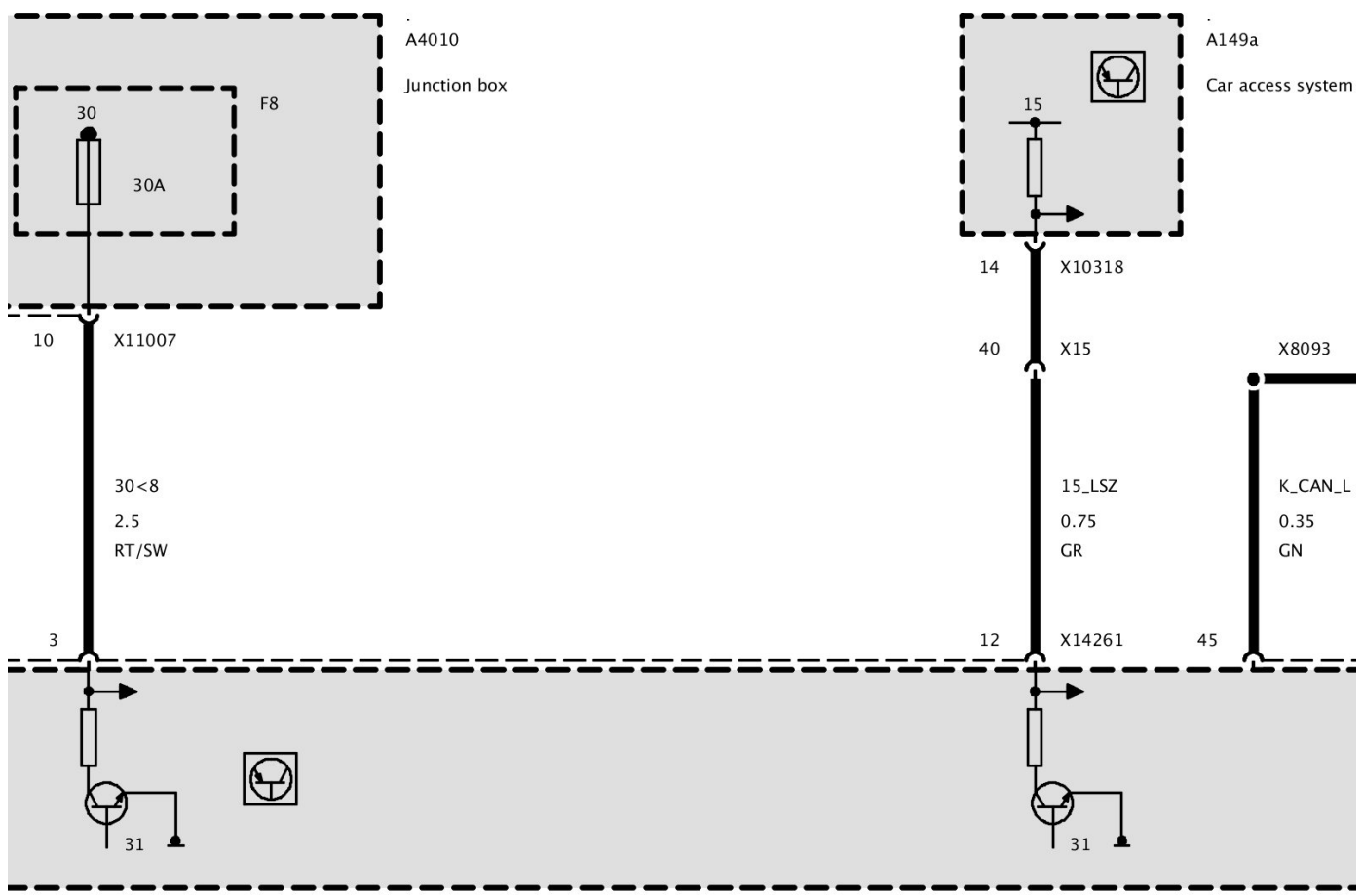
Part 3

Power Supply, Footwell Module FRM (As Of 12/08)

Power Supply, Footwell Module FRM (As Of 12/08)

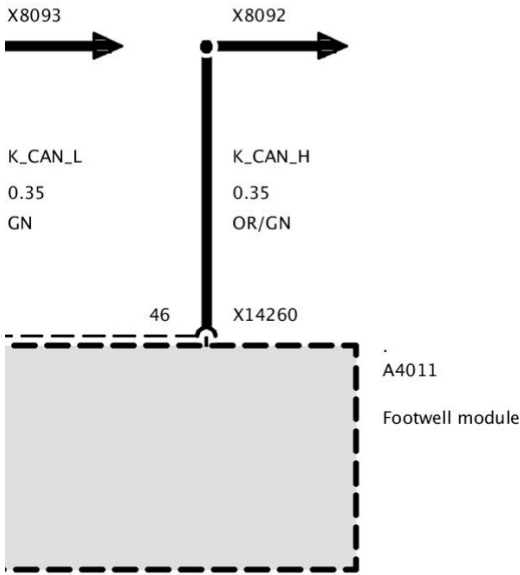


Part 1



Part 2

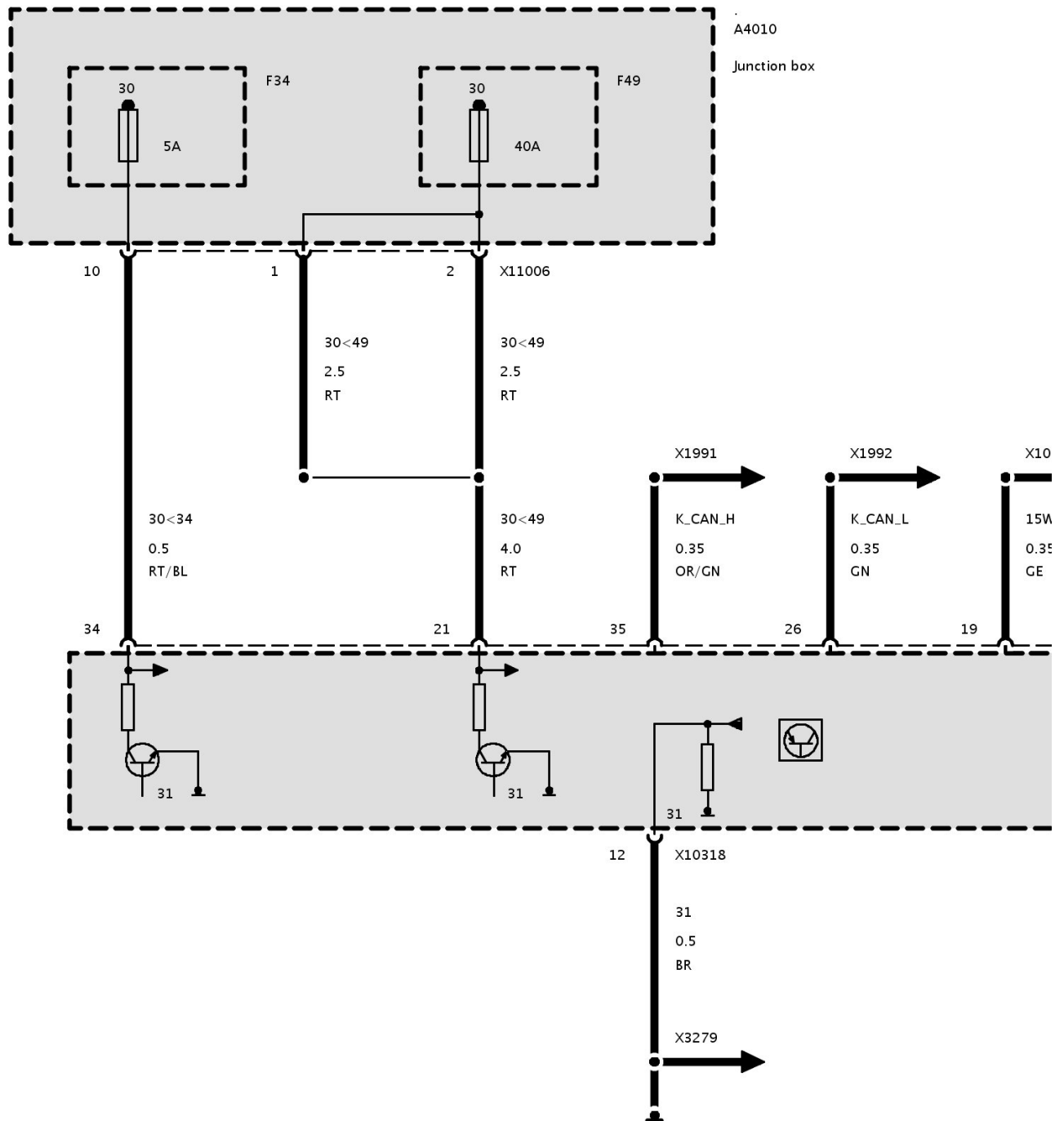
ss system



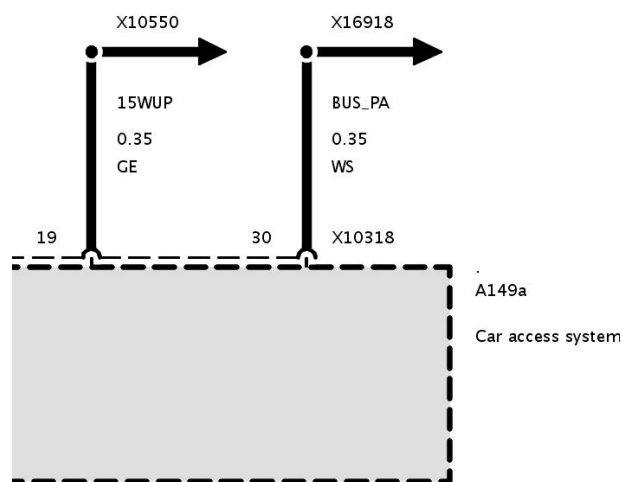
Part 3

Power Supply, Car Access System CAS (As Of 08/07 Up To 12/08)

Power Supply, Car Access System CAS (As Of 08/07 Up To 12/08)



Part 1

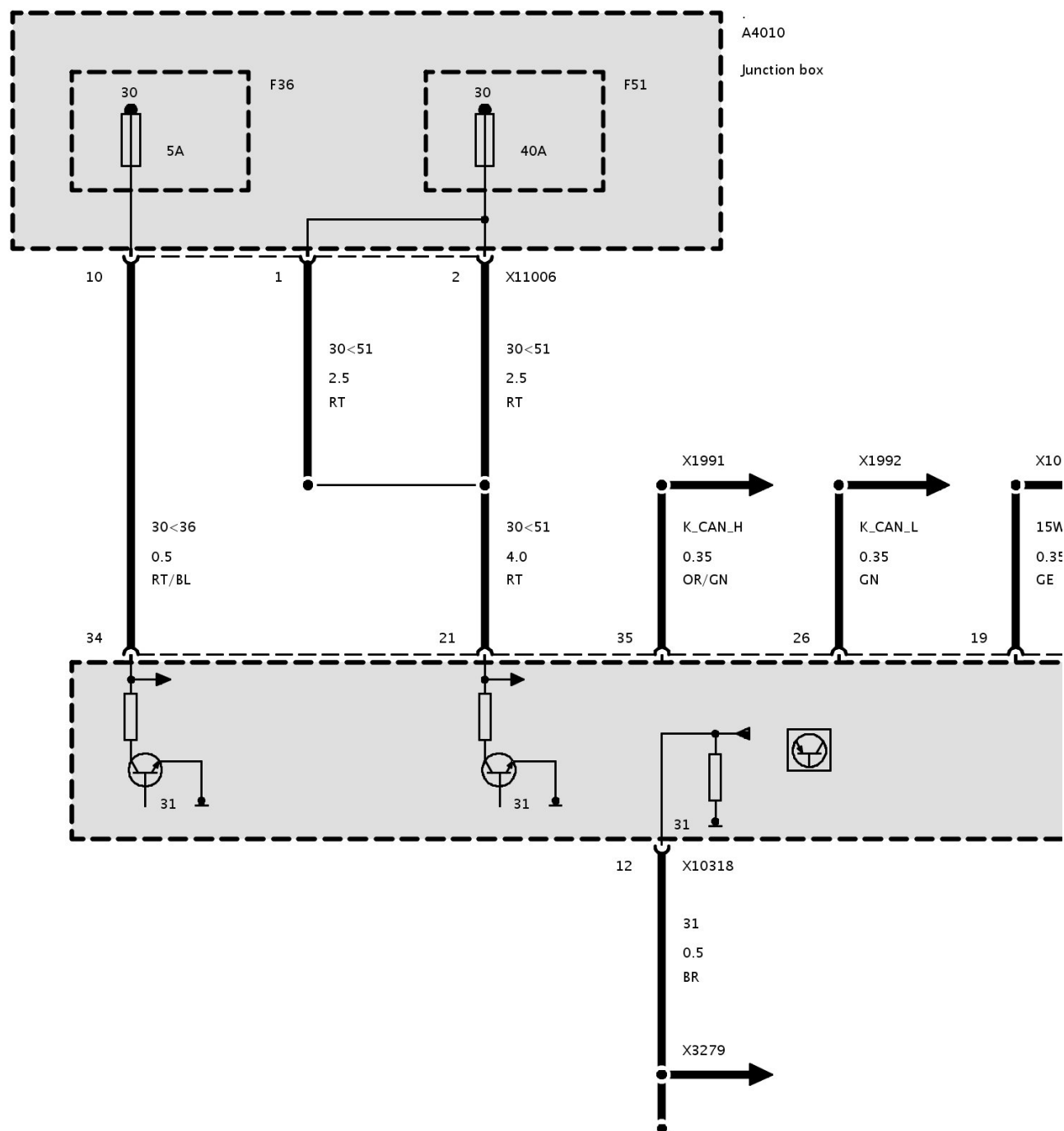


**Part 2**

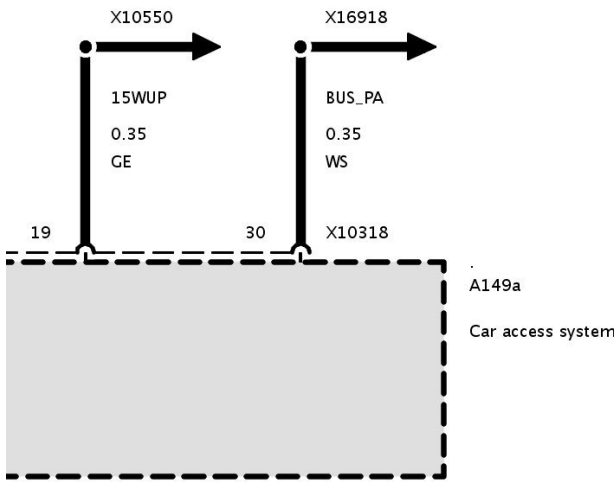
**Power Supply, Car Access System CAS (As Of 12/08)**

Power Supply, Car Access System CAS (As Of 12/08)





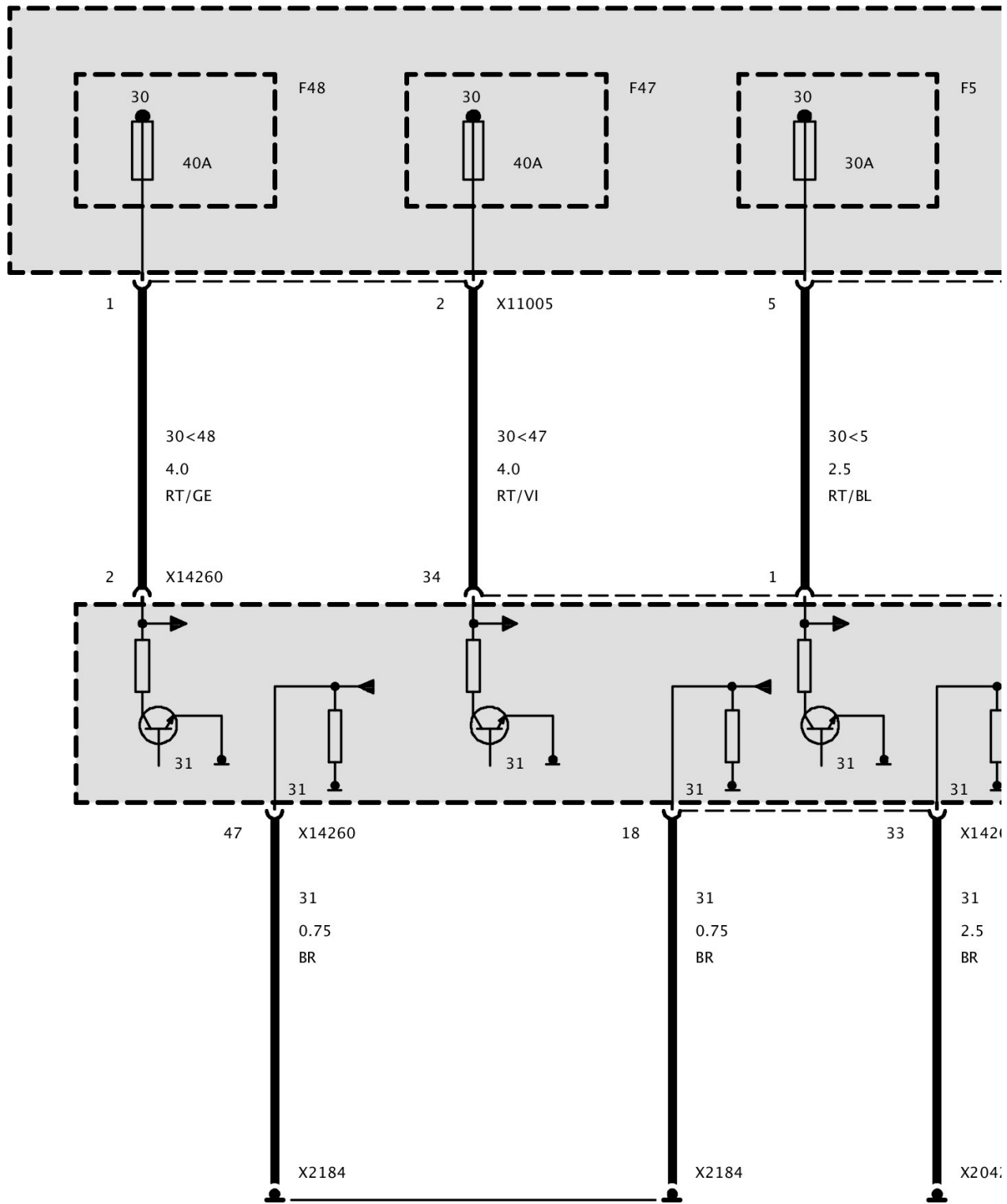
jmoraflores@hotmail.cl



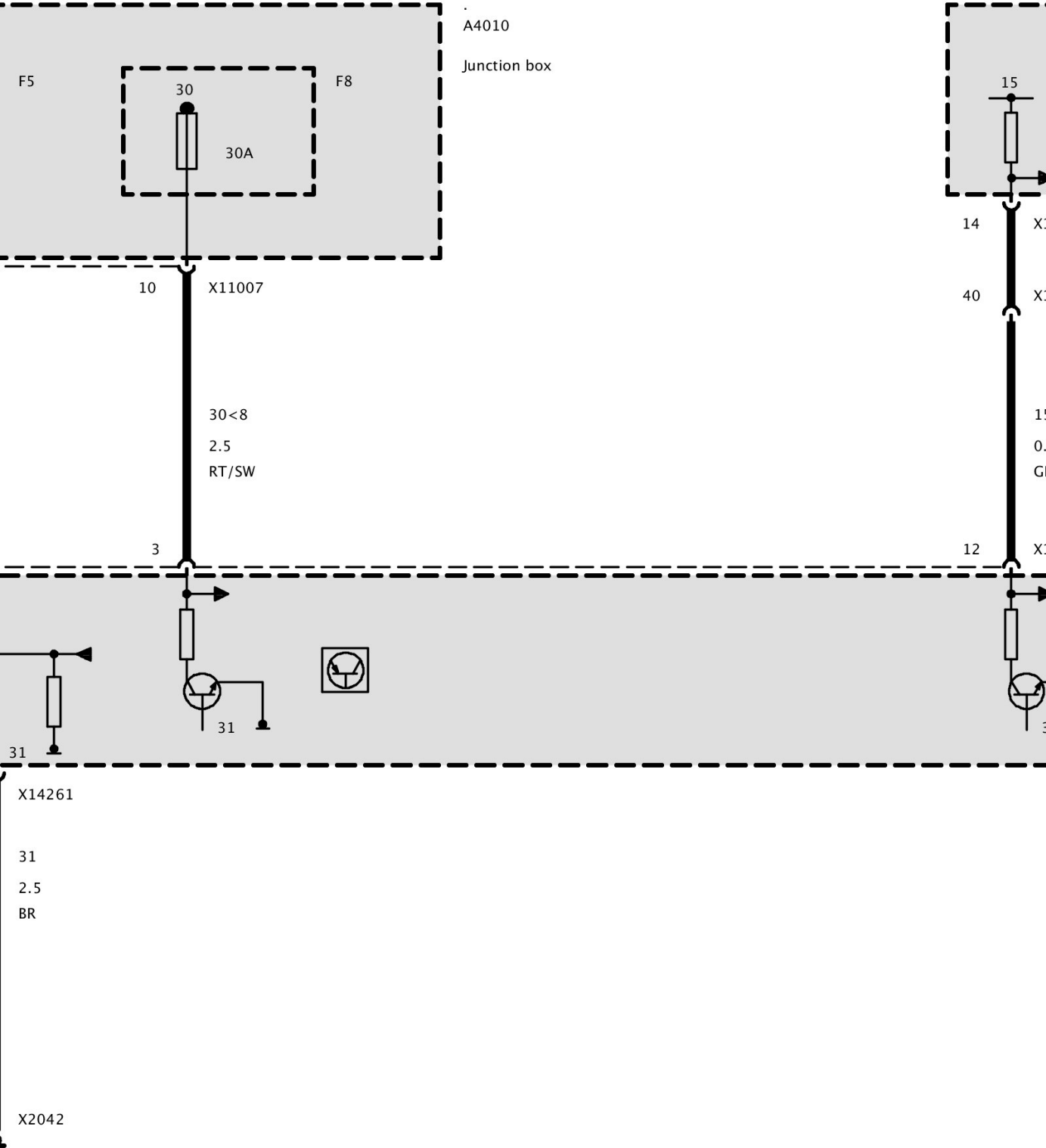
Part 2

Power Supply, Footwell Module FRM (Up To 12/08)

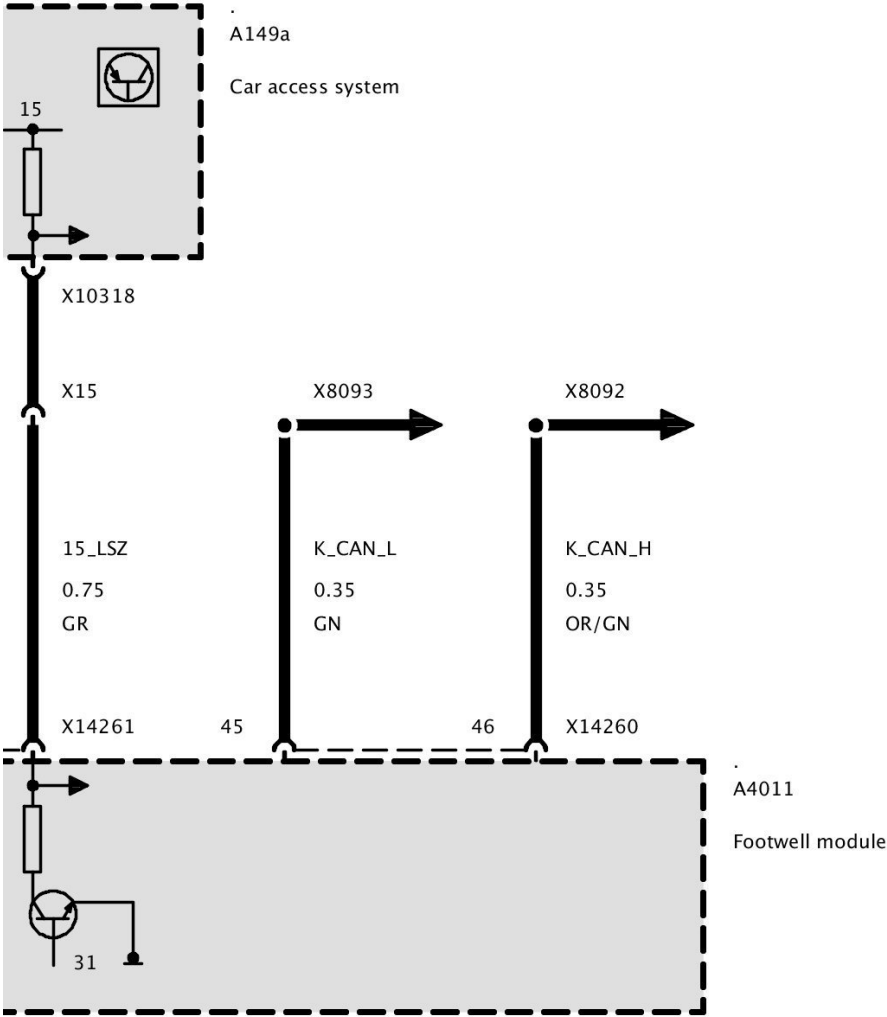
Power Supply, Footwell Module FRM (Up To 12/08)



Part 1



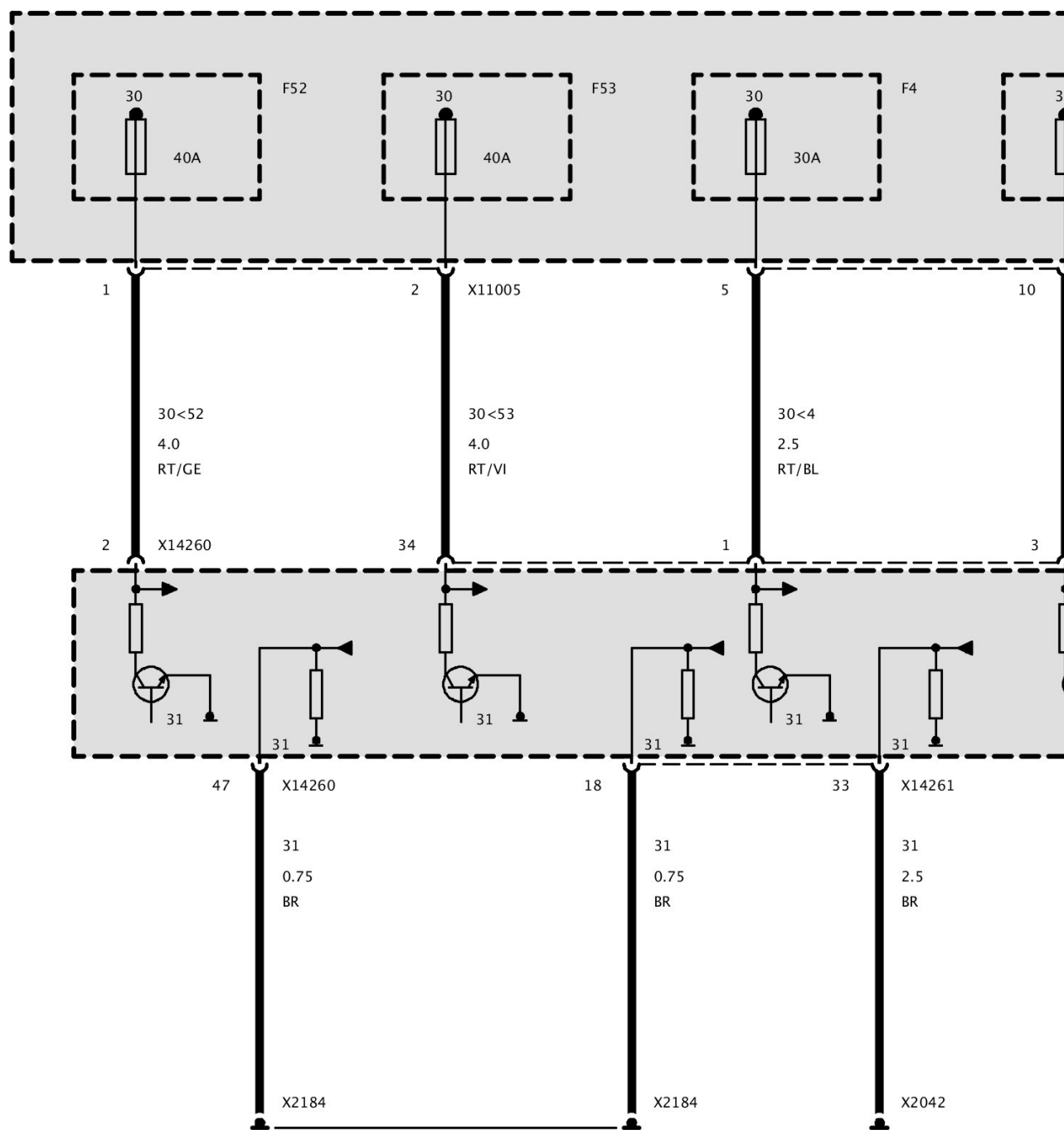
Part 2



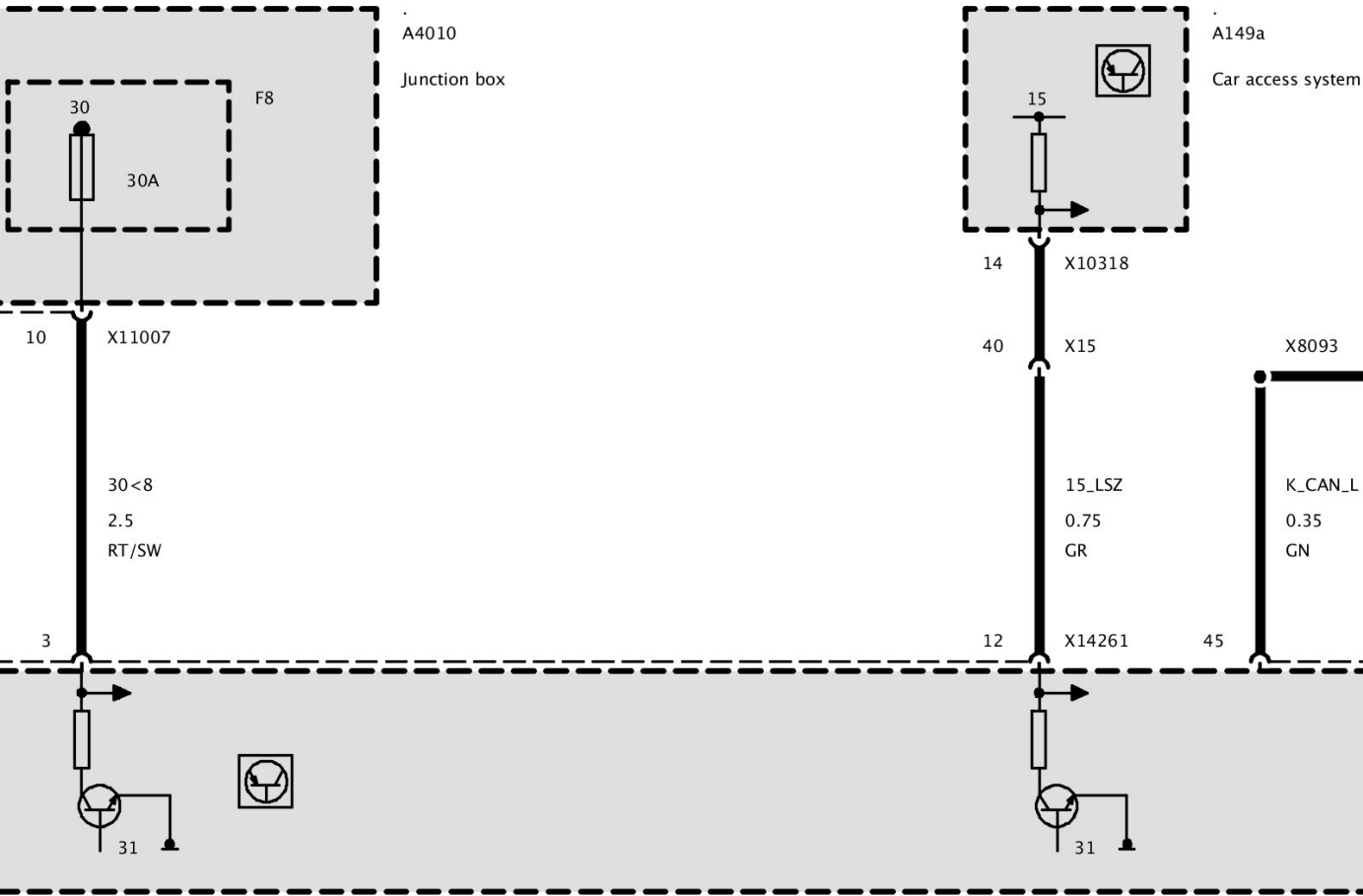
Part 3

Power Supply, Footwell Module FRM (As Of 12/08)

Power Supply, Footwell Module FRM (As Of 12/08)

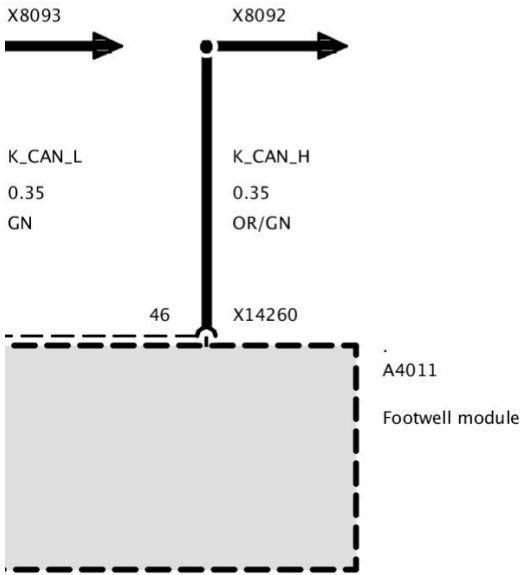


Part 1



Part 2

ss system

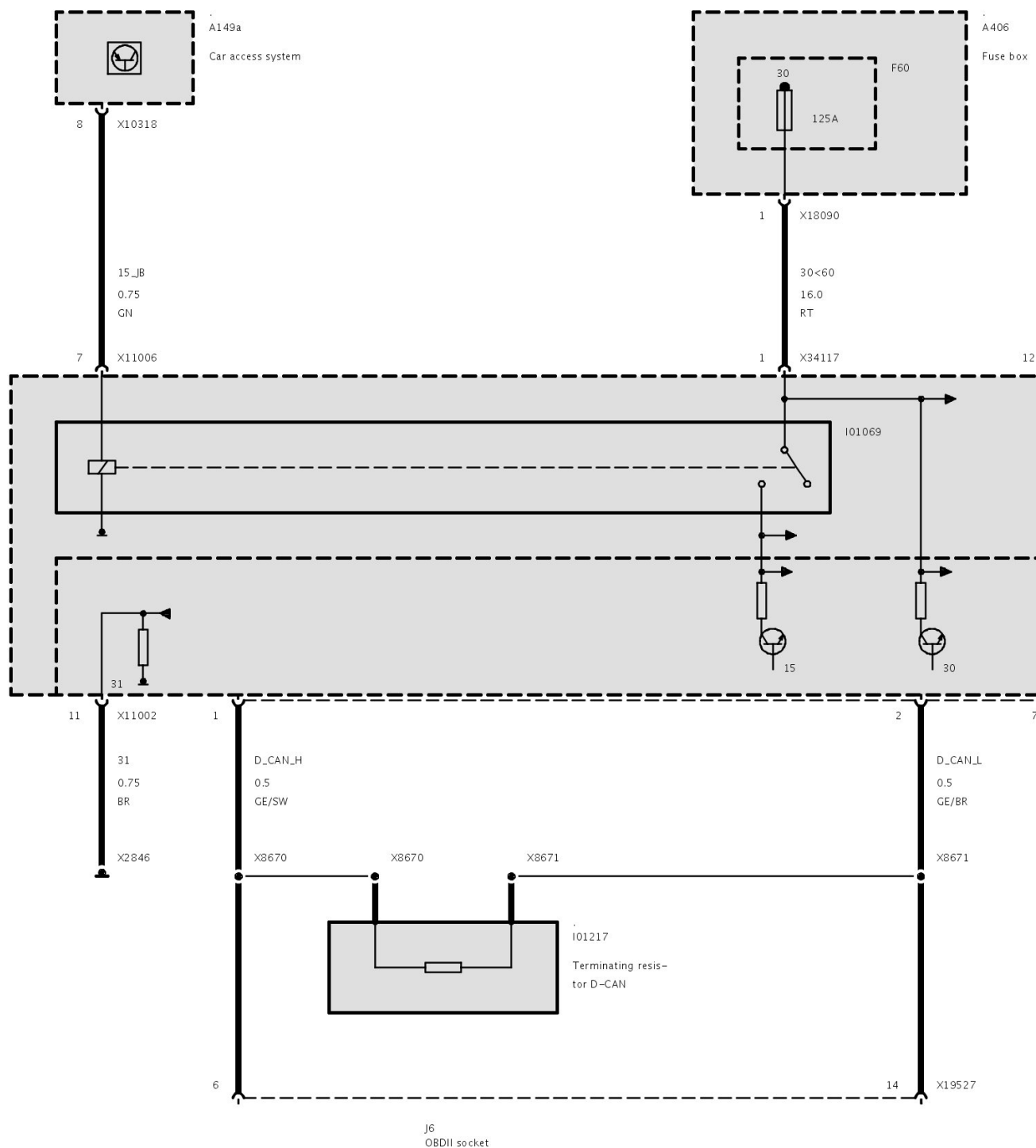


Part 3

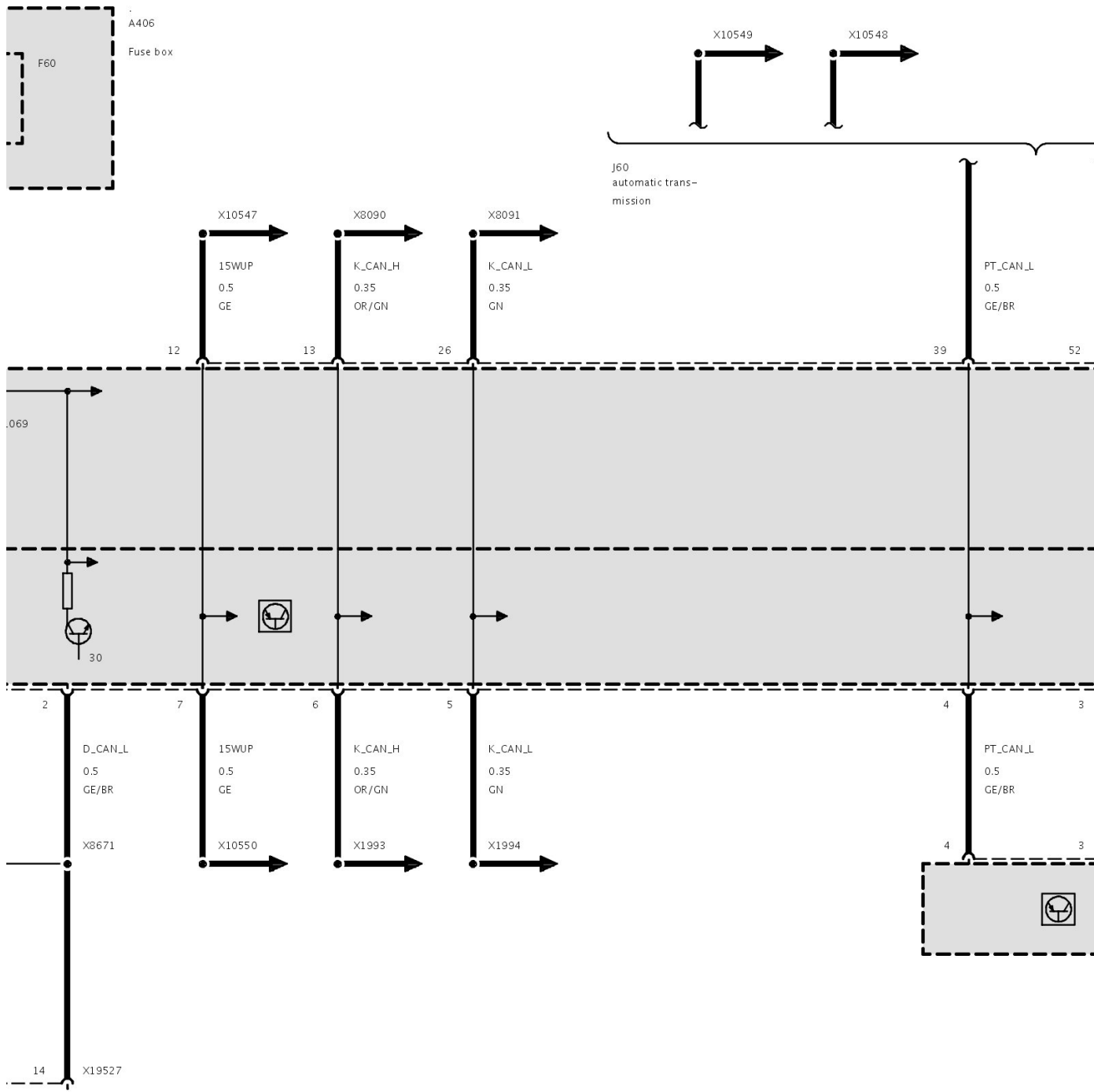
Supply, JBE Junction-Box Electronics

Power Supply JBE Junction Box, Electronics

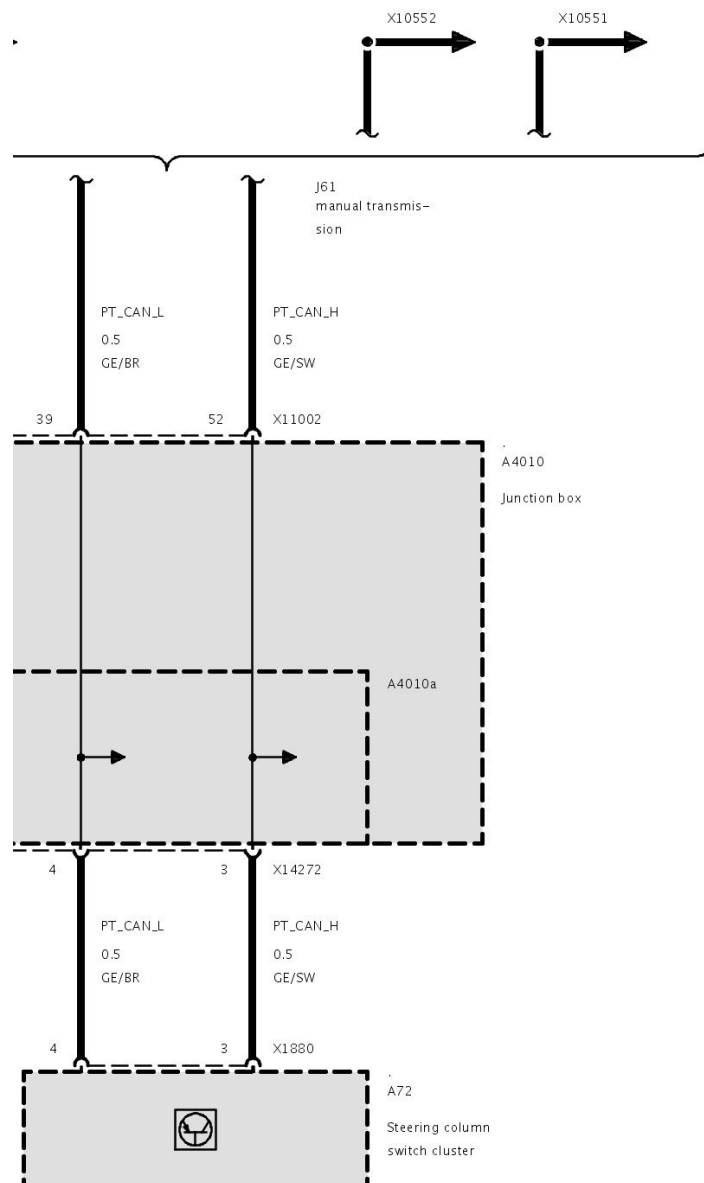




## Part 1



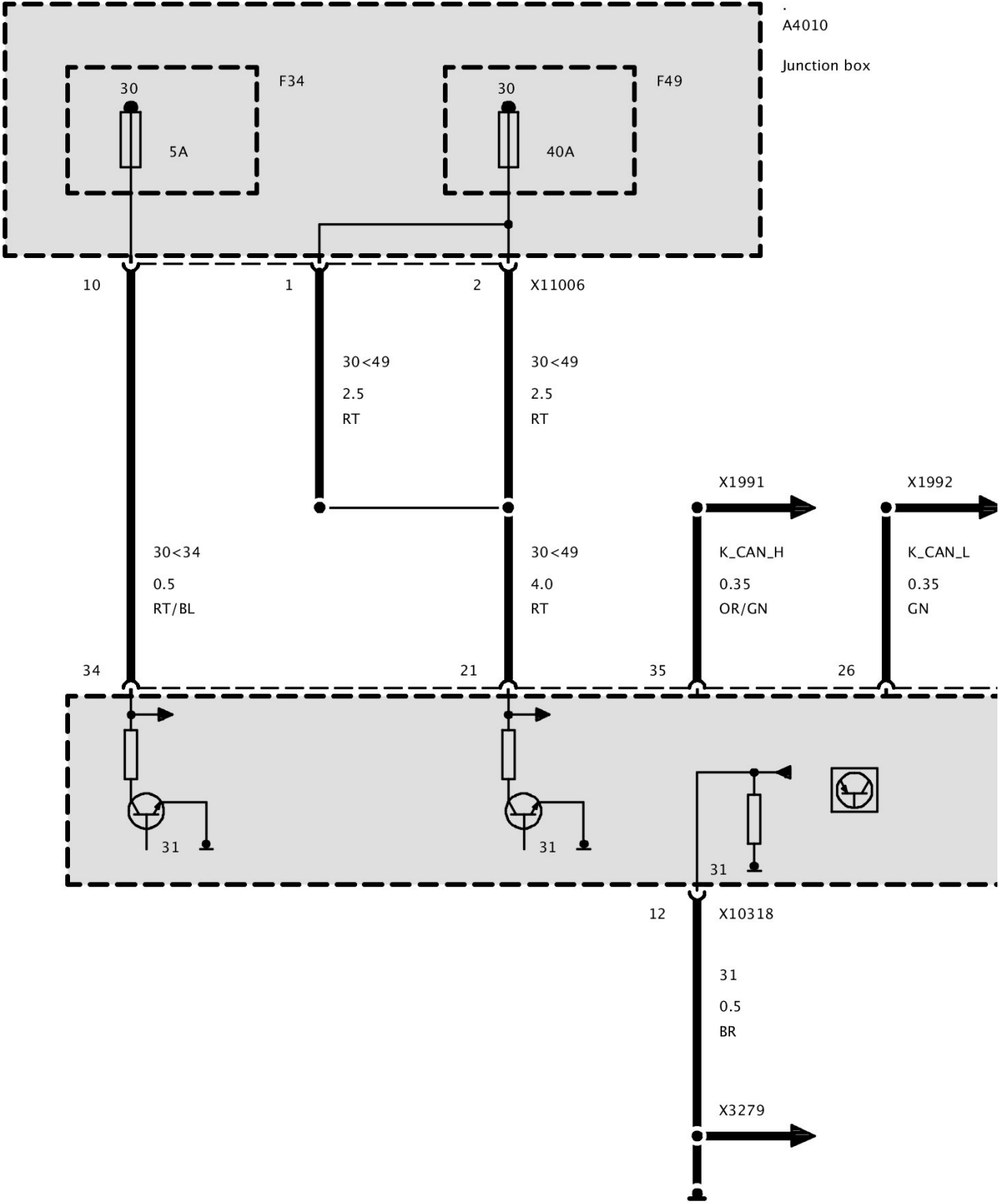
Part 2



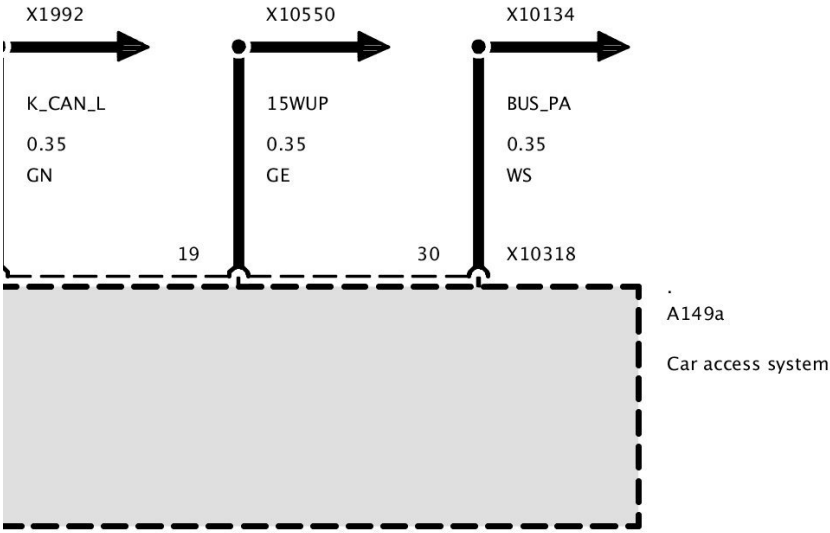
### Part 3

## Power Supply, Car Access System CAS (Up To 08/08)

### Power Supply, Car Access System CAS (Up To 08/08)



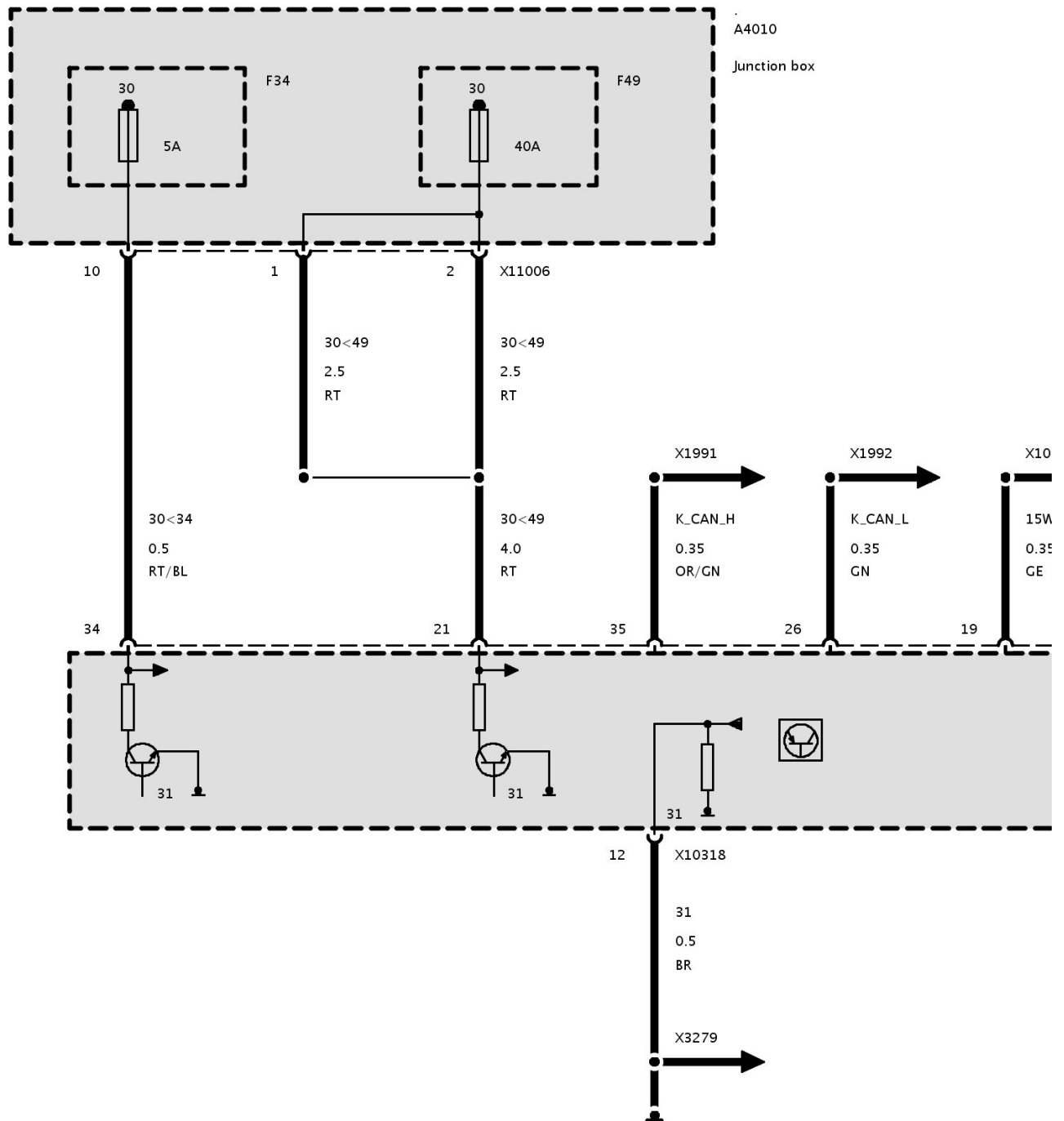
Part 1



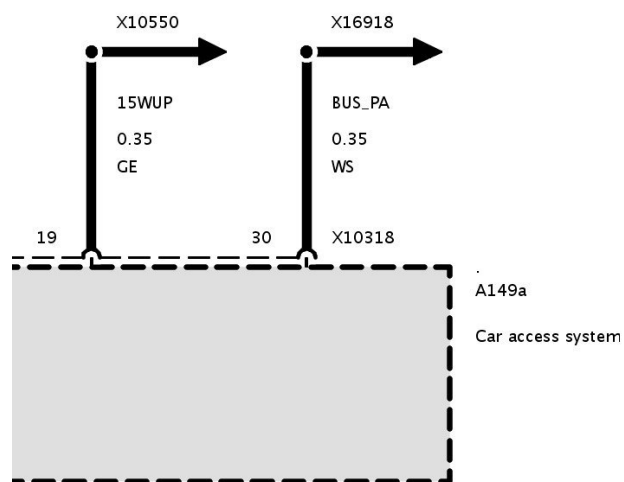
Part 2

Power Supply, Car Access System CAS (As Of 08/08 Up To 12/08)

Power Supply, Car Access System CAS (As Of 08/08 Up To 12/08)



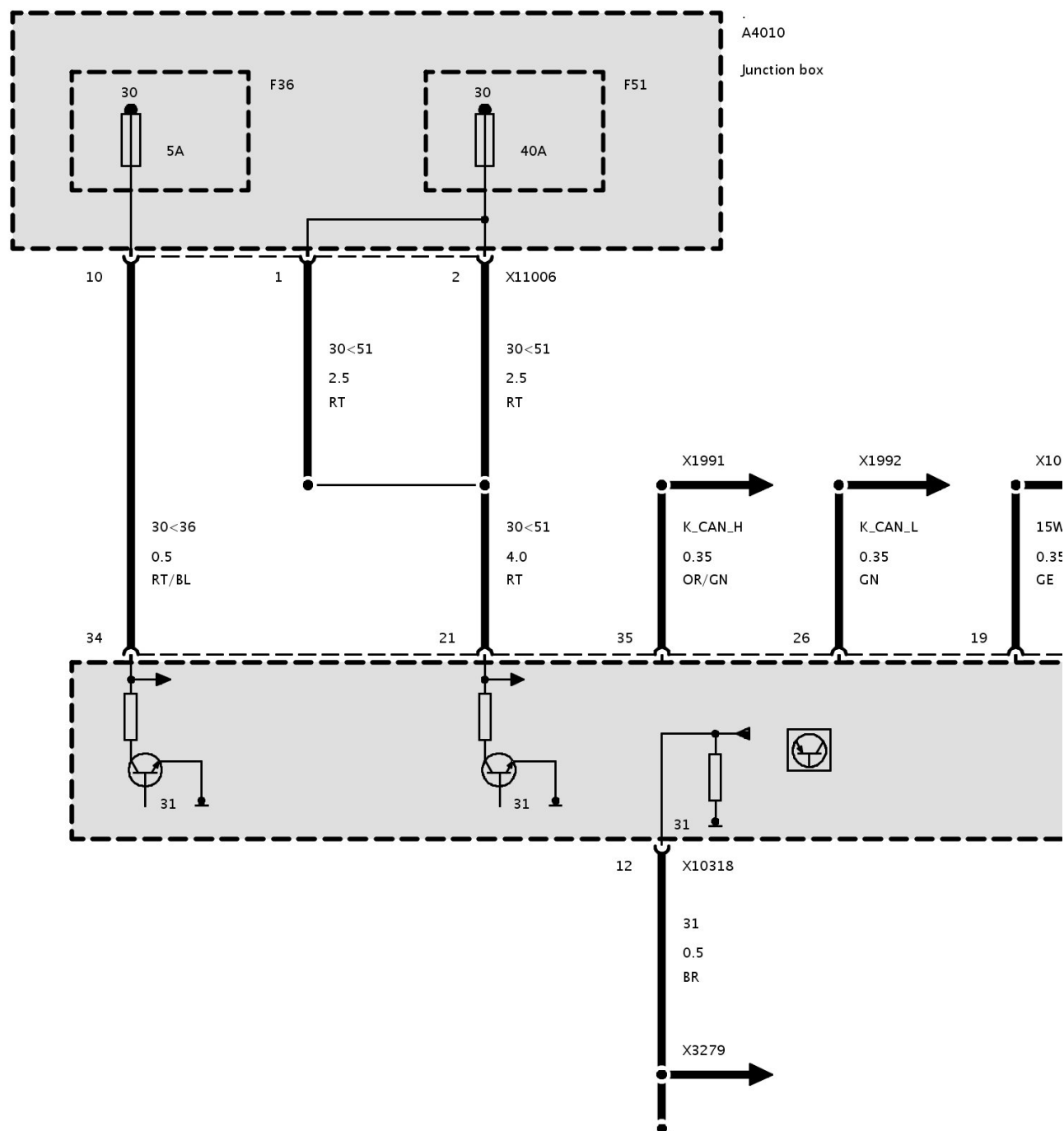
Part 1



**Part 2**

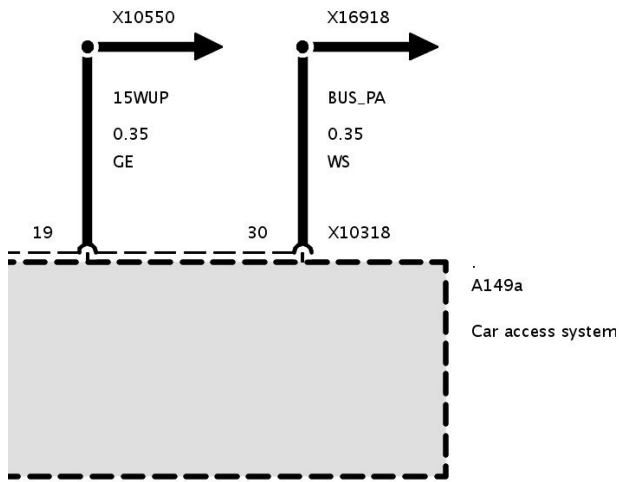
**Power Supply, Car Access System CAS (As Of 12/08)**

Power Supply, Car Access System CAS (As Of 12/08)



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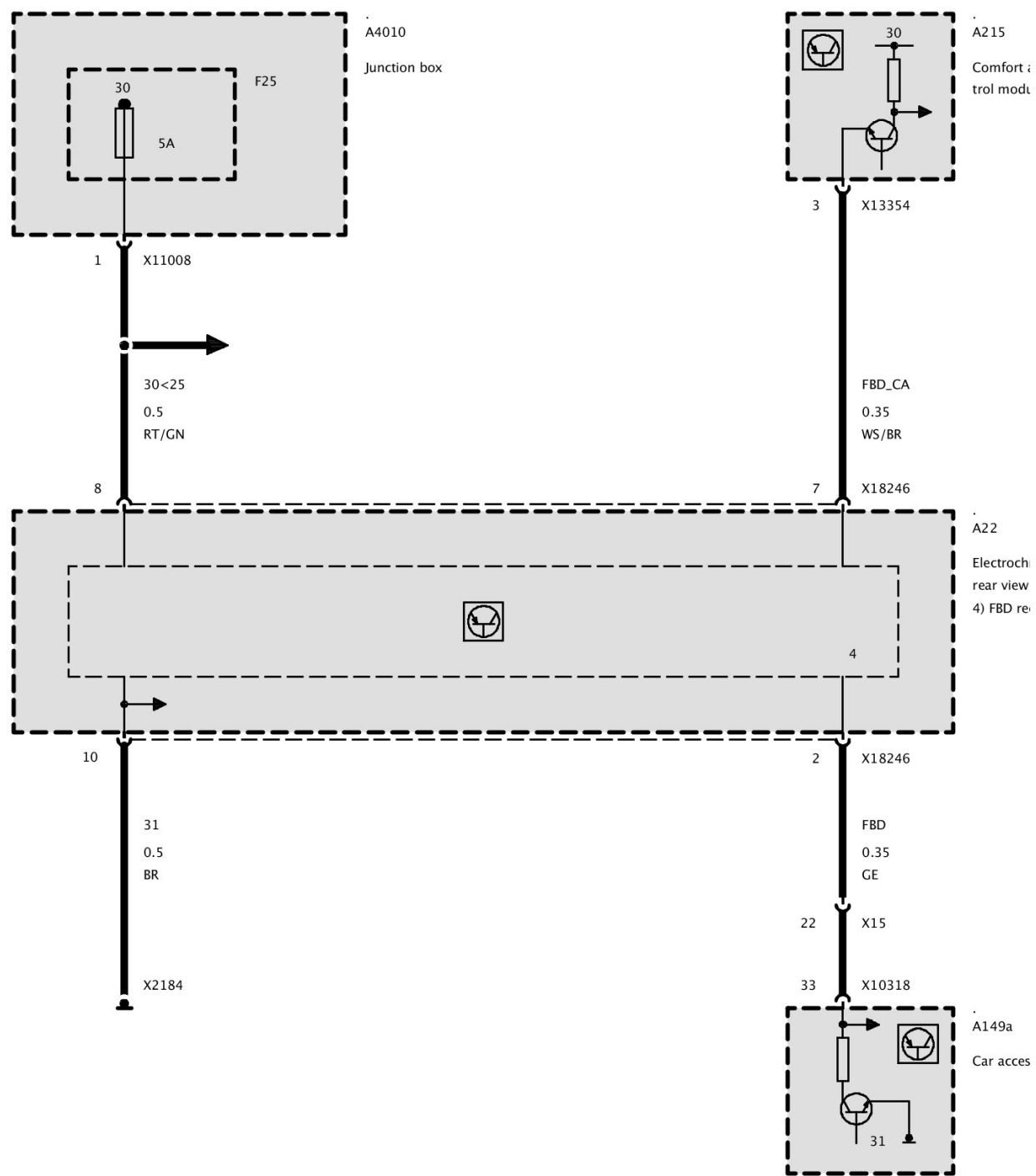




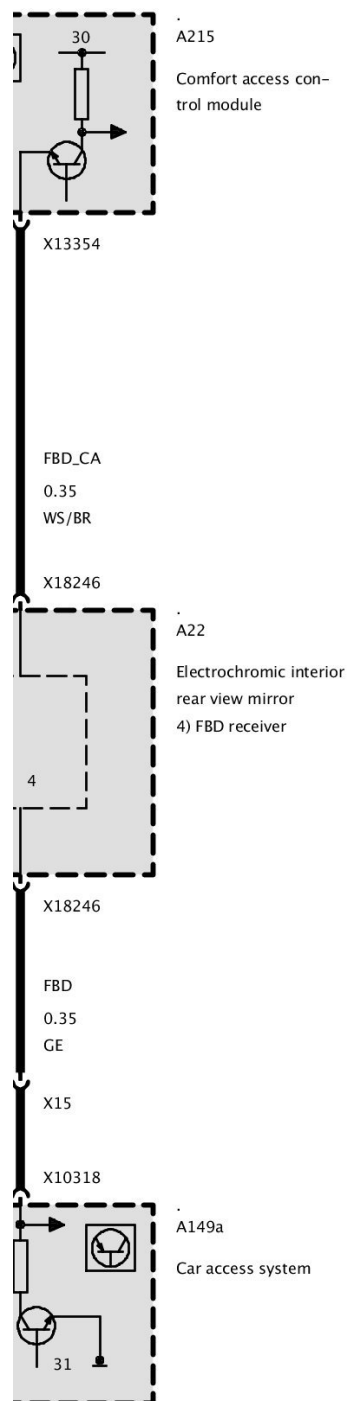
Part 2

Remote Control

Remote Control



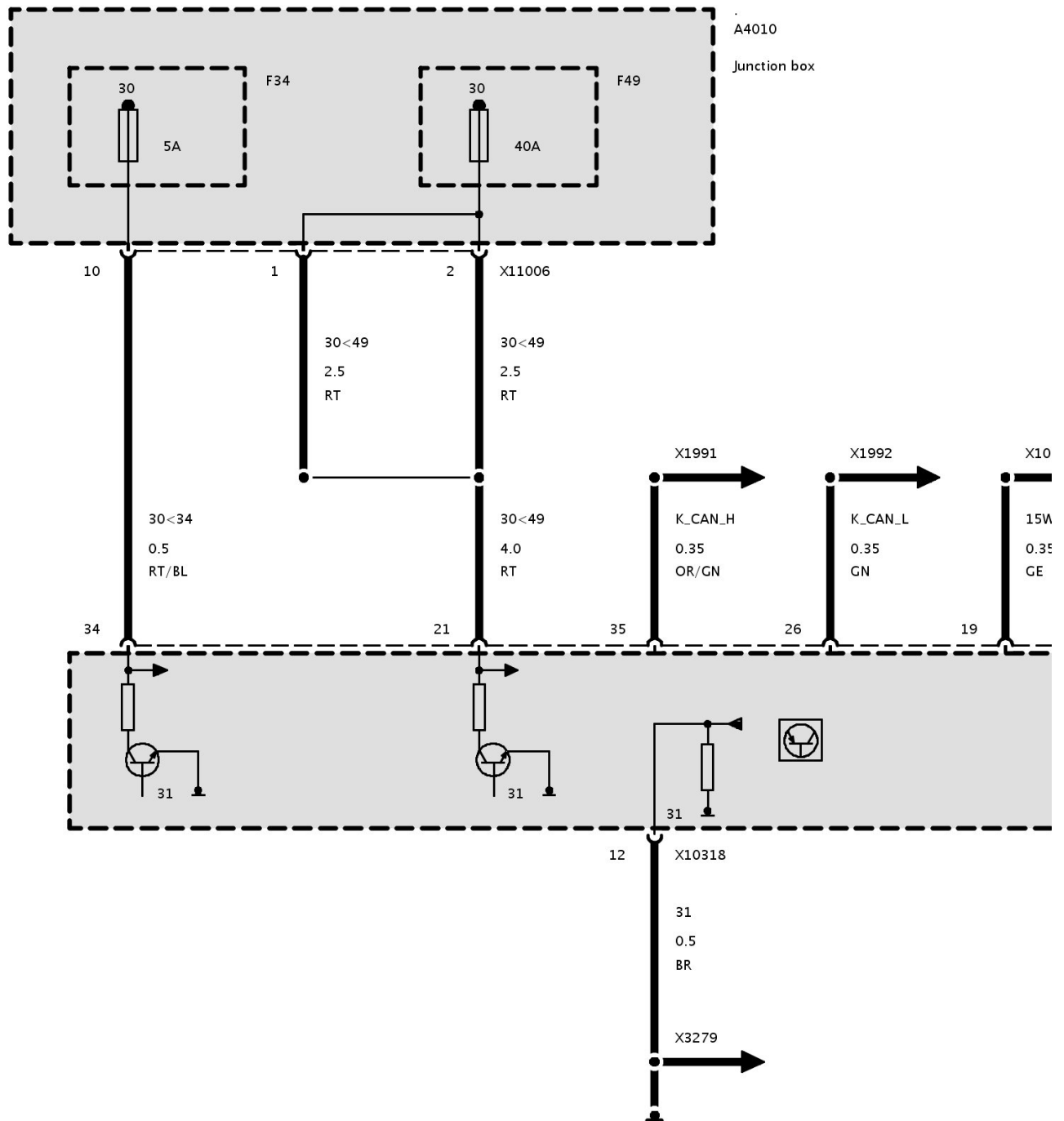
Part 1



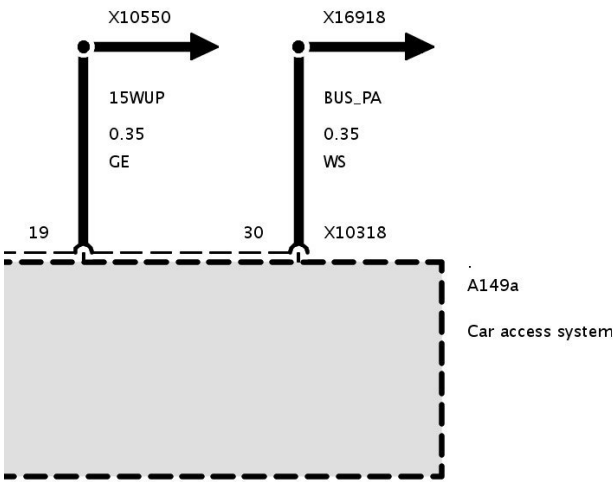
## Part 2

### Power Supply, Car Access System CAS (As Of 08/07 Up To 12/08)

Power Supply, Car Access System CAS (As Of 08/07 Up To 12/08)



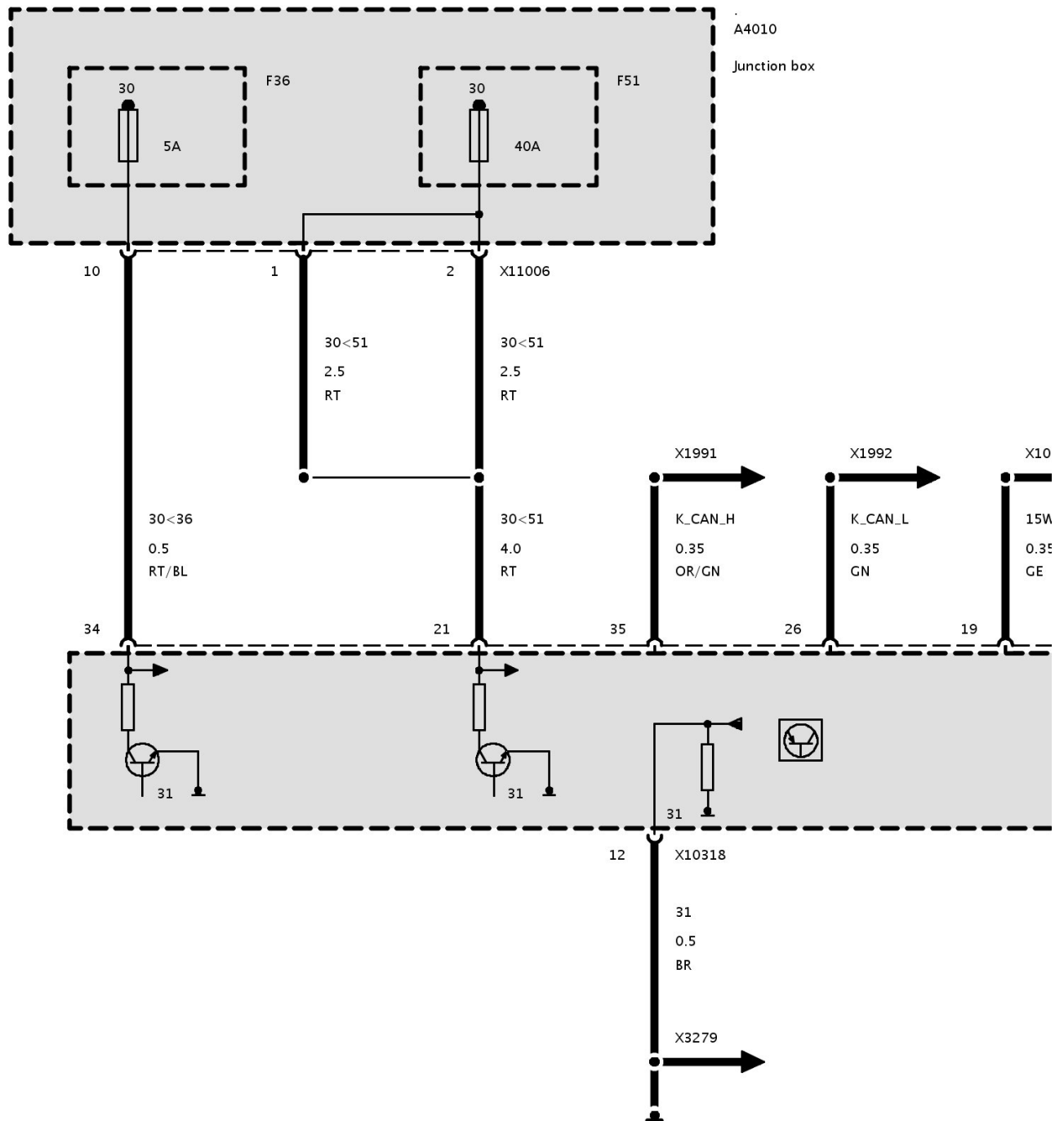
Part 1



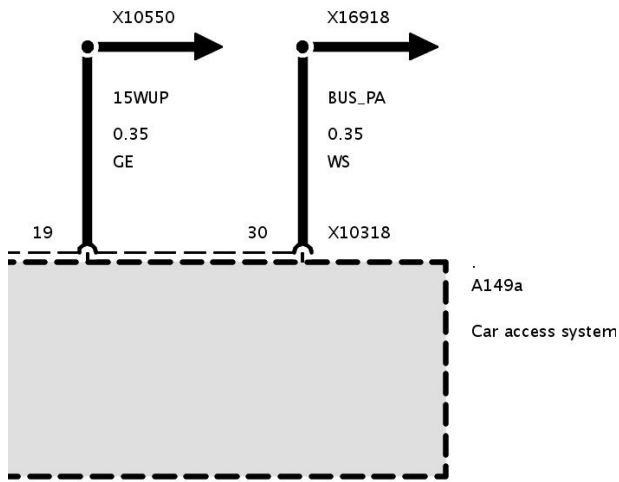
Part 2

Power Supply, Car Access System CAS (As Of 12/08)

Power Supply, Car Access System CAS (As Of 12/08)



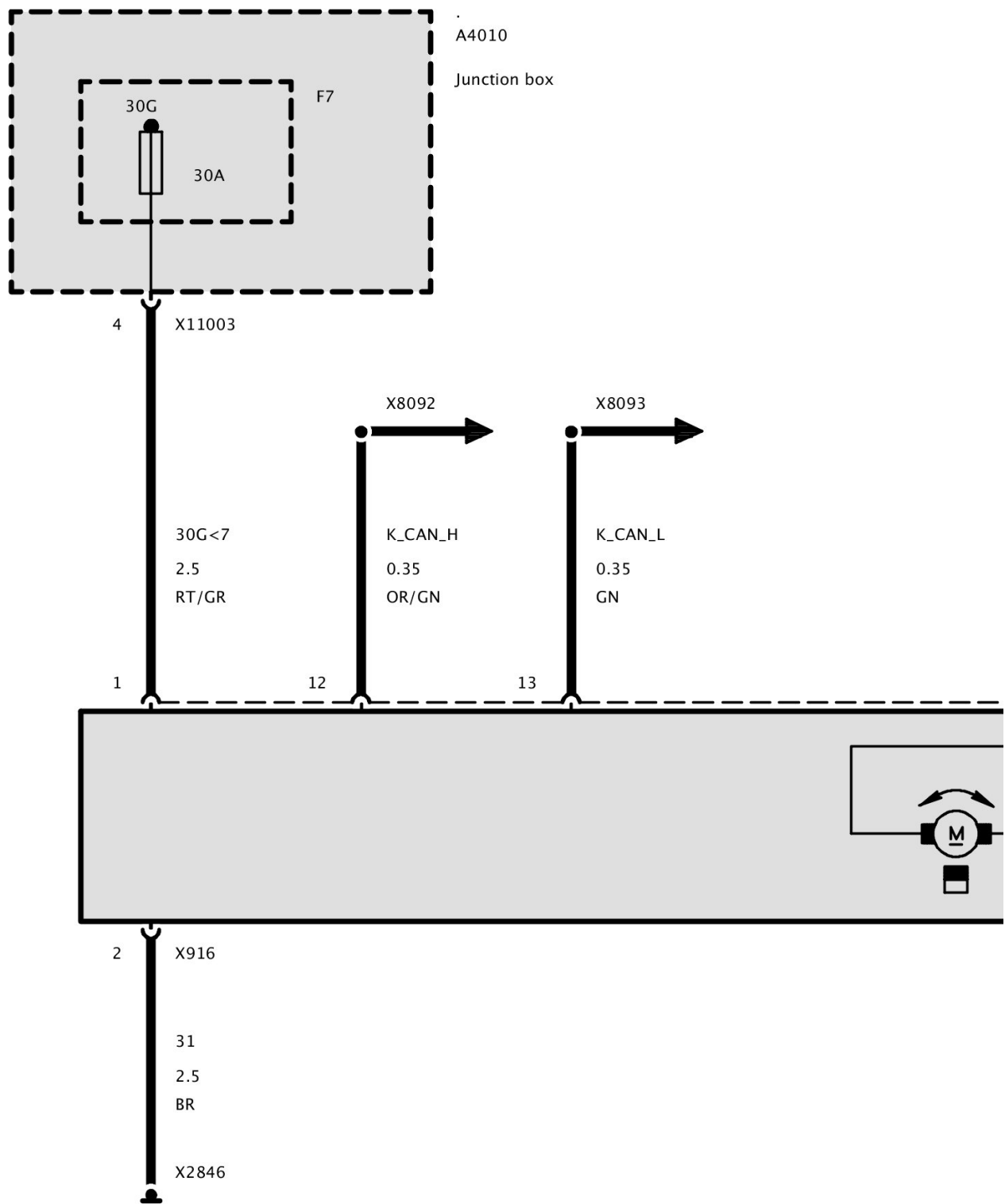
Part 1



Part 2

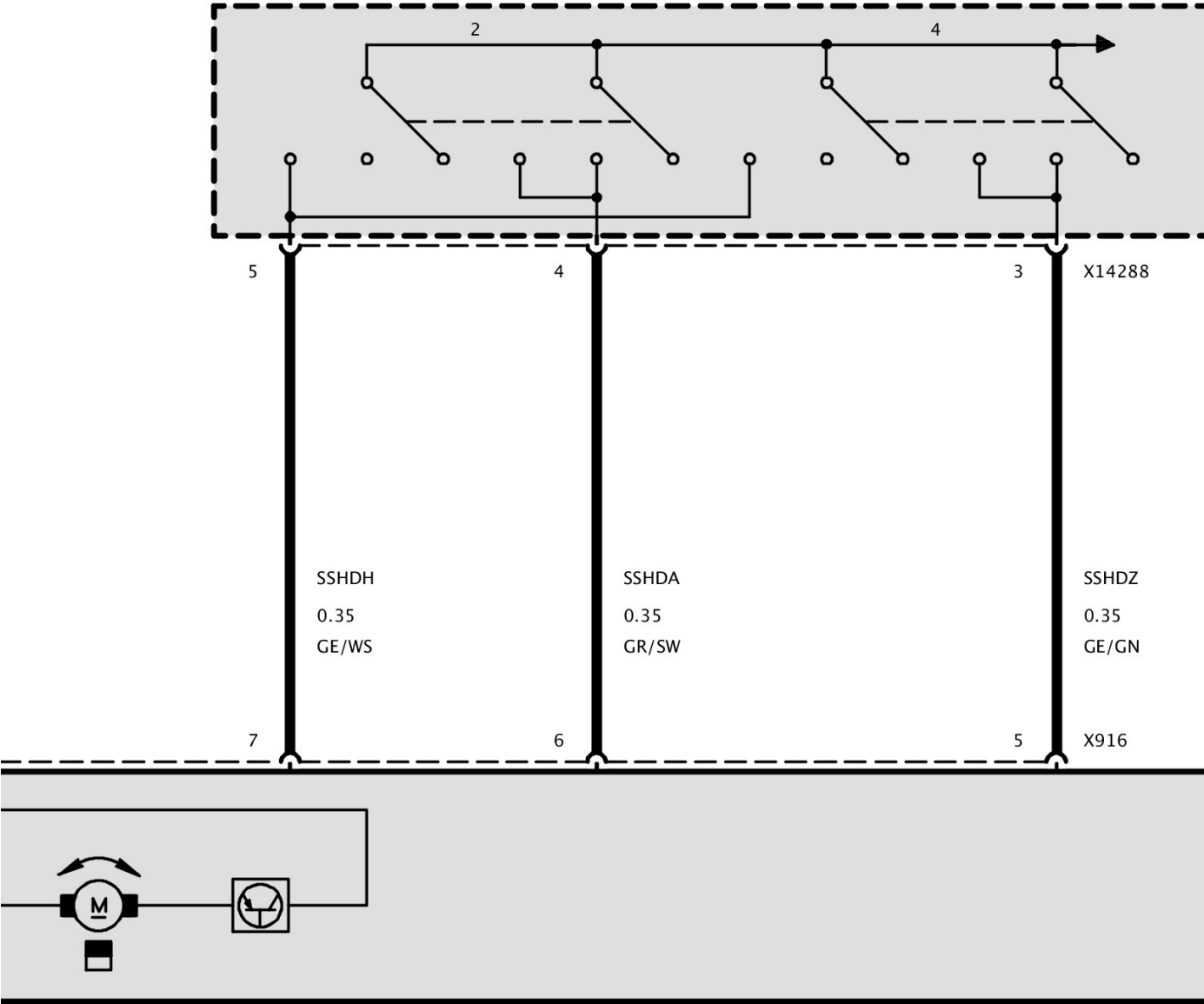
Sunroof

Electric Sunroof

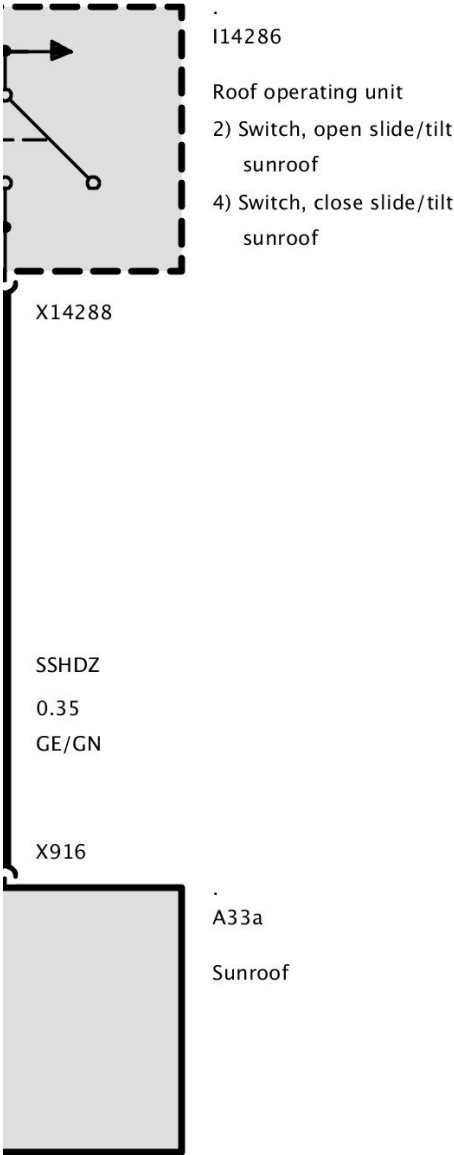


Part 1





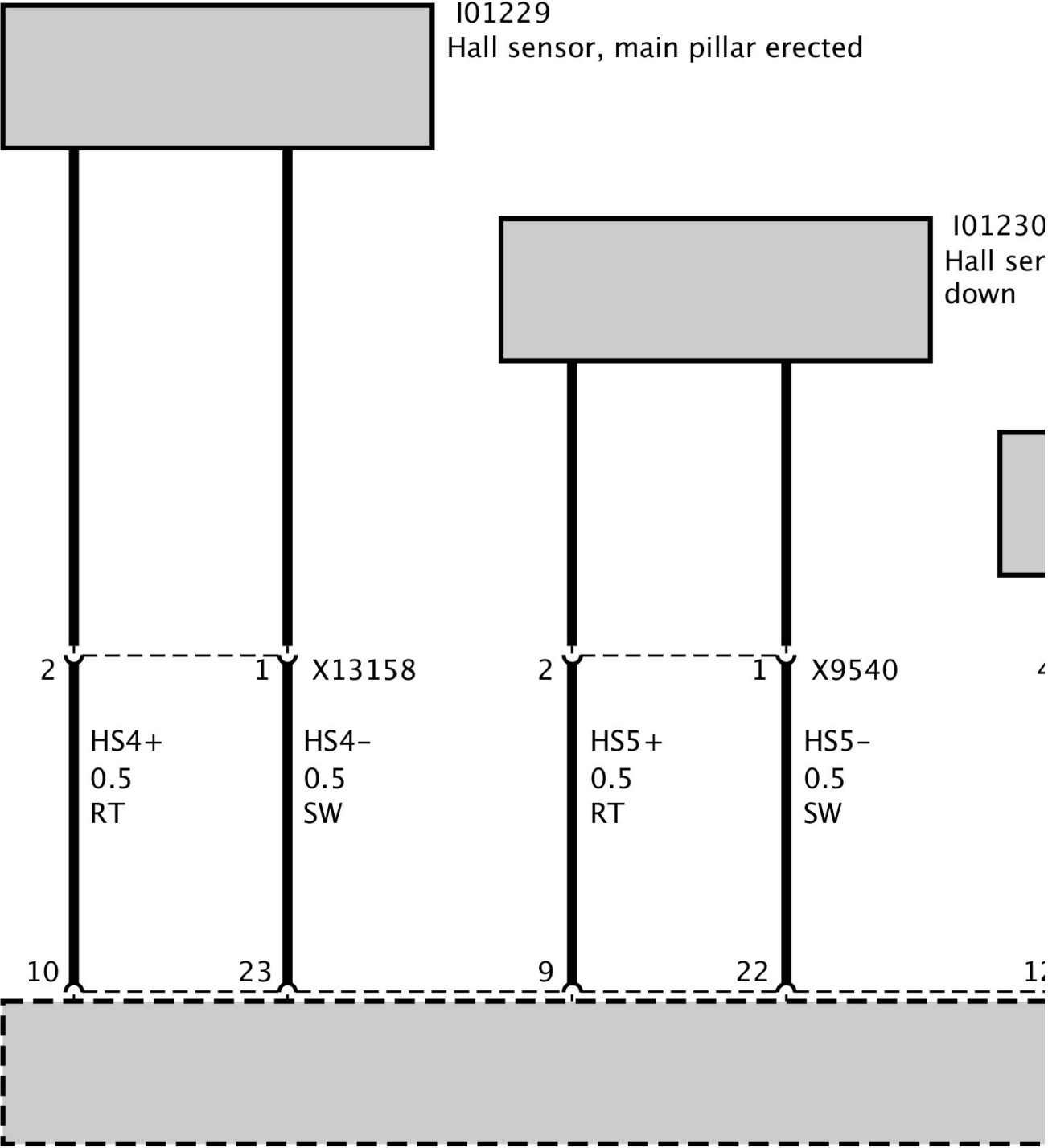
Part 2



Part 3

Function Test

Sensor System



Part 1

cted



I01230  
Hall sensor, main pillar taken  
down



I01234a  
Folding sunroof 70%

X9540

4

3

HS2-  
0.5  
W

HS2+  
0.5  
GE/RT

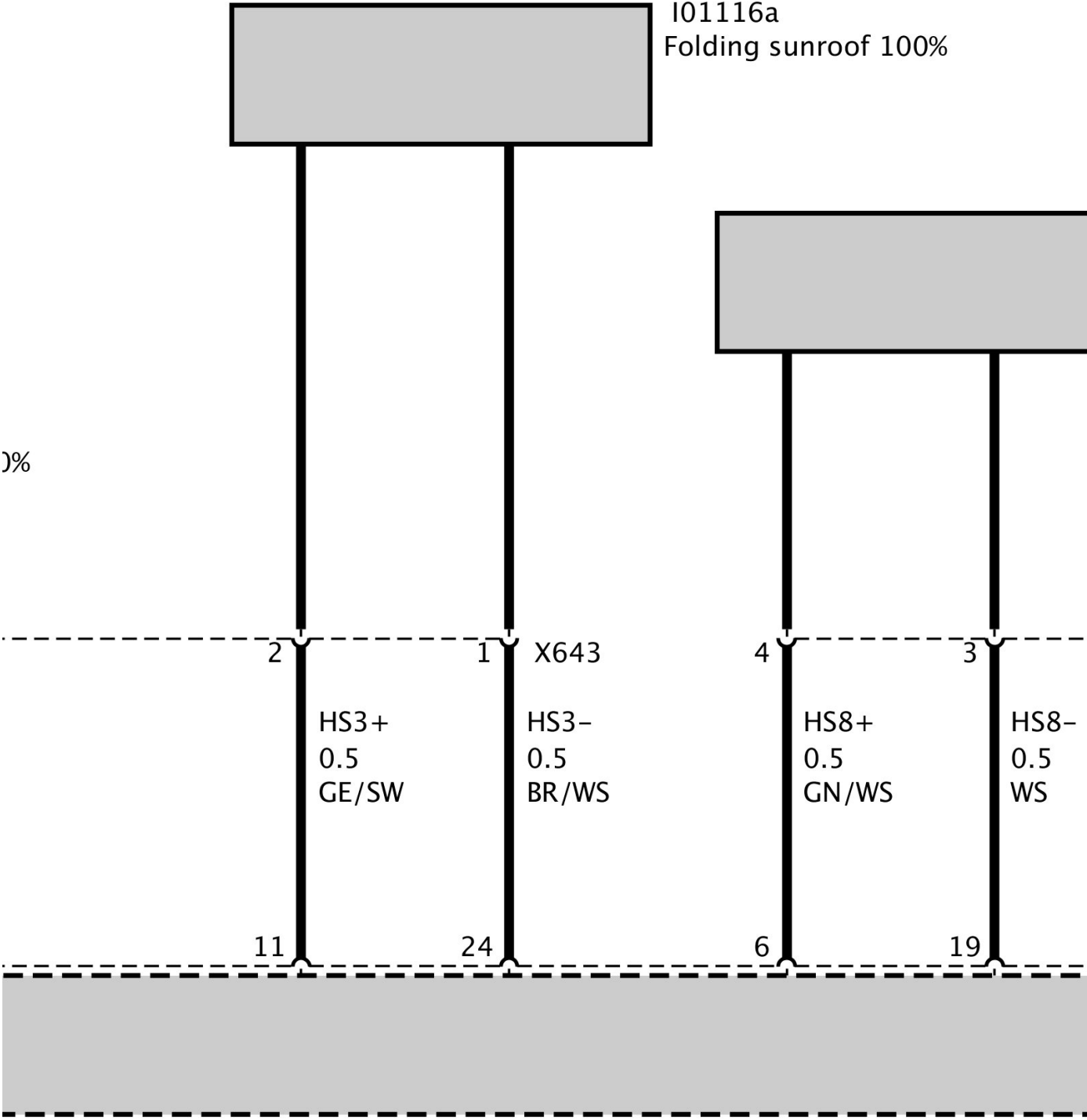
HS2-  
0.5  
BR/RT

12

25

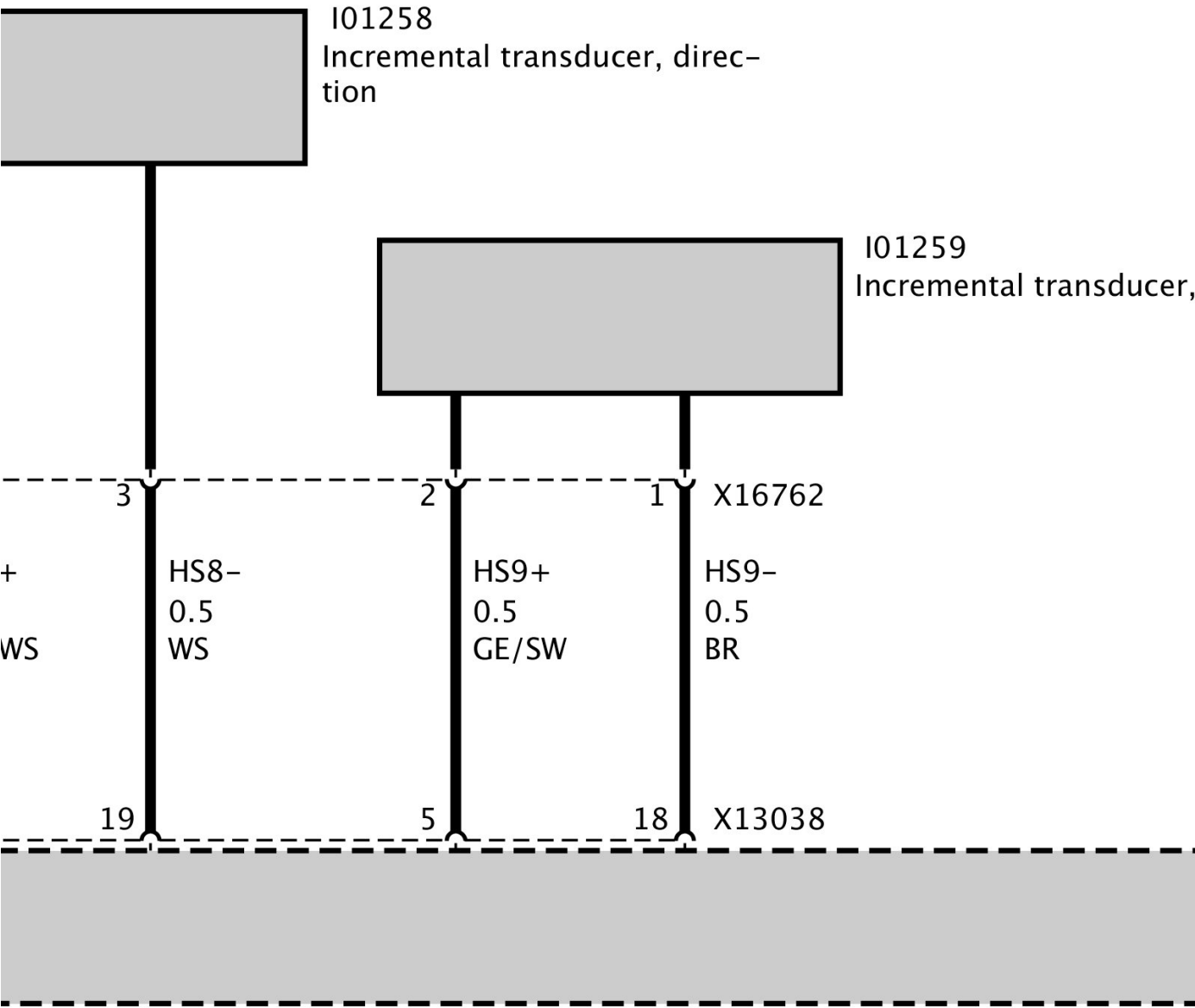


Part 2

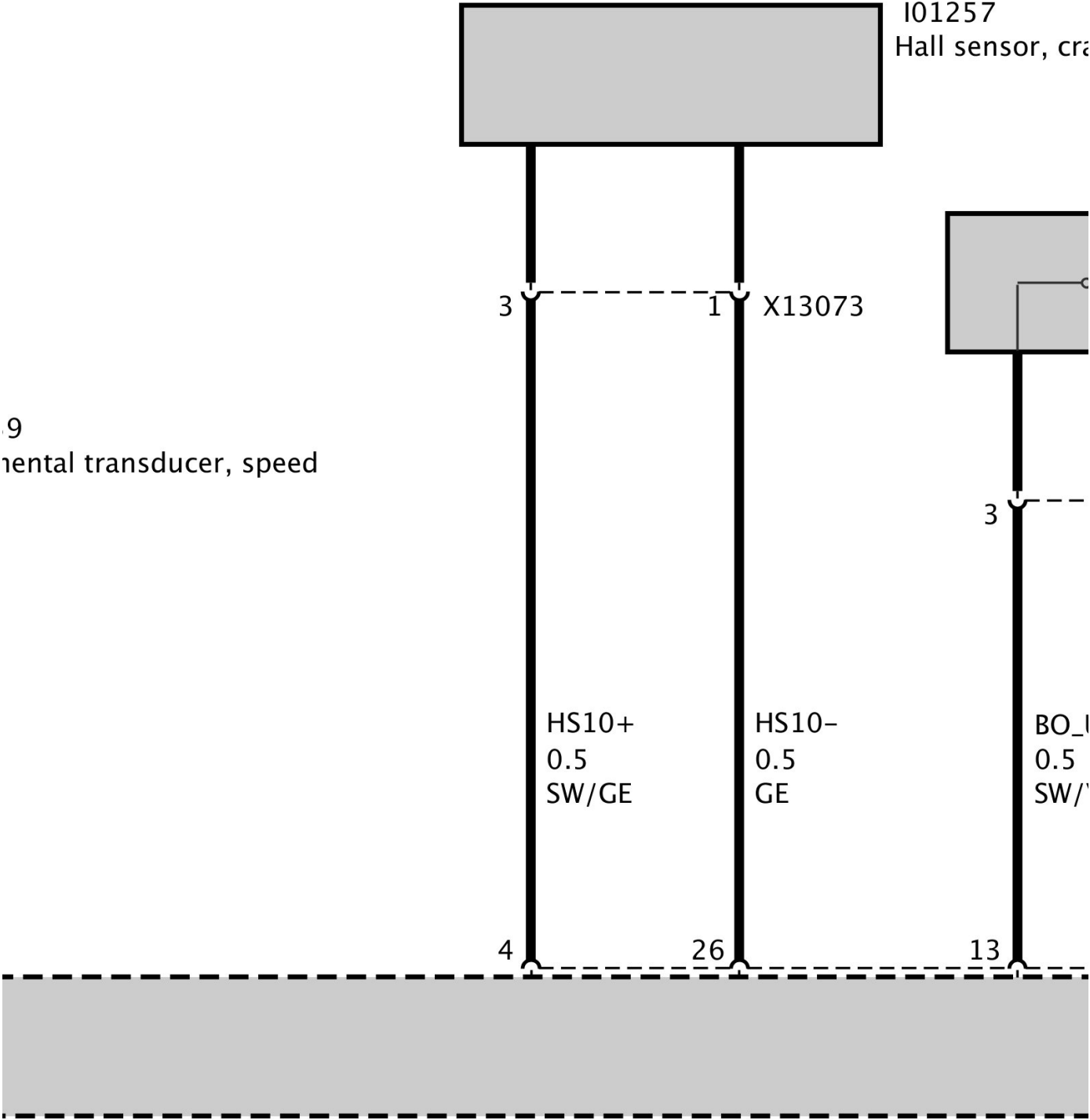


Part 3

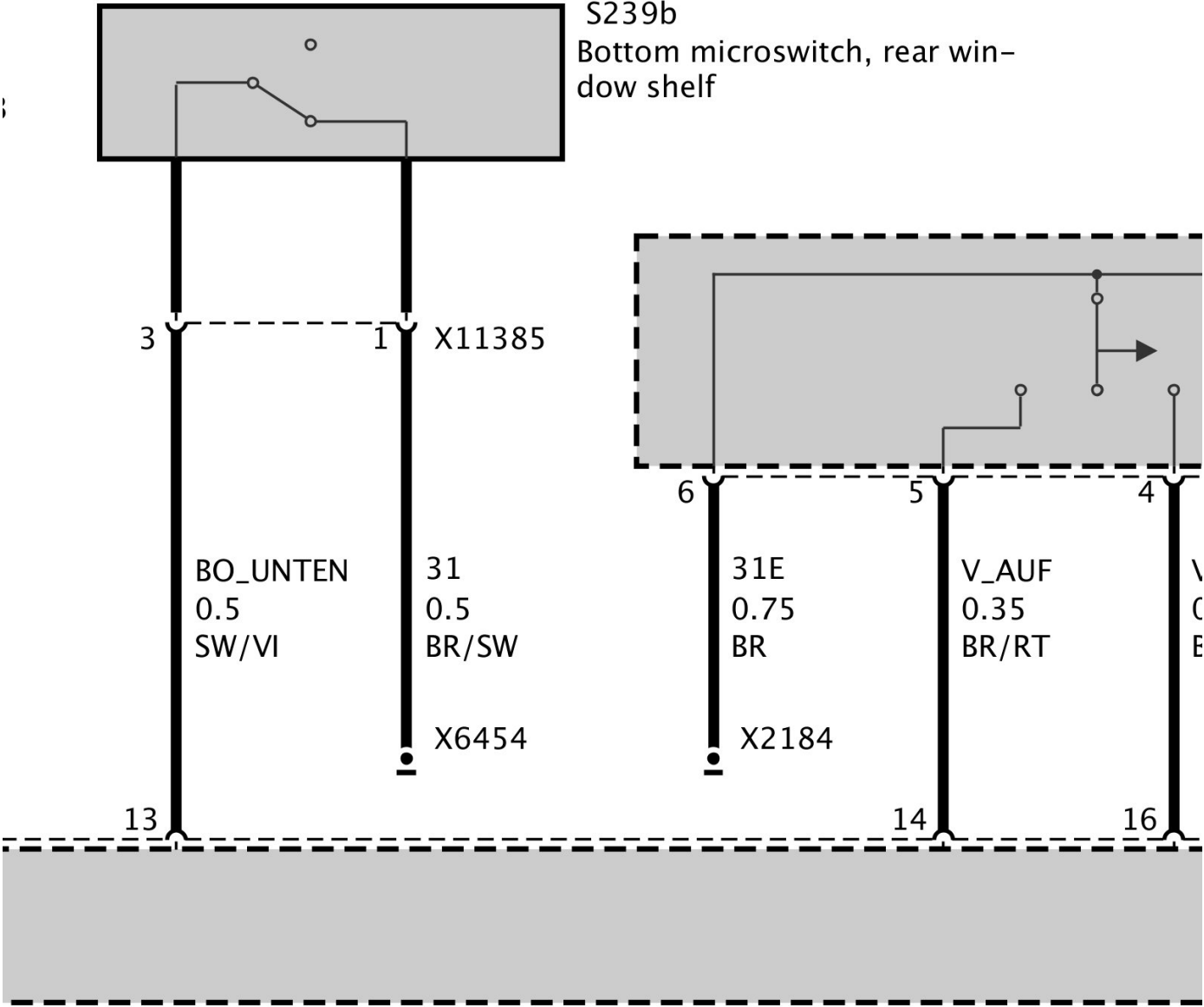
f 100%



Part 4

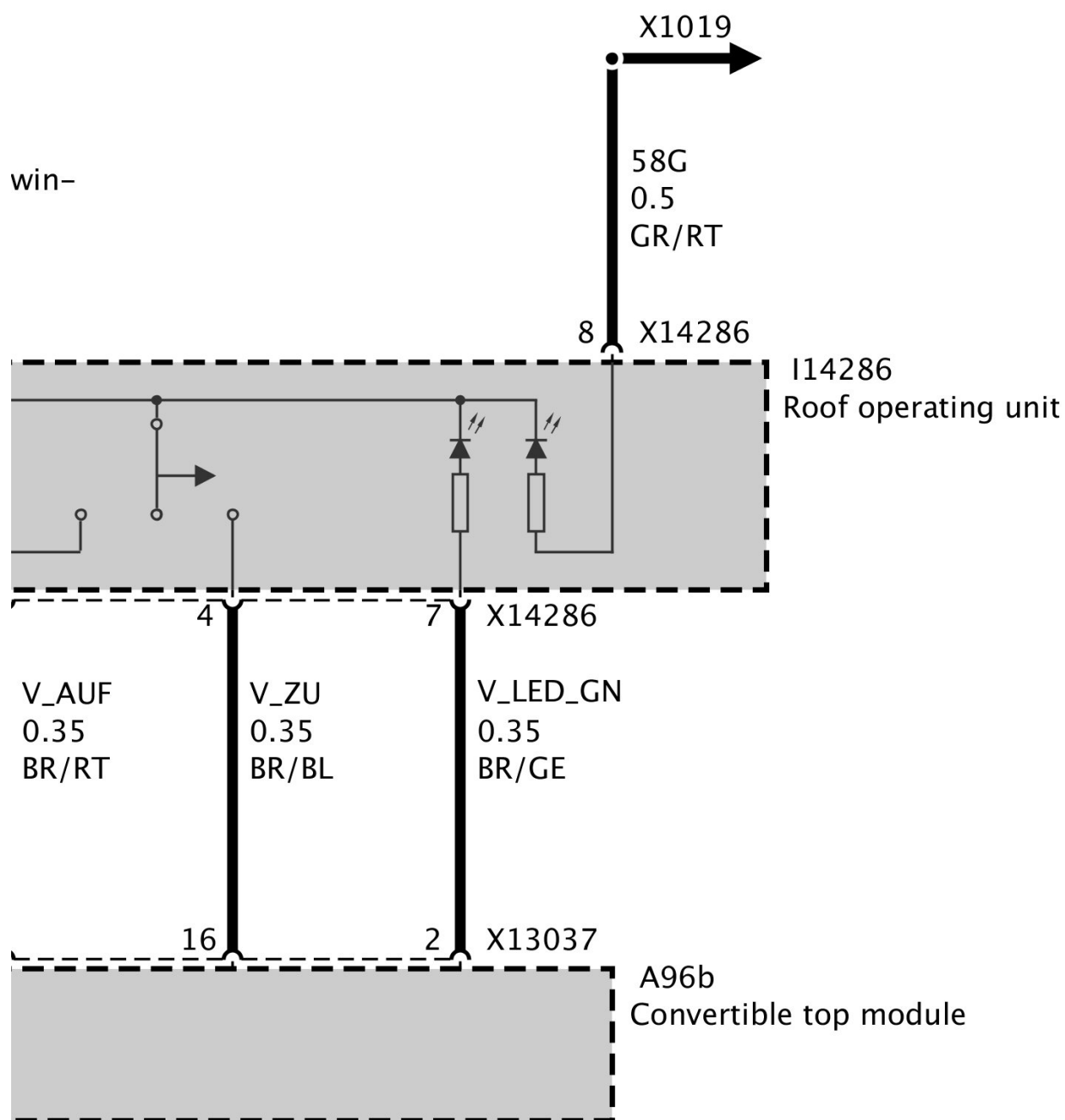


I01257  
Hall sensor, crash lock



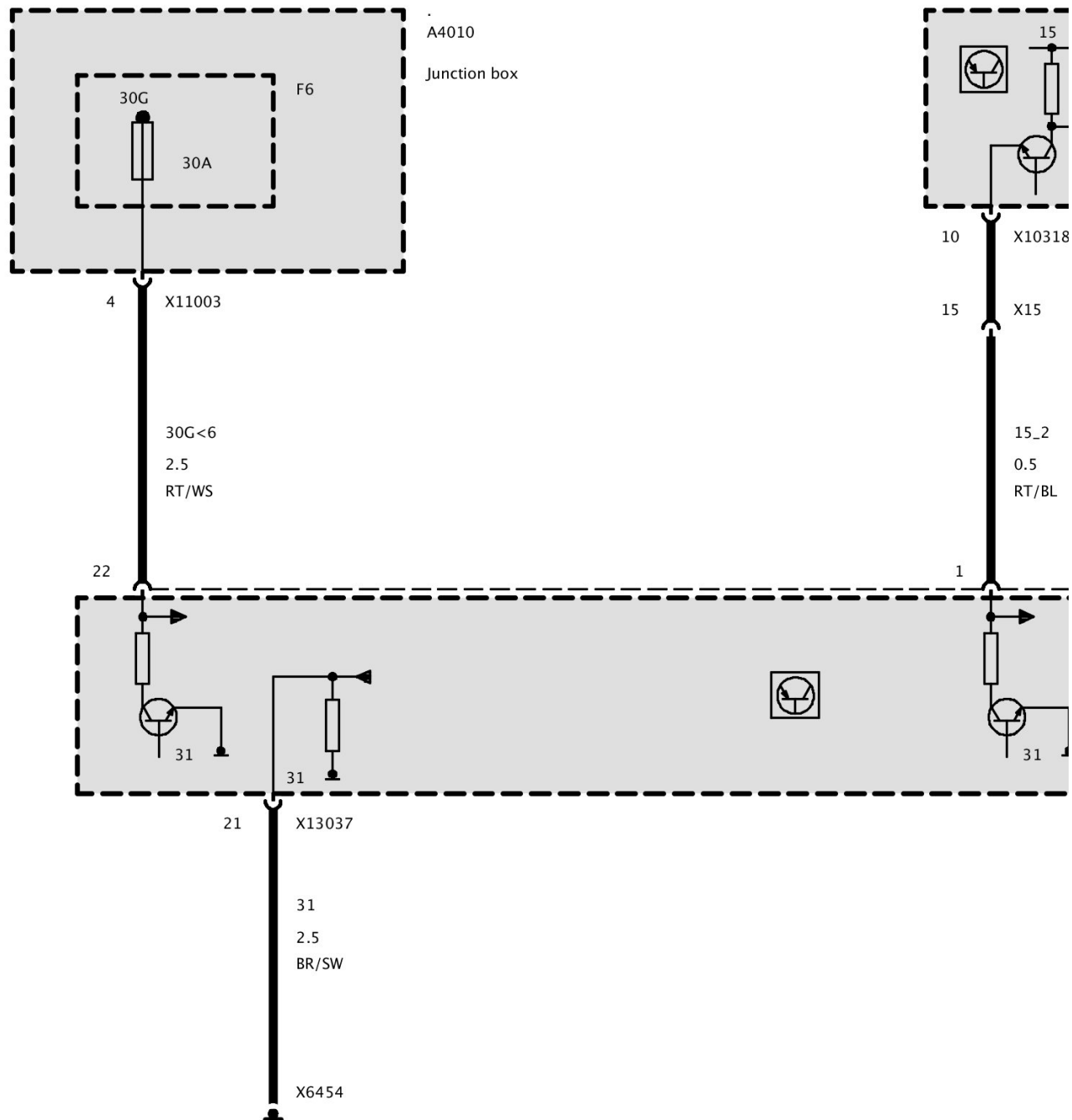
Part 6



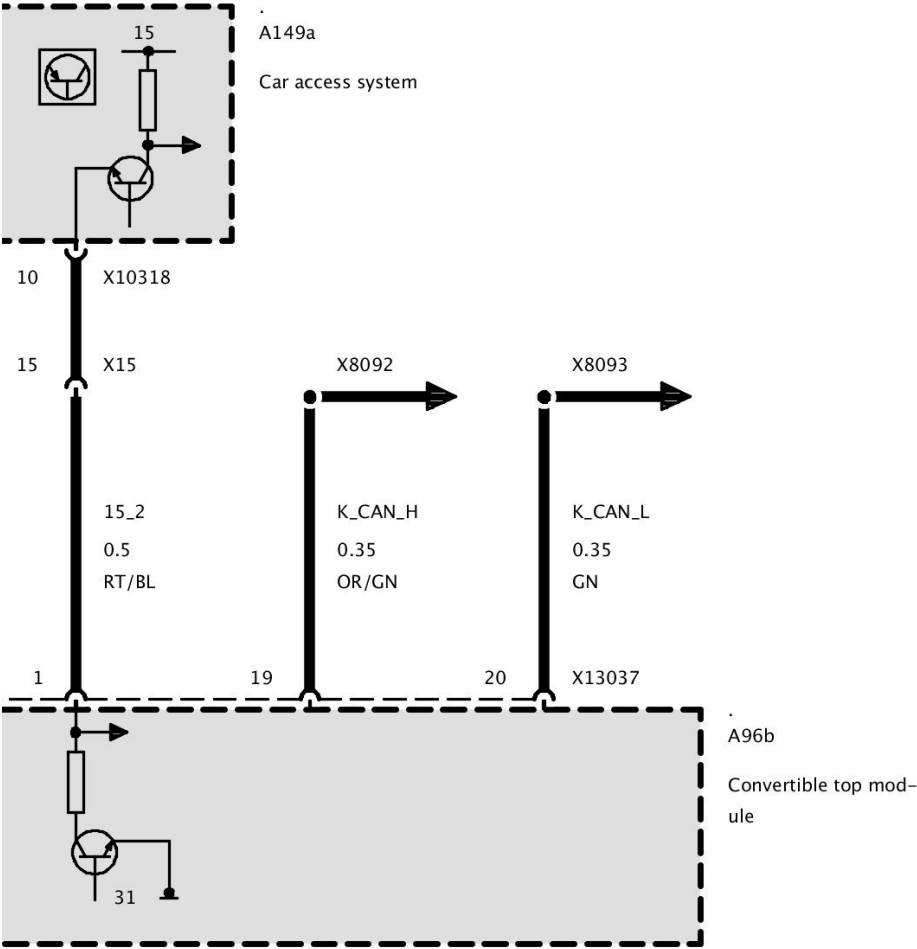


## Supply

Power Supply, Convertible Top Module



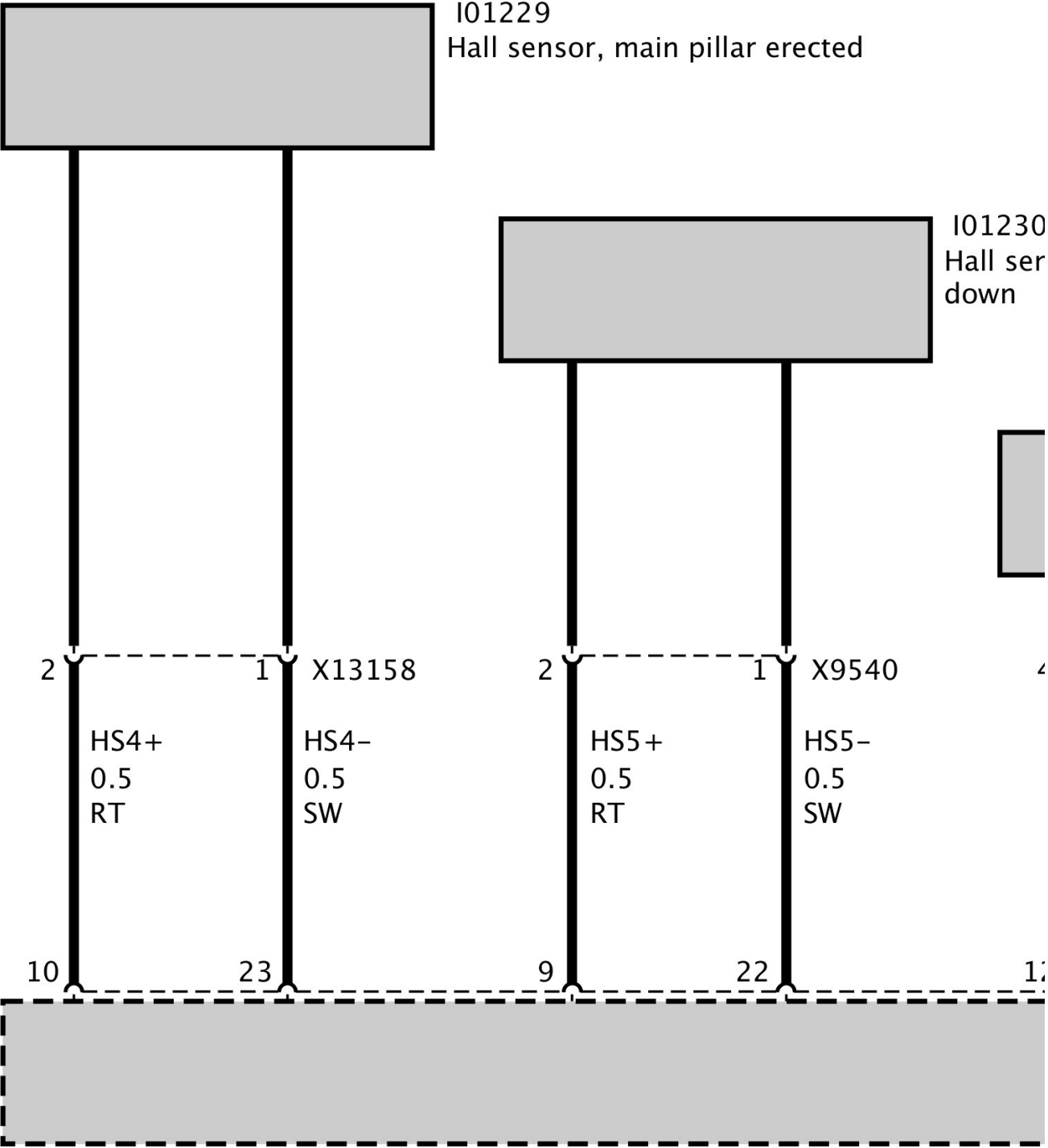
Part 1



Part 2

Sensor System

Sensor System



Part 1

cted



I01230  
Hall sensor, main pillar taken  
down



I01234a  
Folding sunroof 70%

X9540

HS2-  
0.5  
W

4

HS2+  
0.5  
GE/RT

3

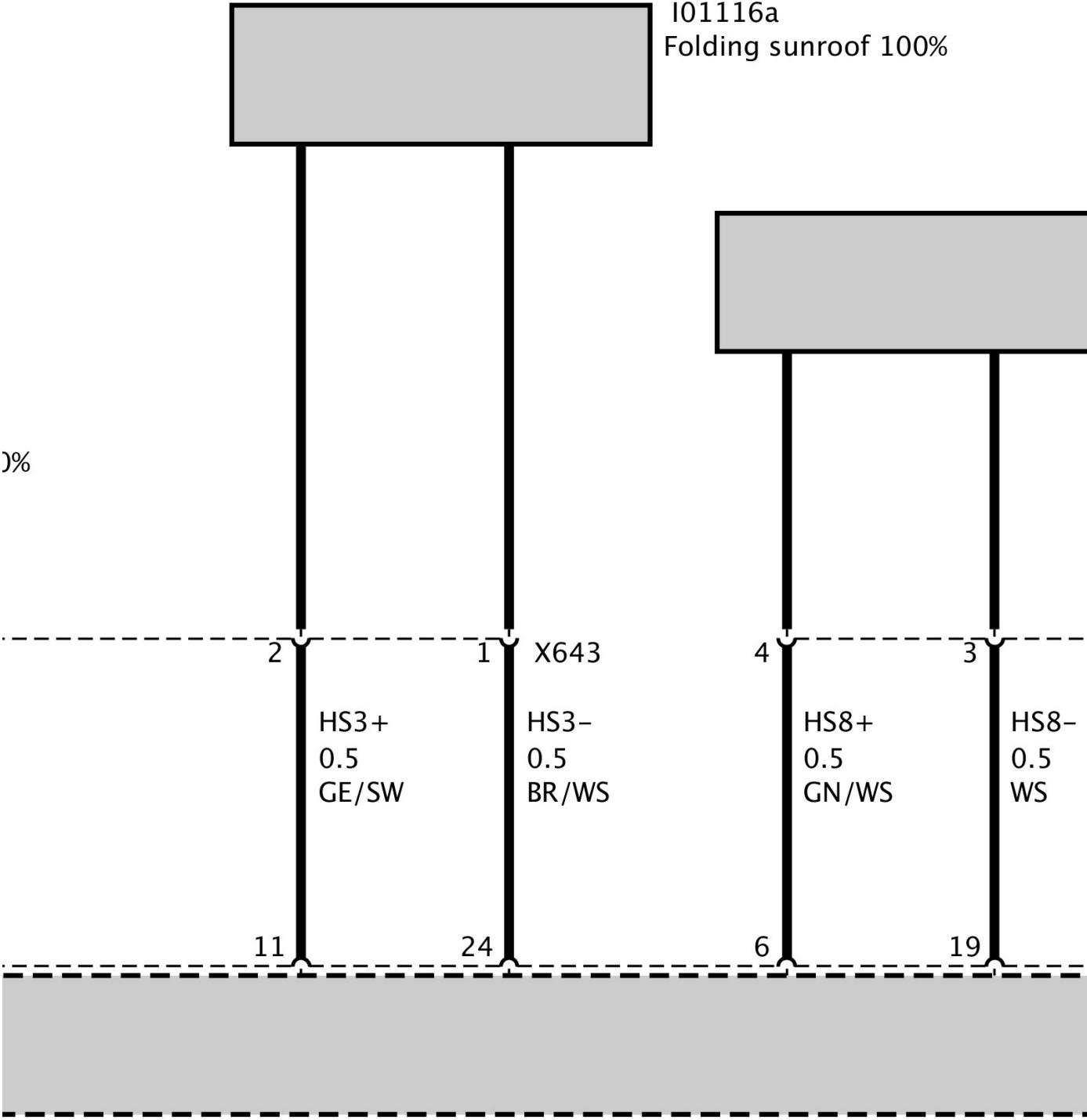
HS2-  
0.5  
BR/RT

12

25

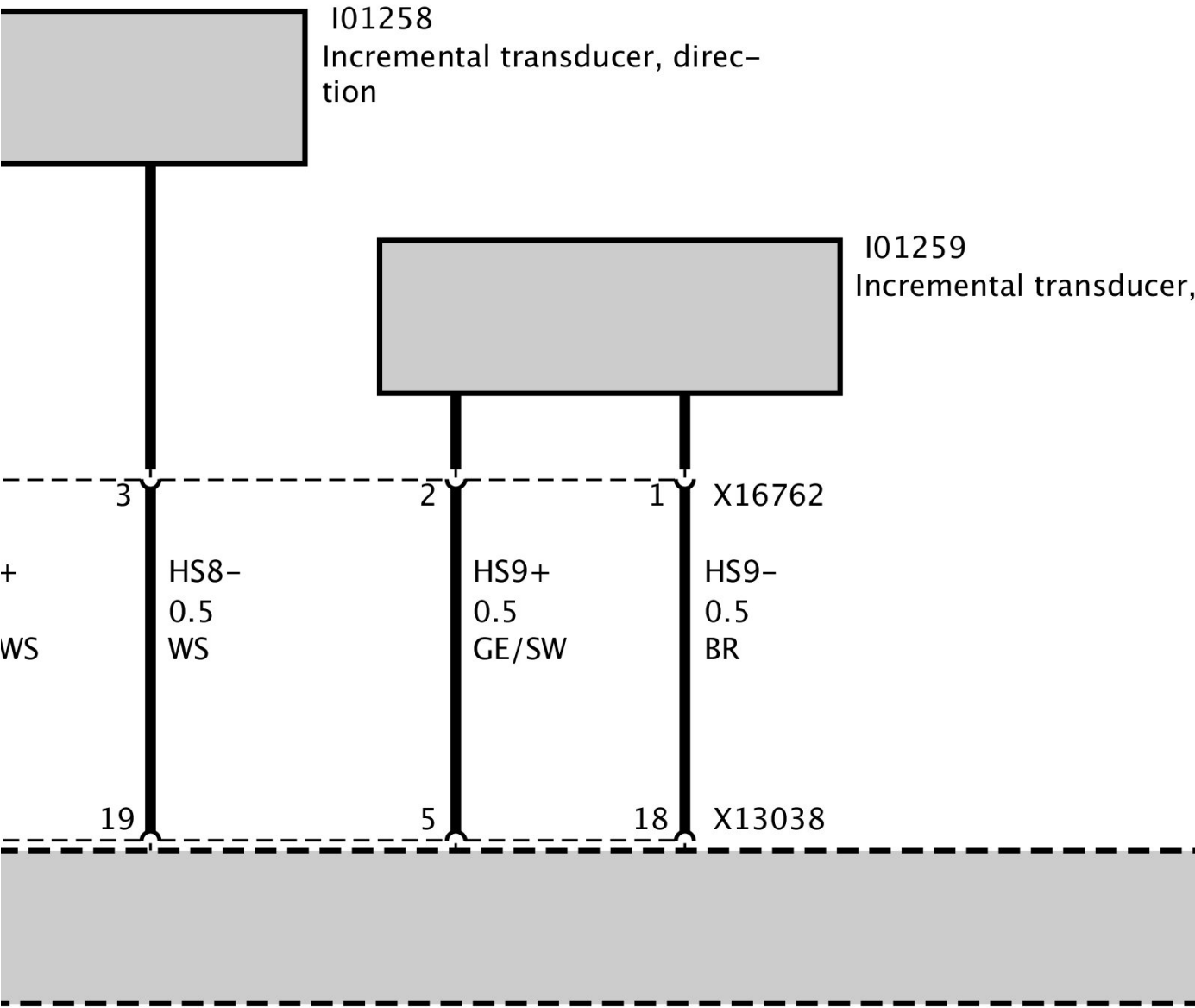


Part 2

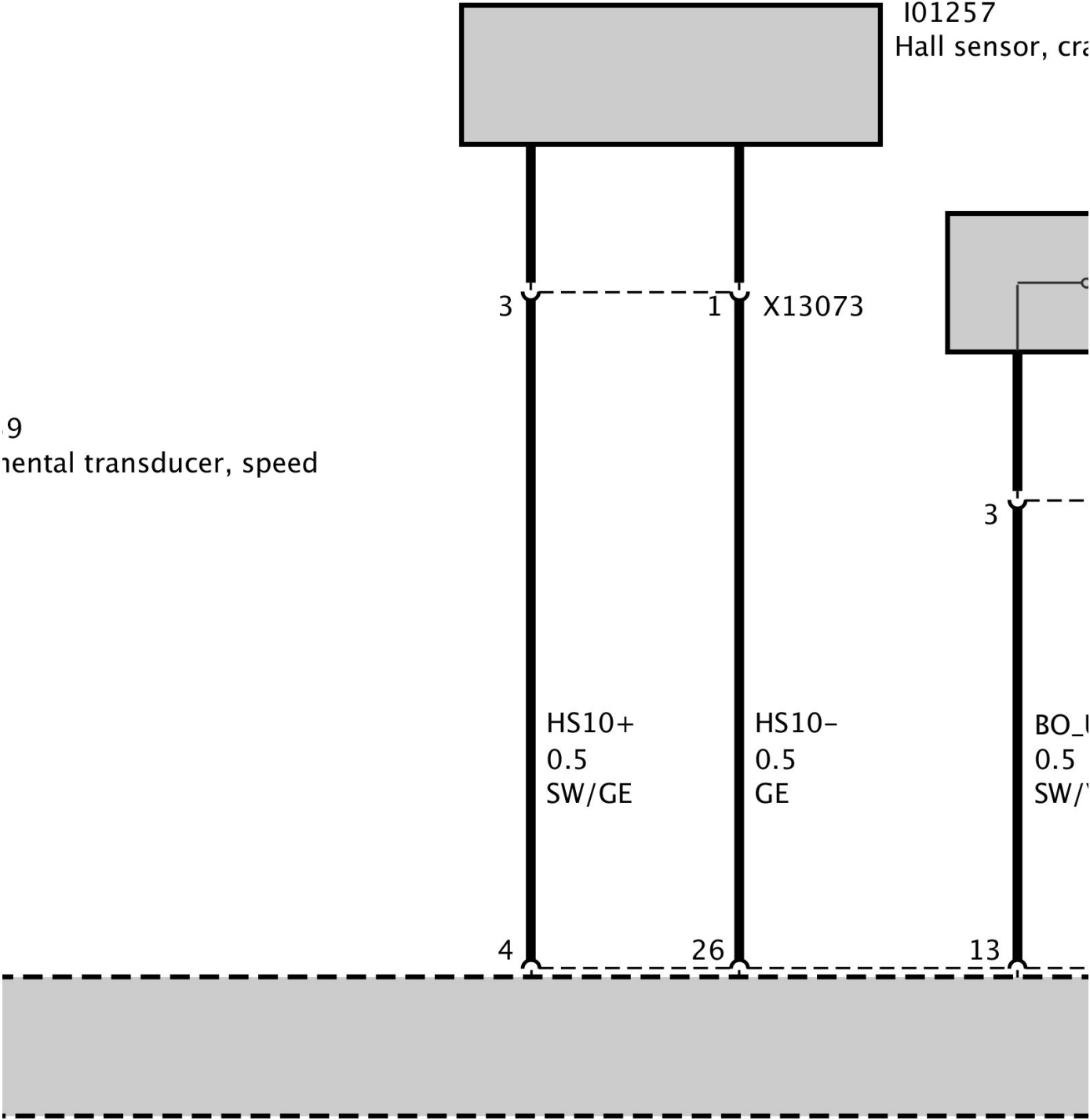


Part 3

f 100%

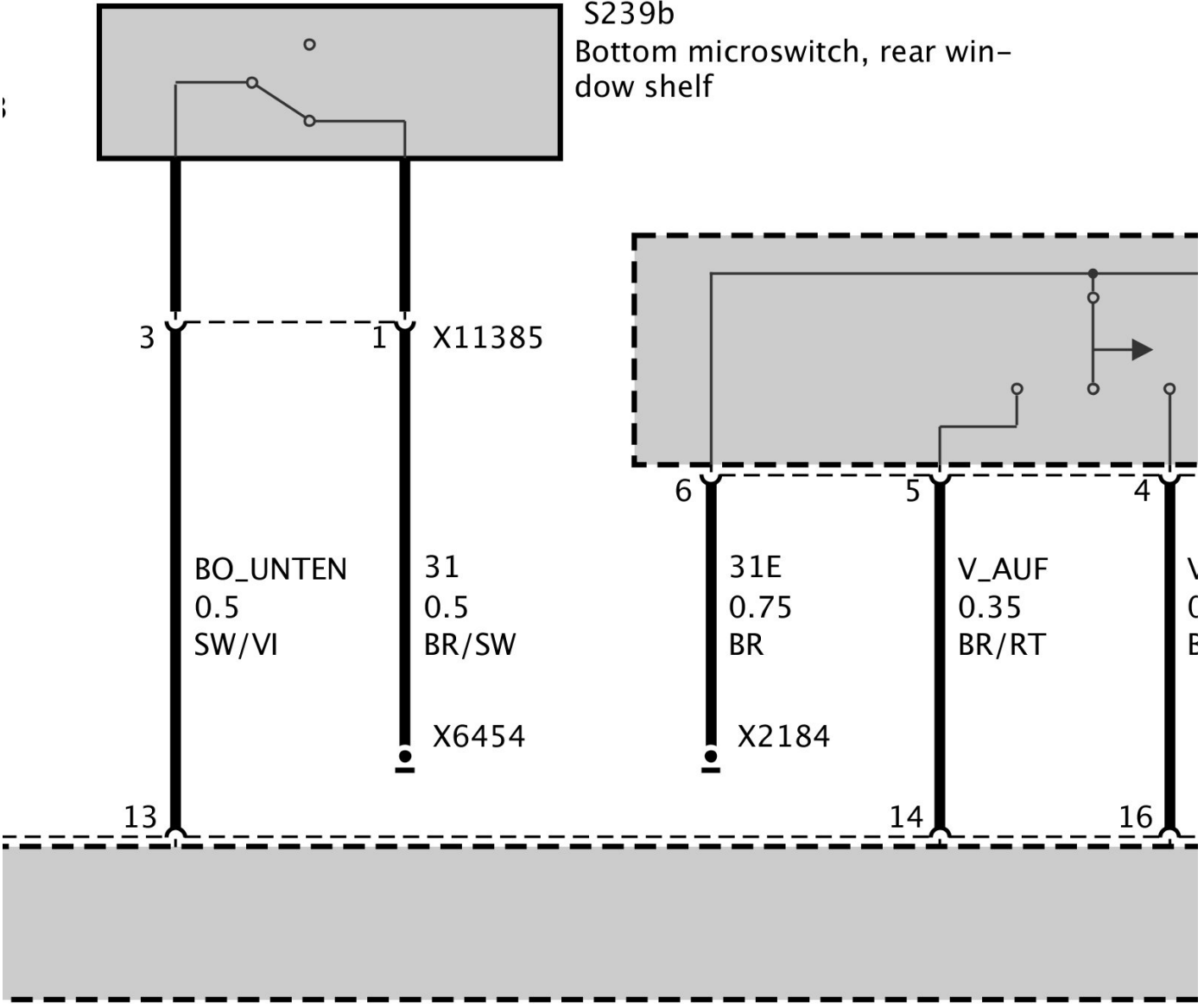


Part 4

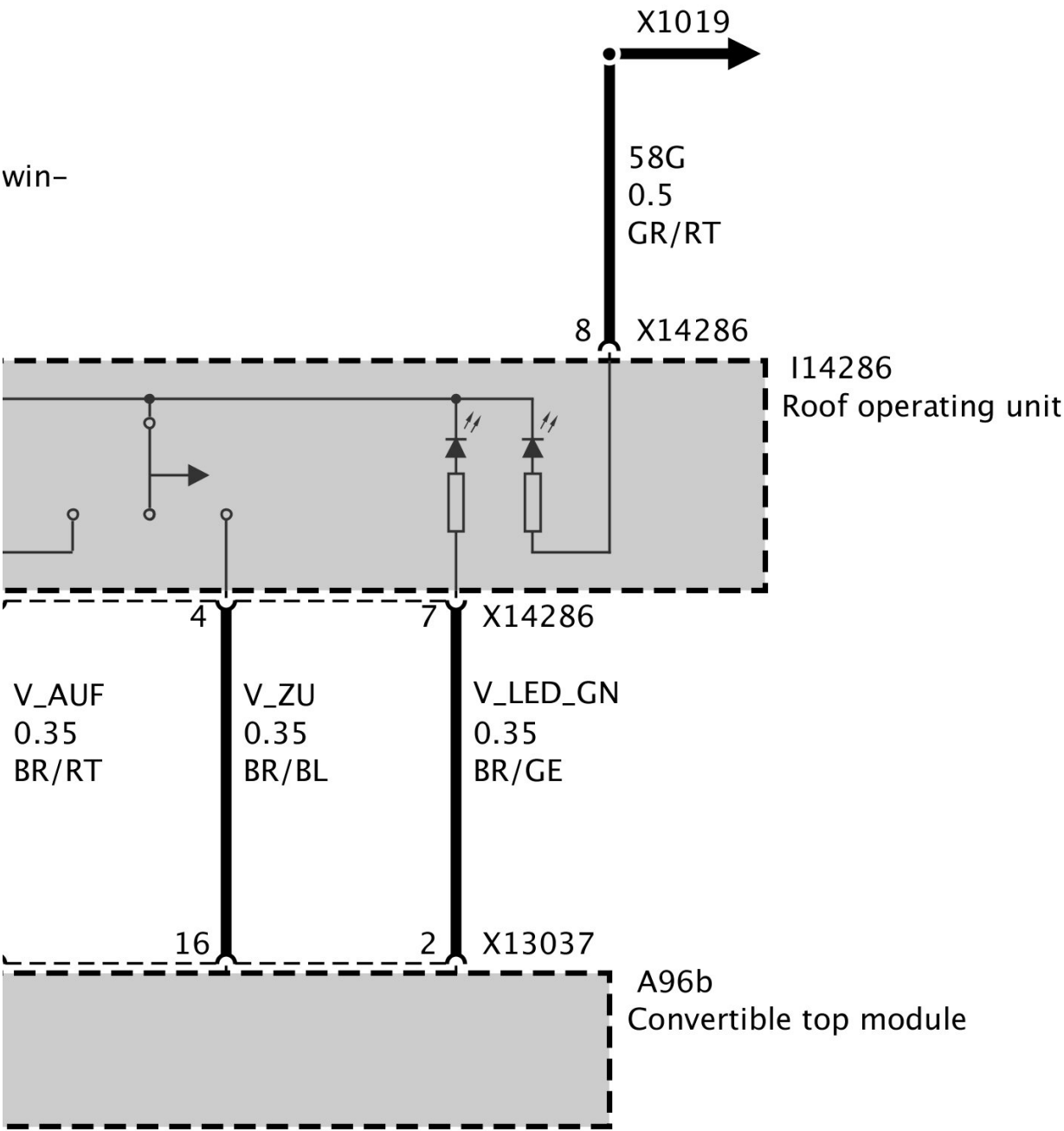




I01257  
Hall sensor, crash lock



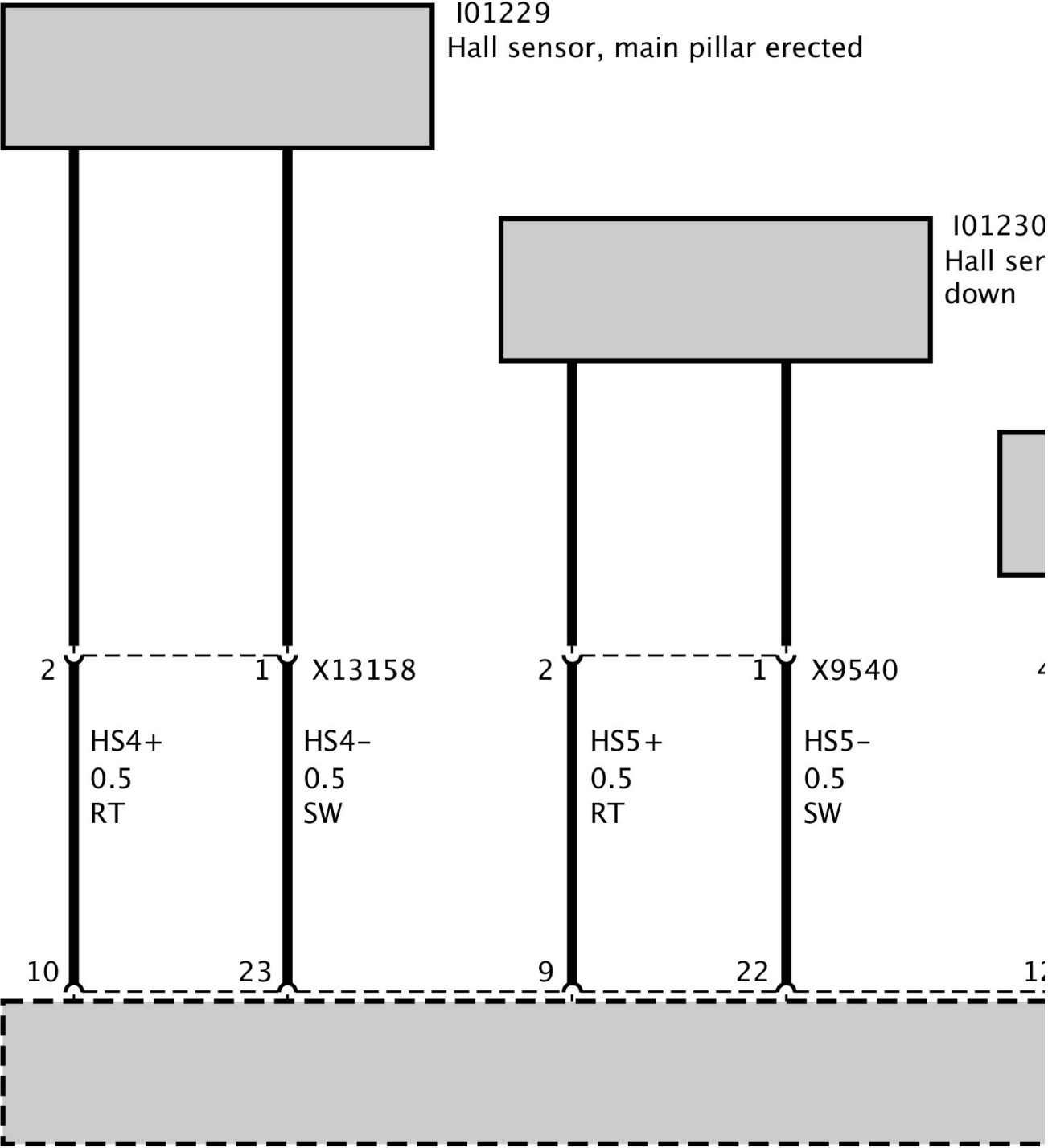
Part 6



Part 7

## Operation

Sensor System



Part 1

cted



I01230  
Hall sensor, main pillar taken  
down



I01234a  
Folding sunroof 70%

X9540

4

3

HS2-  
0.5  
W

HS2+  
0.5  
GE/RT

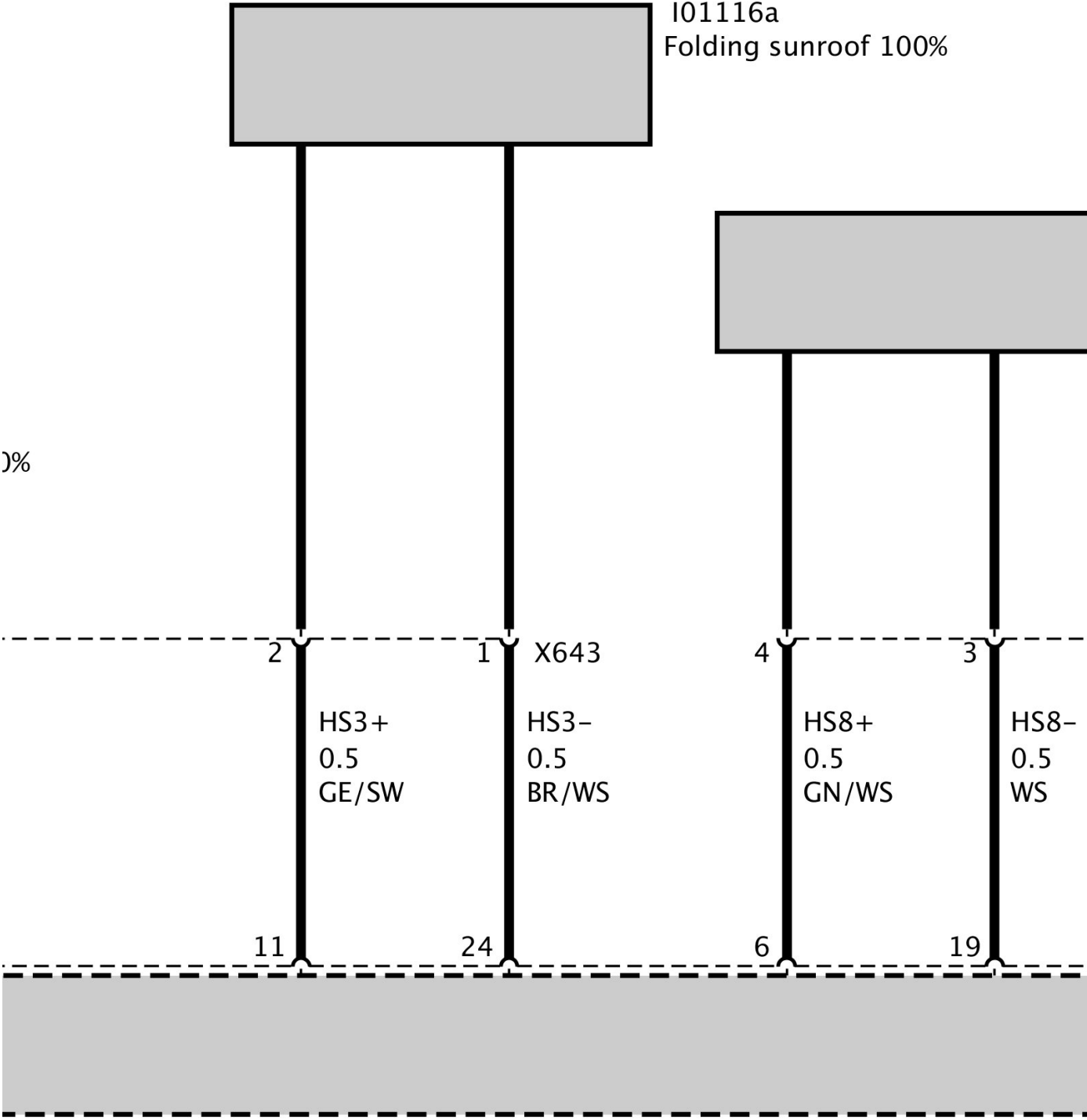
HS2-  
0.5  
BR/RT

12

25

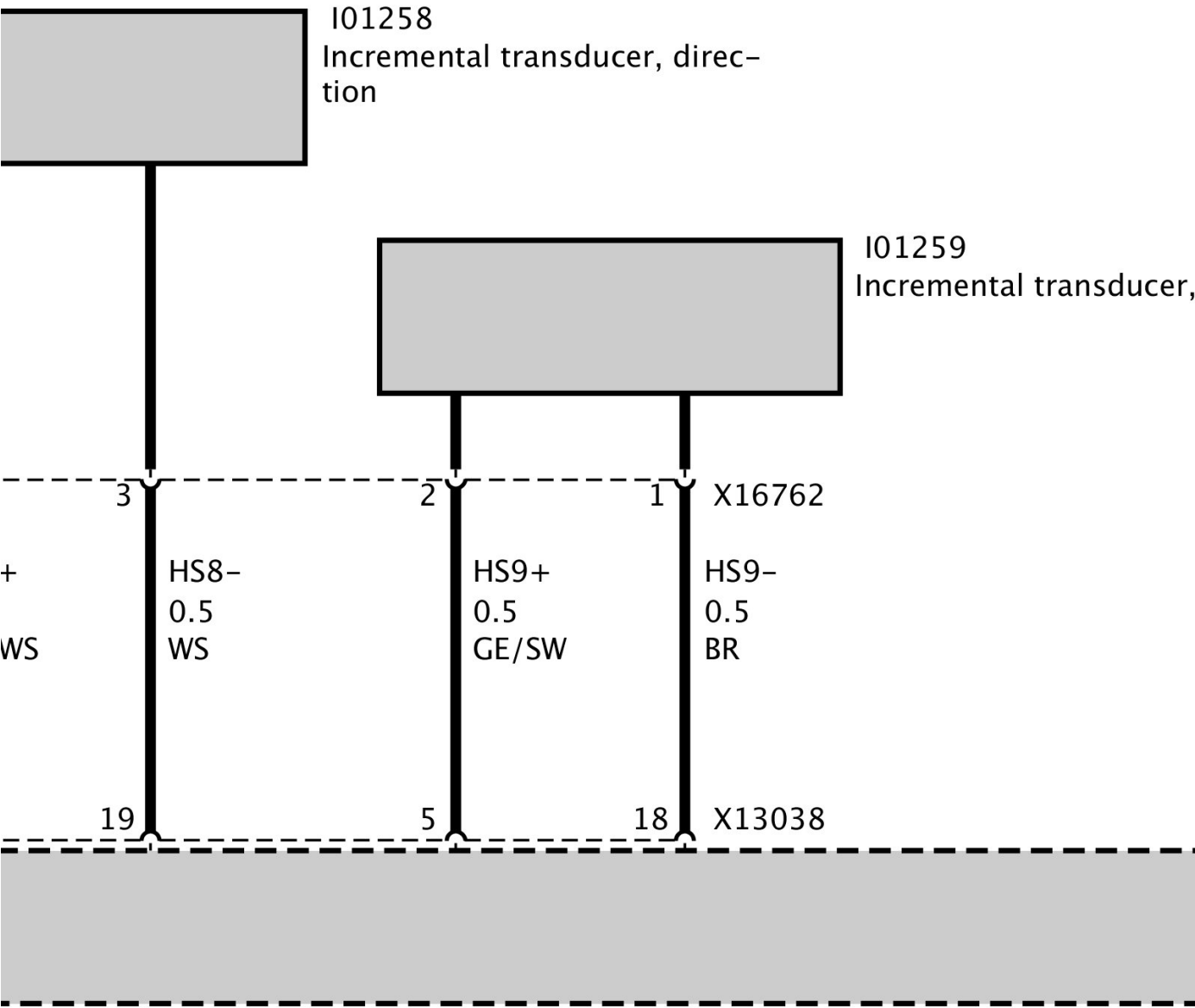


Part 2

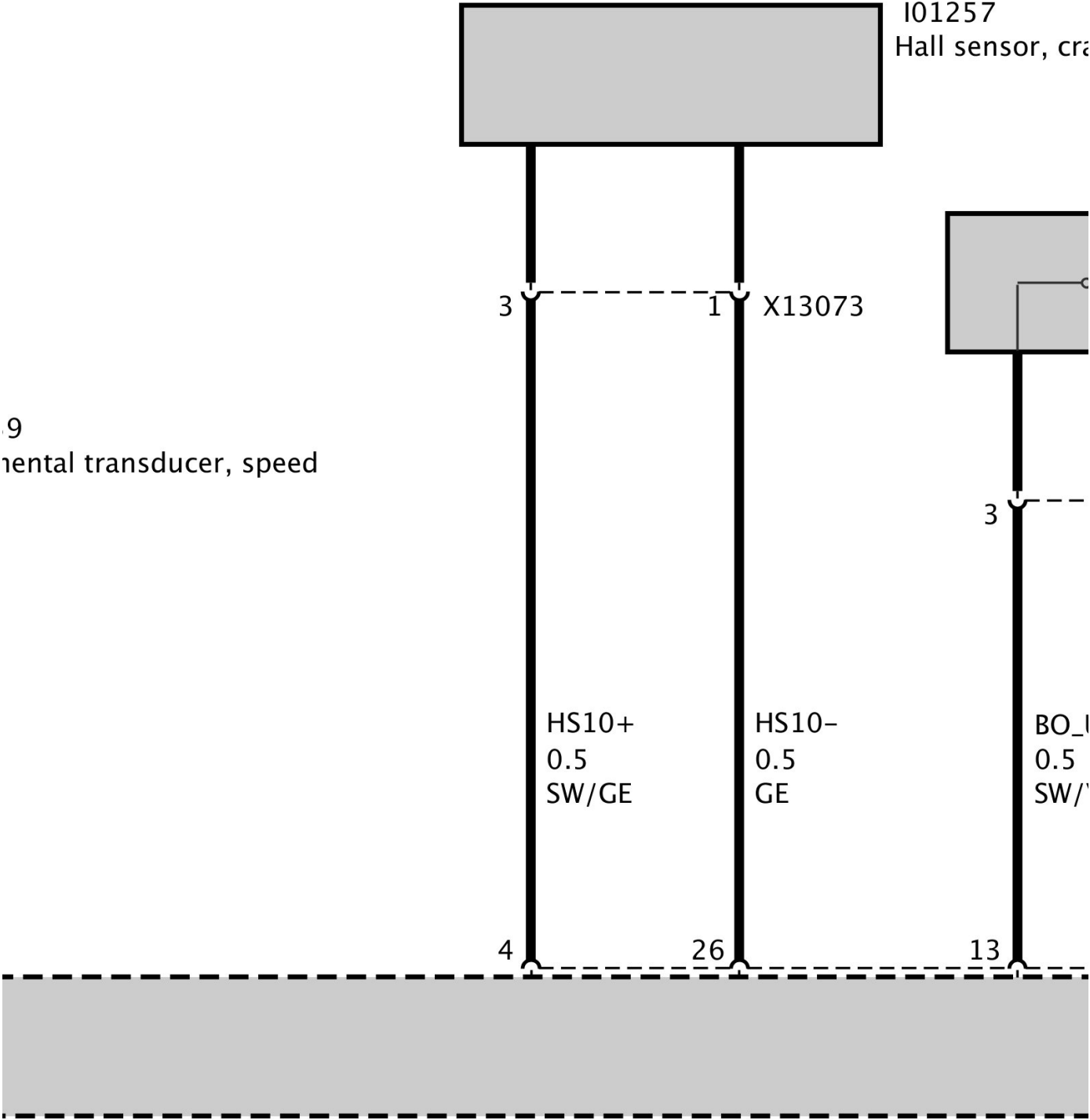


Part 3

f 100%



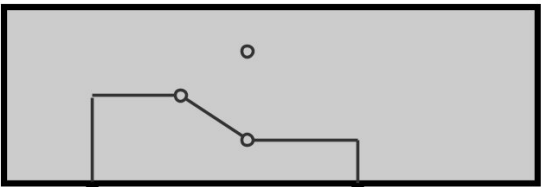
Part 4





I01257

Hall sensor, crash lock



S239b

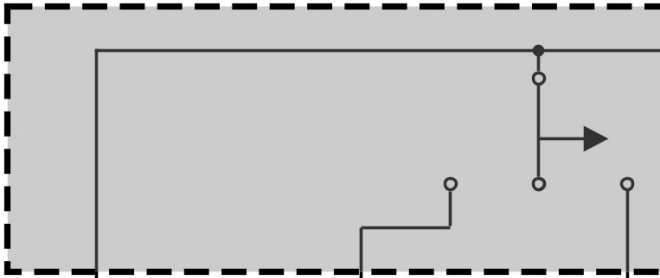
Bottom microswitch, rear win-  
dow shelf

3 1 X11385

BO\_UNTEN  
0.5  
SW/VI

31  
0.5  
BR/SW

X6454



6 5 4

31E  
0.75  
BR

V\_AUF  
0.35  
BR/RT

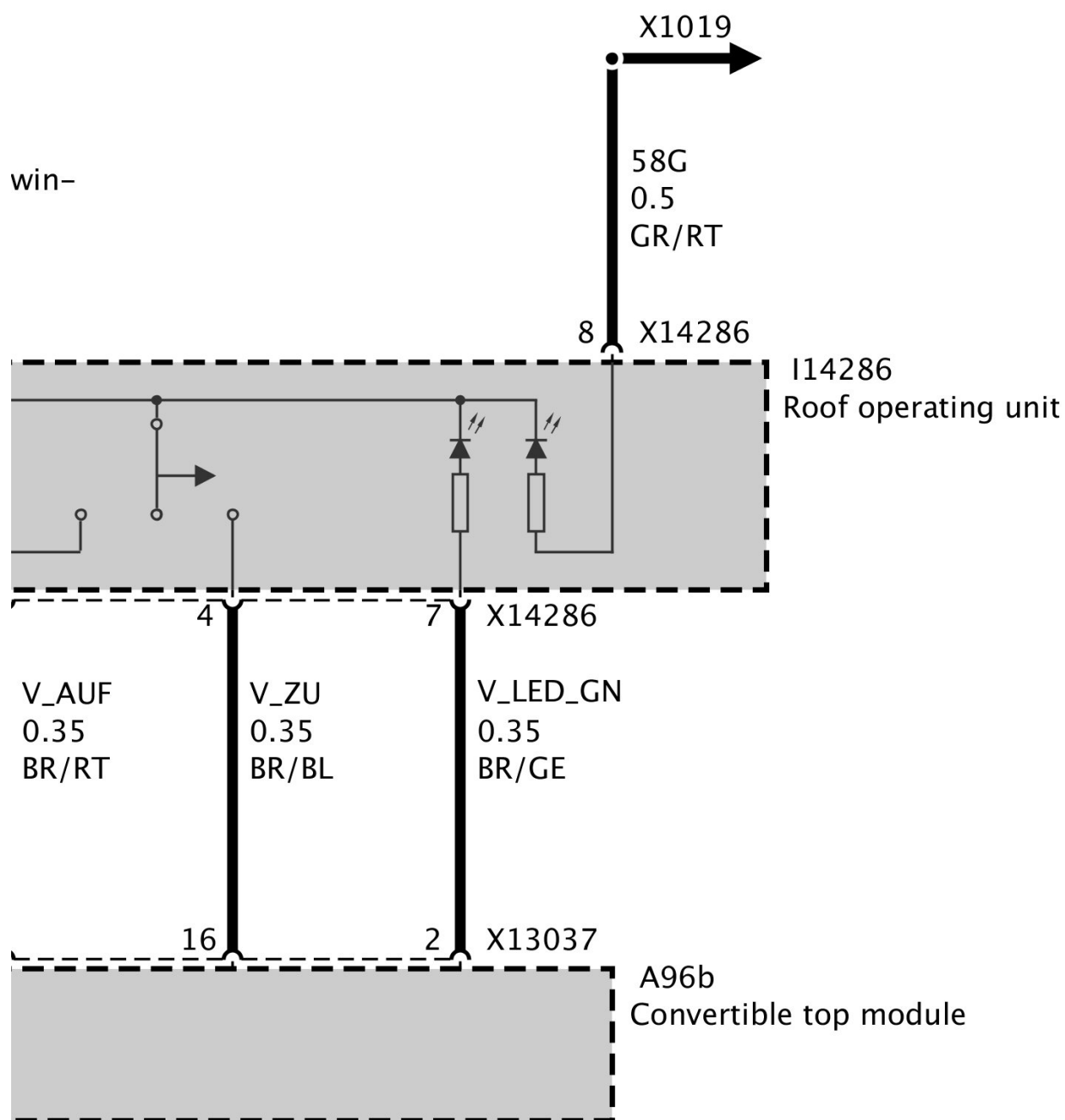
V  
C  
E

X2184

13 14 16

Part 6

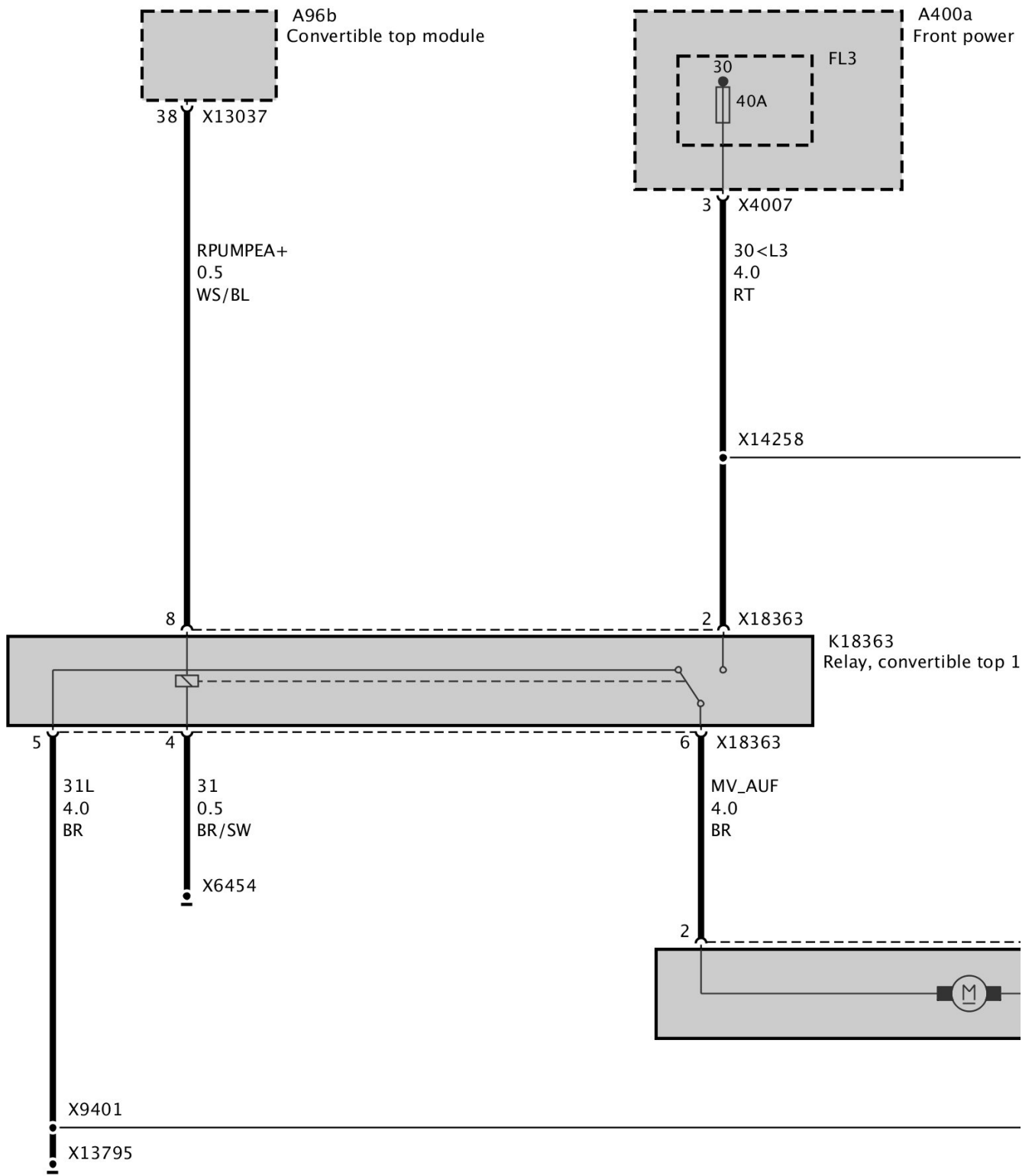




## Part 7

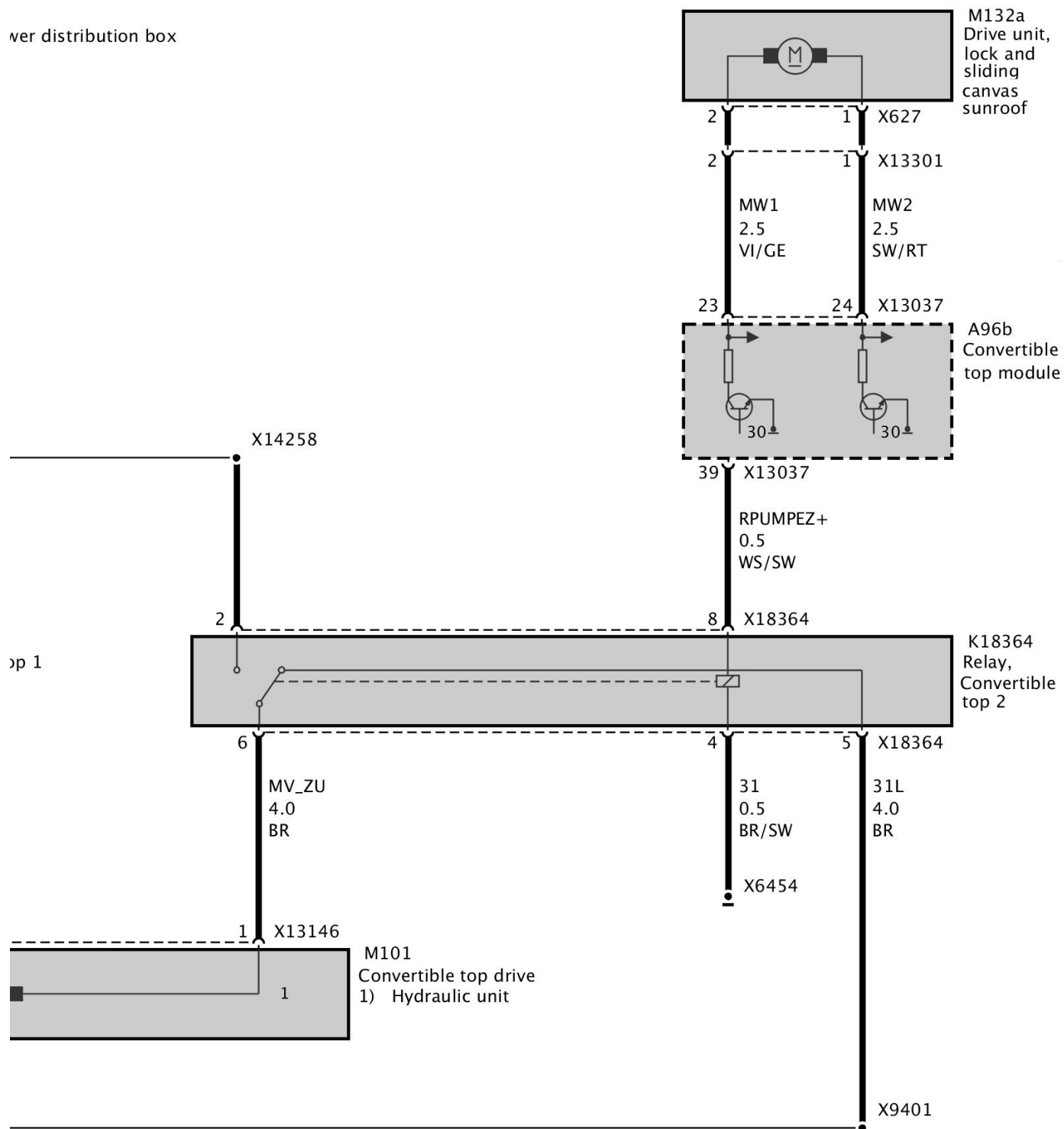
## Drive

### Drives For Automatic Convertible Top



Part 1

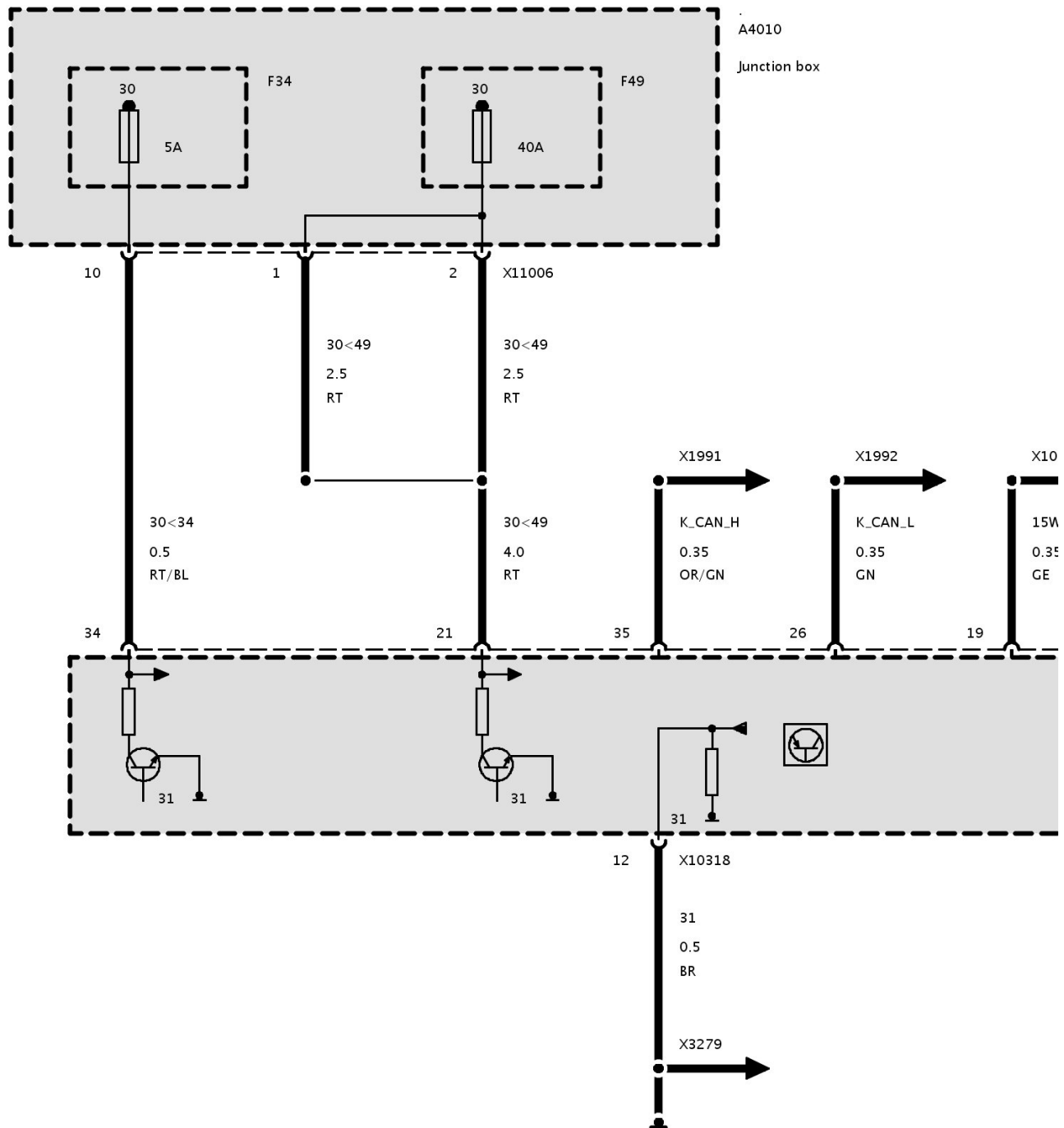
Power distribution box



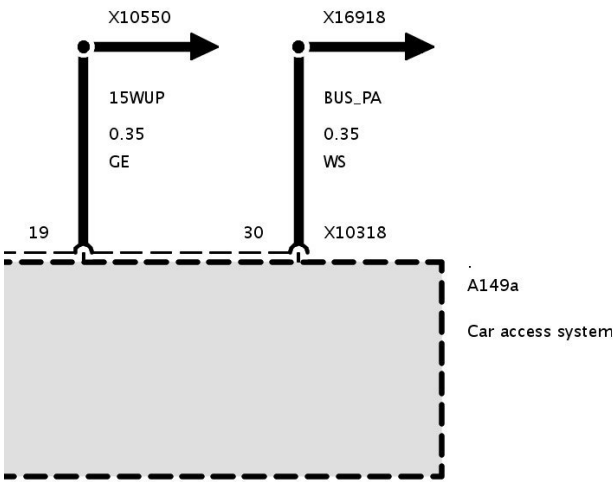
## Part 2

### Power Supply, Car Access System CAS (As Of 08/07 Up To 12/08)

Power Supply, Car Access System CAS (As Of 08/07 Up To 12/08)



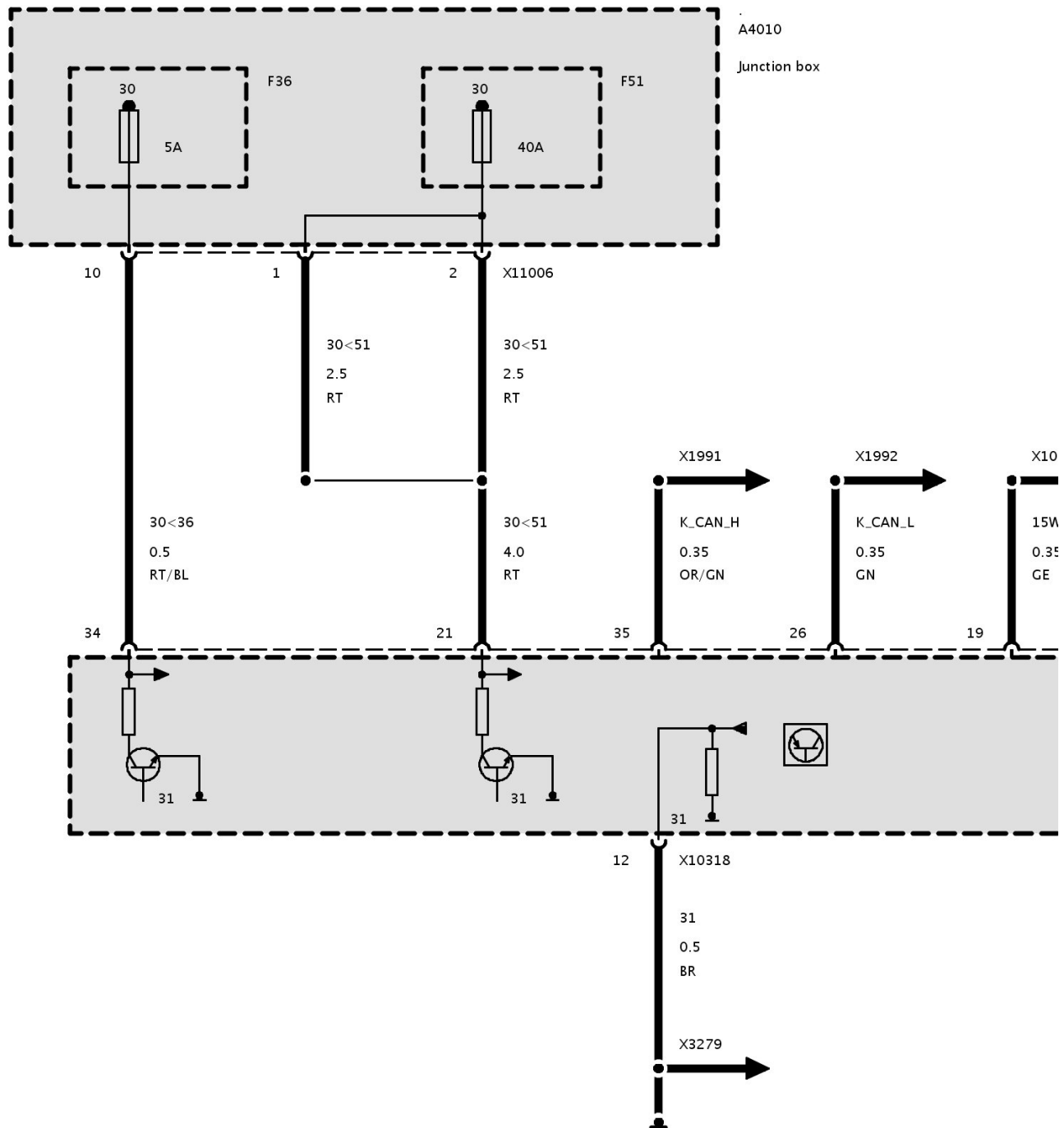
Part 1



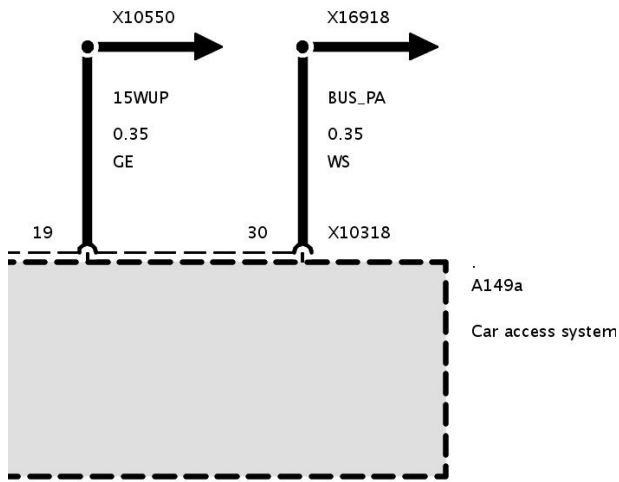
Part 2

Power Supply, Car Access System CAS (As Of 12/08)

Power Supply, Car Access System CAS (As Of 12/08)



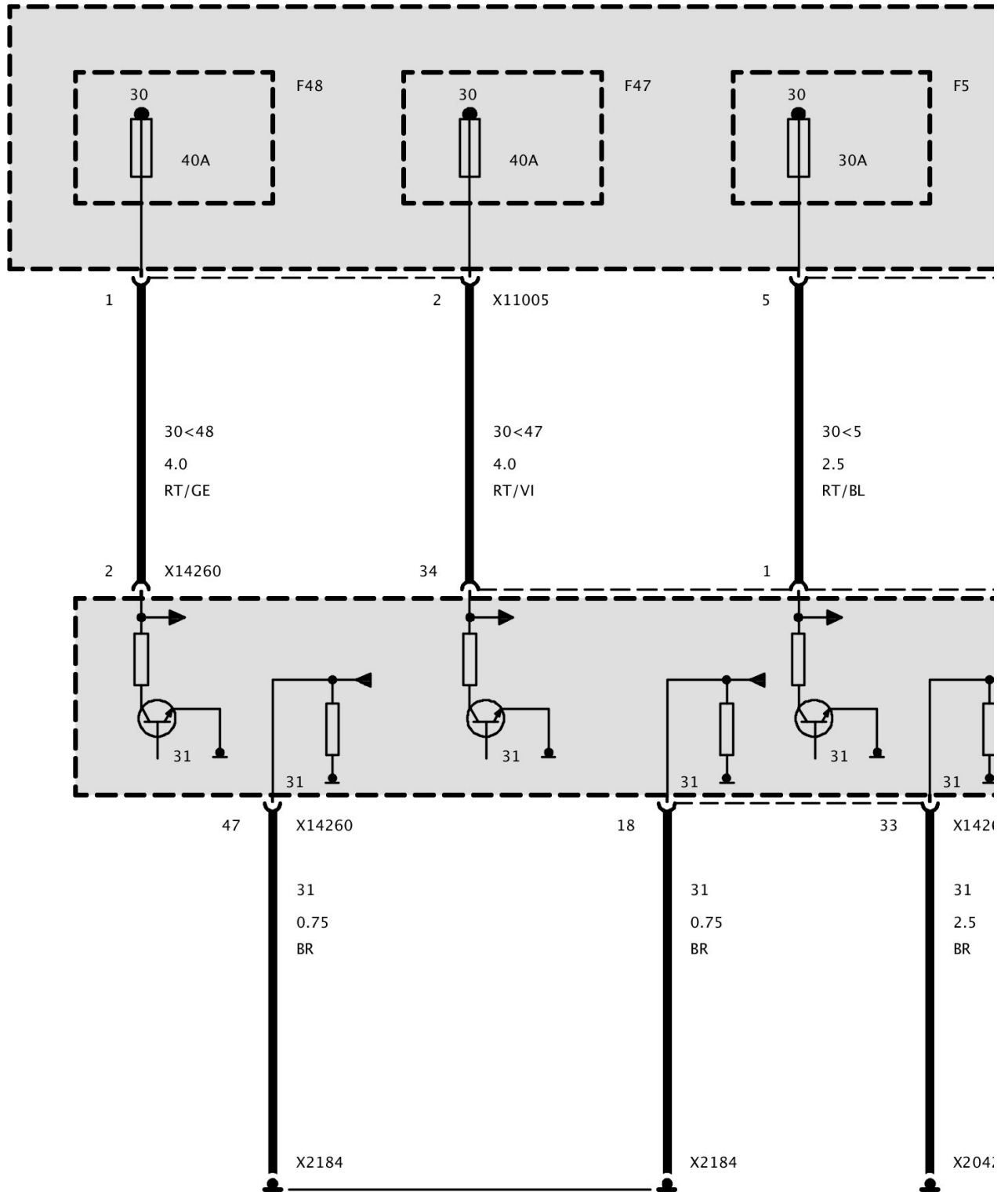
Part 1



Part 2

Power Supply, Footwell Module FRM (Up To 12/08)

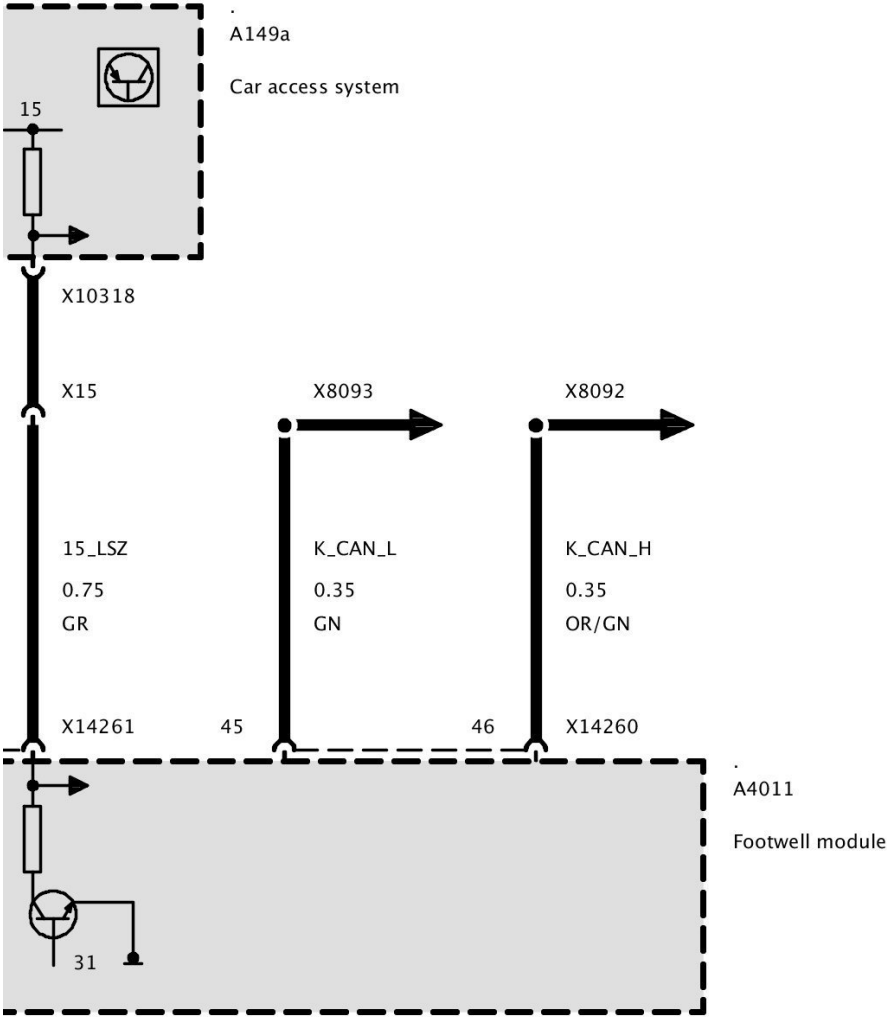
Power Supply, Footwell Module FRM (Up To 12/08)



Part 1



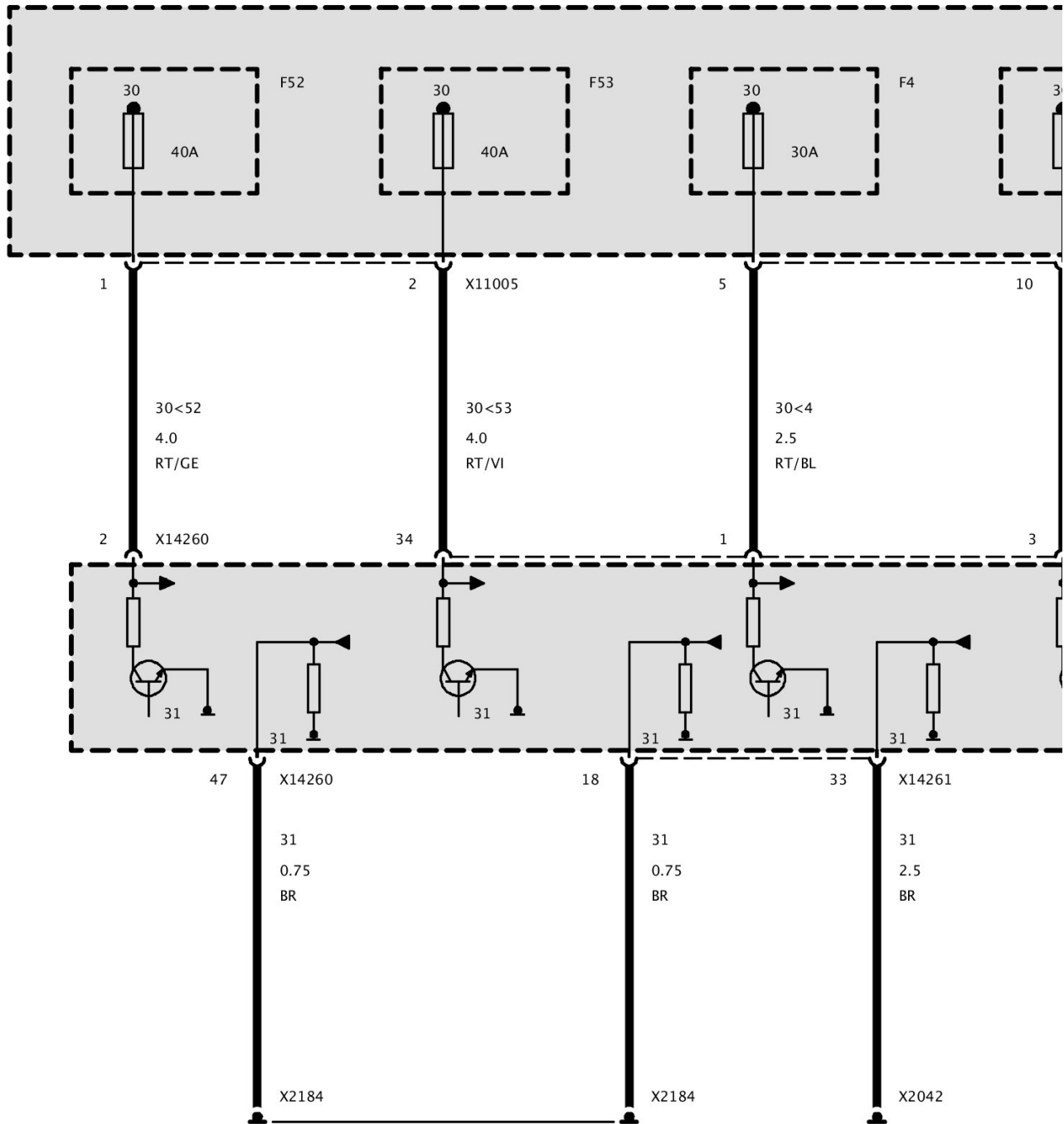




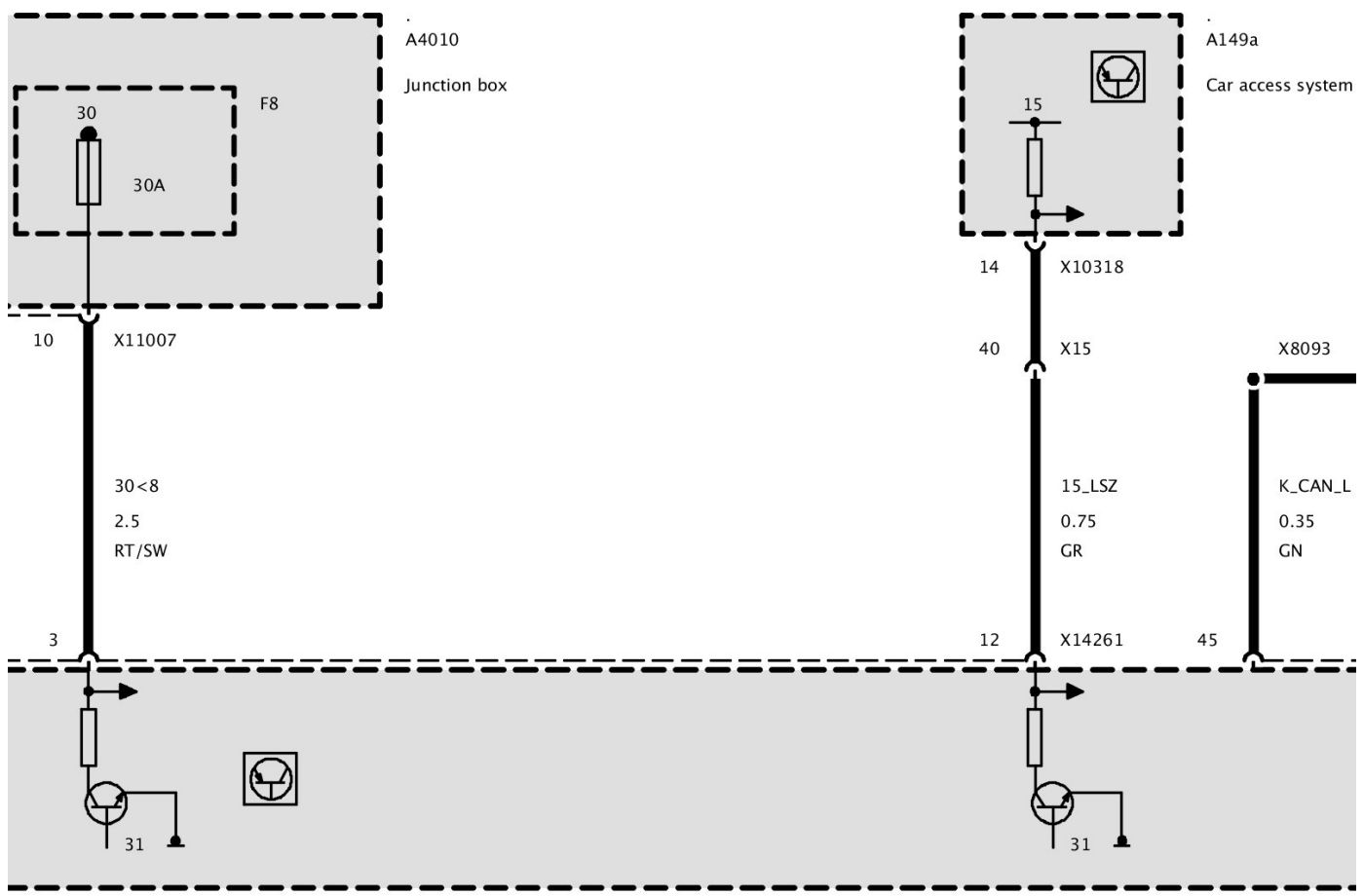
Part 3

Power Supply, Footwell Module FRM (As Of 12/08)

Power Supply, Footwell Module FRM (As Of 12/08)

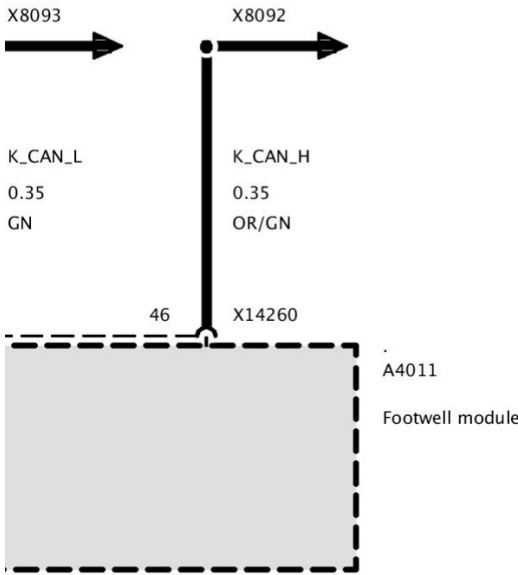


Part 1



Part 2

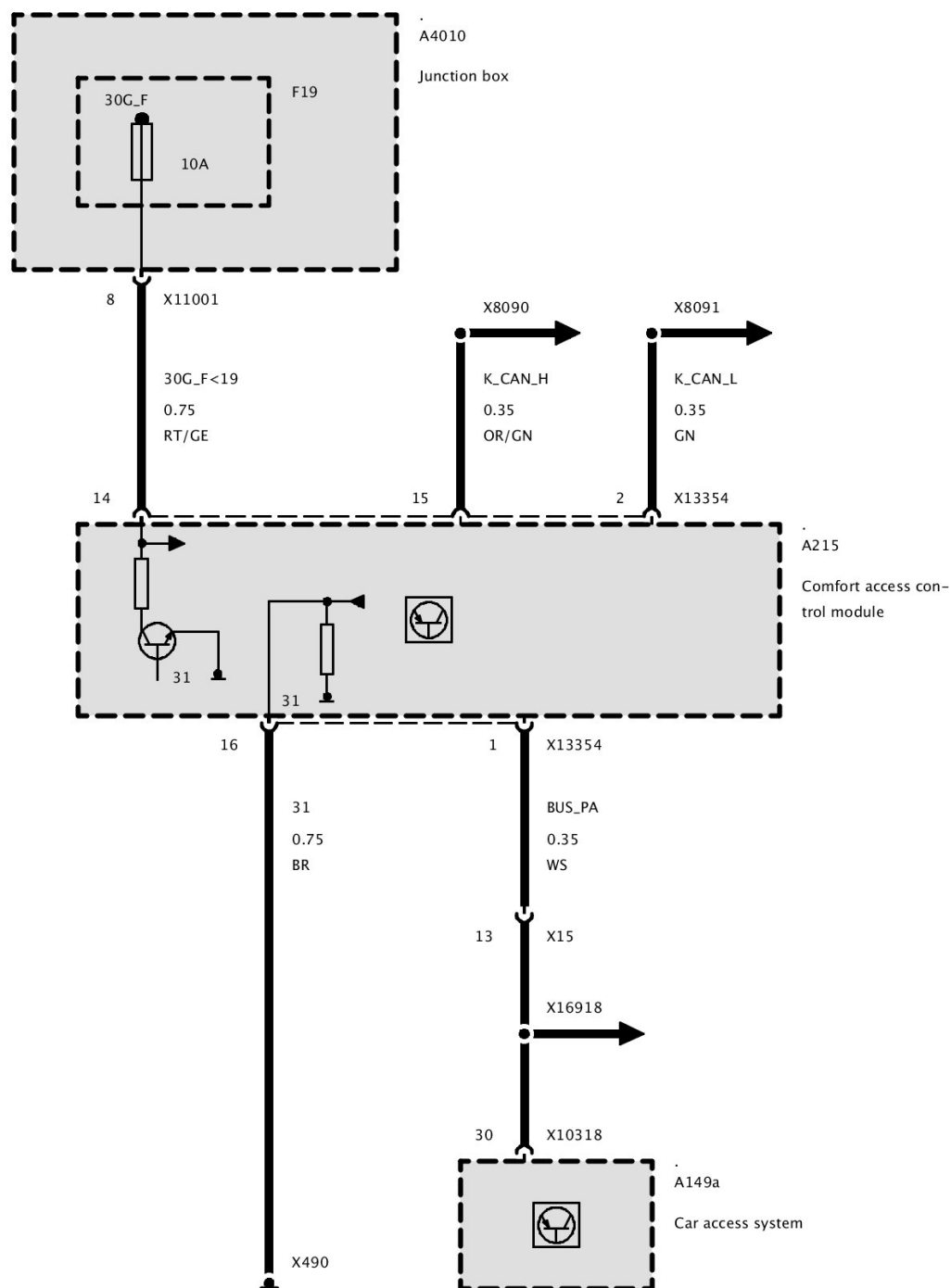
ss system



Part 3

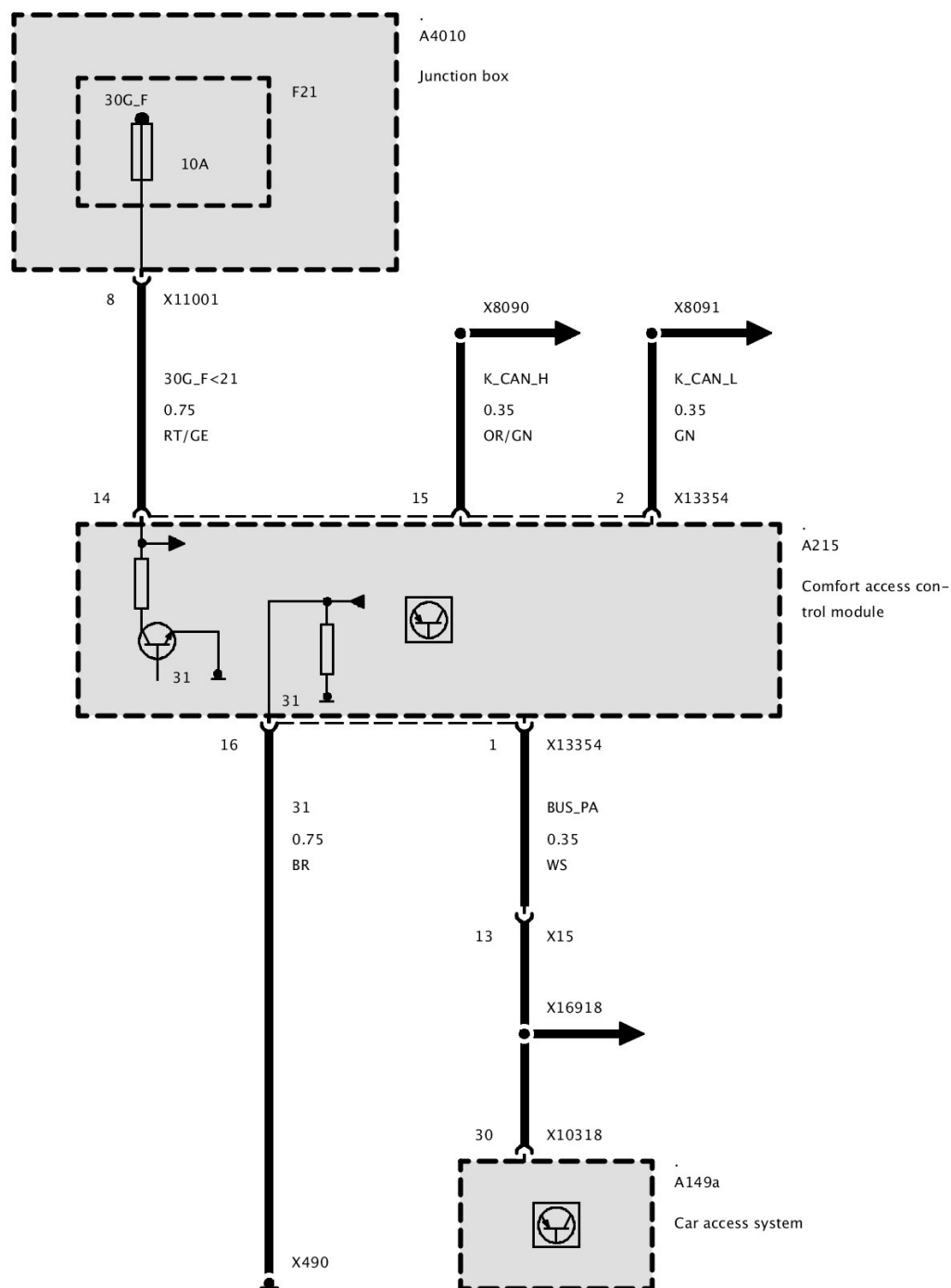
Power Supply, CA Convenient Access System (As Of 08/07 Up To 12/08)

Power Supply, CA Convenient Access System (As Of 08/07 Up To 12/08)

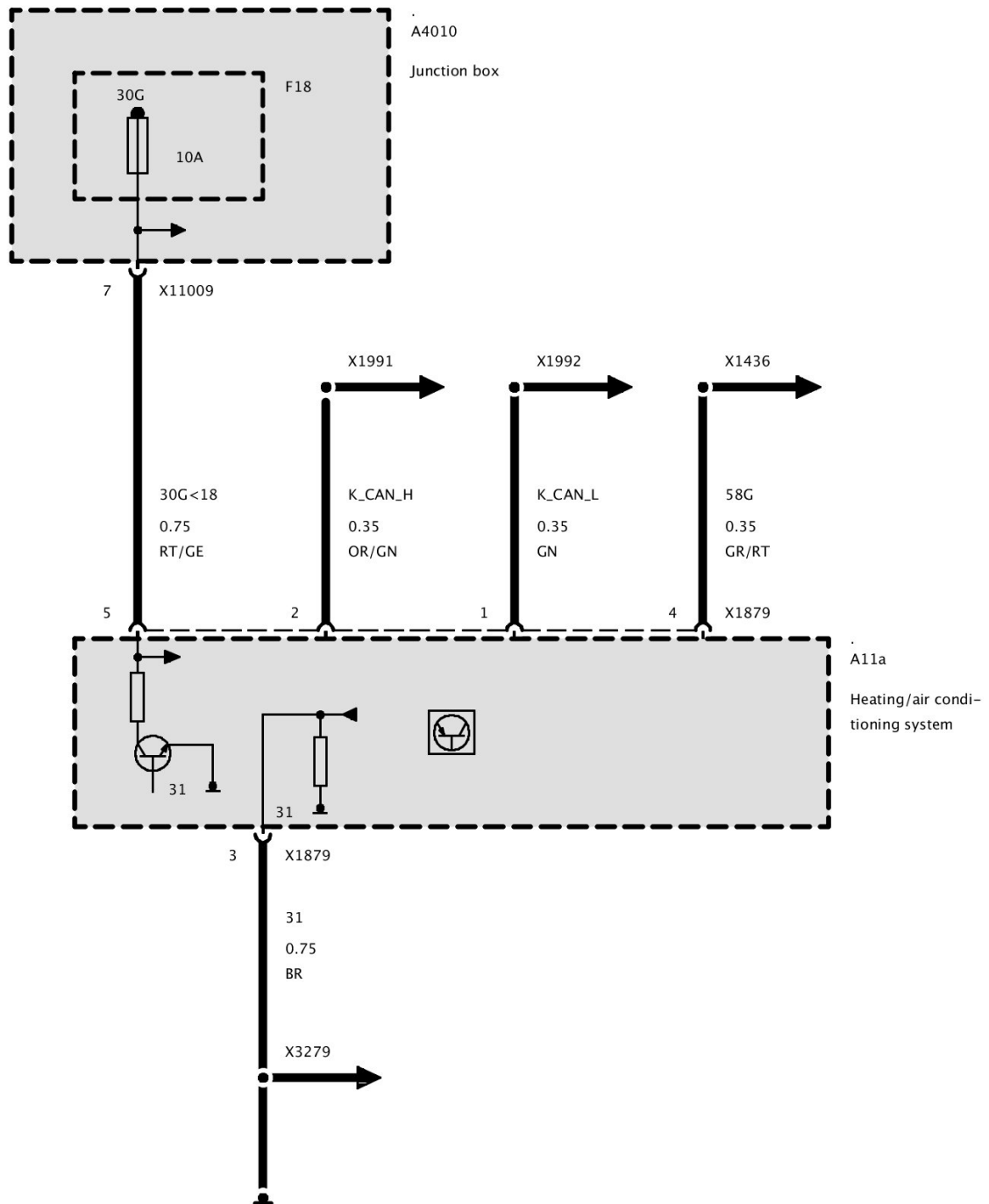


**Power Supply, CA Convenient Access System (As Of 12/08)**

**Power Supply, CA Convenient Access System (As Of 12/08)**



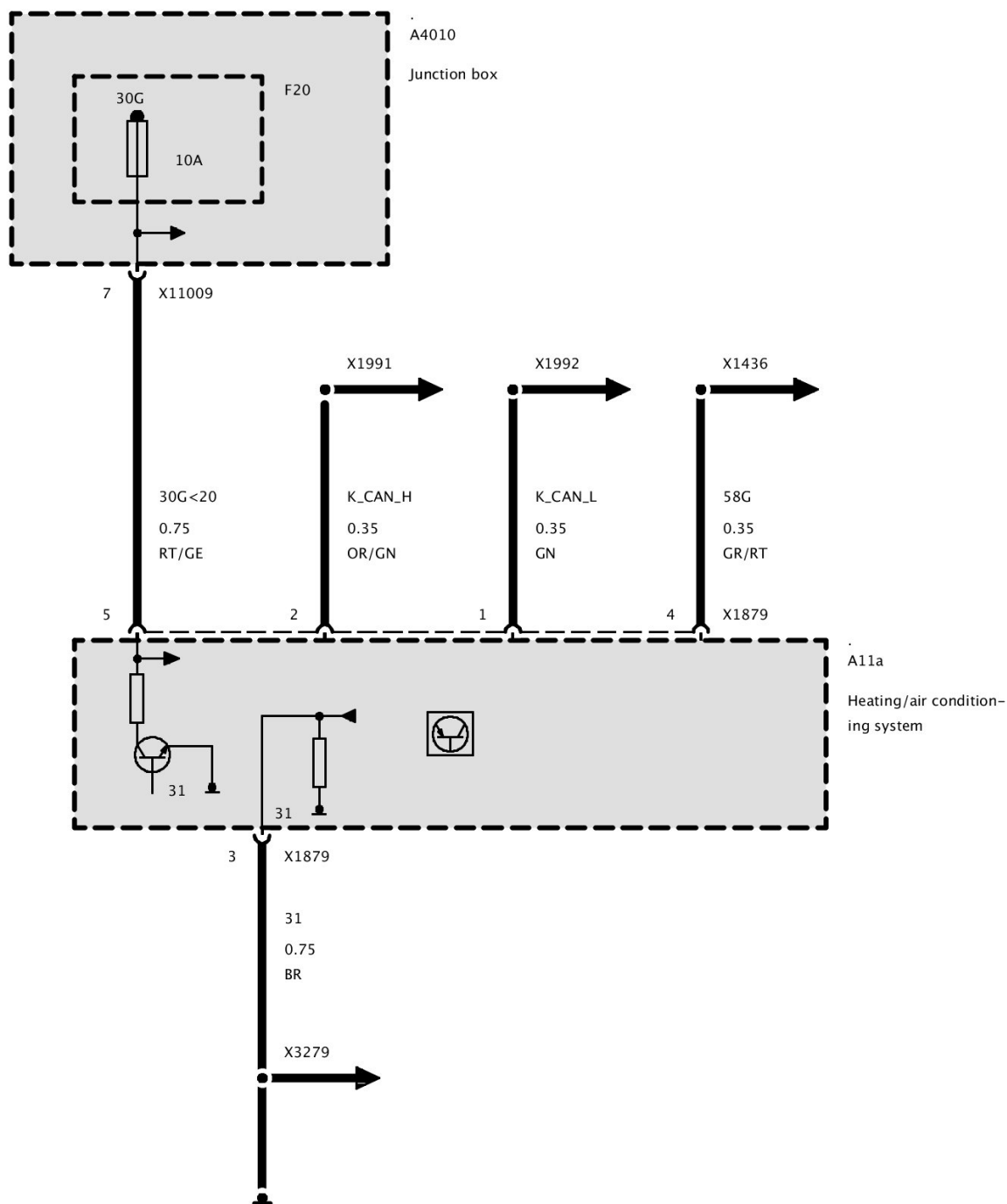
### Supply, Heating And Air Conditioning Control Unit (Up To 12/08)



Supply, Heating And Air Conditioning Control Unit (As Of 12/08)

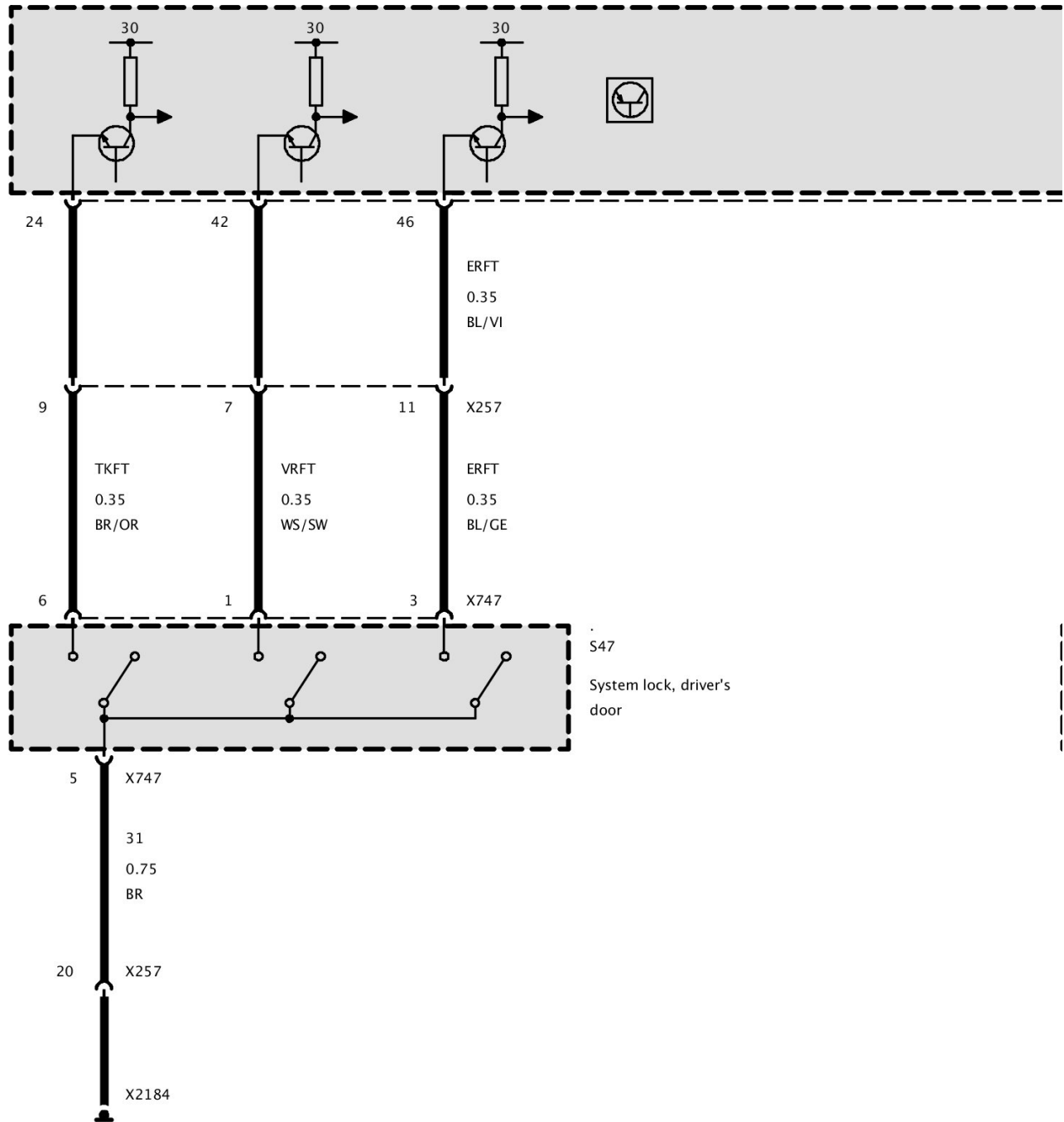
Supply, Heating And Air Conditioning Control Unit (As Of 12/08)



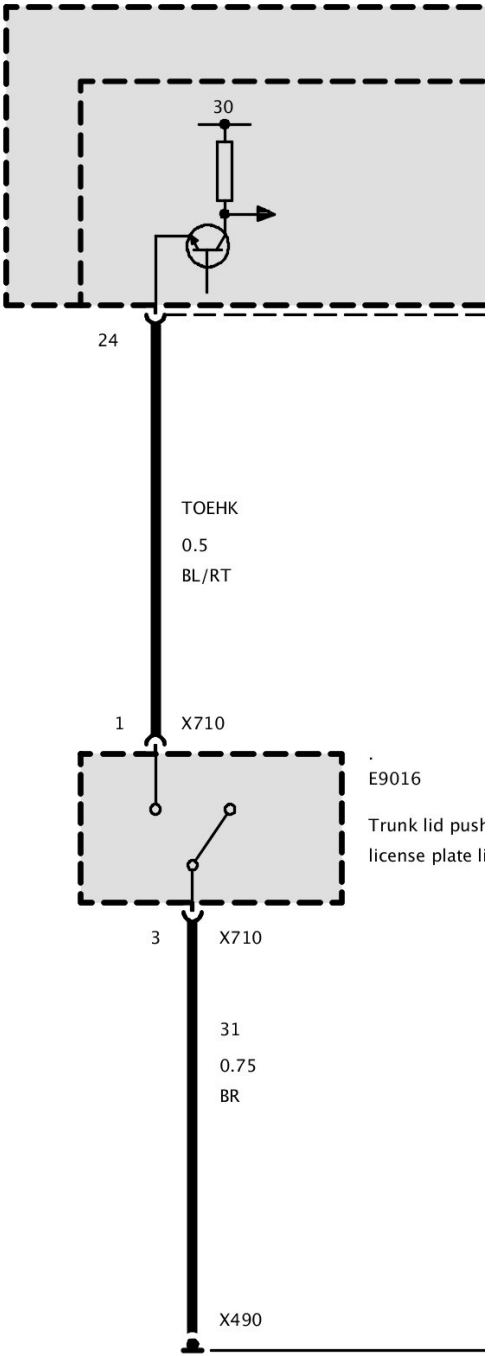
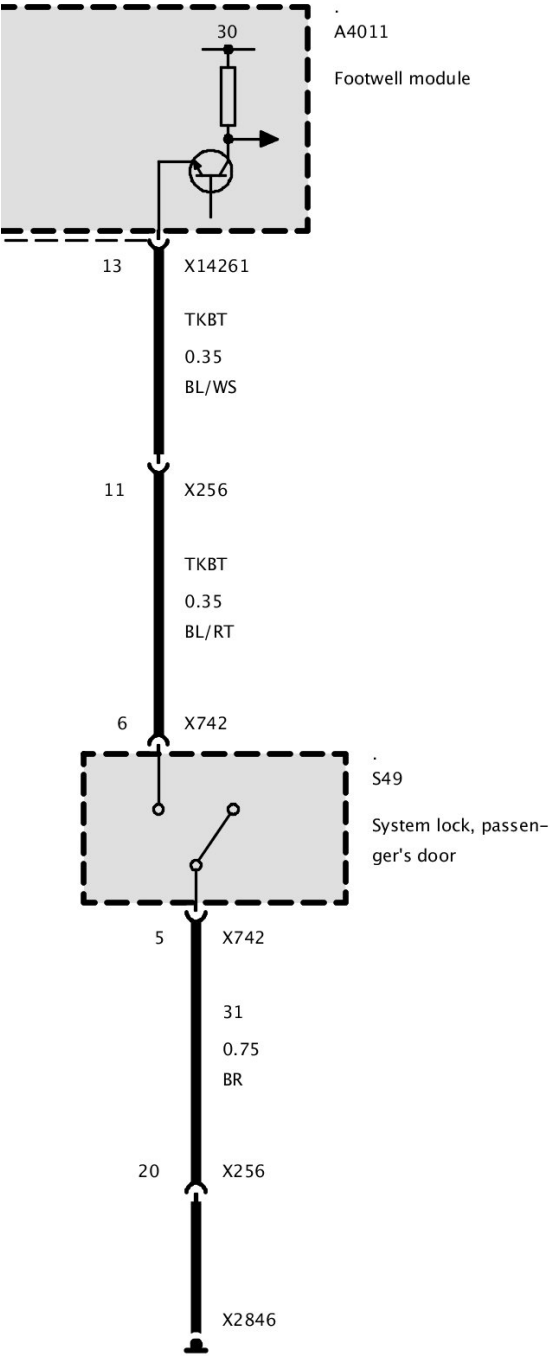


Trunk Lid Button (Without Clubman)

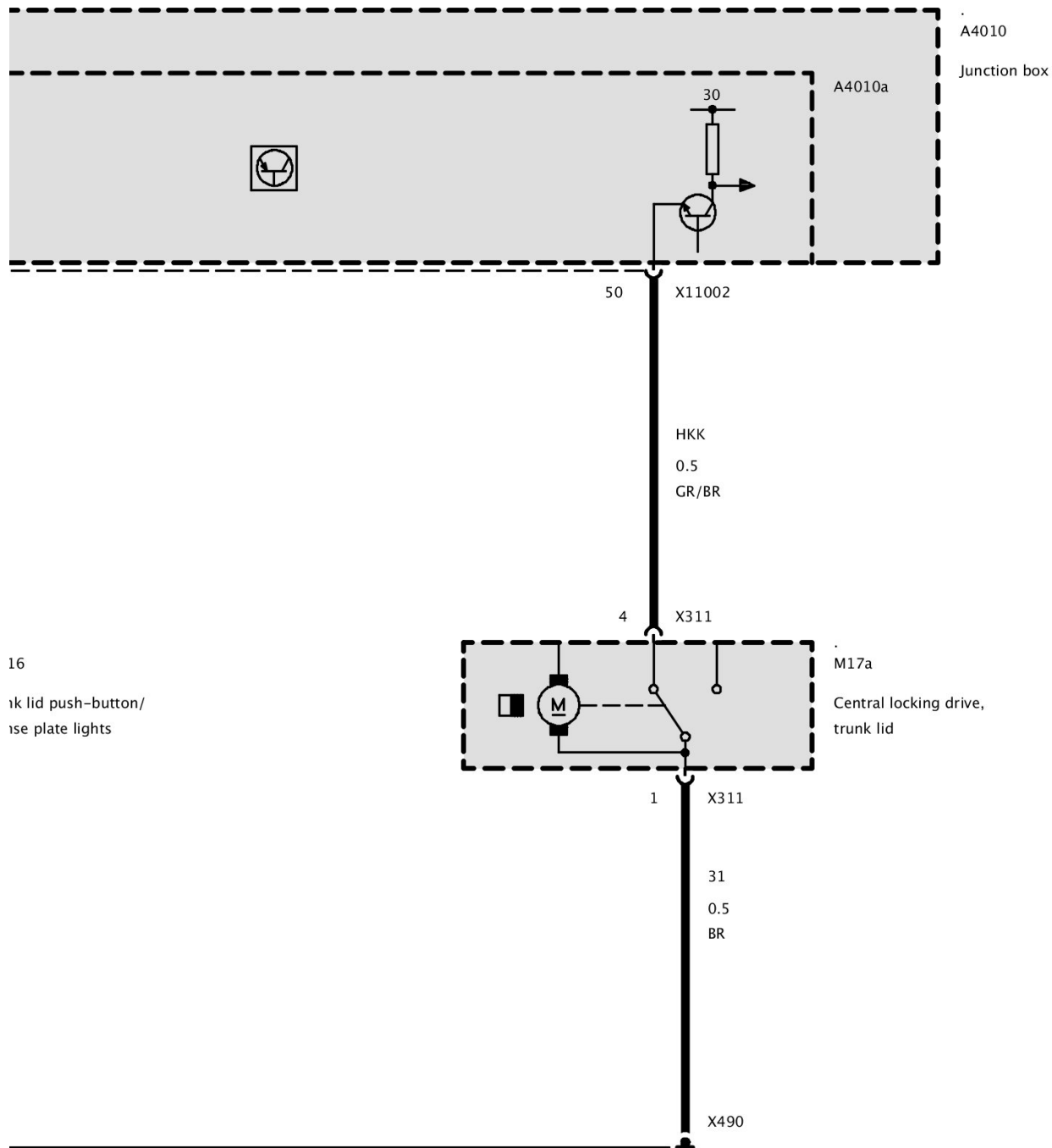
Central Locking Inputs (Left-Hand Drive)



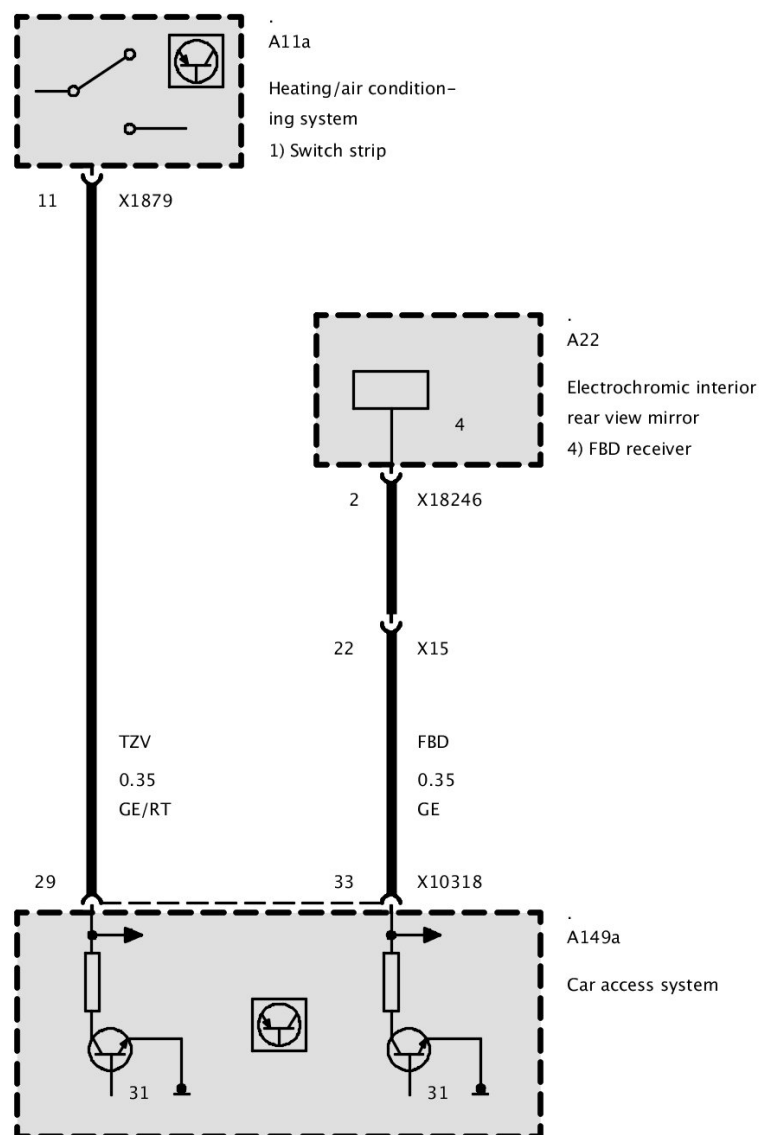
Part 1



Part 2



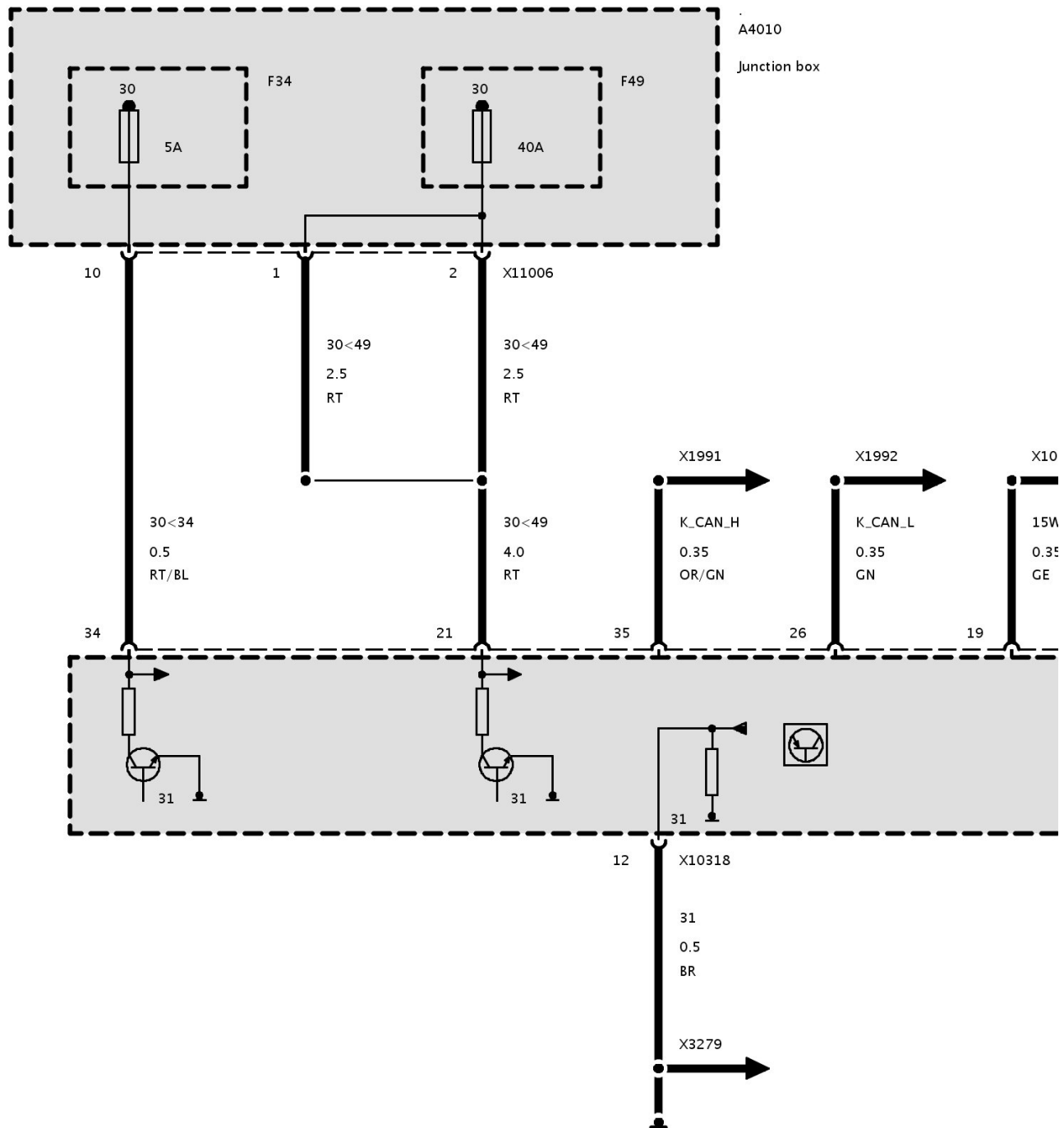
Part 3



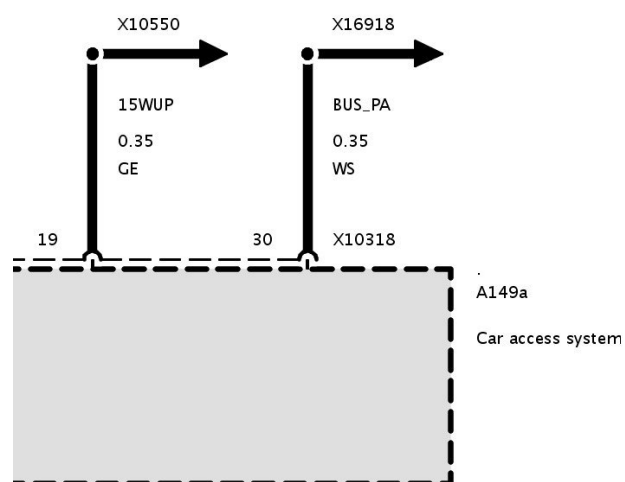
#### Part 4

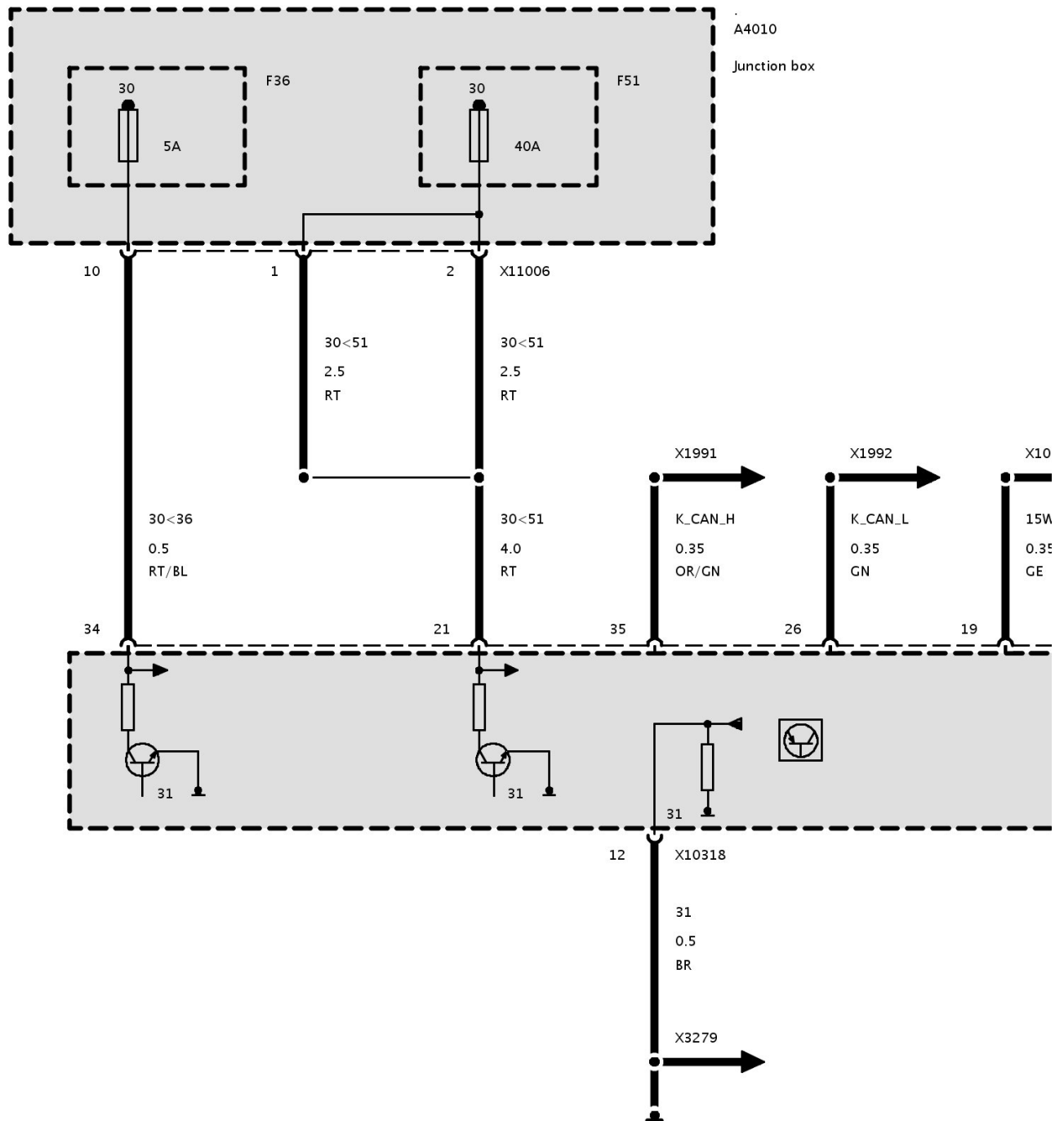
### Power Supply, Car Access System CAS (As Of 08/07 Up To 12/08)

Power Supply, Car Access System CAS (As Of 08/07 Up To 12/08)



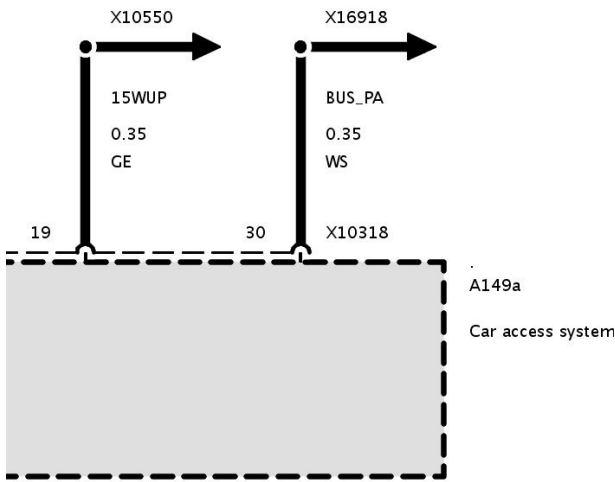
Part 1

**Part 2****Power Supply, Car Access System CAS (As Of 12/08)****Power Supply, Car Access System CAS (As Of 12/08)**



Part 1

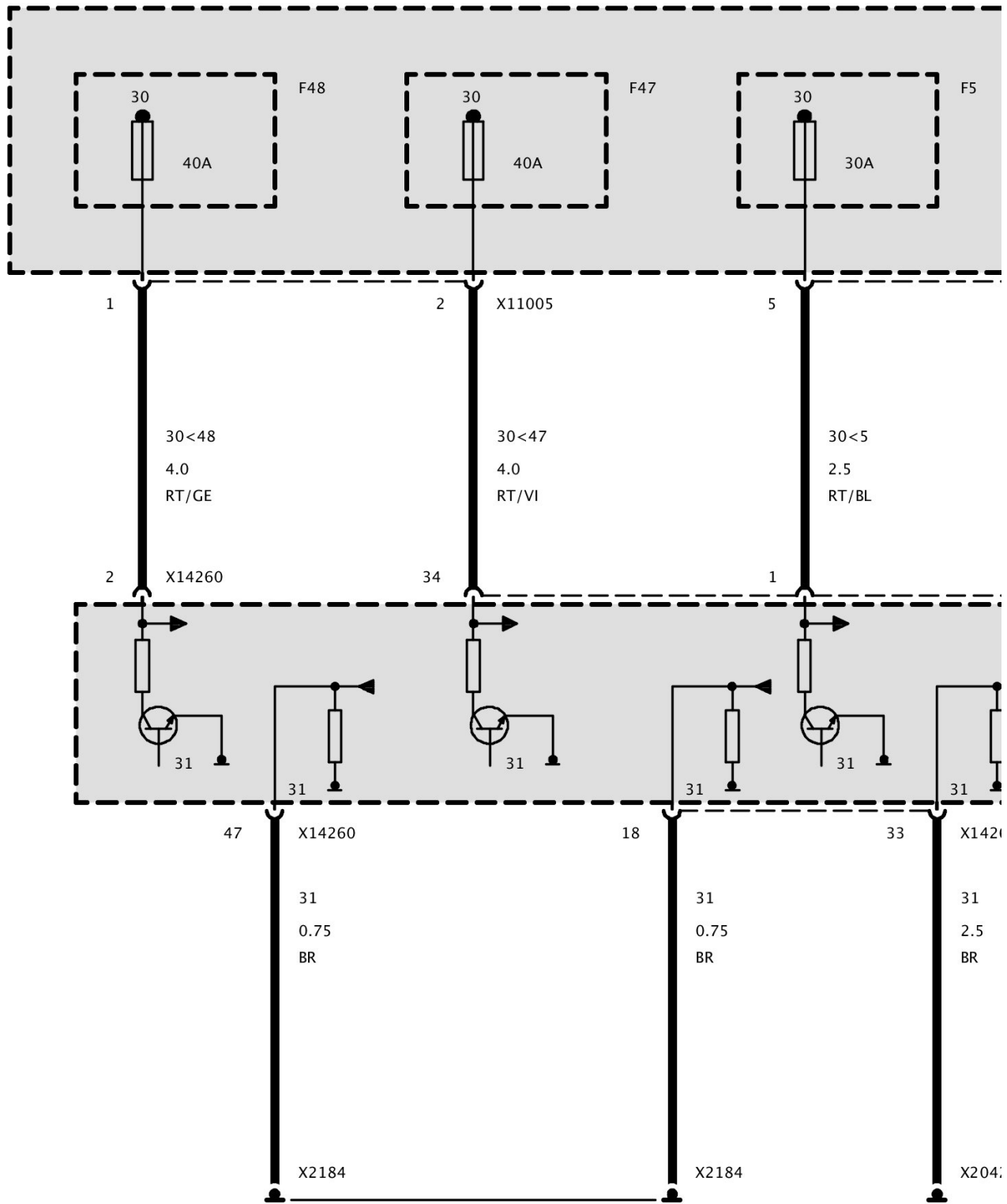




Part 2

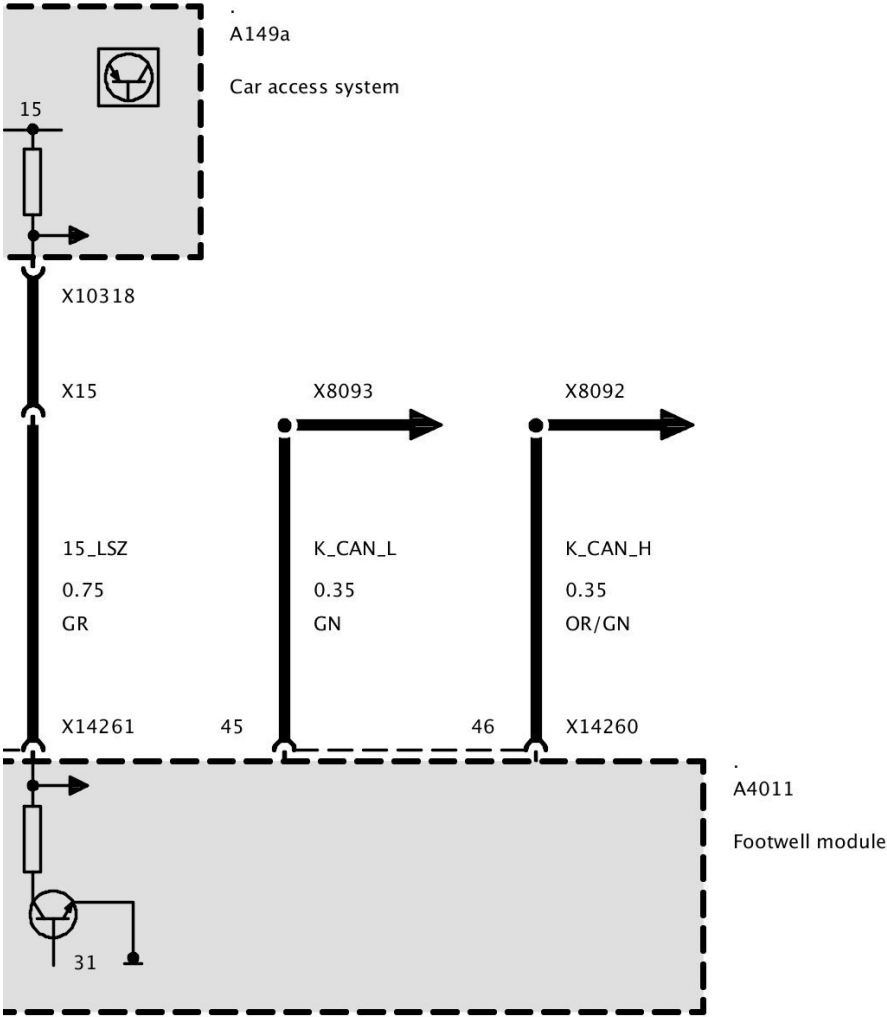
Power Supply, Footwell Module FRM (Up To 12/08)

Power Supply, Footwell Module FRM (Up To 12/08)



Part 1

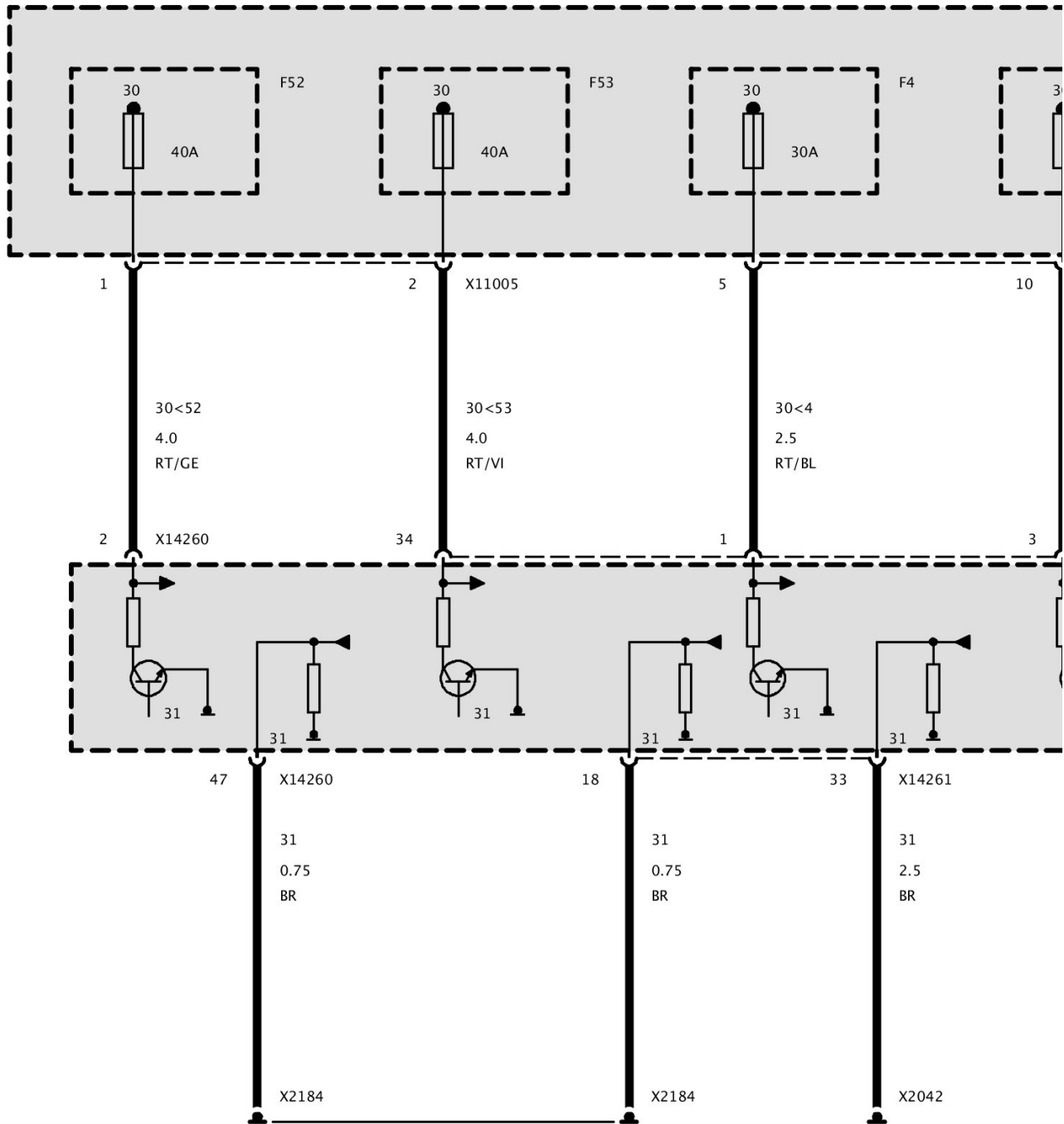




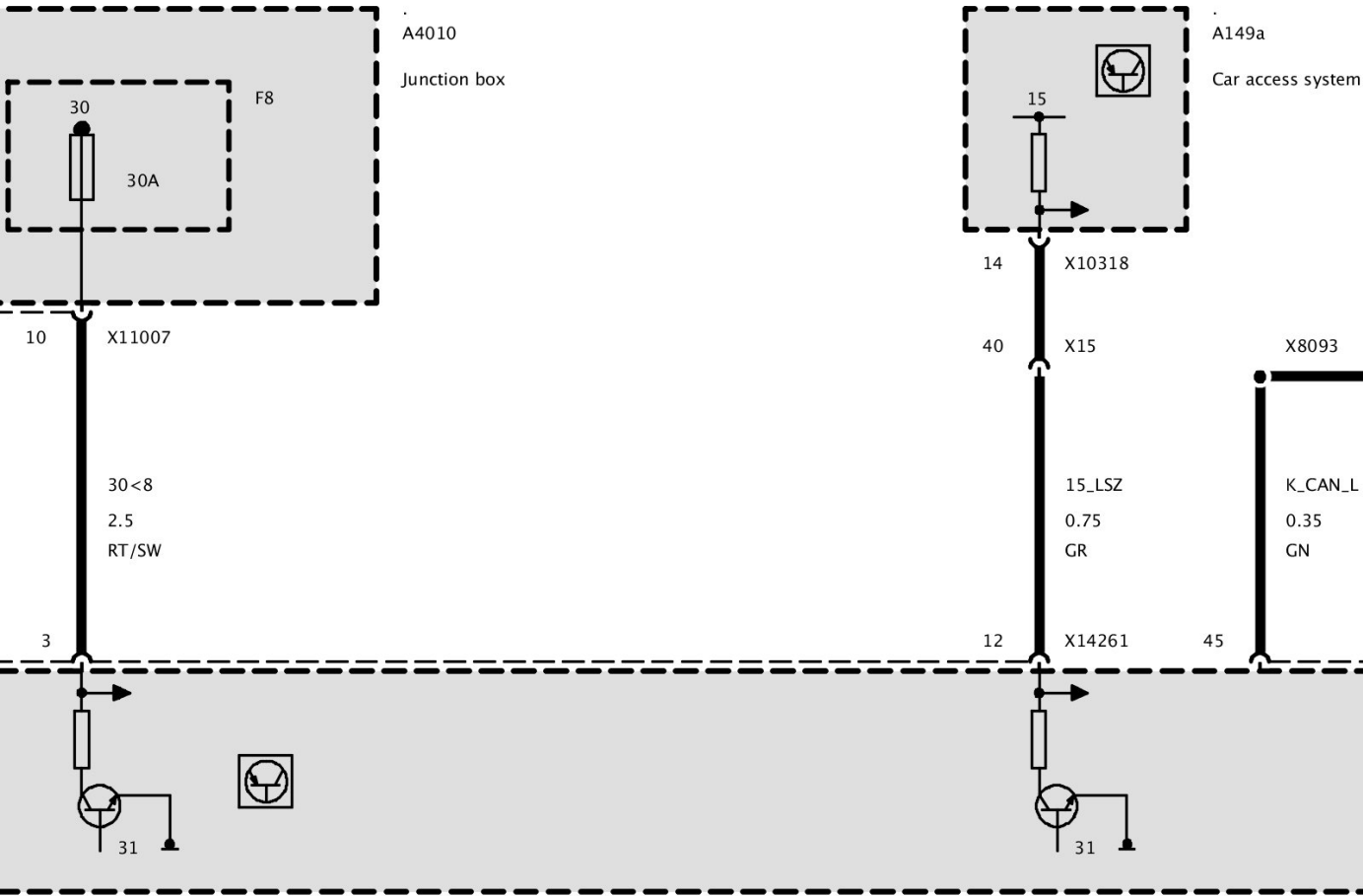
Part 3

Power Supply, Footwell Module FRM (As Of 12/03)

Power Supply, Footwell Module FRM (As Of 12/03)

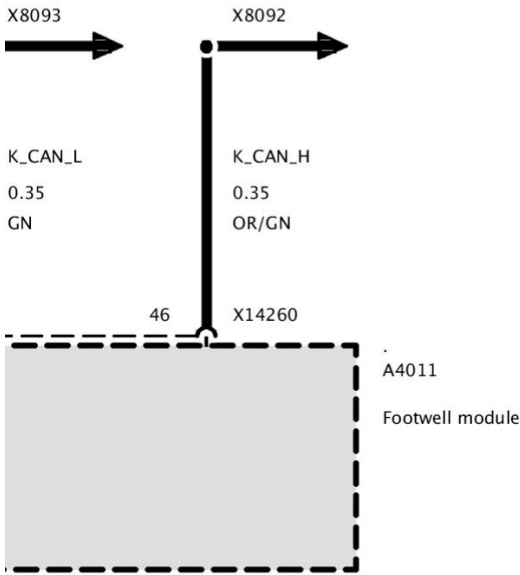


Part 1



Part 2

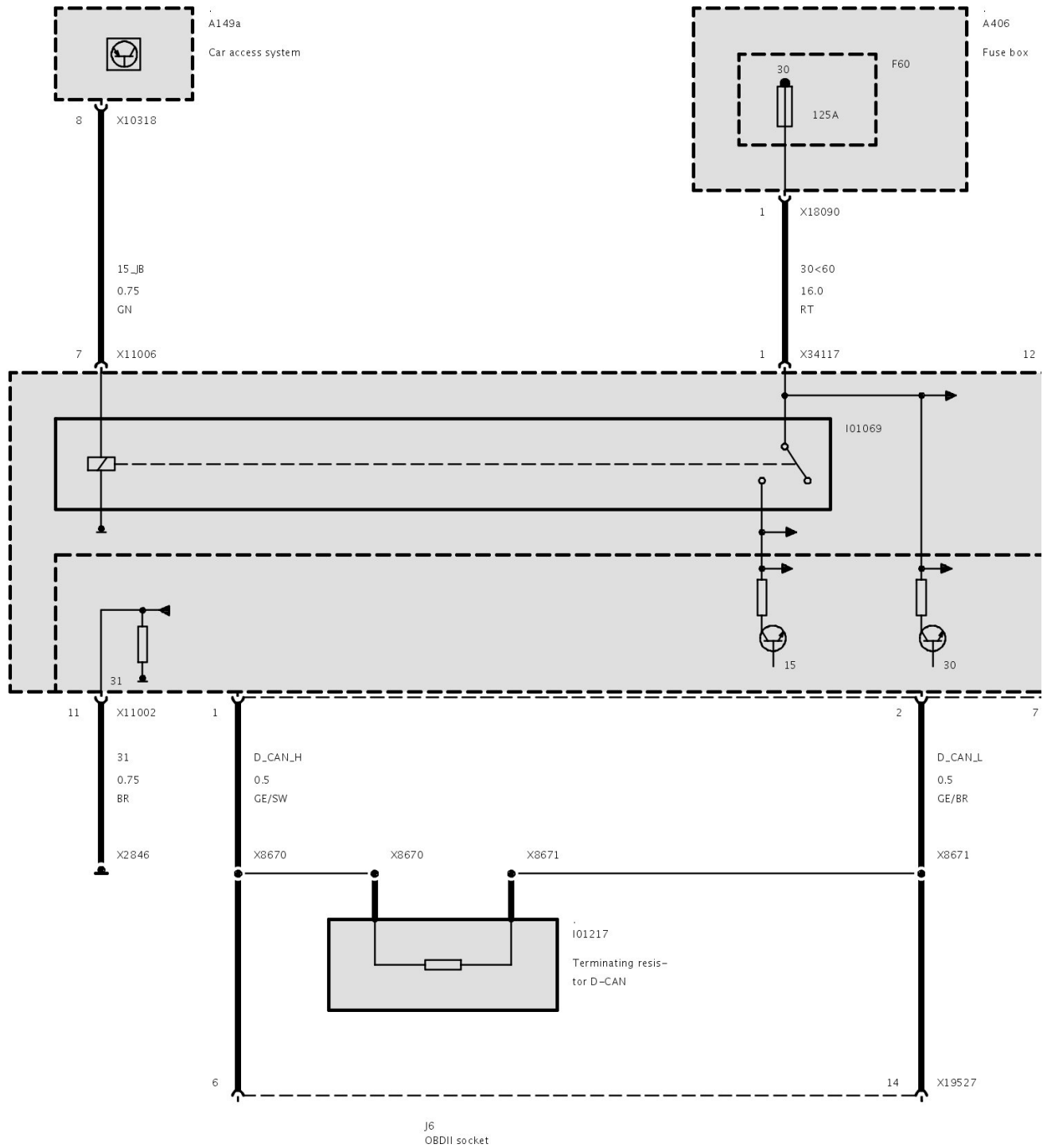
ss system



Part 3

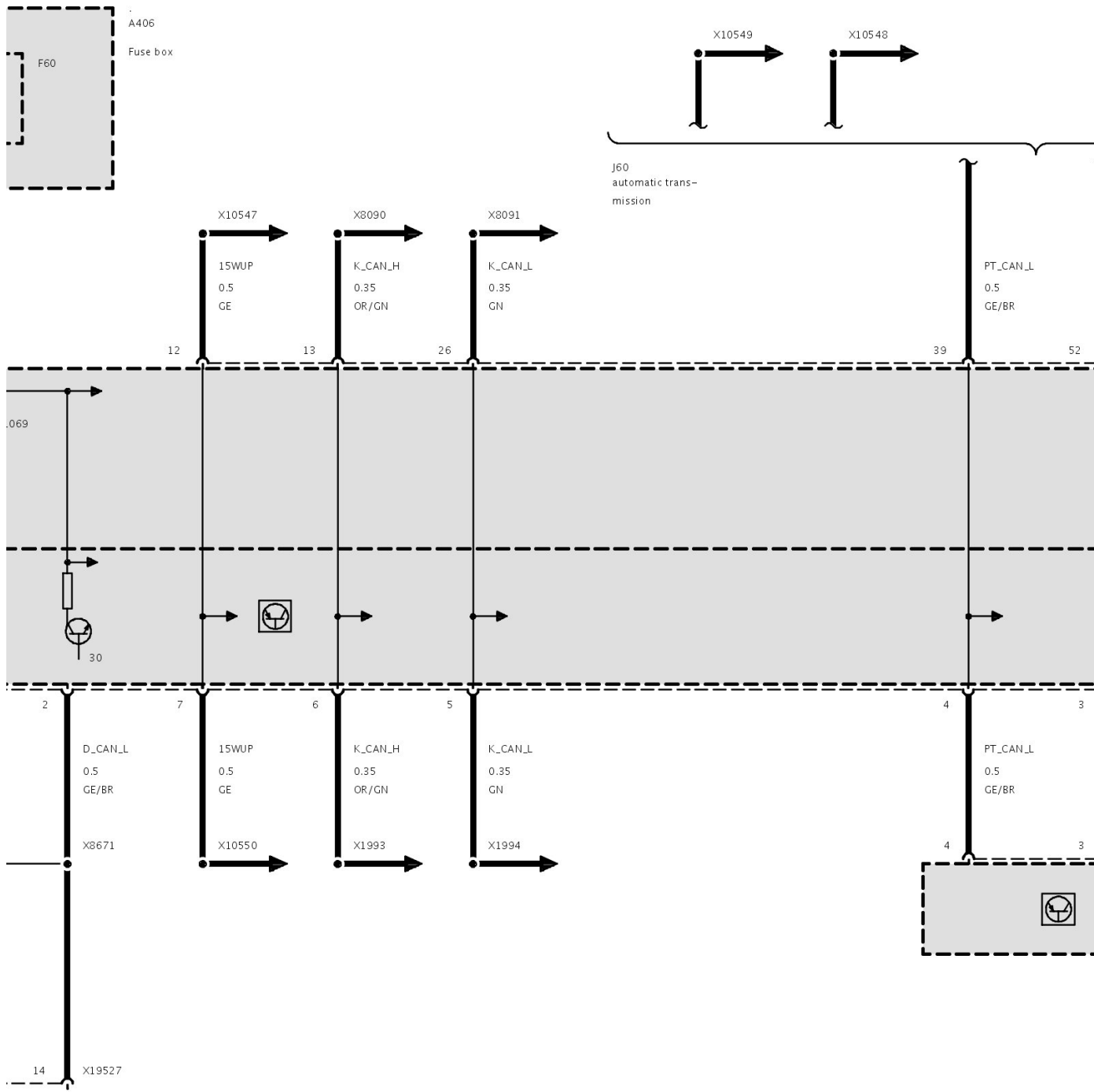
Supply, JBE Junction-Box Electronics

Power Supply JBE Junction Box, Electronics

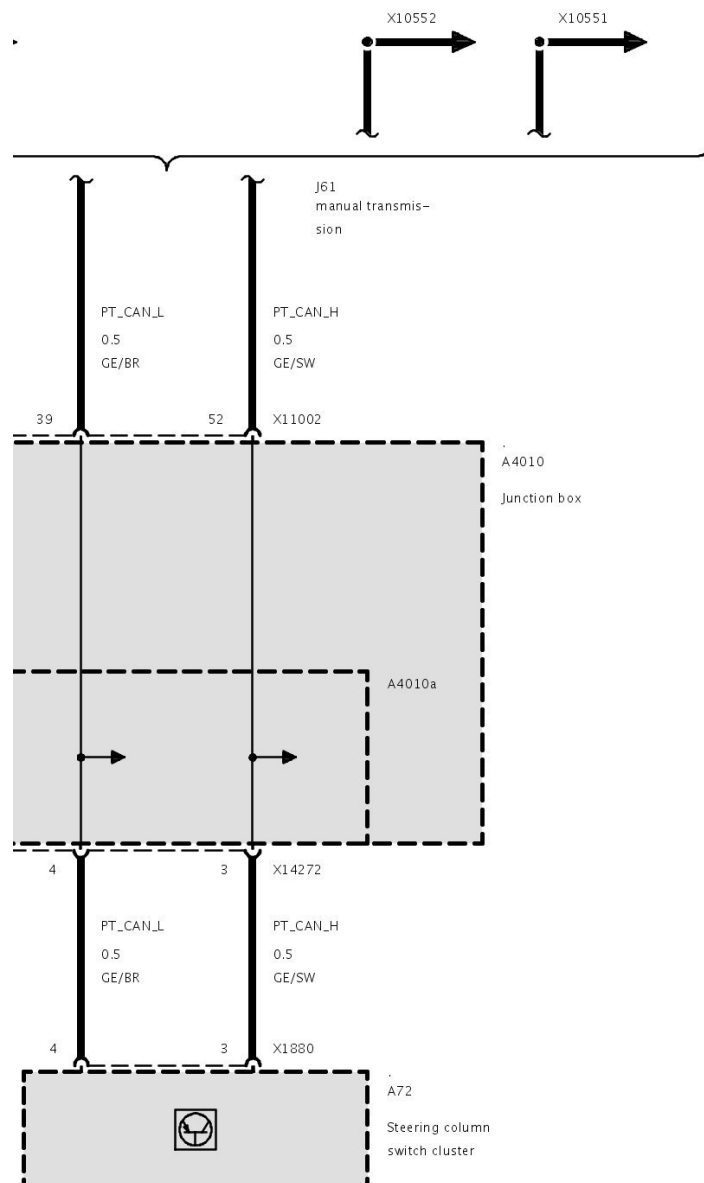


Part 1





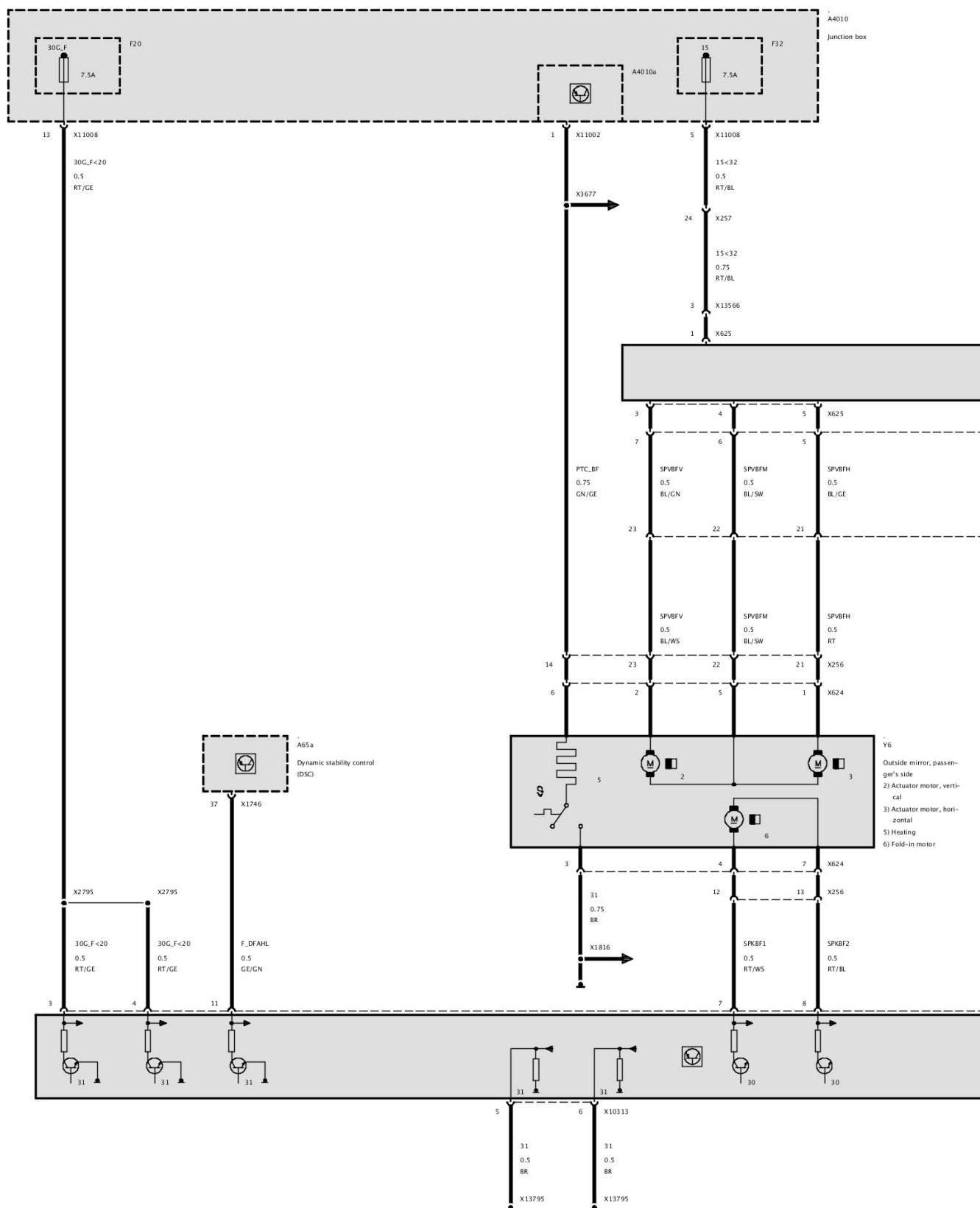
Part 2



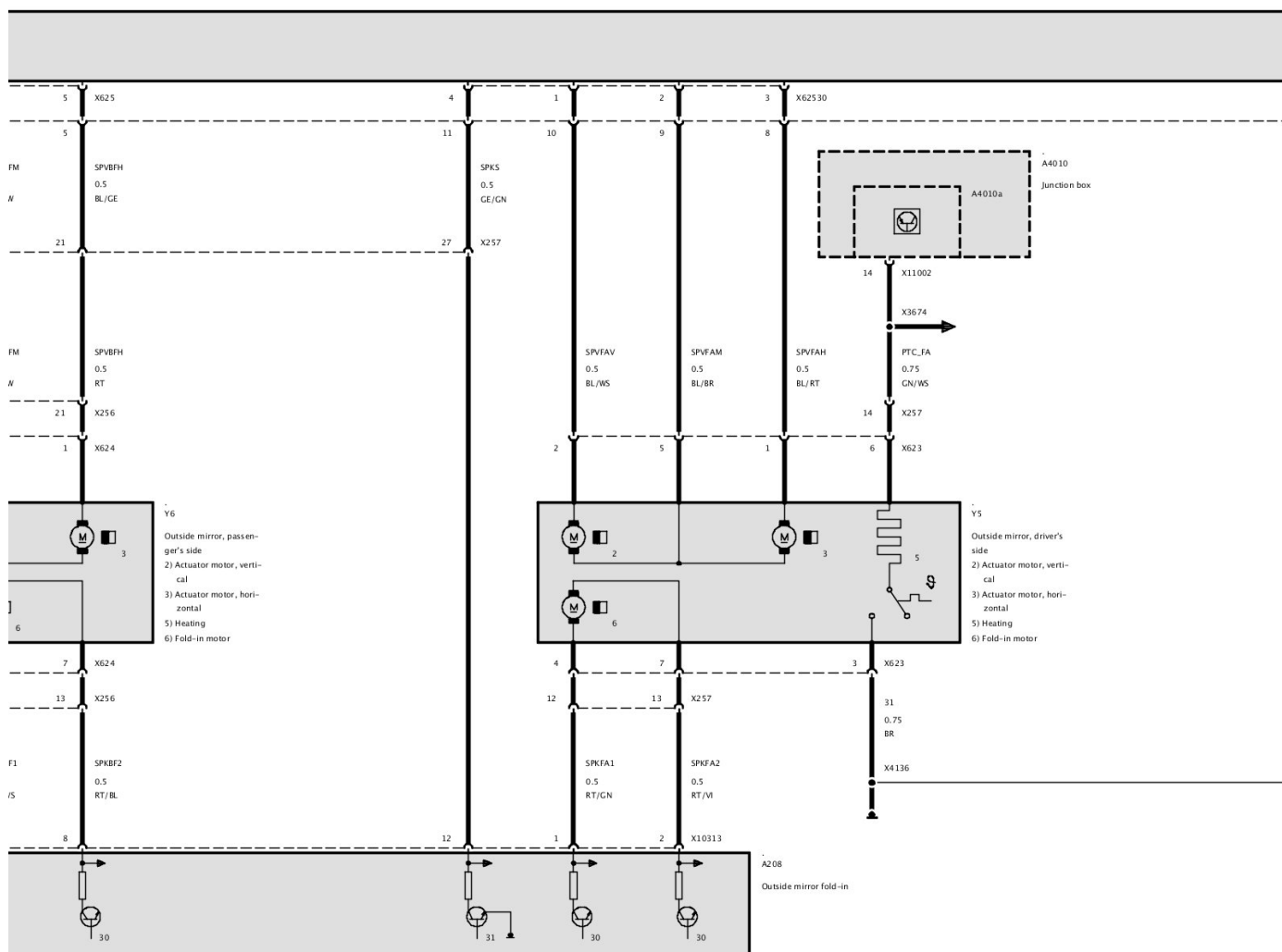
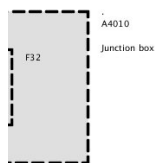
### Part 3

## Electric Outside Mirror (Left-Hand Drive)

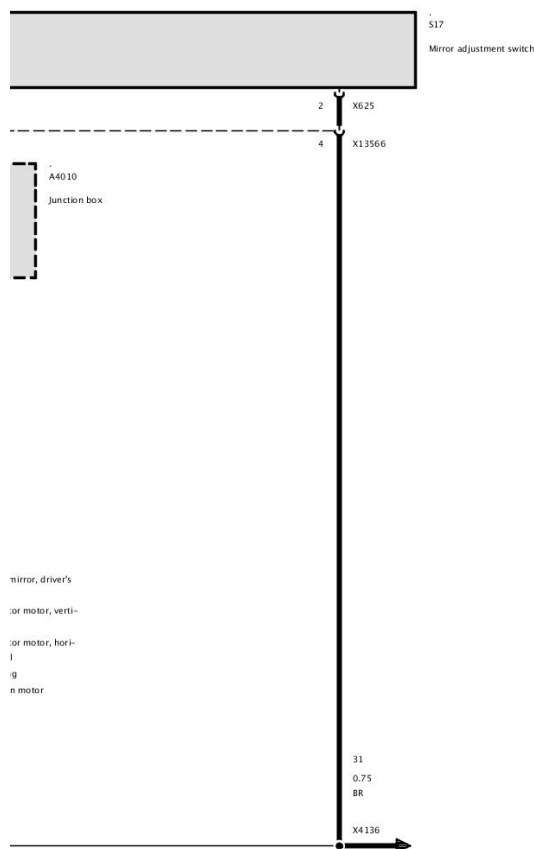
### Electric Outside Mirror (Left-Hand Drive)



Part 1



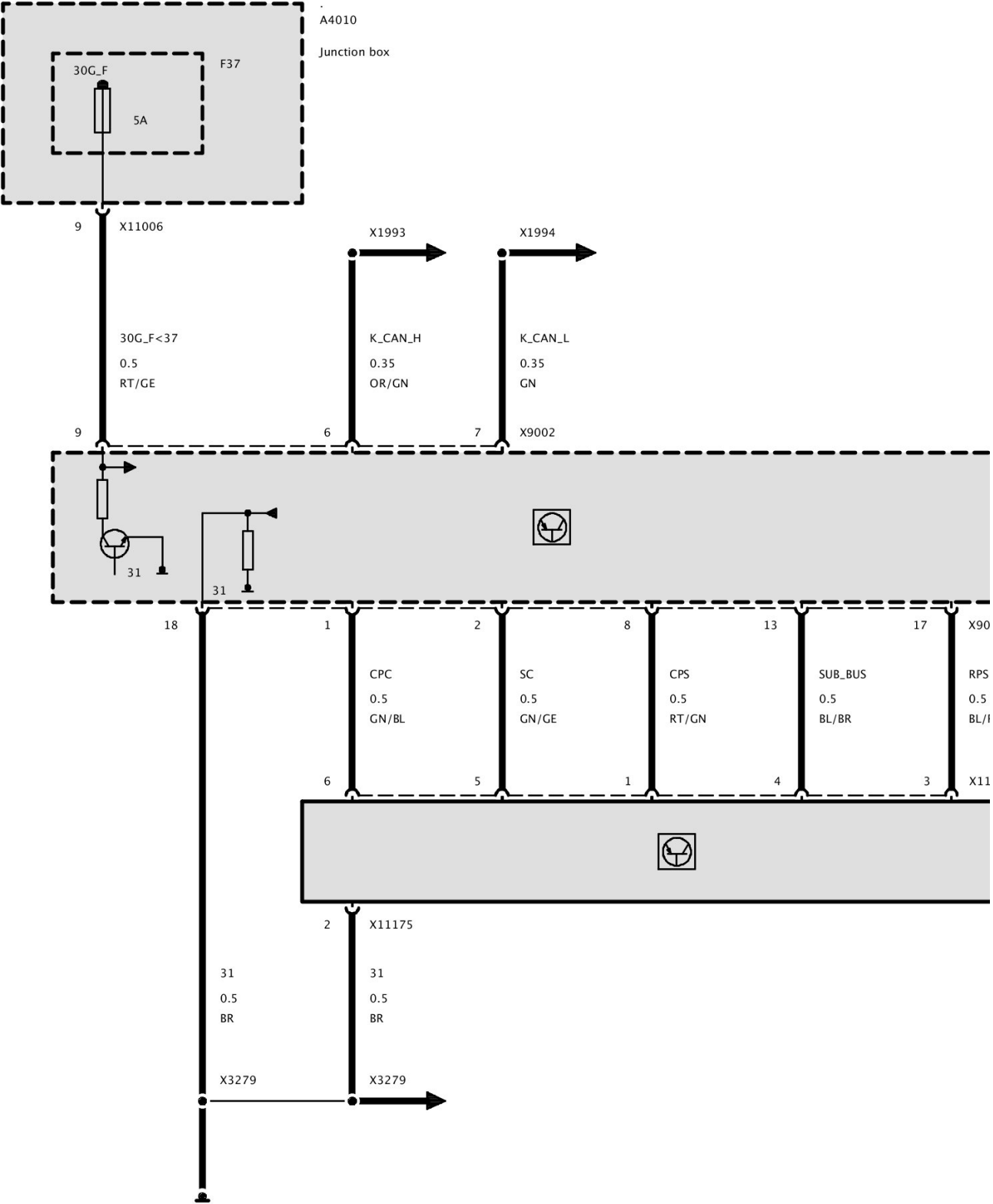
## Part 2



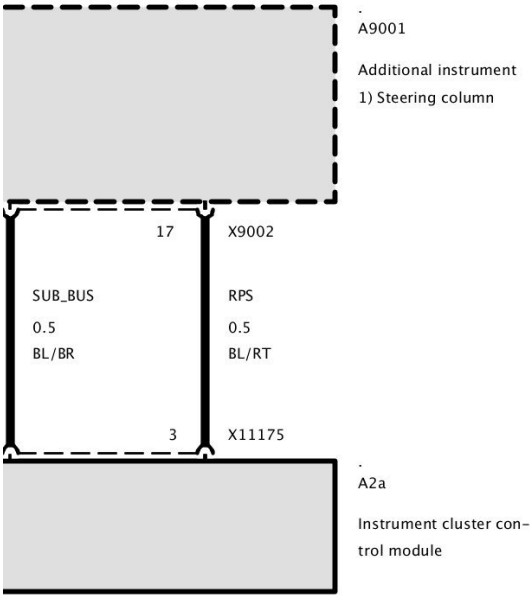
Part 3

Power Supply, Instrument Cluster KOMBI (Up To 12/08)

Power Supply, Instrument Cluster KOMBI (Up To 12/08)



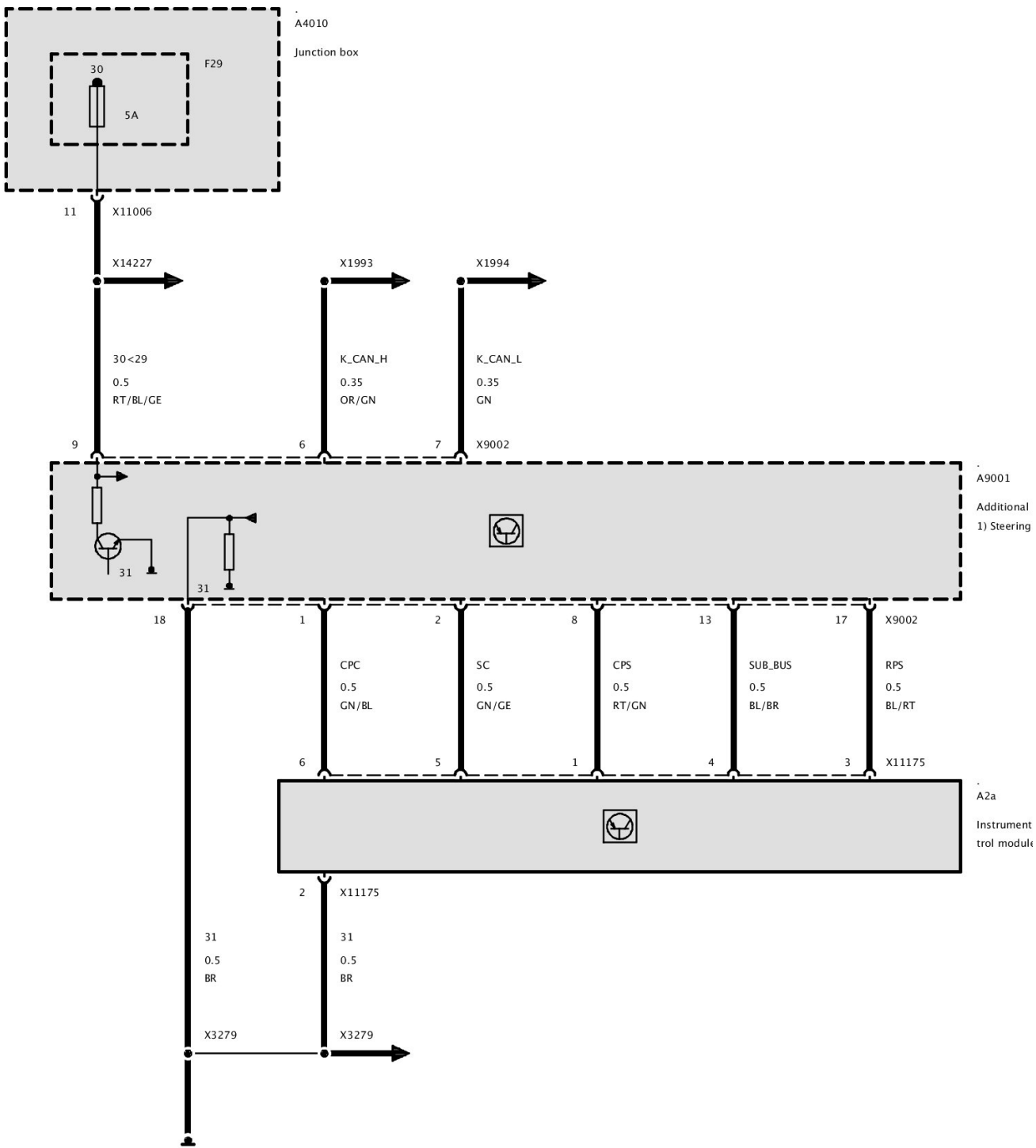
Part 1



Part 2

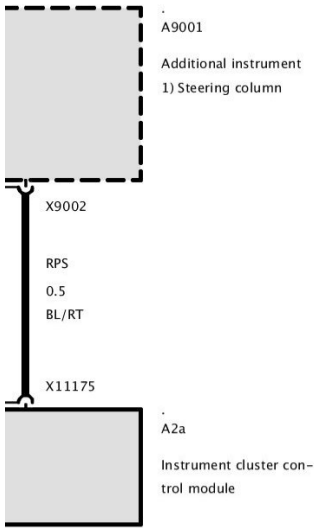
Power Supply, Instrument Cluster KOMBI (As Of 12/08)

Power Supply, Instrument Cluster KOMBI (As Of 12/08)



Part 1

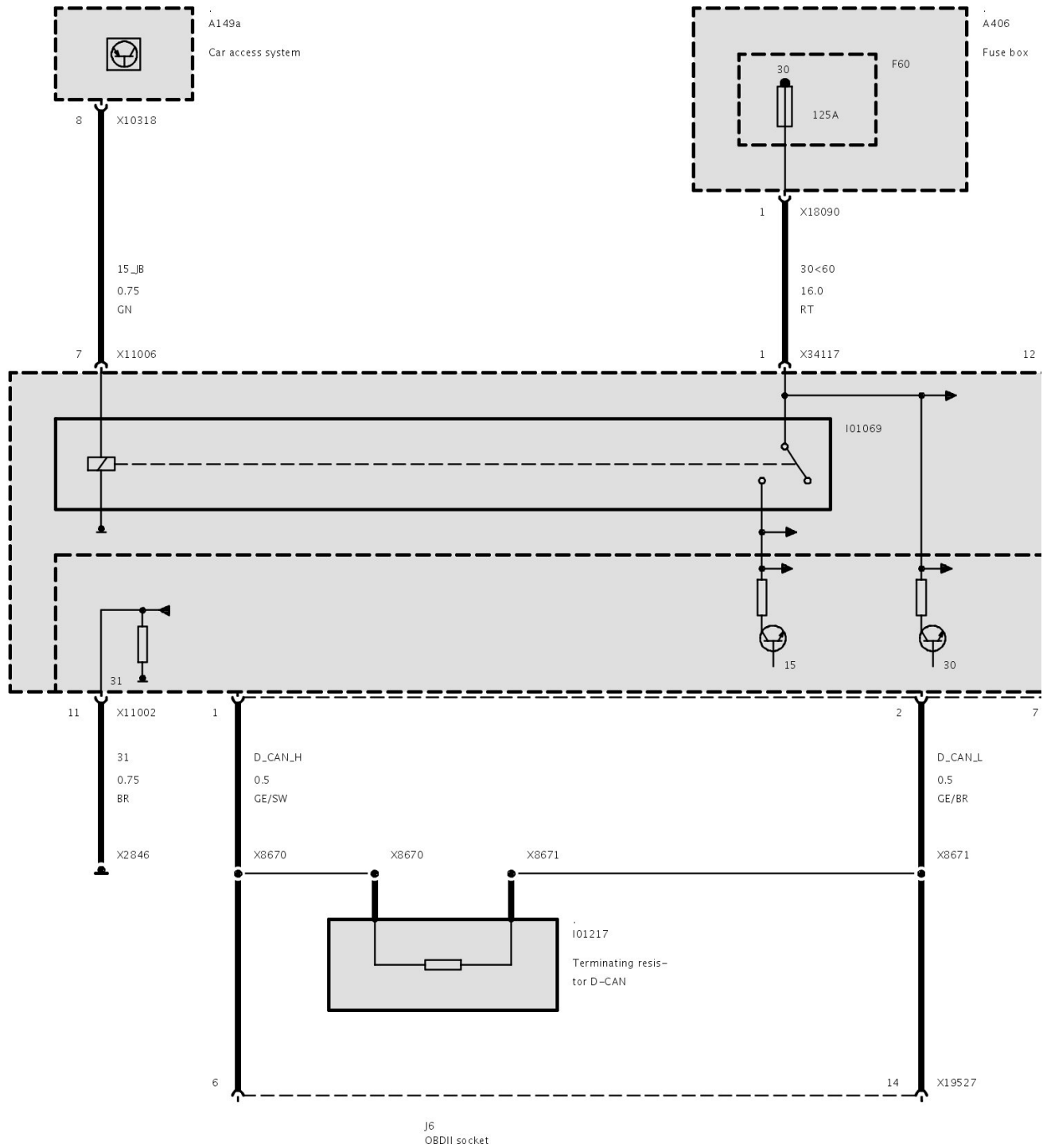




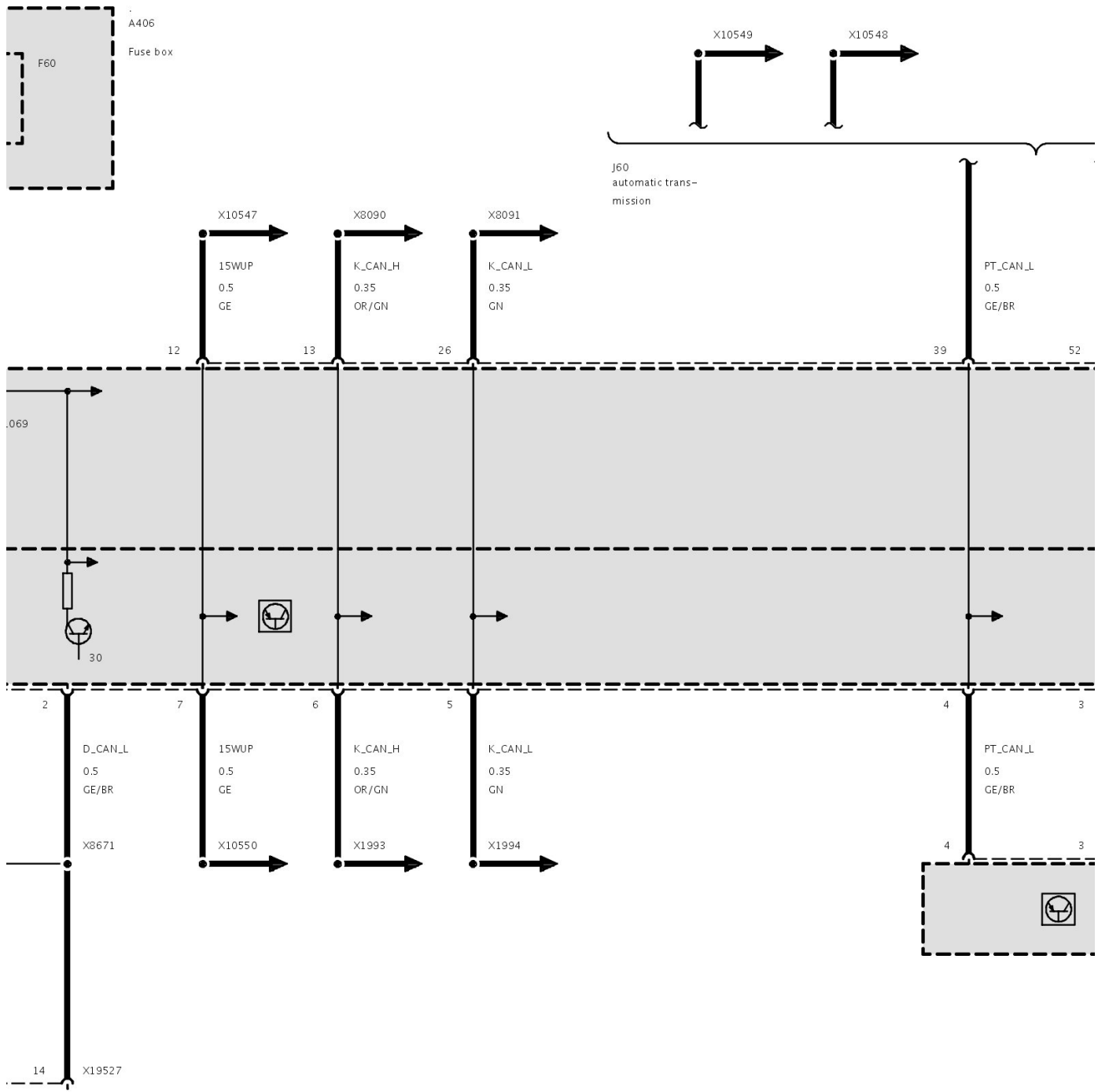
Part 2

Supply, JBE Junction-Box Electronics

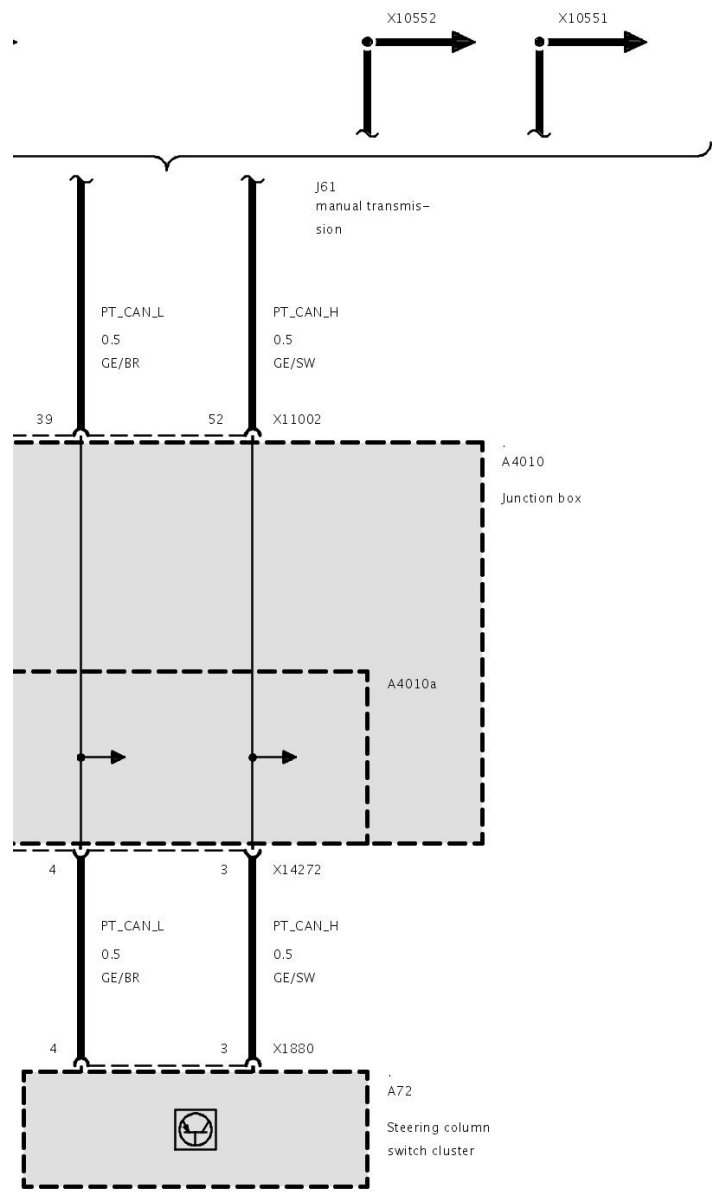
Power Supply JBE Junction Box, Electronics



Part 1



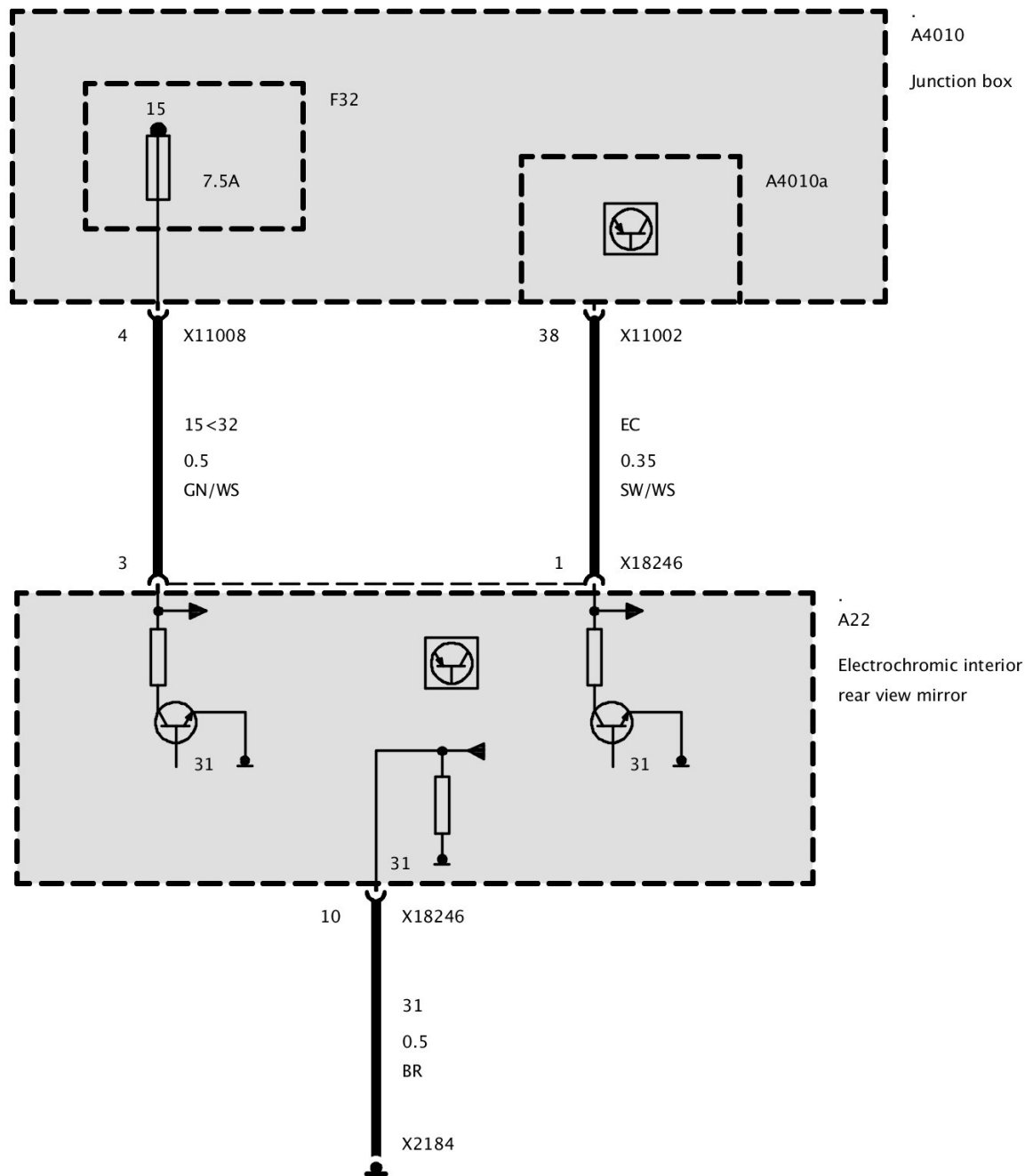
Part 2



Part 3

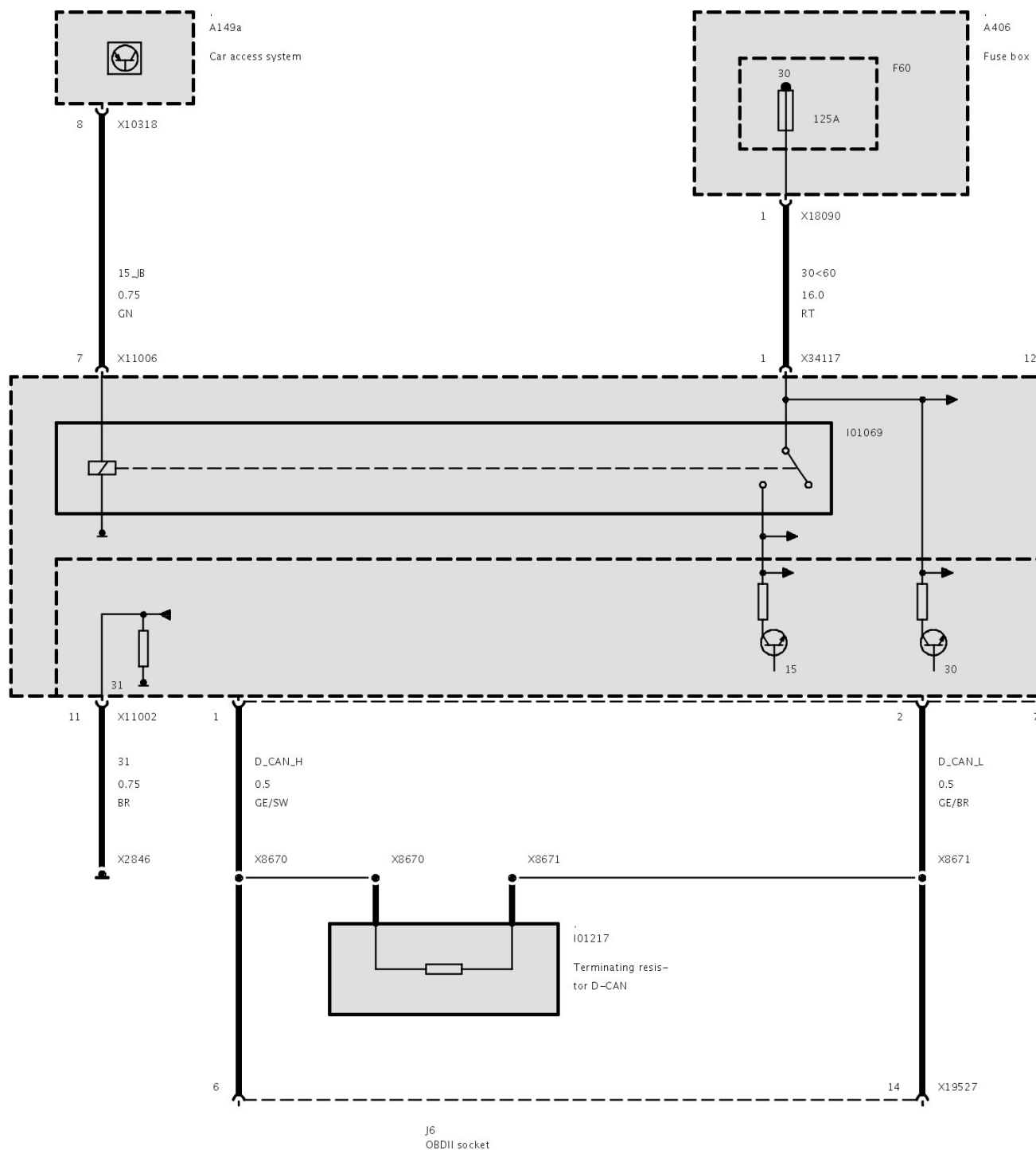
Electrochromic Mirror

Electrochromic Mirror

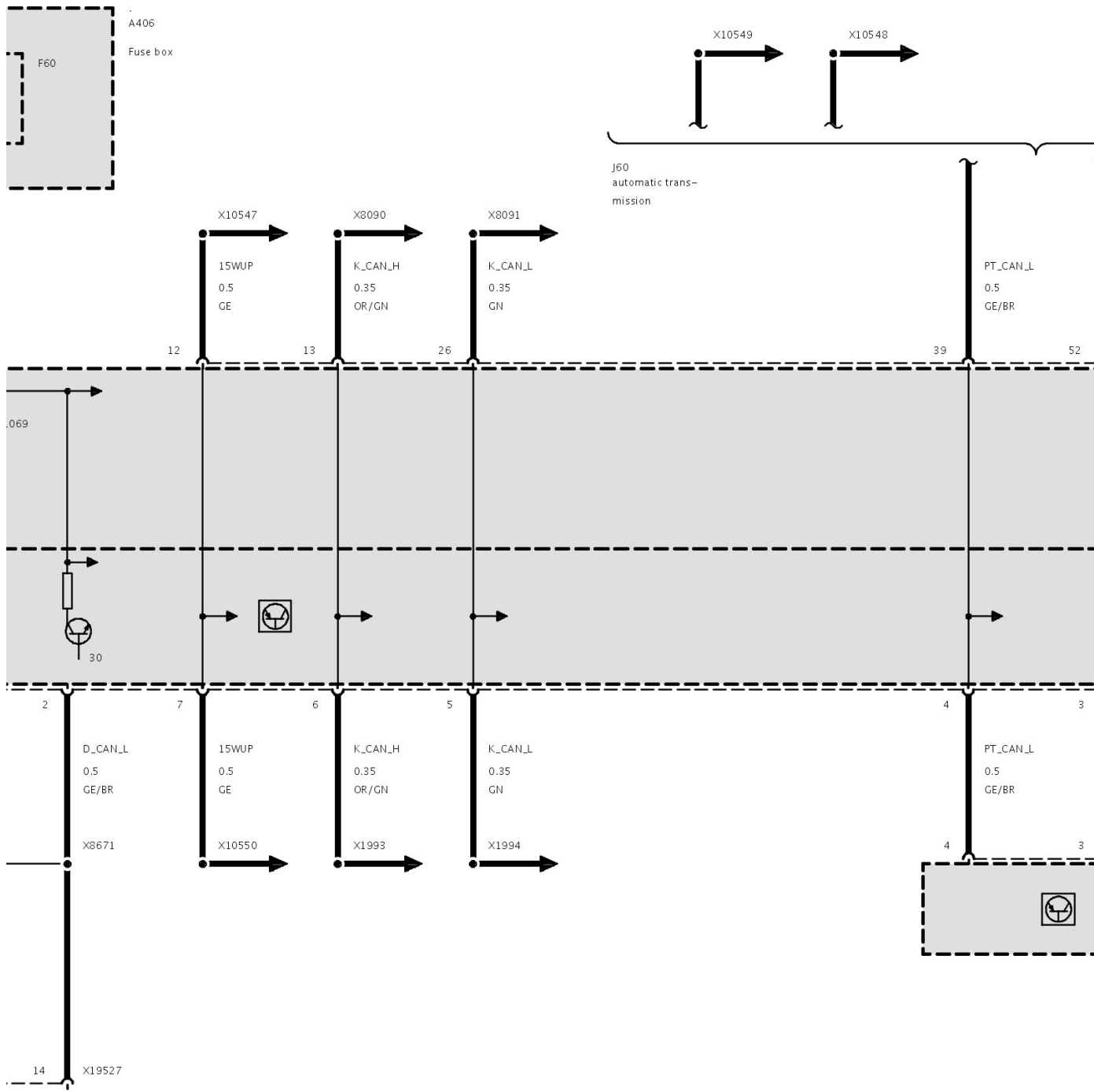


## Supply, JBE Junction-Box Electronics

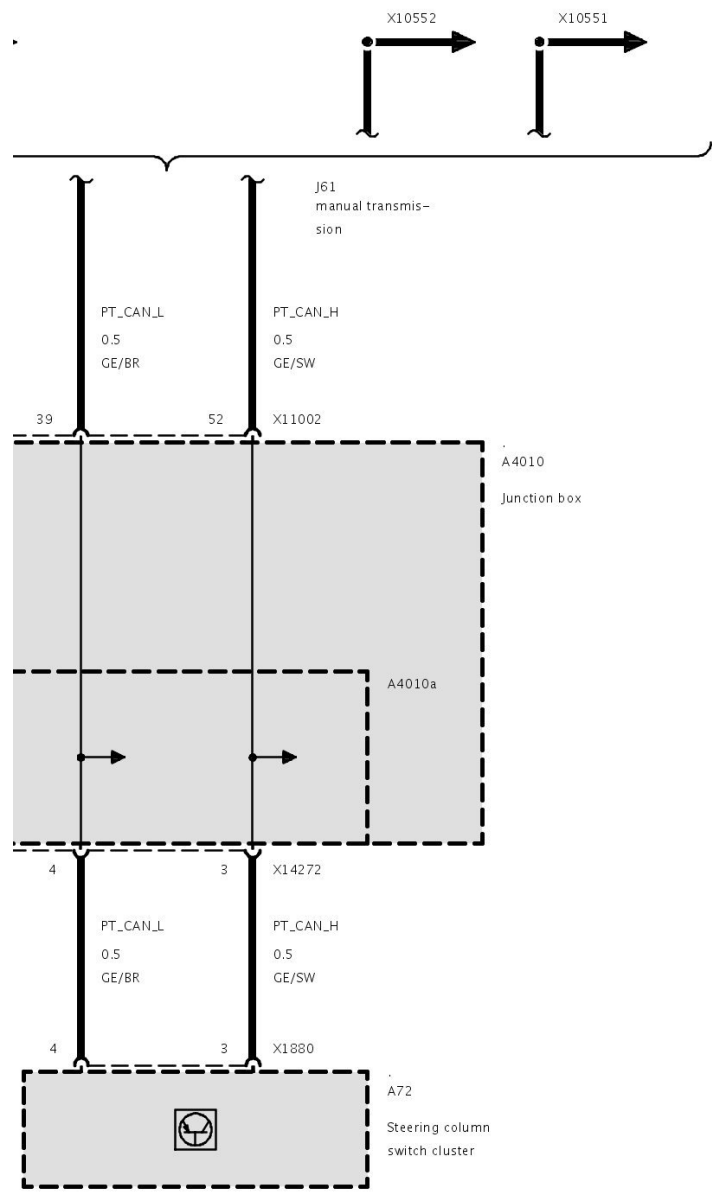
Power Supply JBE Junction Box, Electronics



### Part 1



Part 2

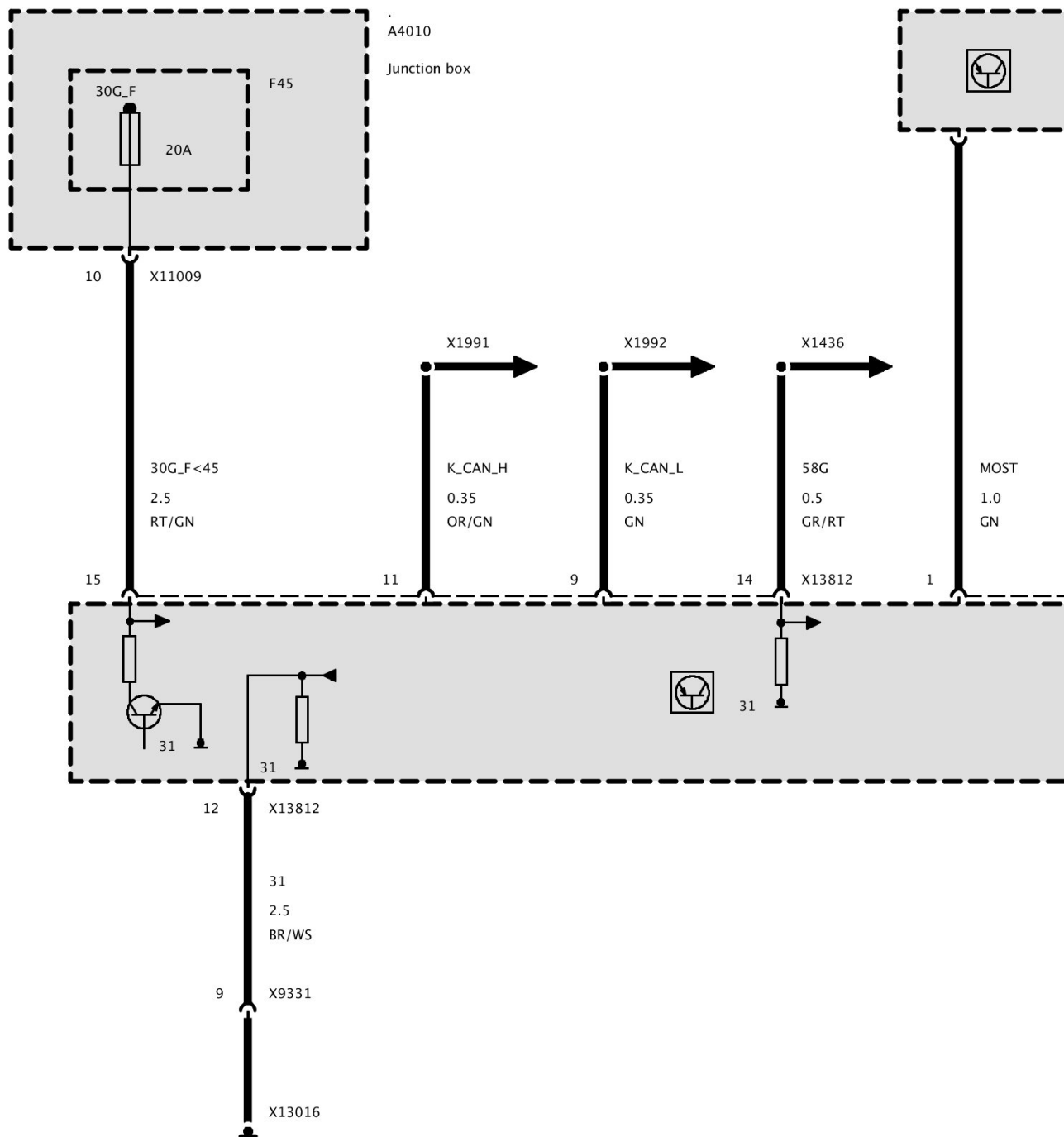


Part 3

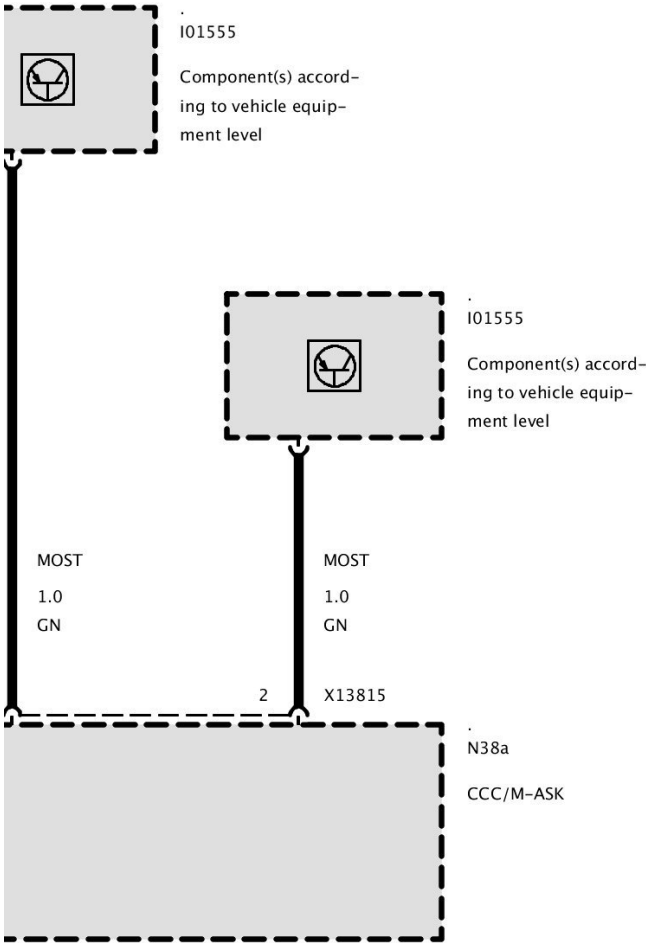
Car Communication Computer (CCC-BO User Interface)

Power Supply CCC/M-ASK (As Of 08/07)





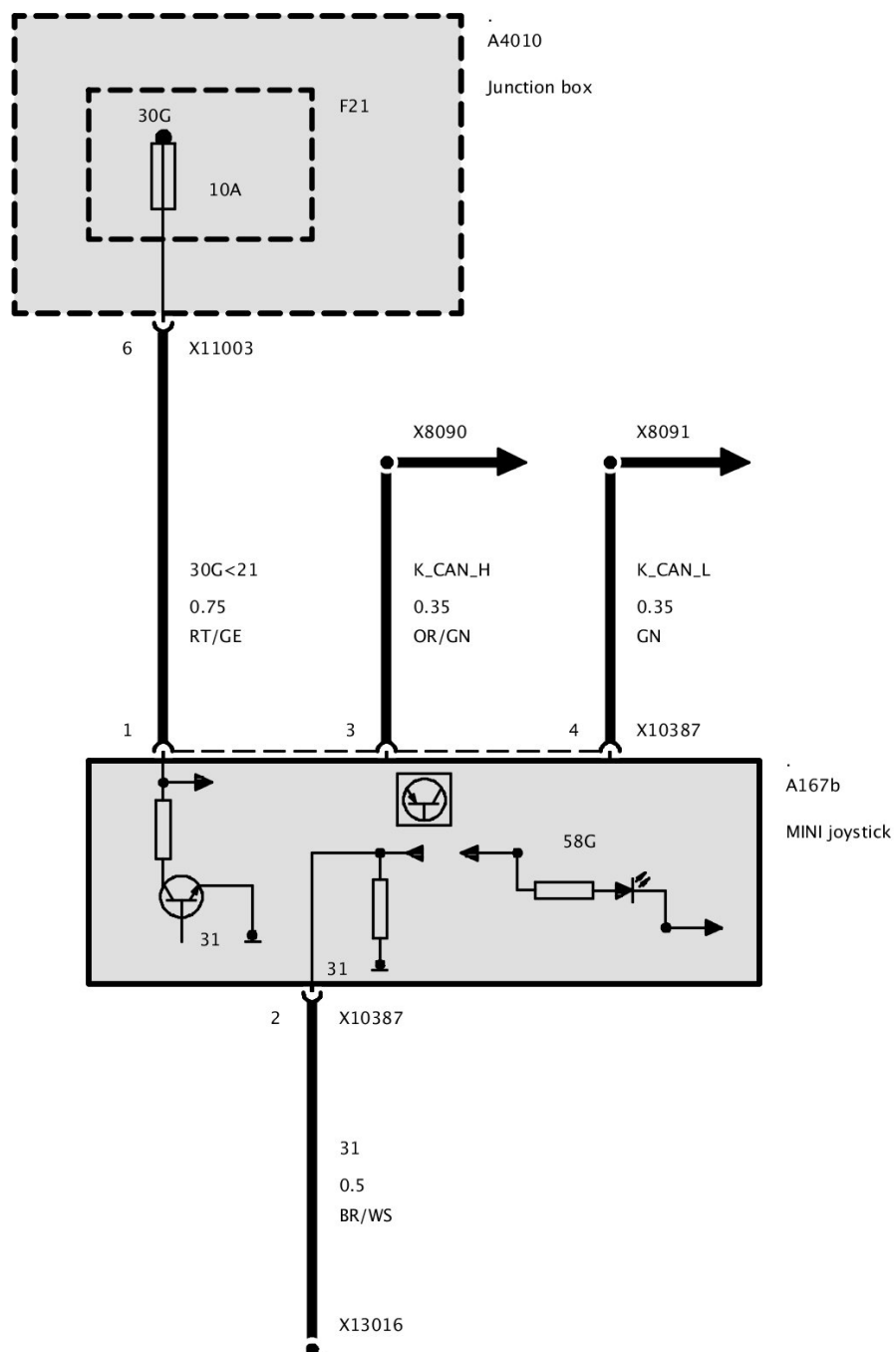
Part 1



Part 2

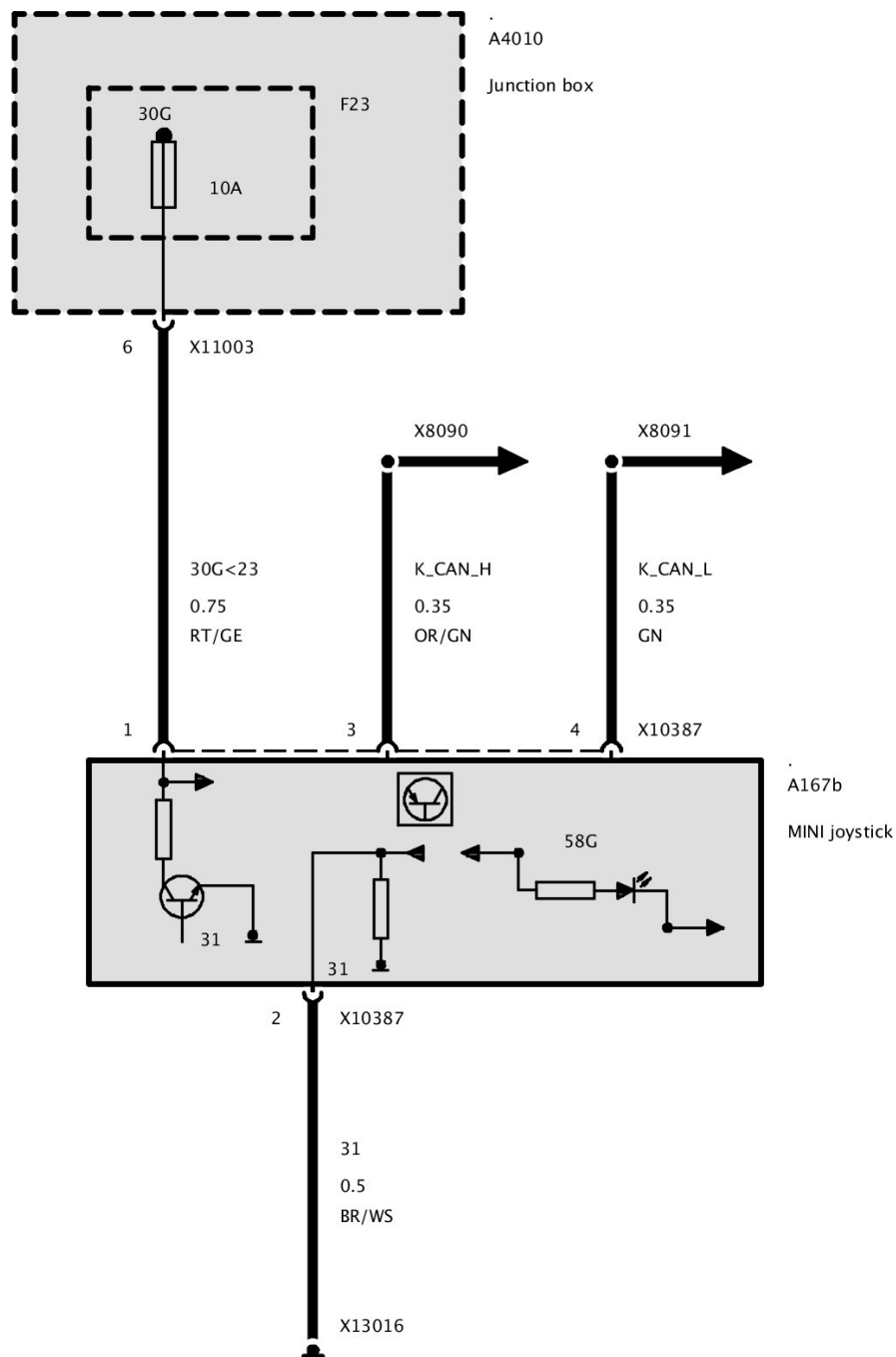
Controller Supply (As Of 08/07 Up To 12/08)

Controller Supply (As Of 08/07 Up To 12/08)



**Controller Supply (As Of 12/08)**

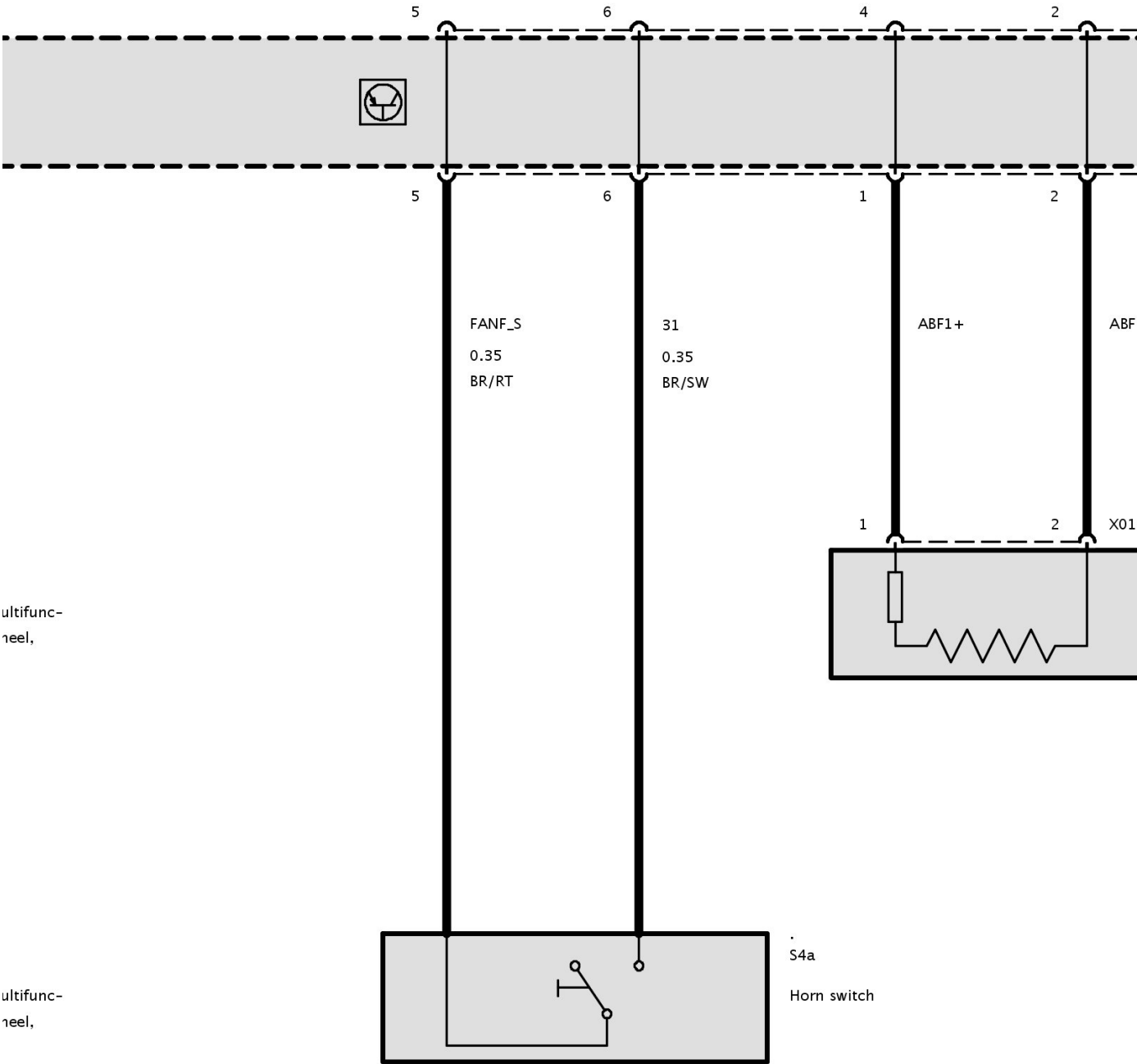
**Controller Supply (As Of 12/08)**



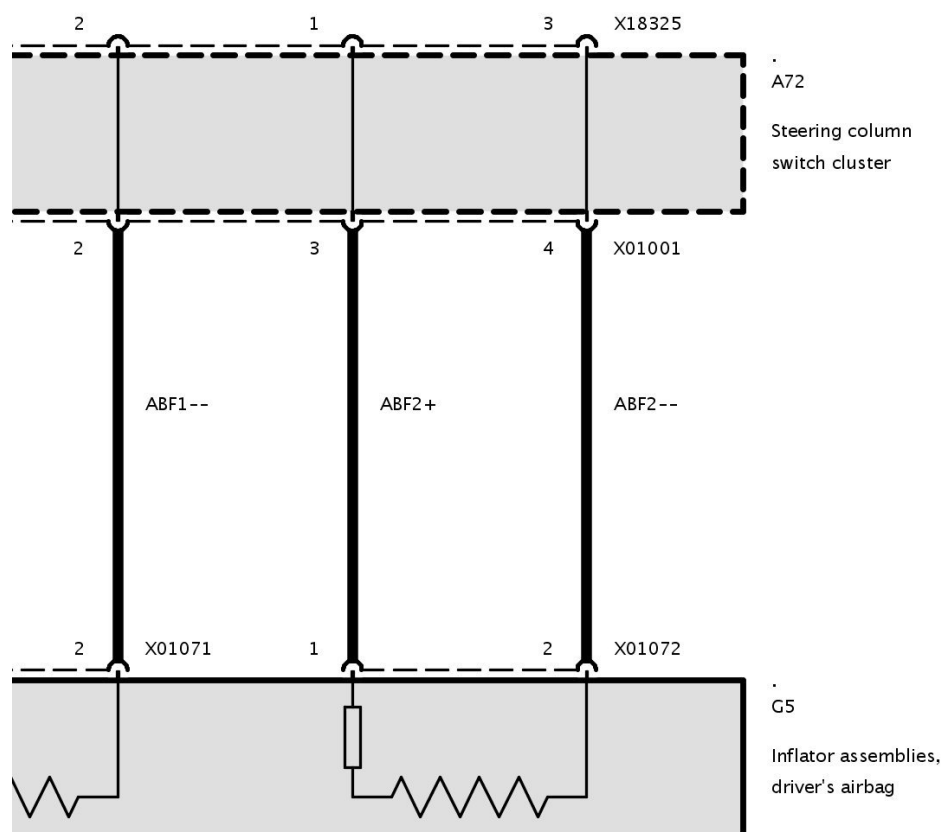
## Multifunction Steering Wheel

### Multifunction Steering Wheel





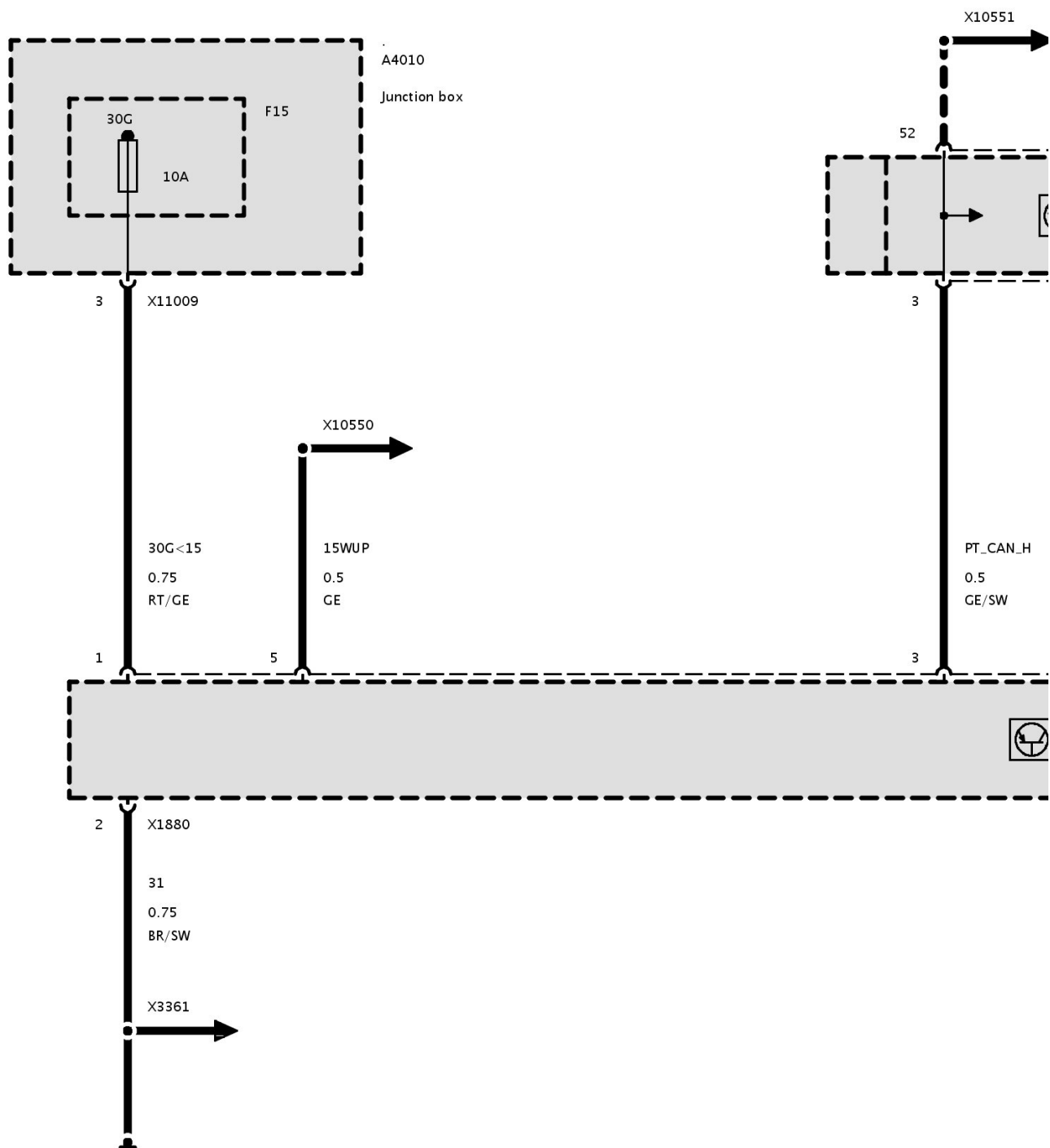
Part 2



### Part 3

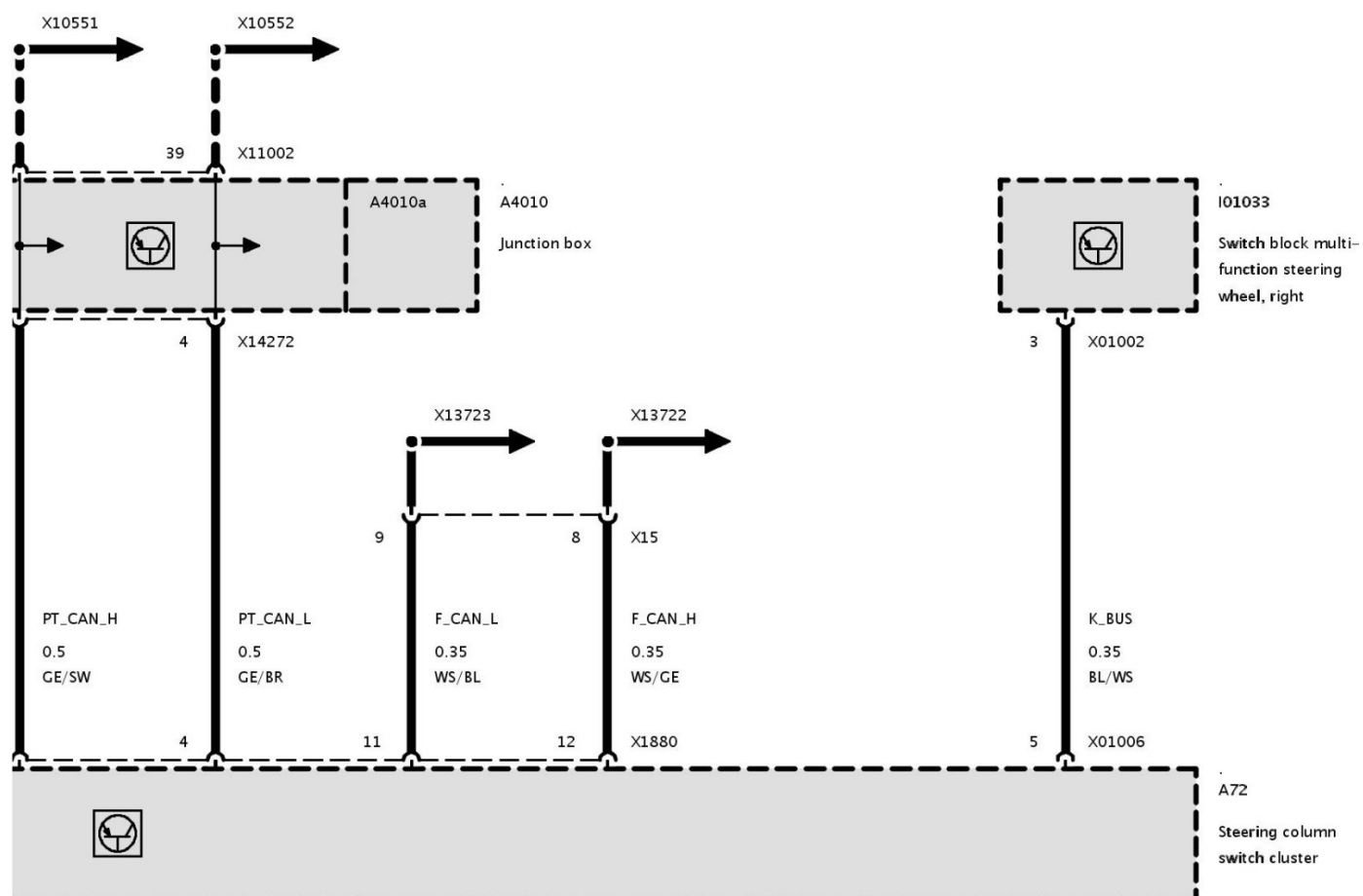
**Supply, Steering Column Switch Cluster SZL (Up To 12/08)**

**Supply, Steering Column Switch Cluster SZL (Up To 12/08)**



Part 1

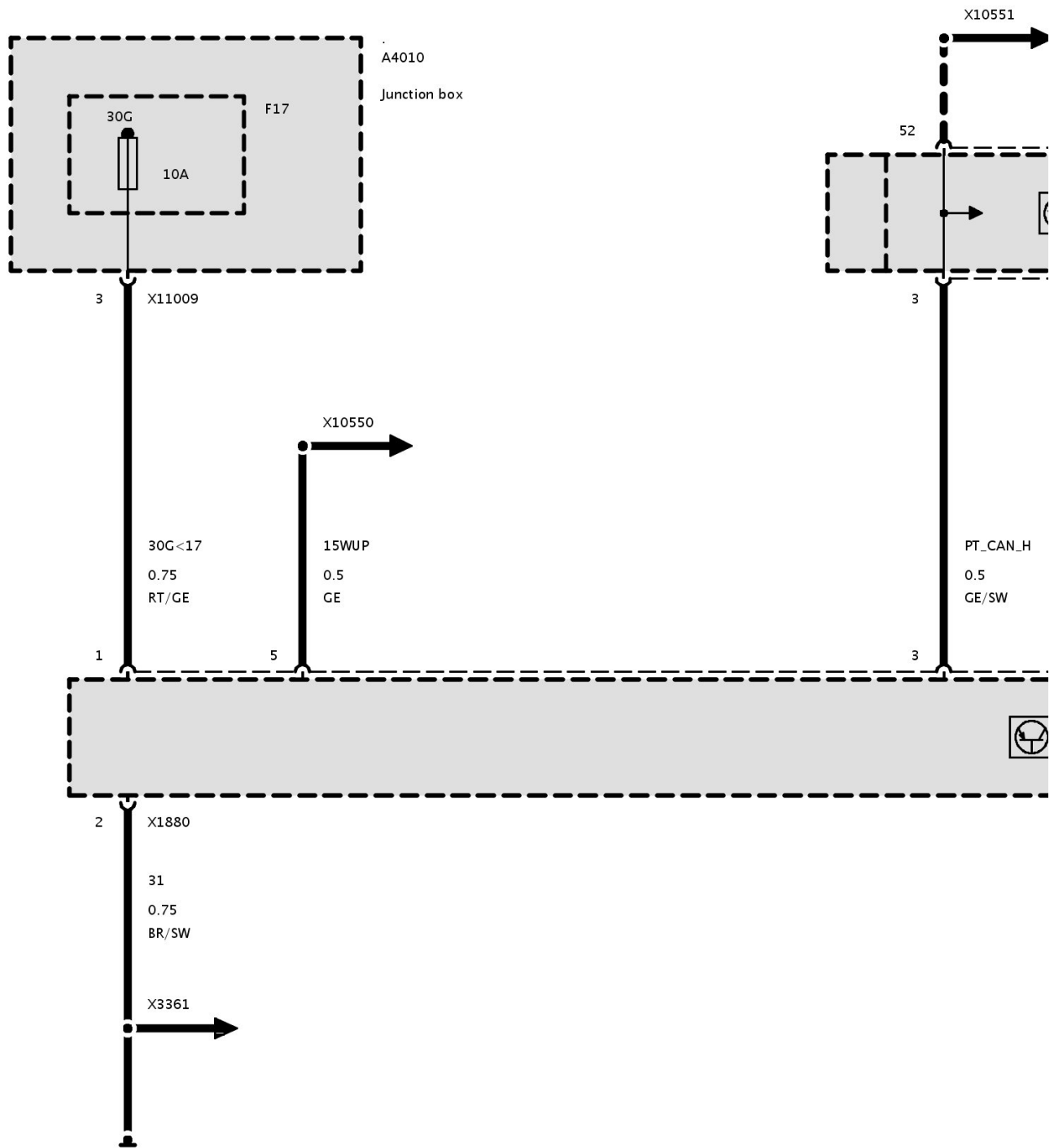




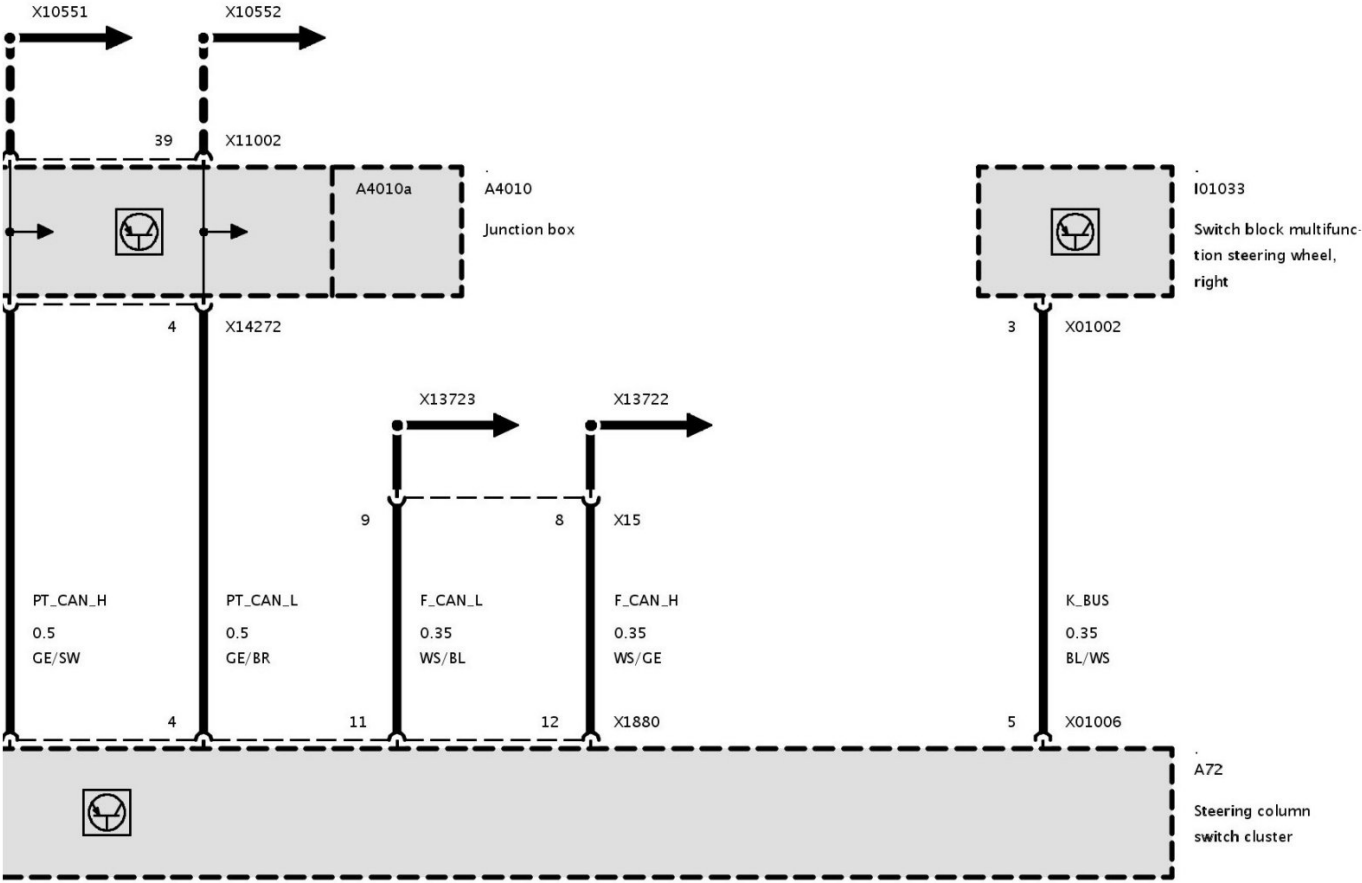
## Part 2

**Supply, Steering Column Switch Cluster SZL (As Of 12/08)**

**Supply, Steering Column Switch Cluster SZL (As Of 12/08)**



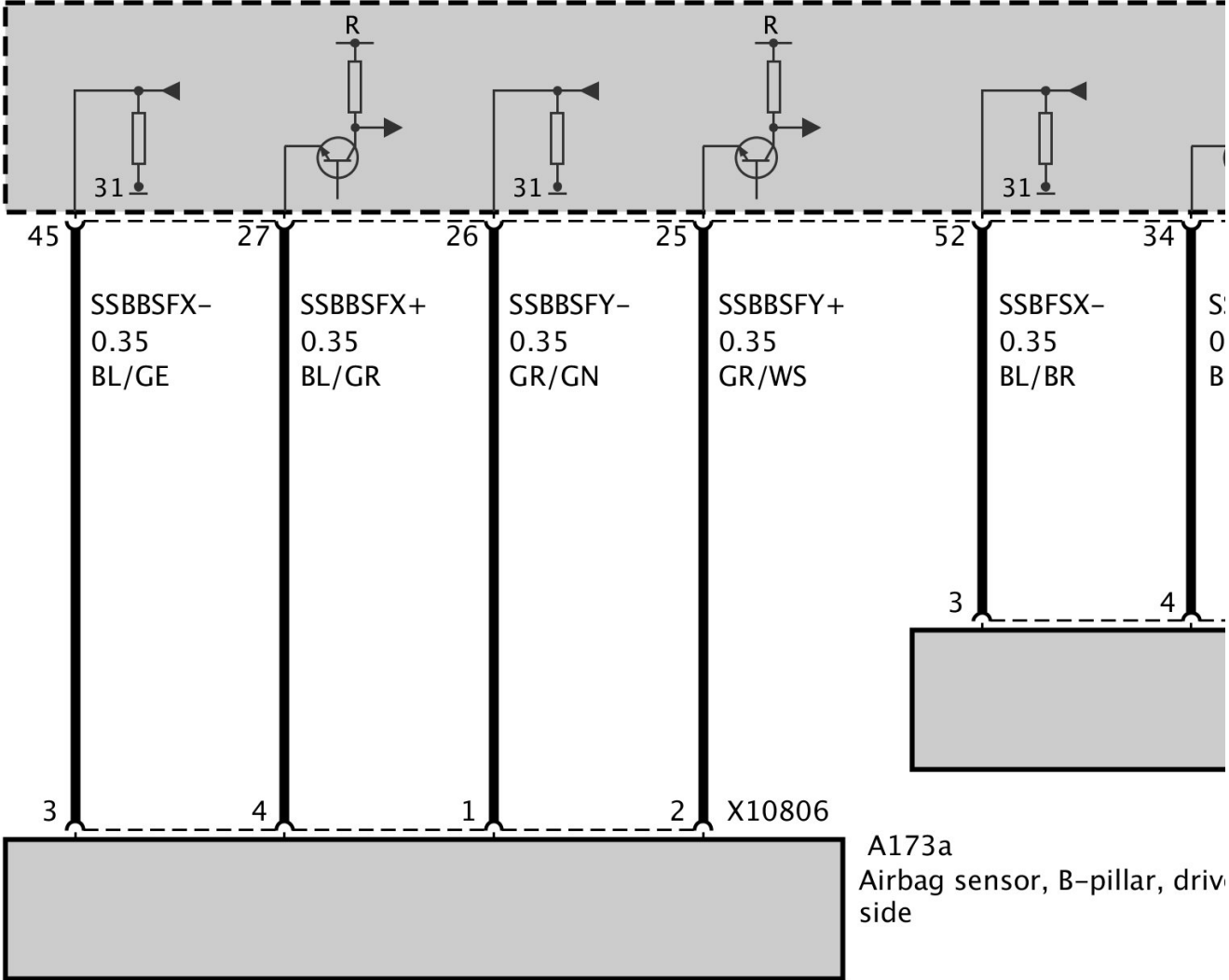
Part 1



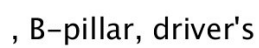
Part 2

Airbag Sensors (Left-Hand Drive Up To 03/09)

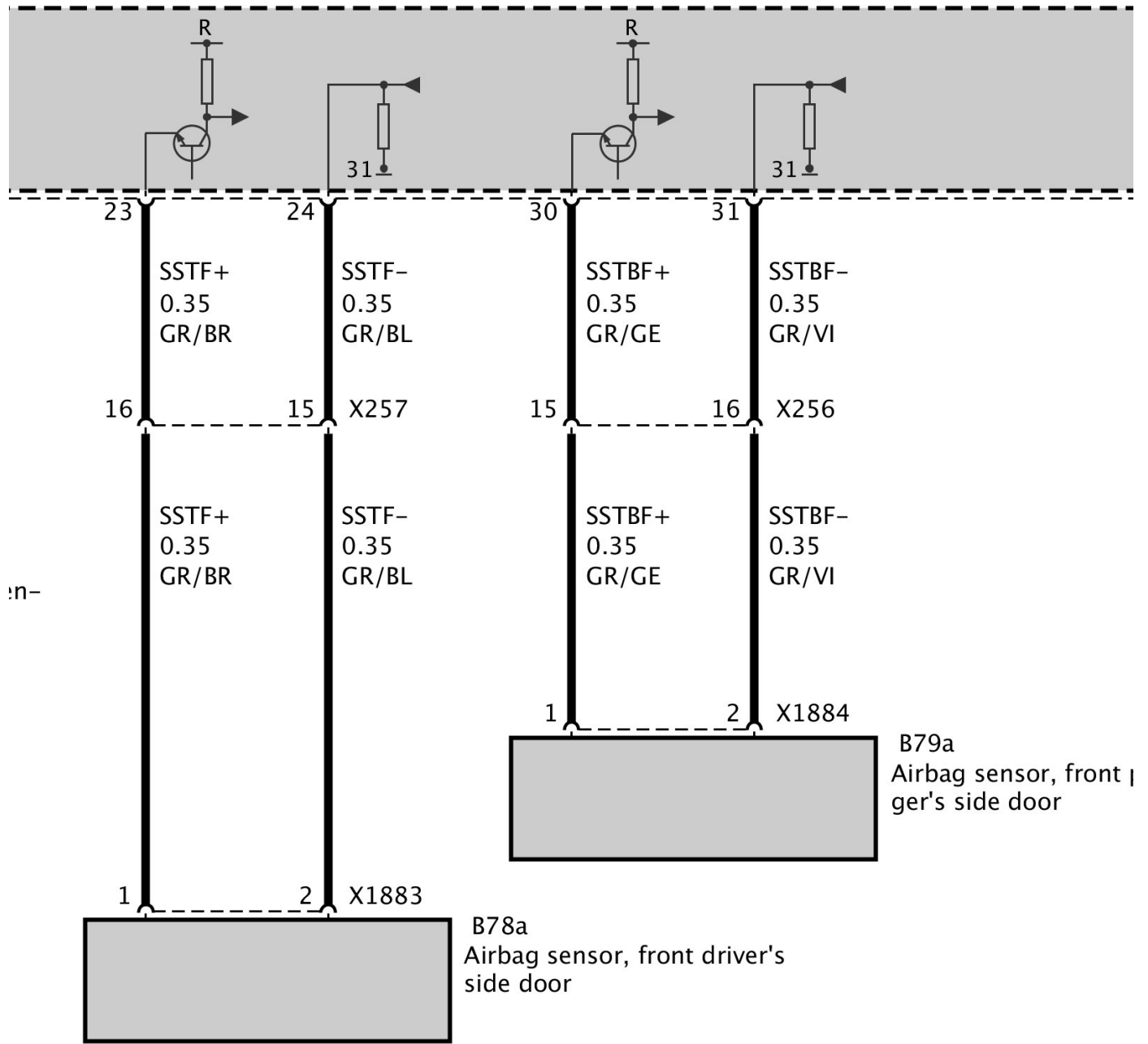
Airbag Sensors (Left-Hand Drive Up To 03/09)



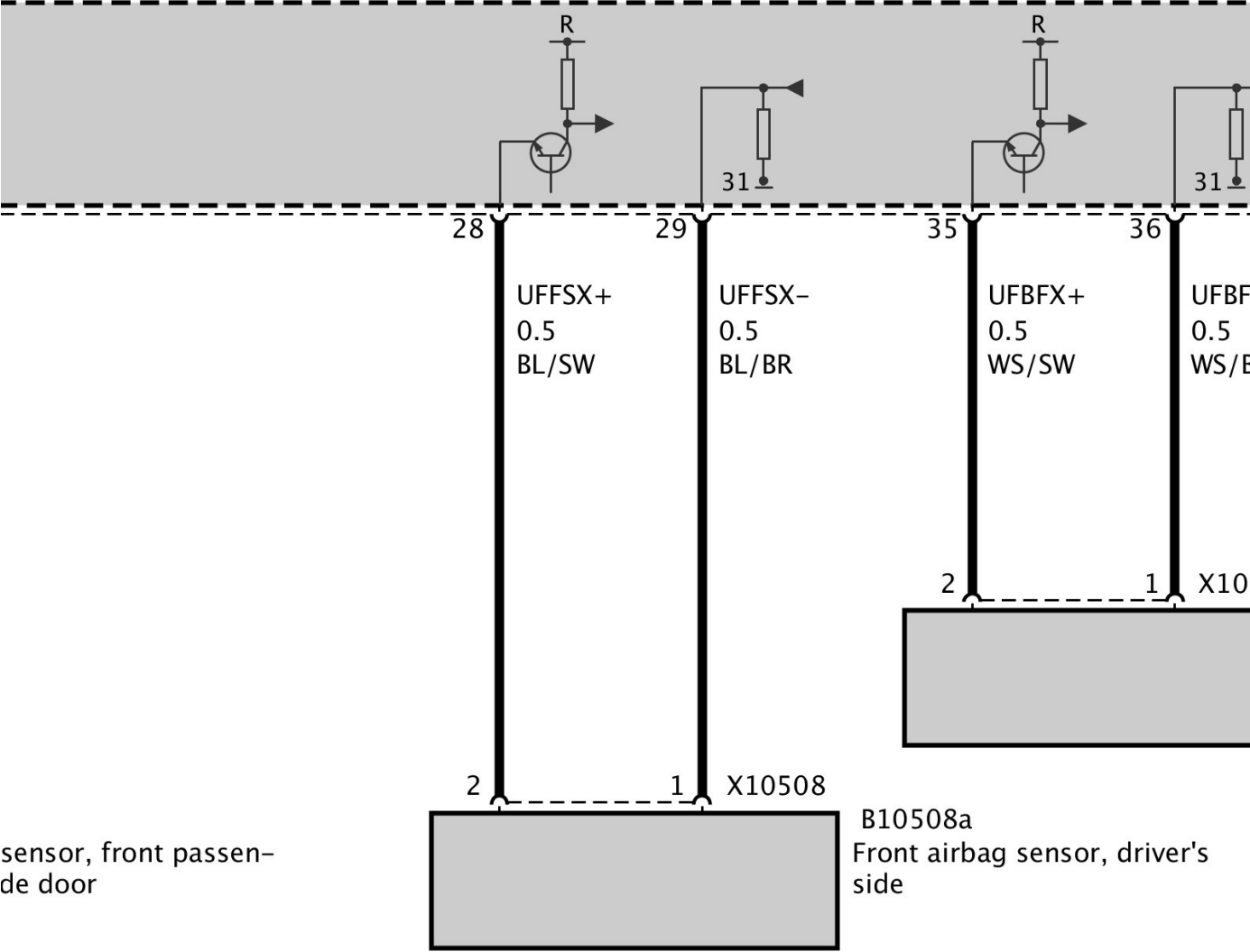
Part 1

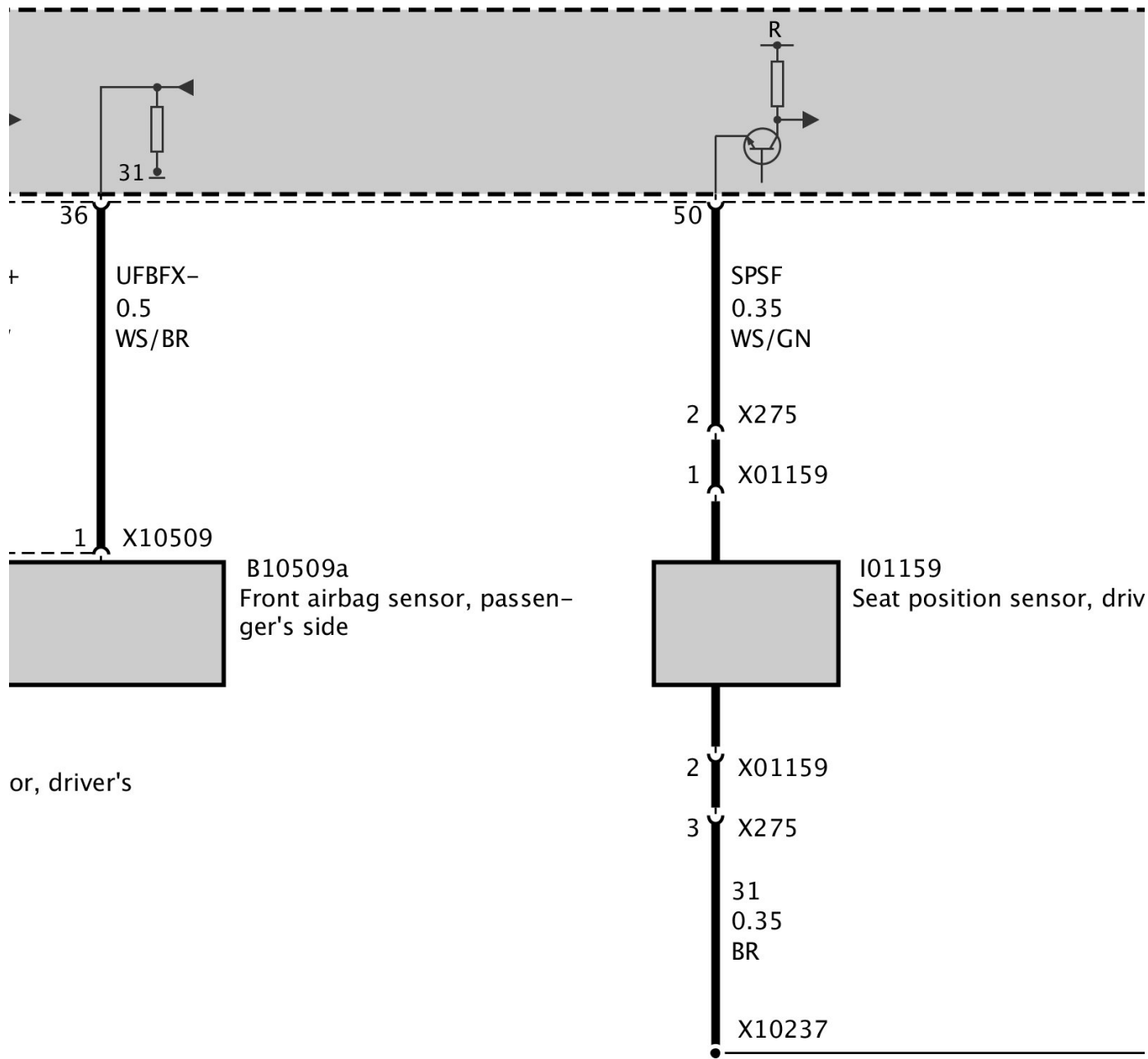


jmoraflores@hotmail.cl



Part 3



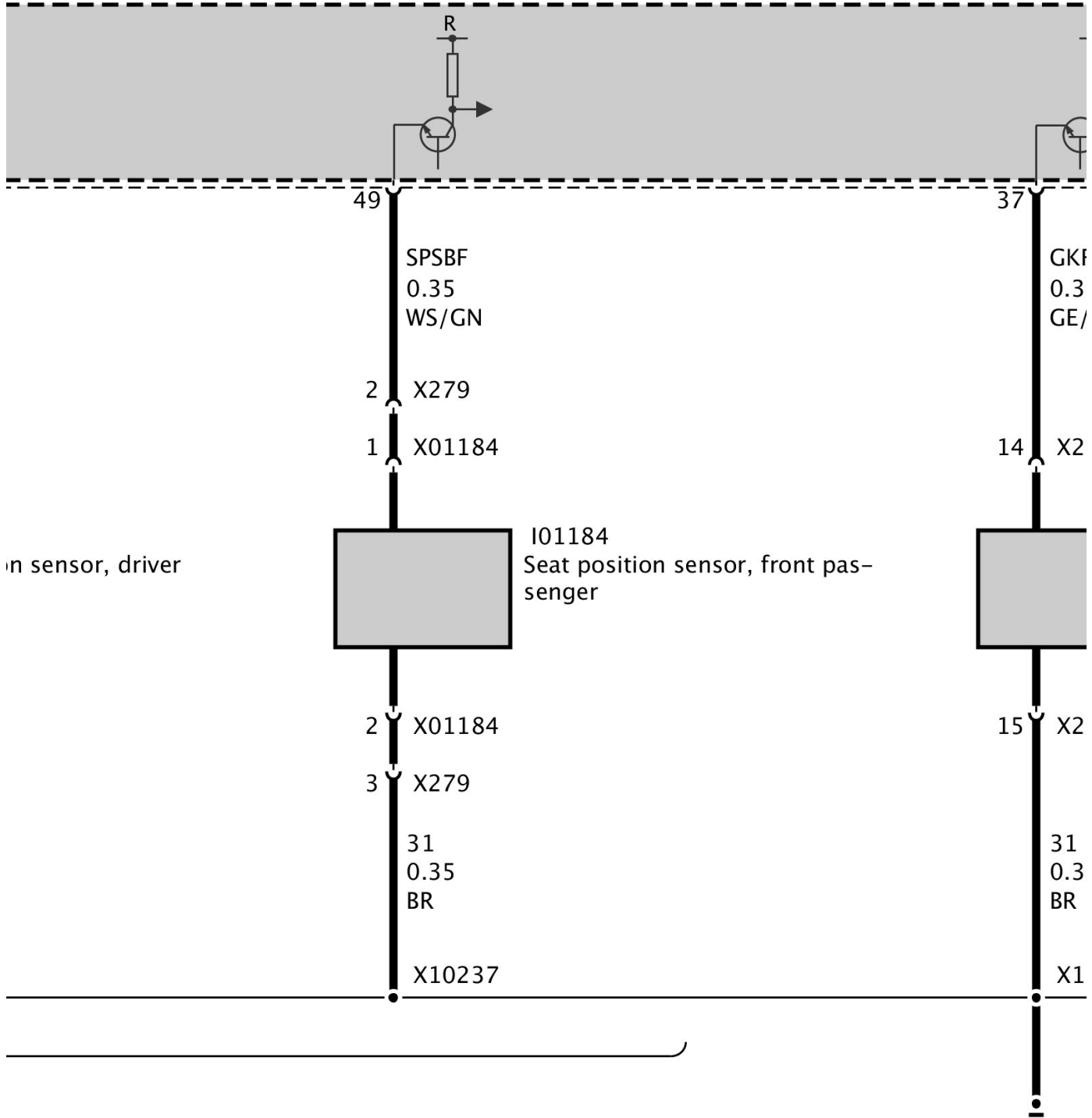


or, driver's

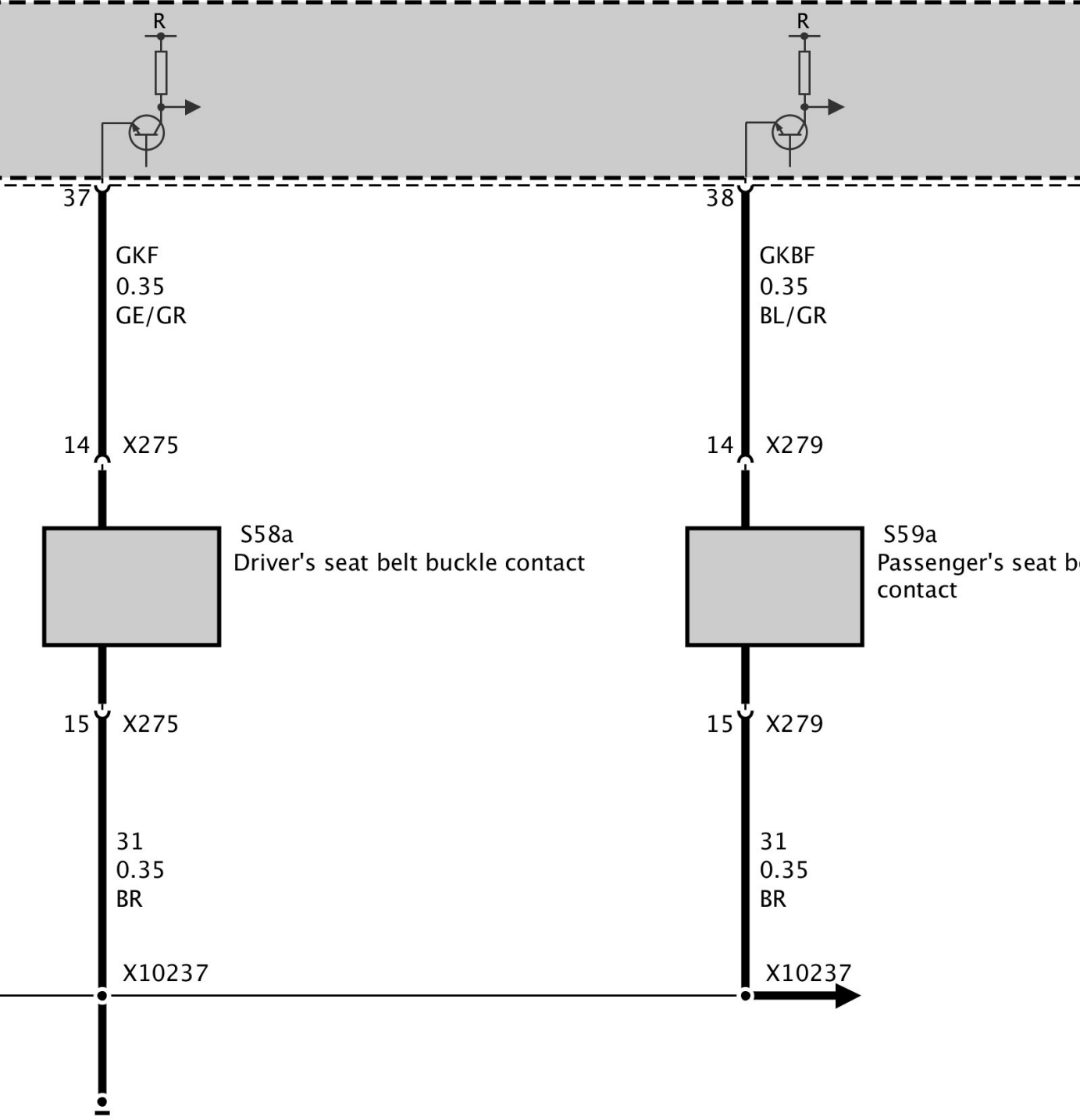
USA

Part 5

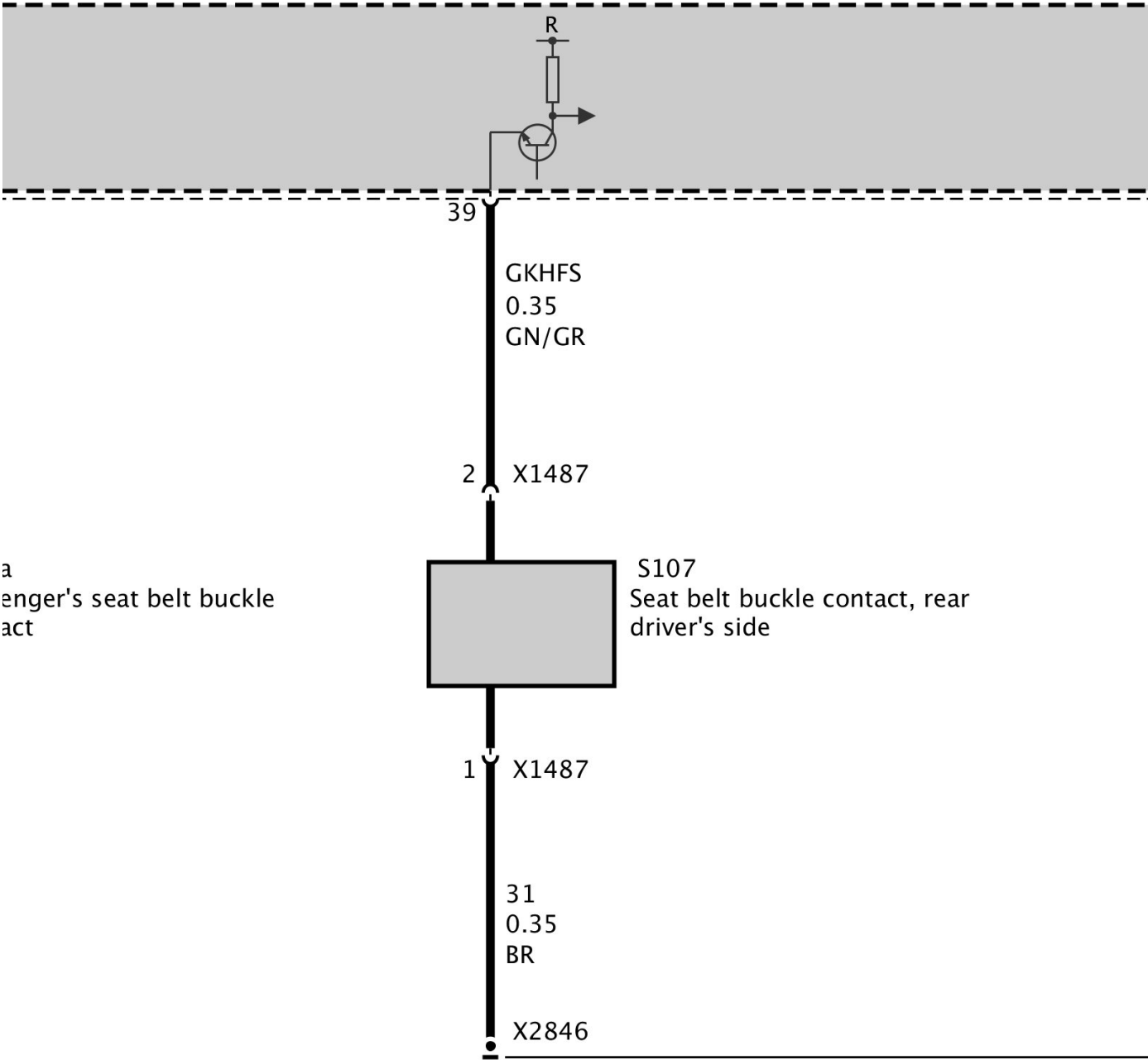




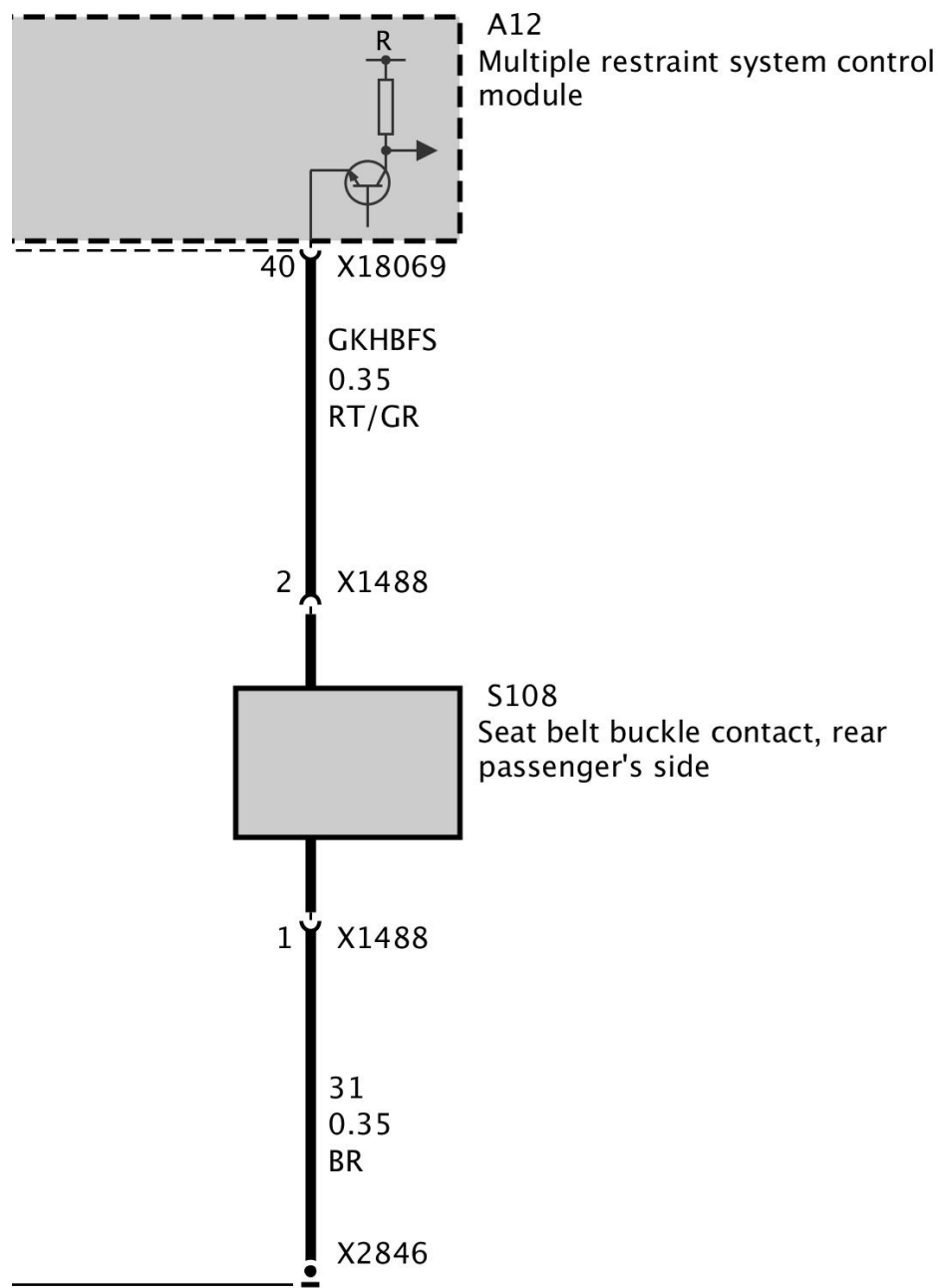
Part 6



Part 7



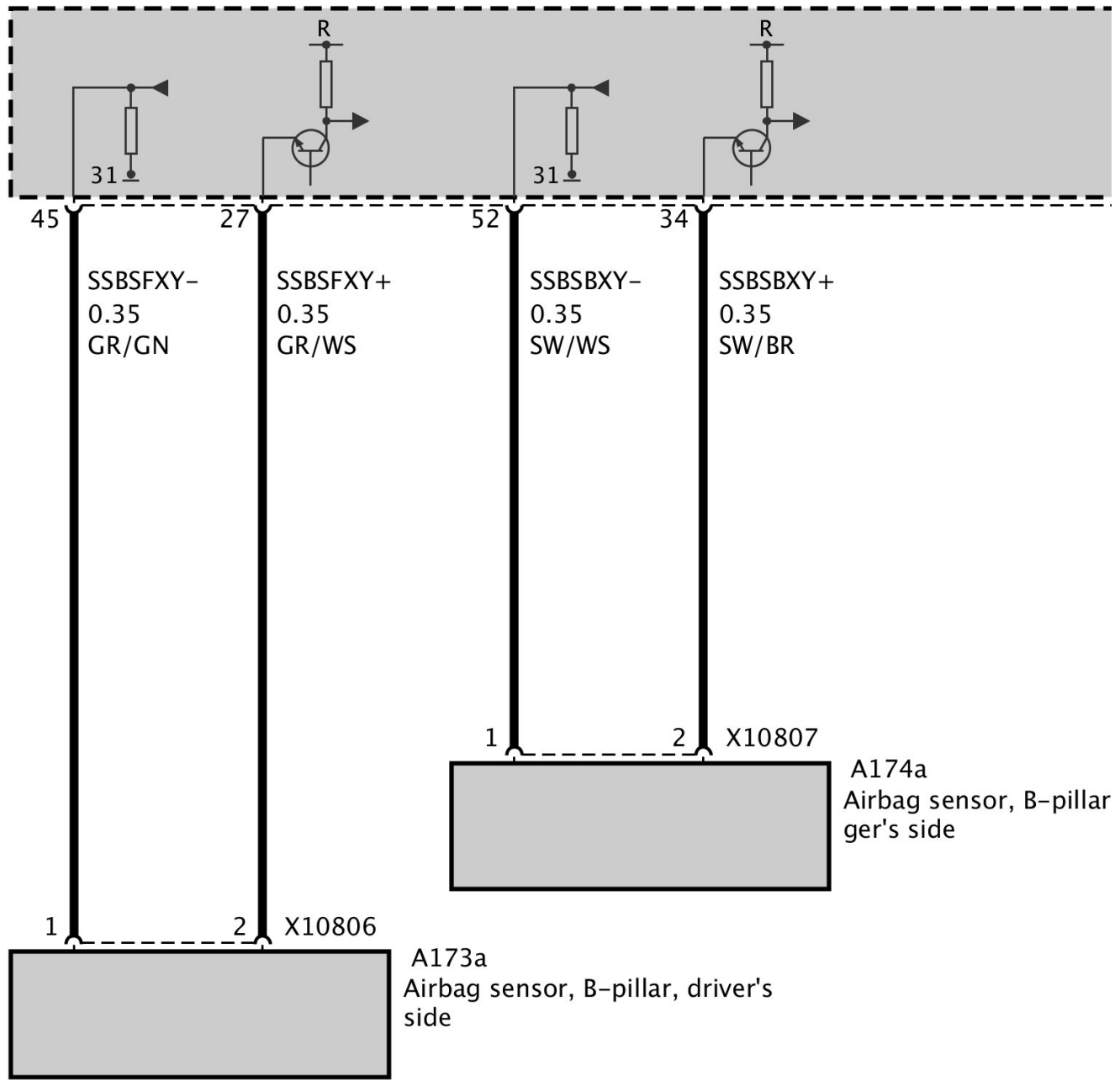
a  
enger's seat belt buckle  
act



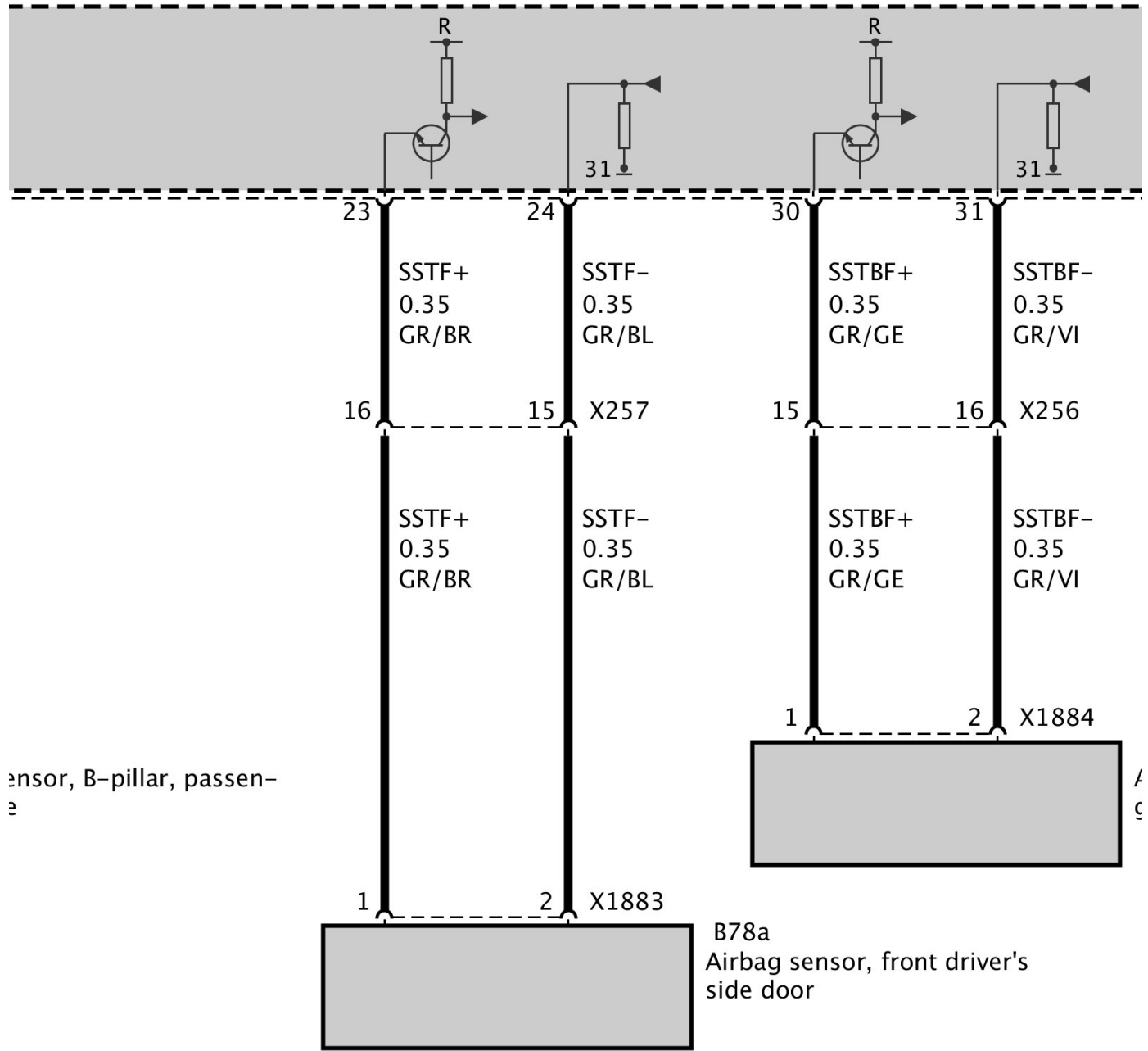
Part 9

**Airbag Sensors (Left-Hand Drive As Of 03/09)**

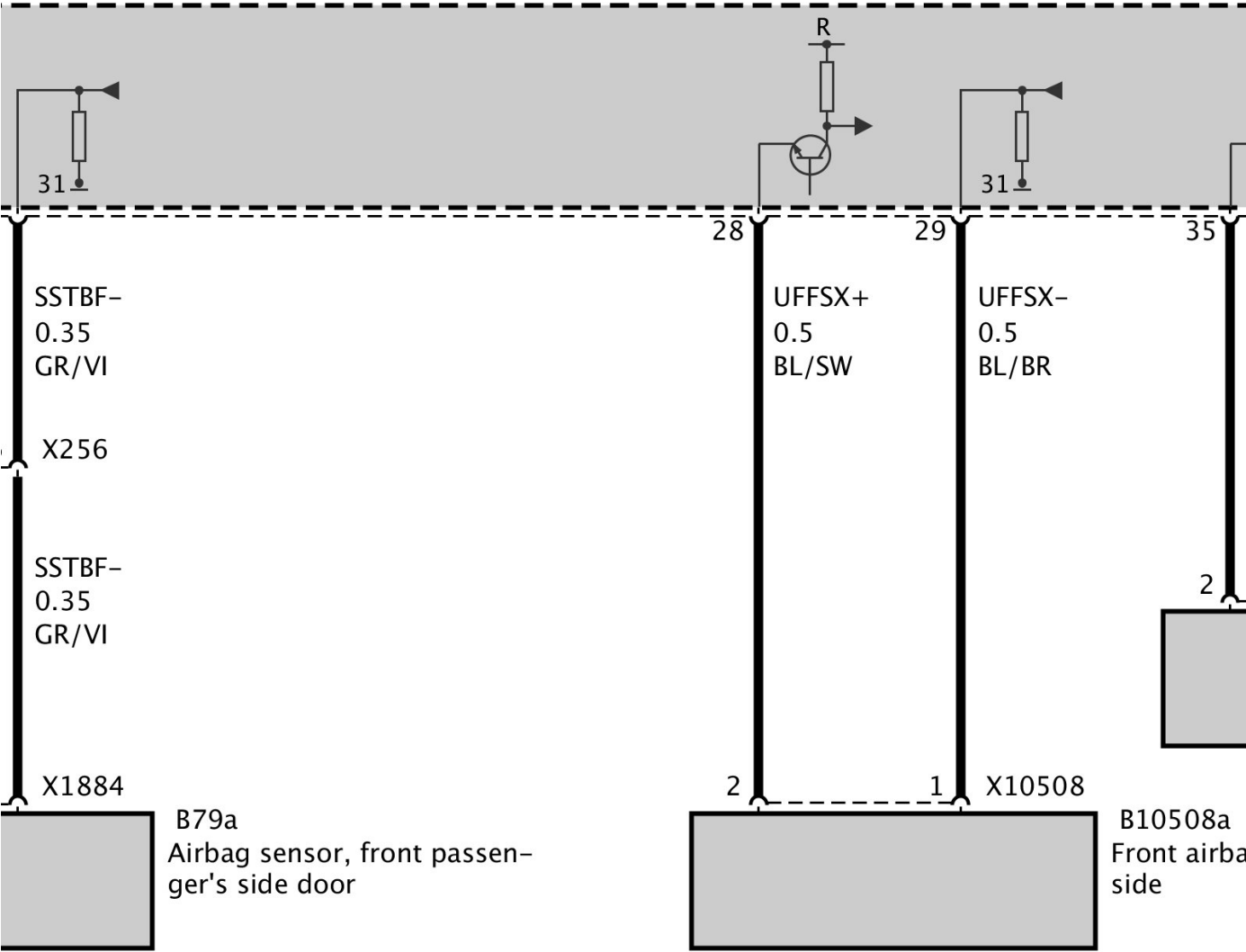
Airbag Sensors (Left-Hand Drive As Of 03/09)



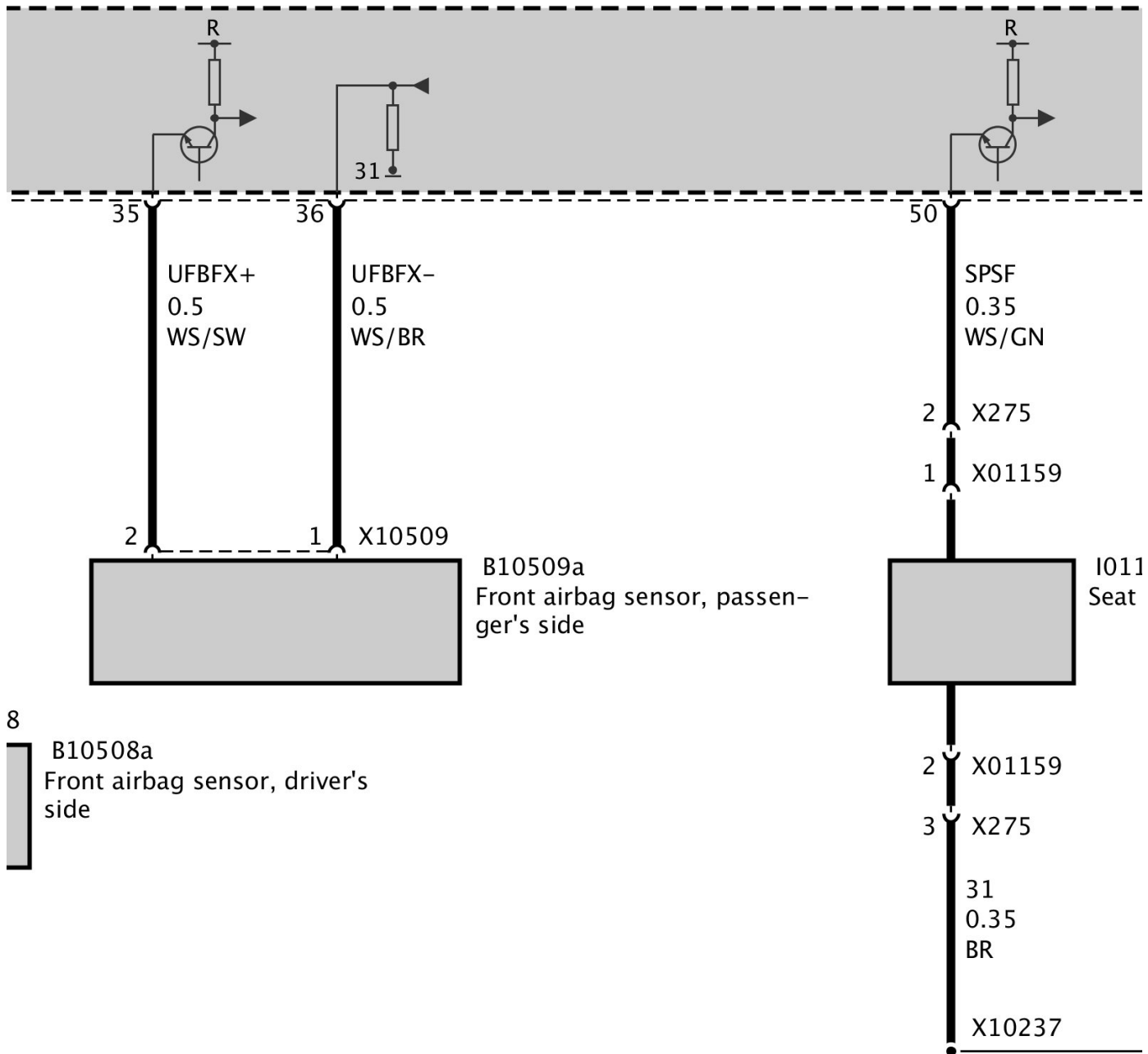
Part 1



Part 2



ner's



8  
B10508a  
Front airbag sensor, driver's side

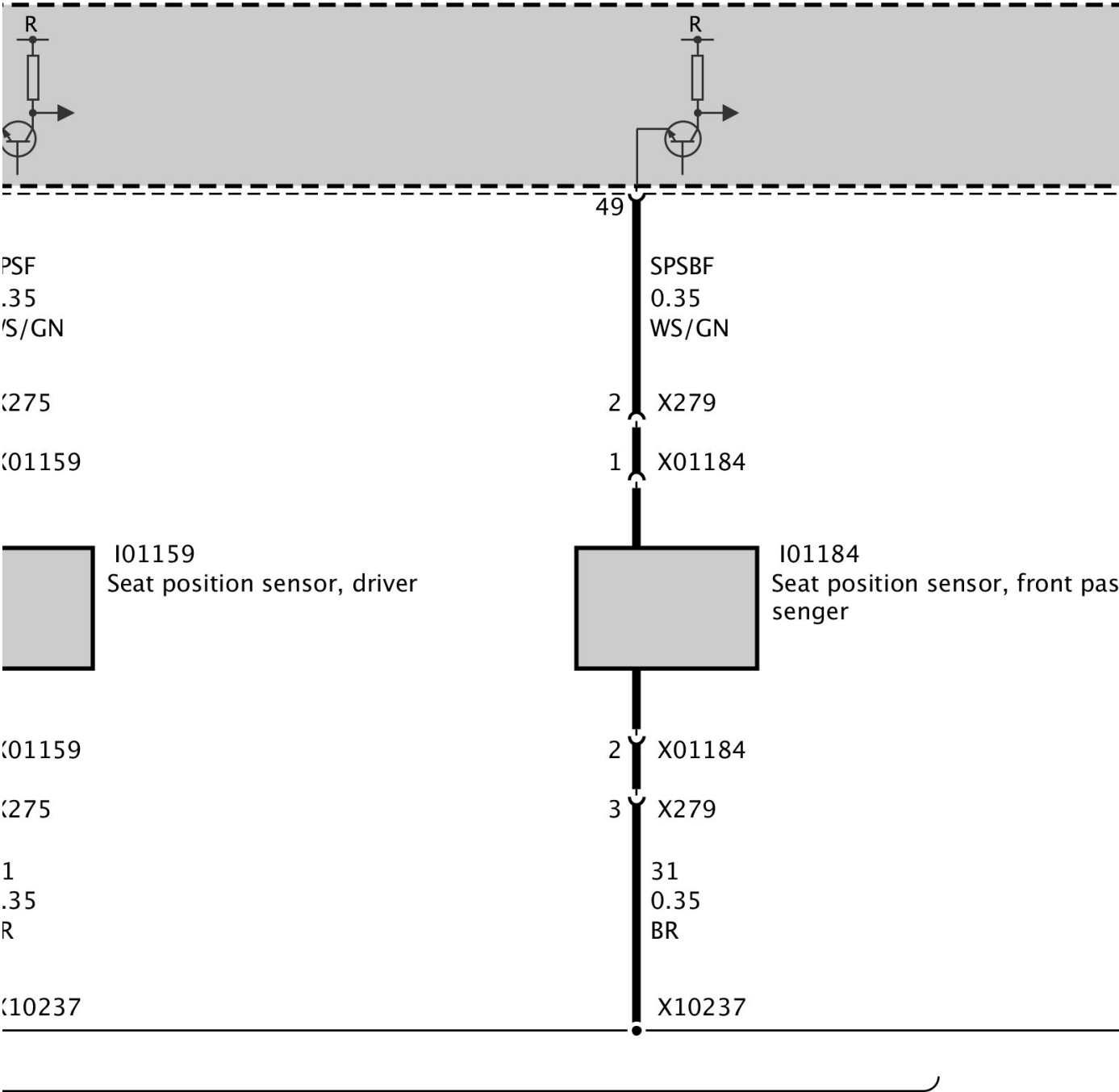
B10509a  
Front airbag sensor, passenger's side

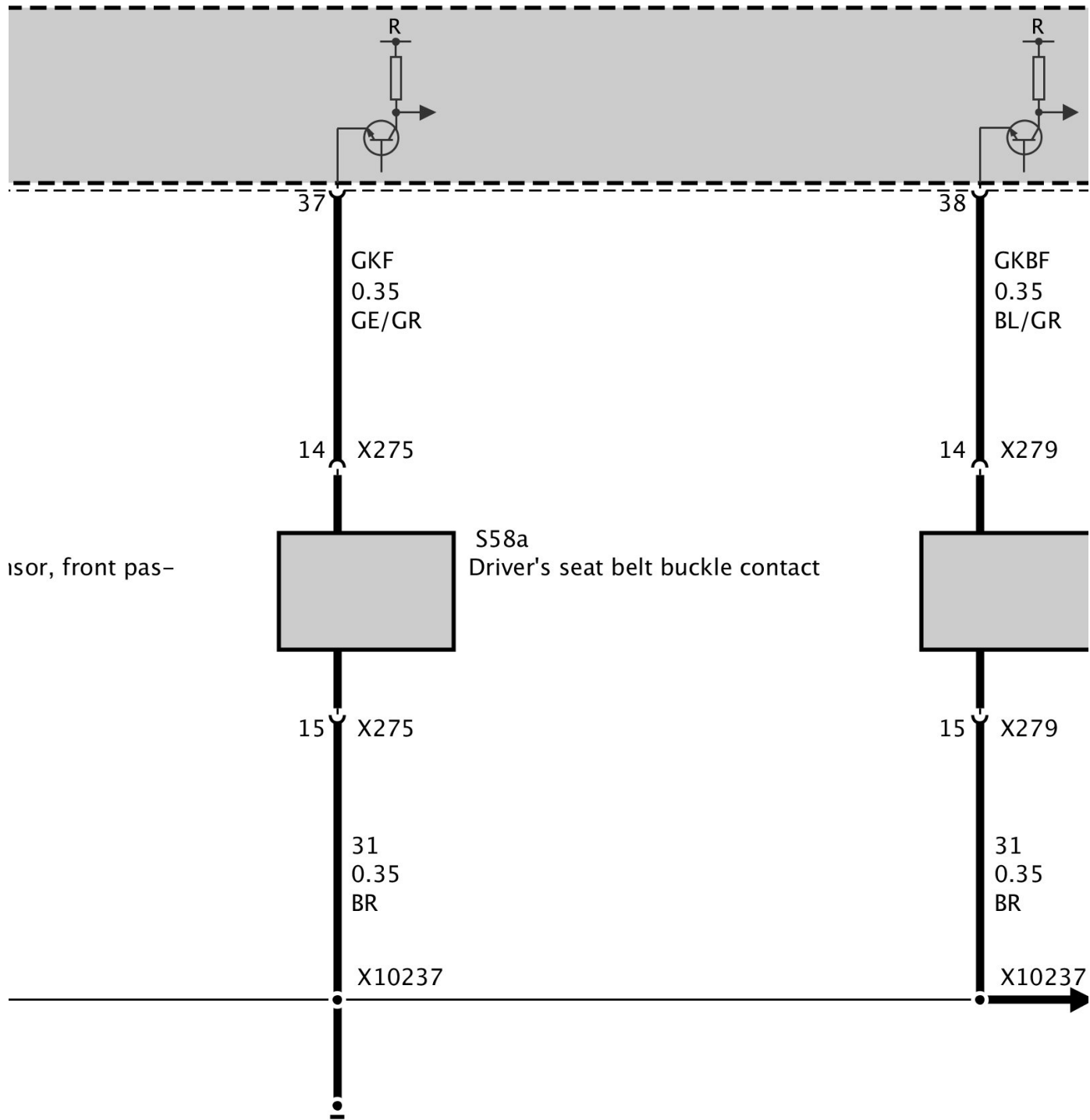
I011  
Seat

USA

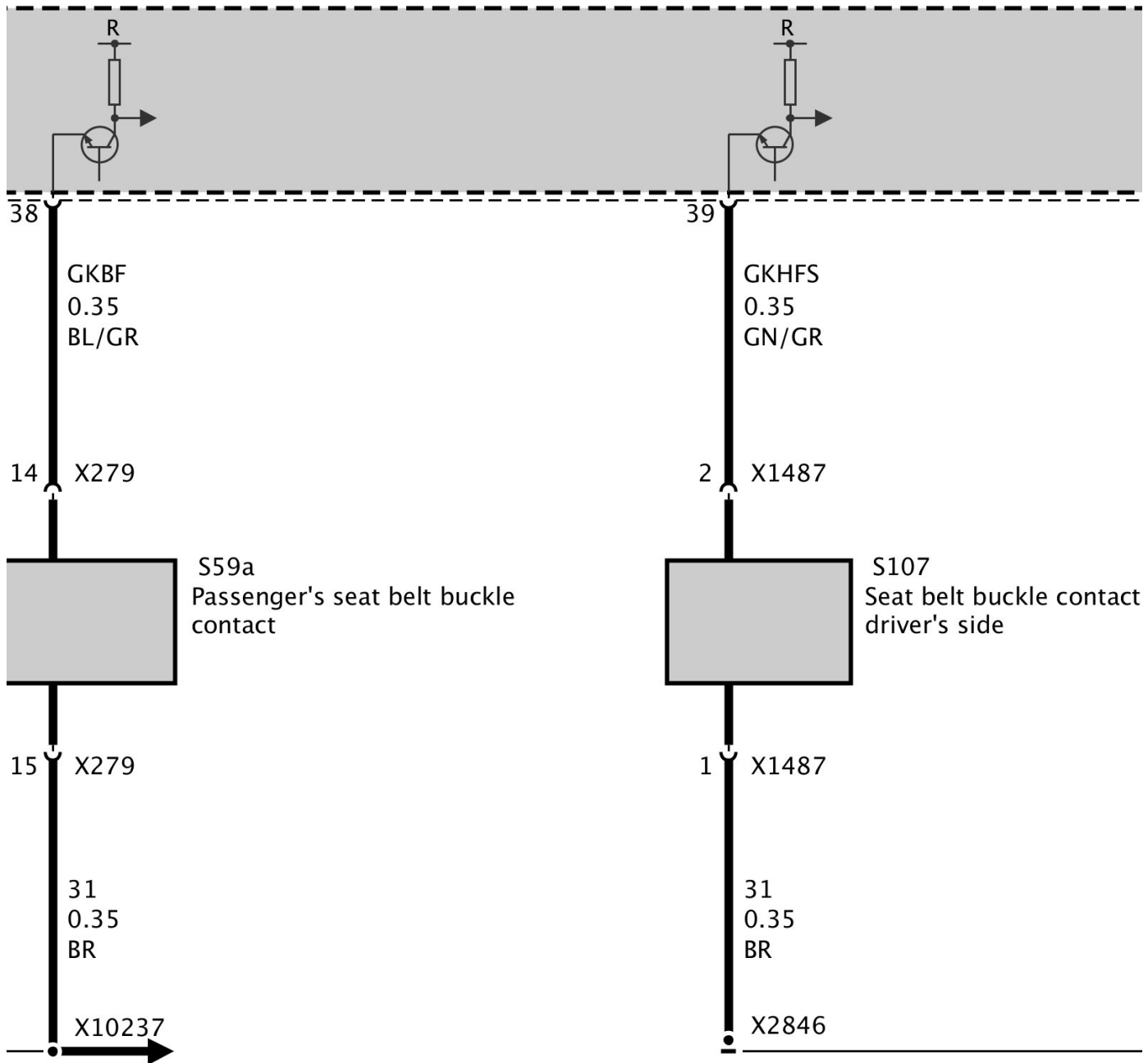
Part 4



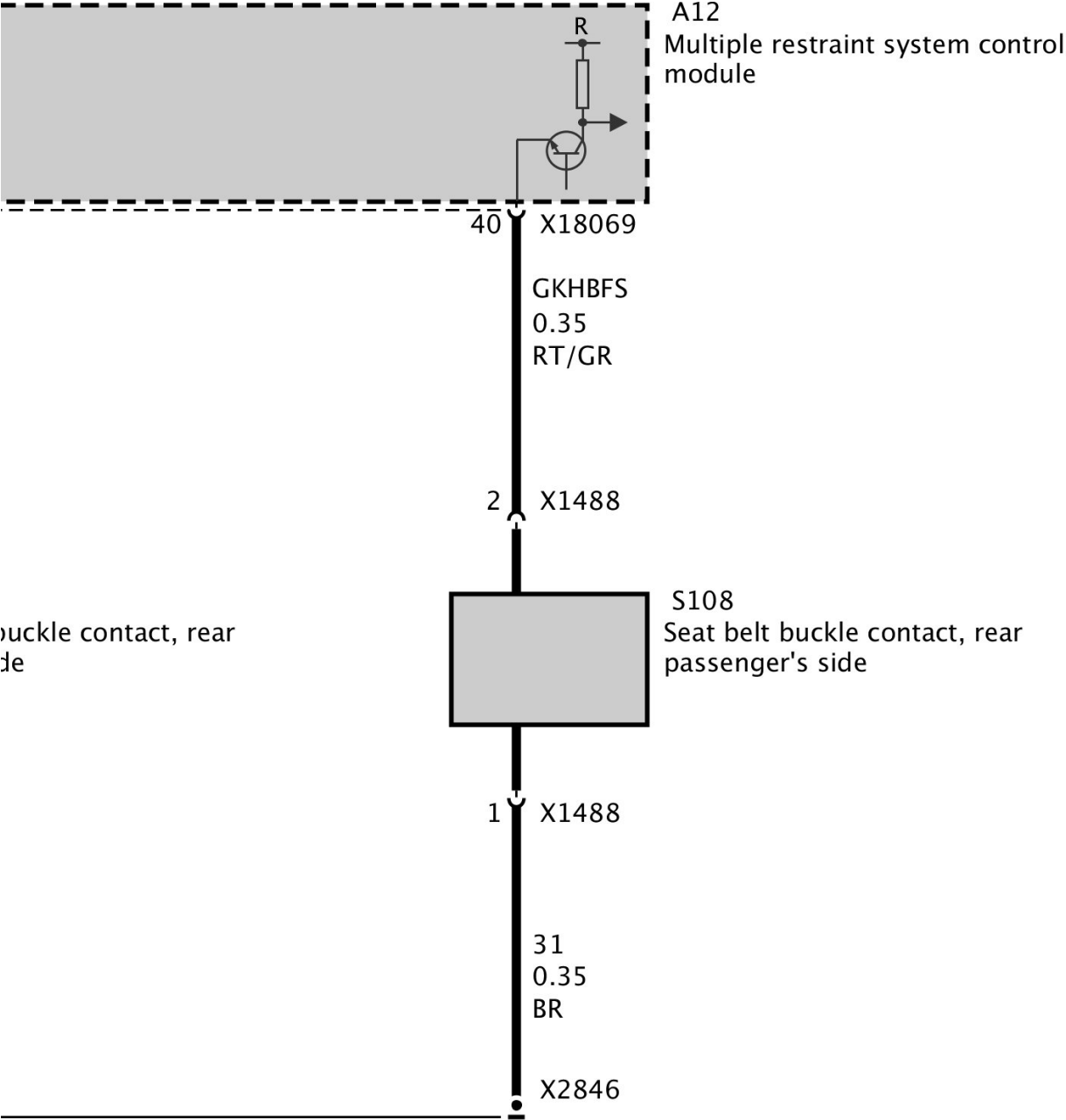




Part 6



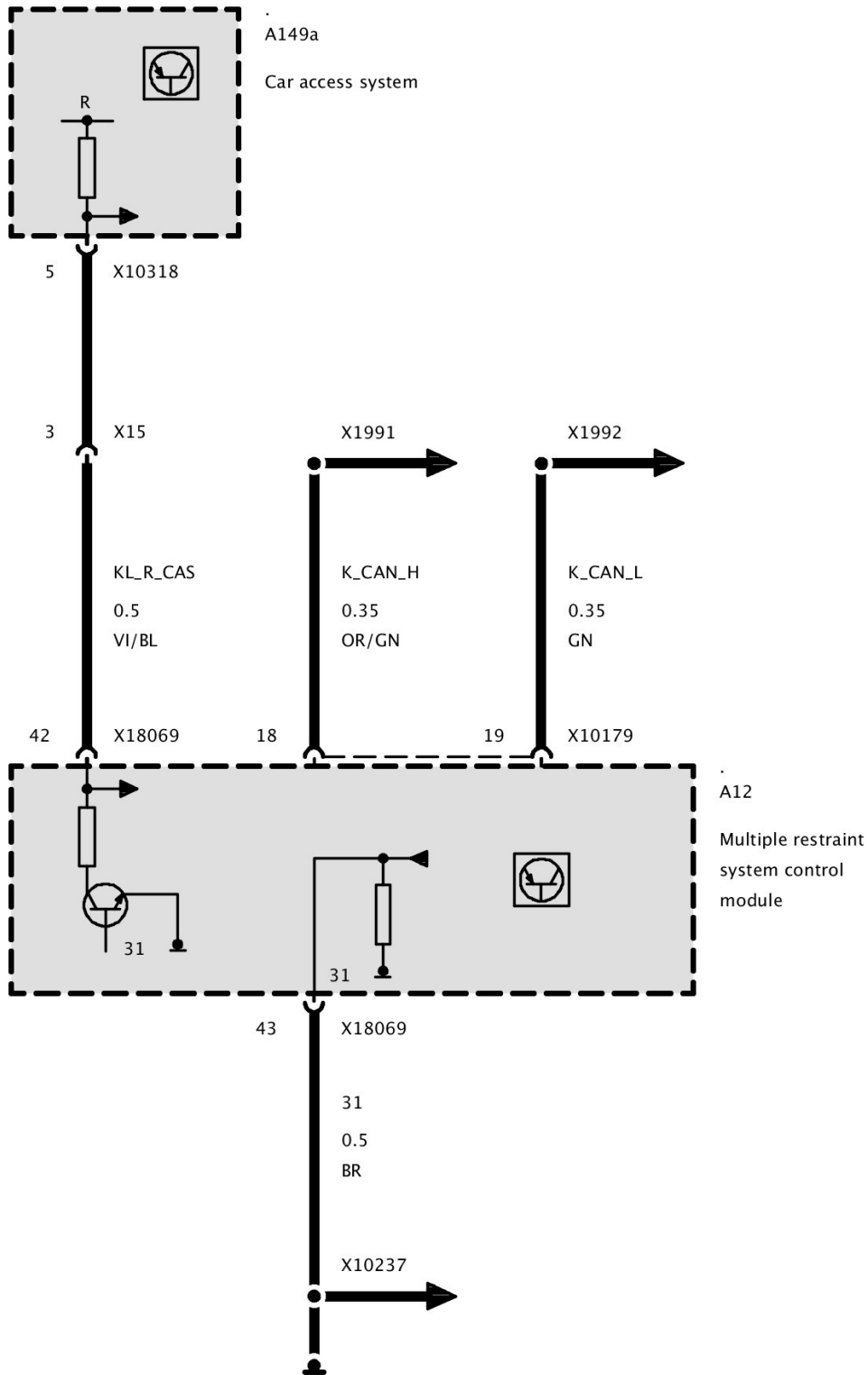
Part 7



Part 8

Supply, MRS Multiple Restraint System

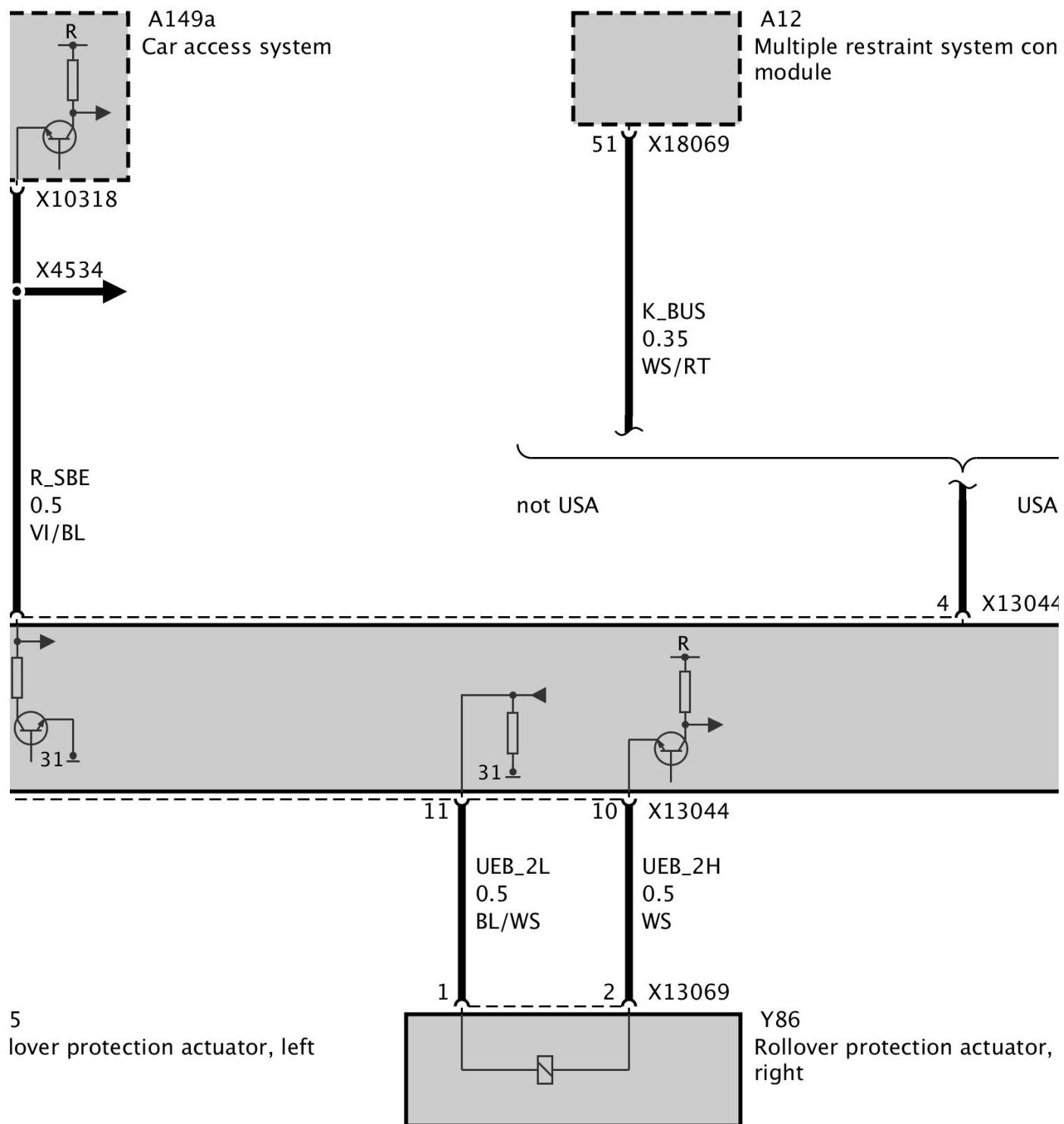
Airbag Supply



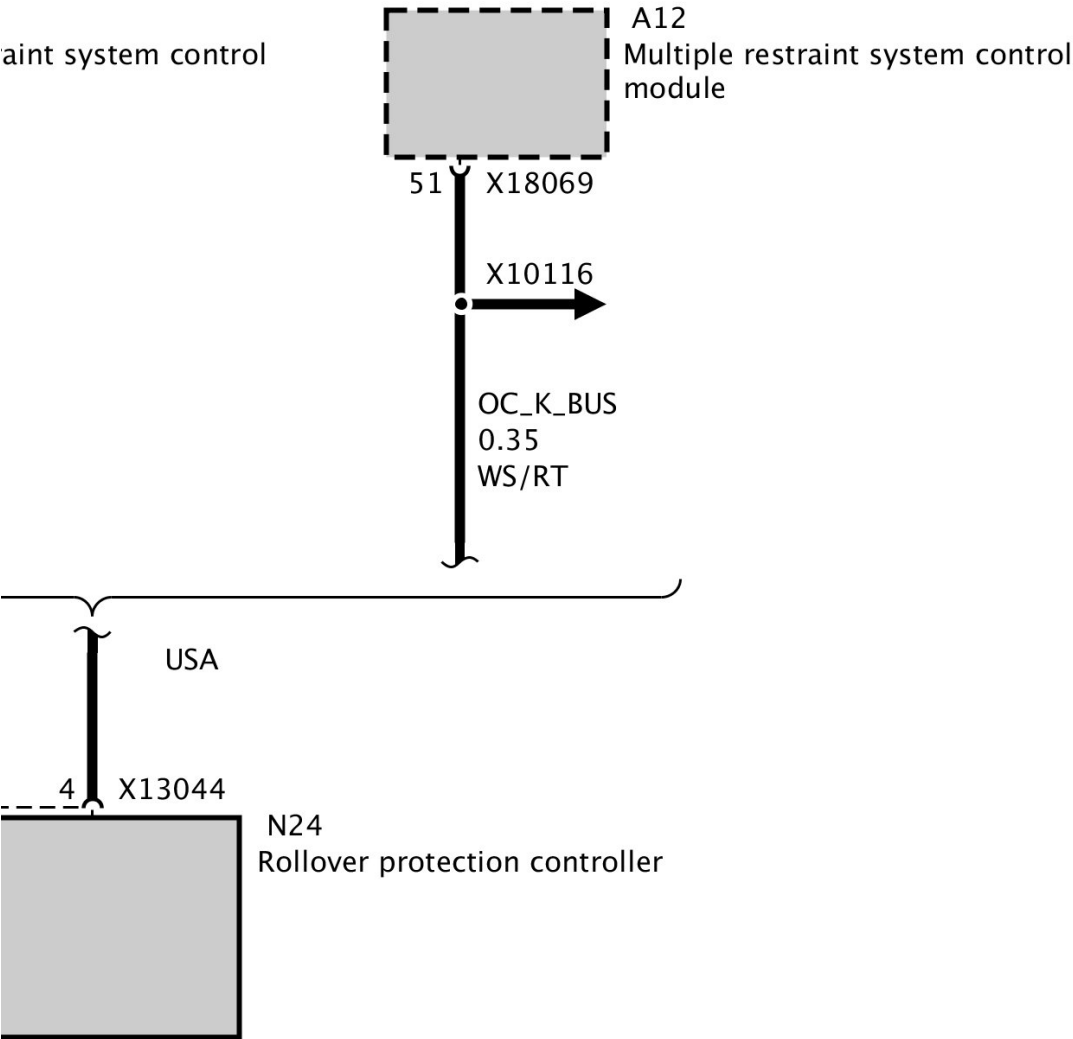
## Rollover Protection

### Rollover Protection





Part 2



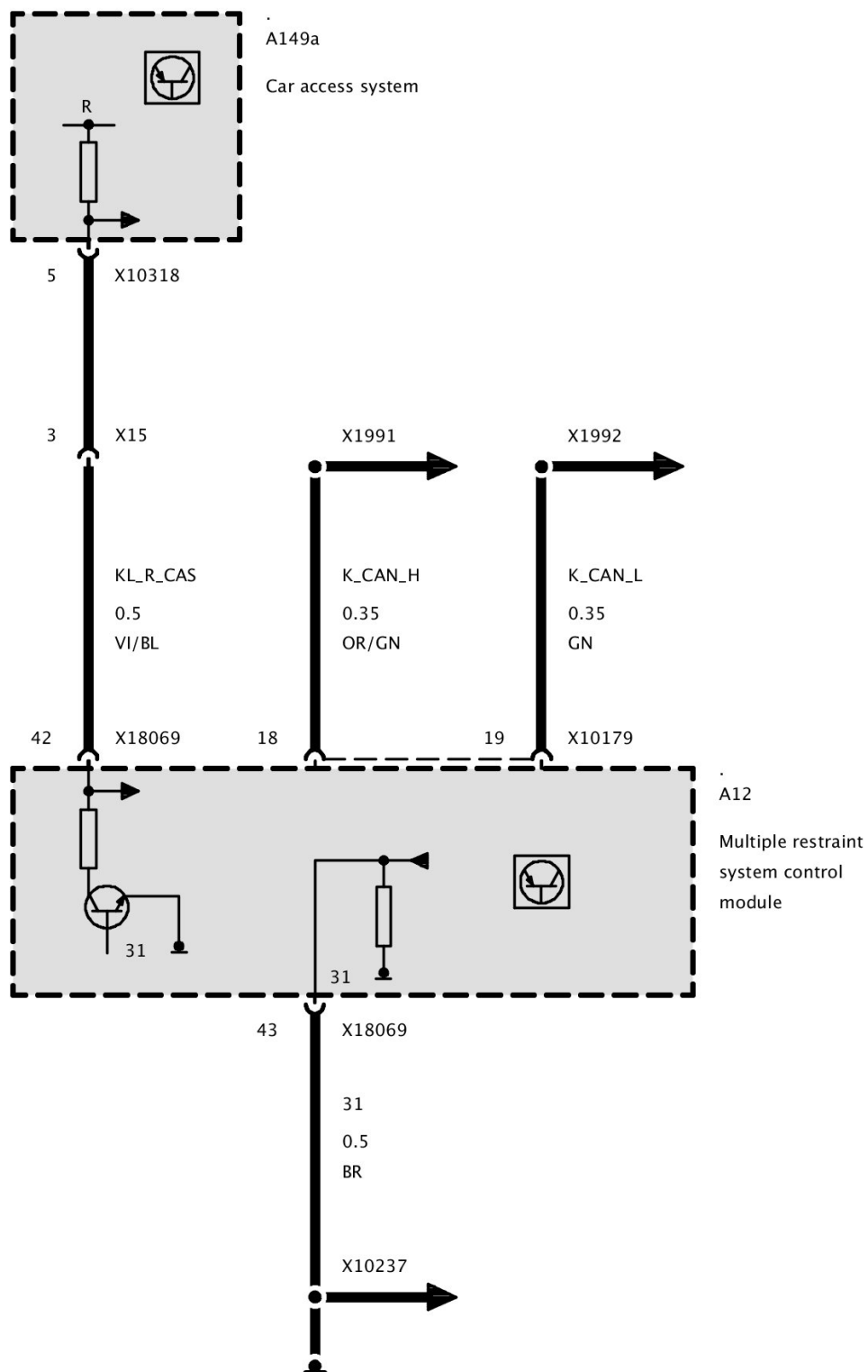
ection actuator,

Part 3

Supply, MRS Multiple Restraint System

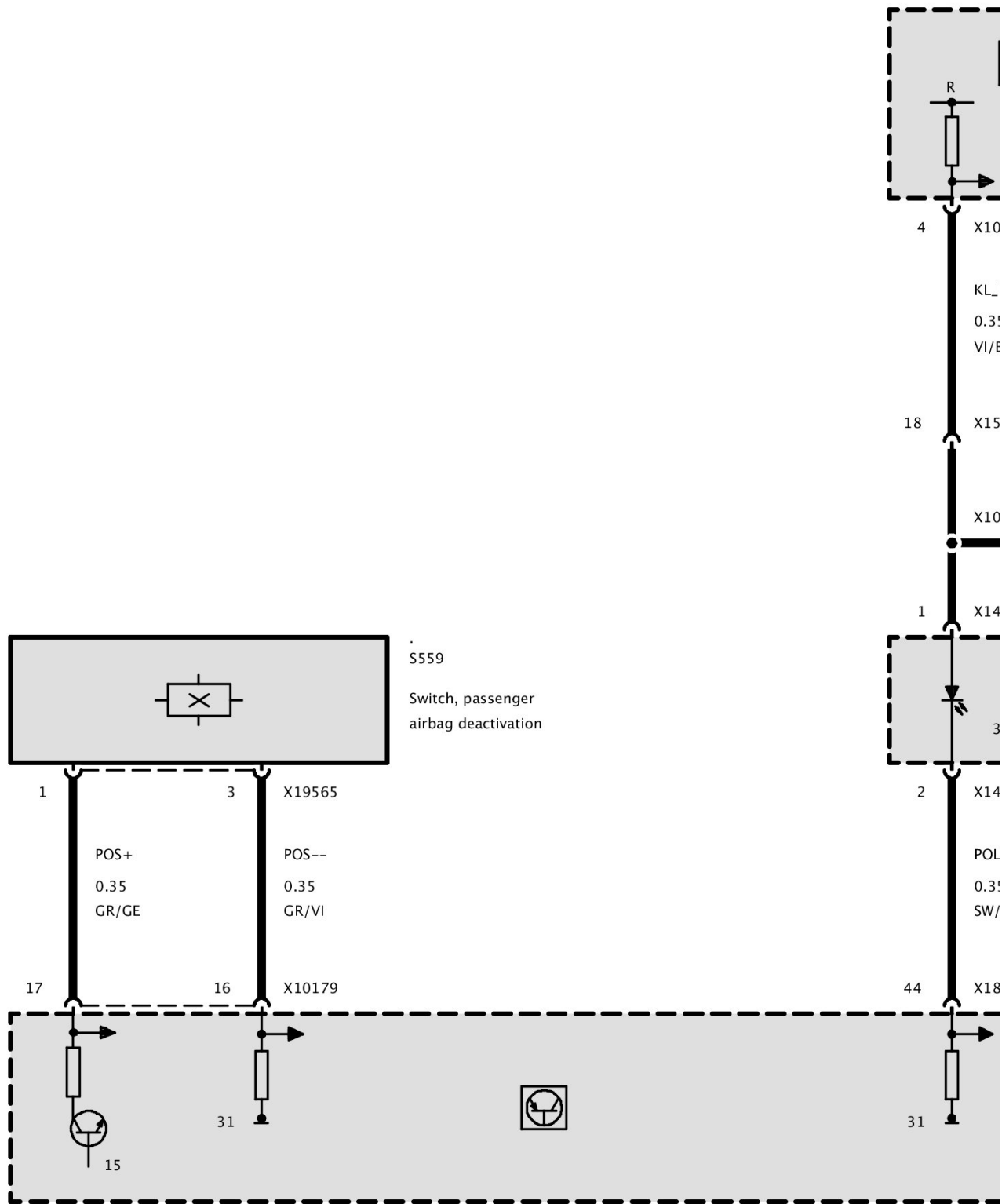
Airbag Supply



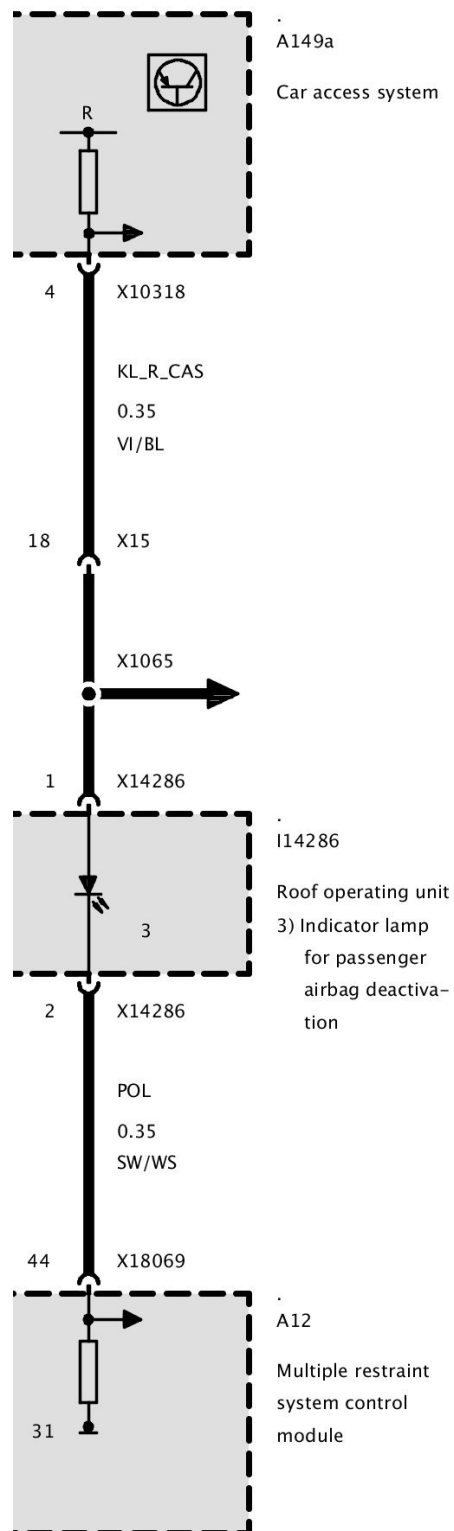


## Passenger Airbag Deactivation

### Passenger Airbag Deactivation



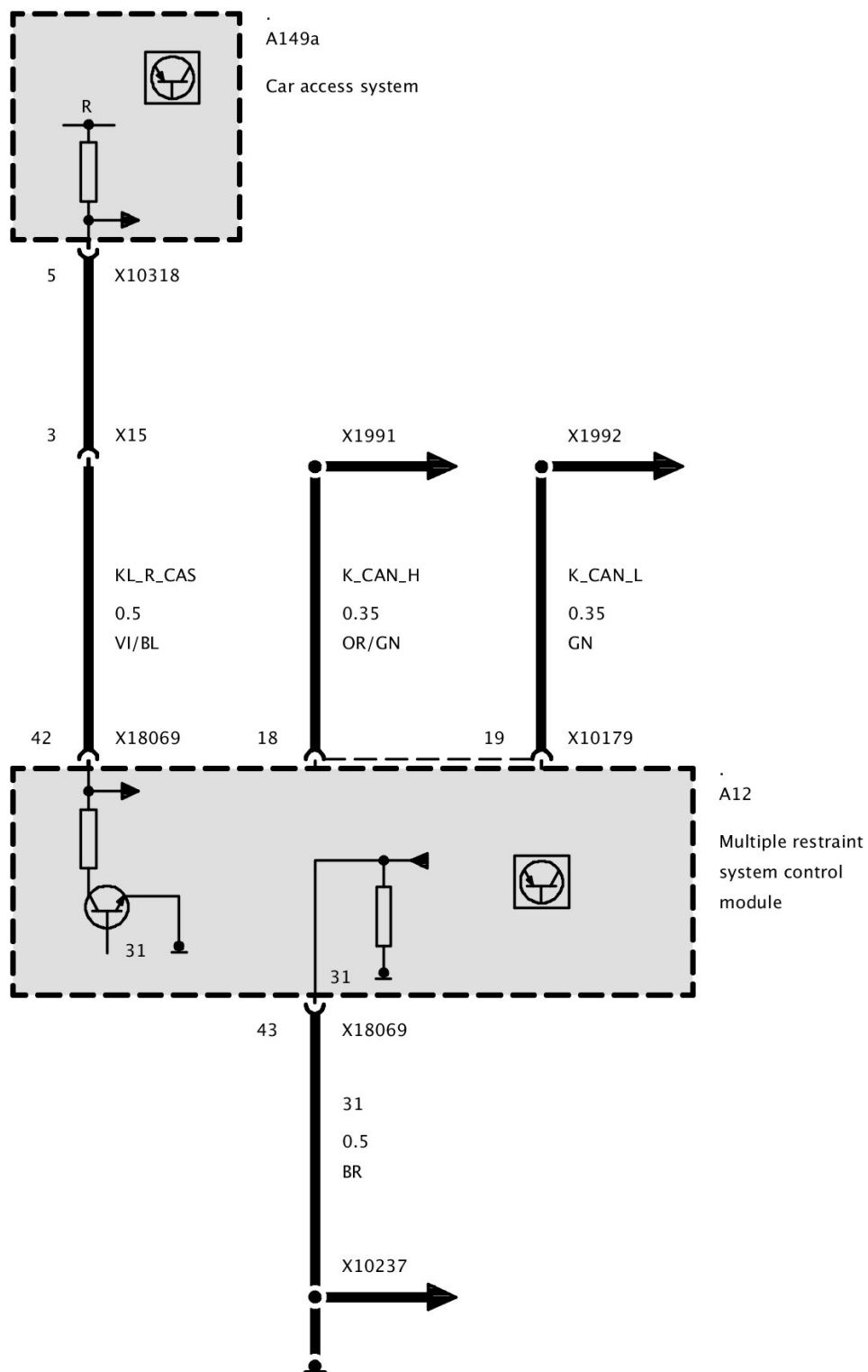
Part 1



## Part 2

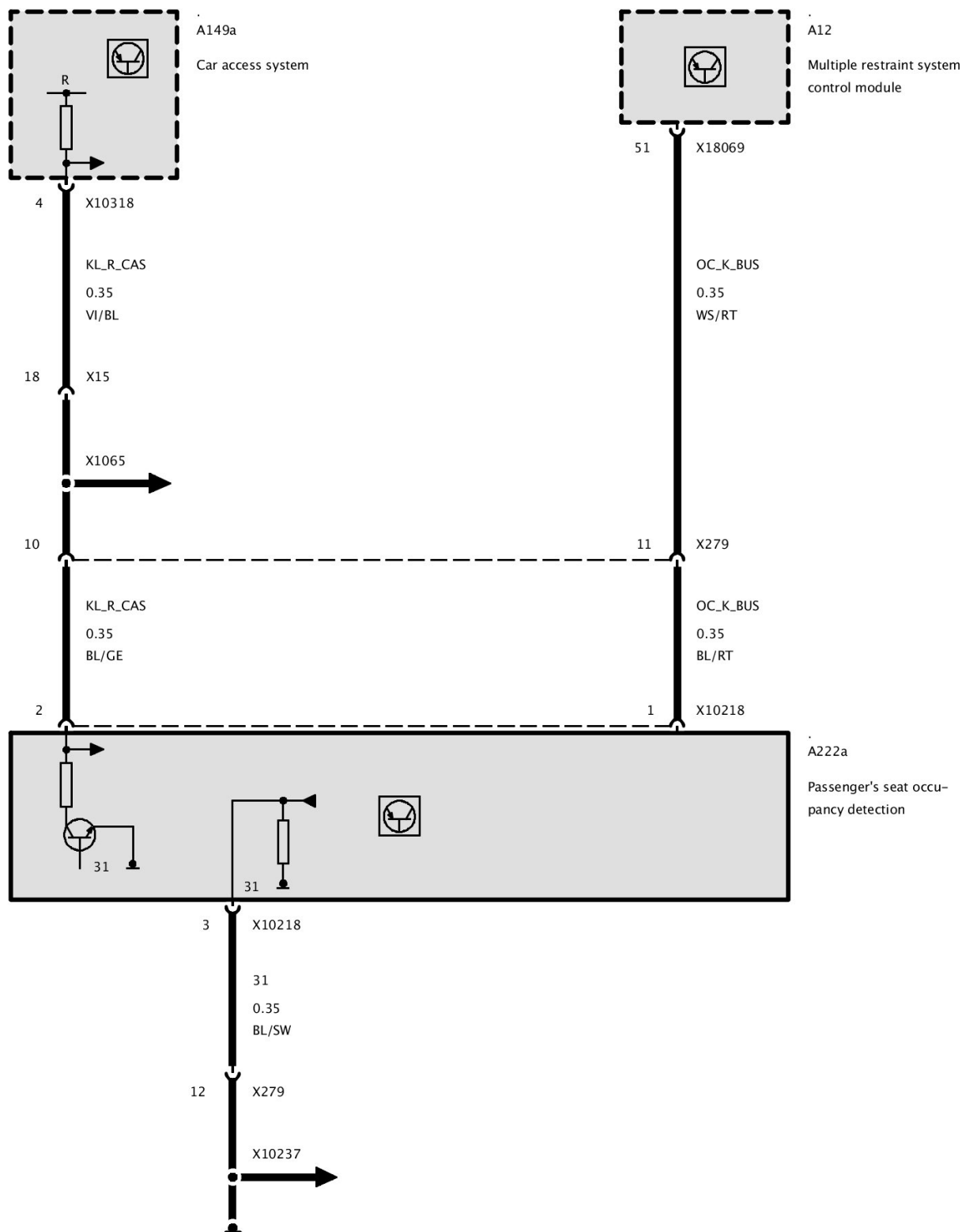
## Supply, MRS Multiple Restraint System

### Airbag Supply



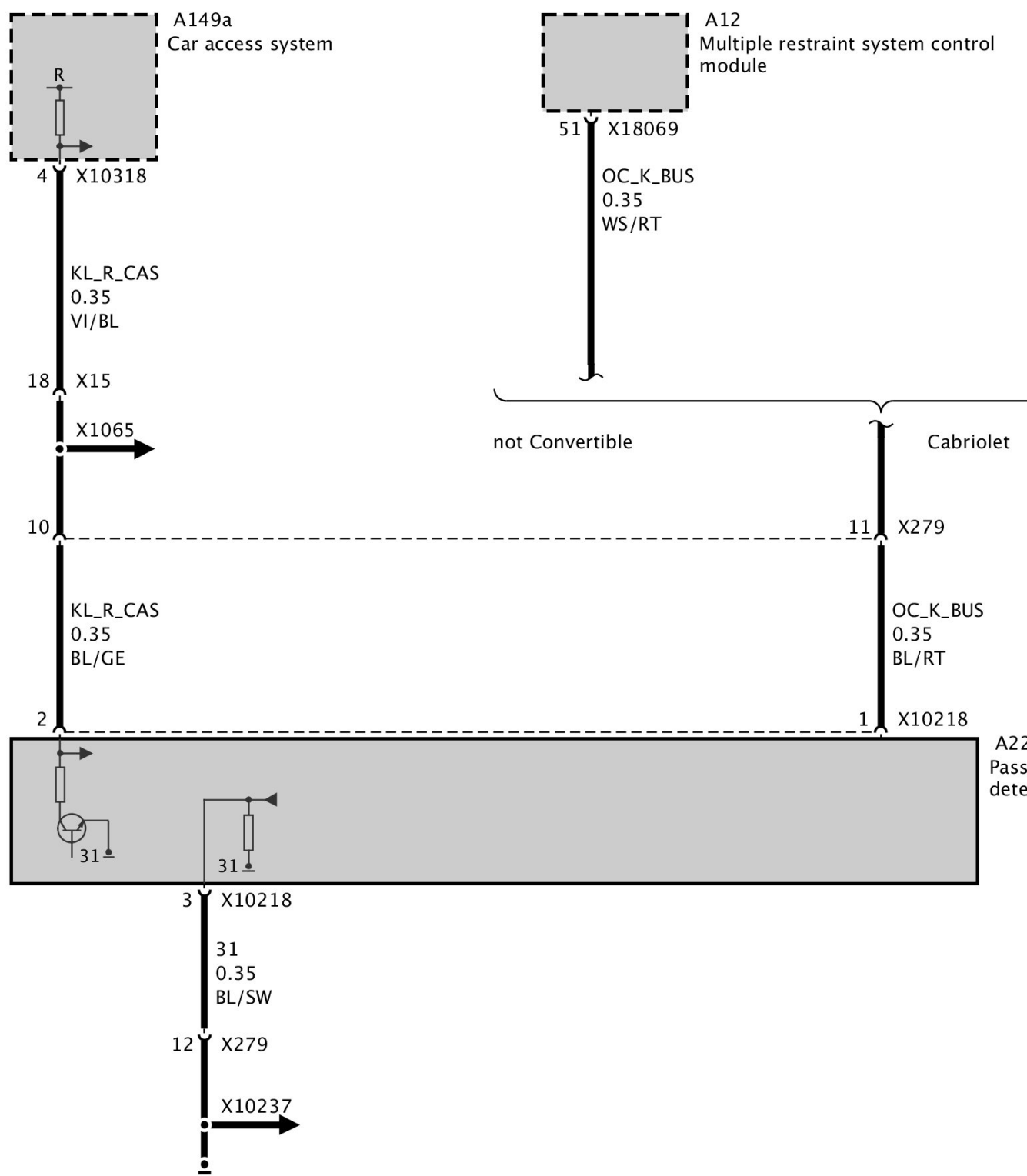
## Seat Occupancy Recognition (USA\_LHD Up To 12/08)

Seat Occupancy Recognition (USA\_LHD Up To 12/08)

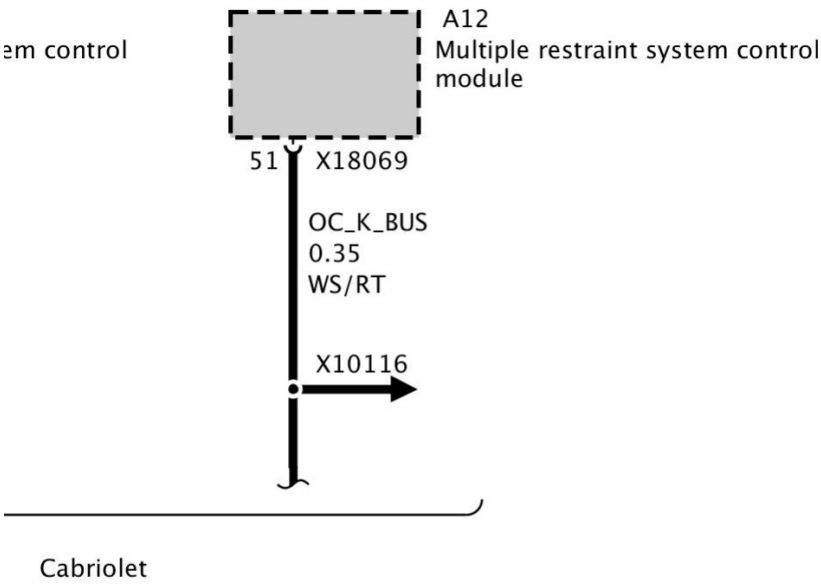


## Seat Occupancy Recognition (USA\_LHD As Of 12/08)

Seat Occupancy Recognition (USA\_LHD As Of 12/08)

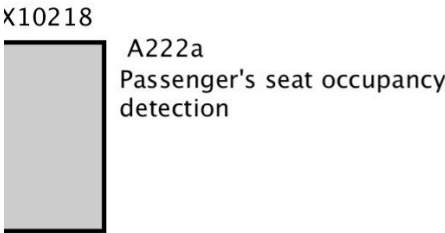


Part 1



X279

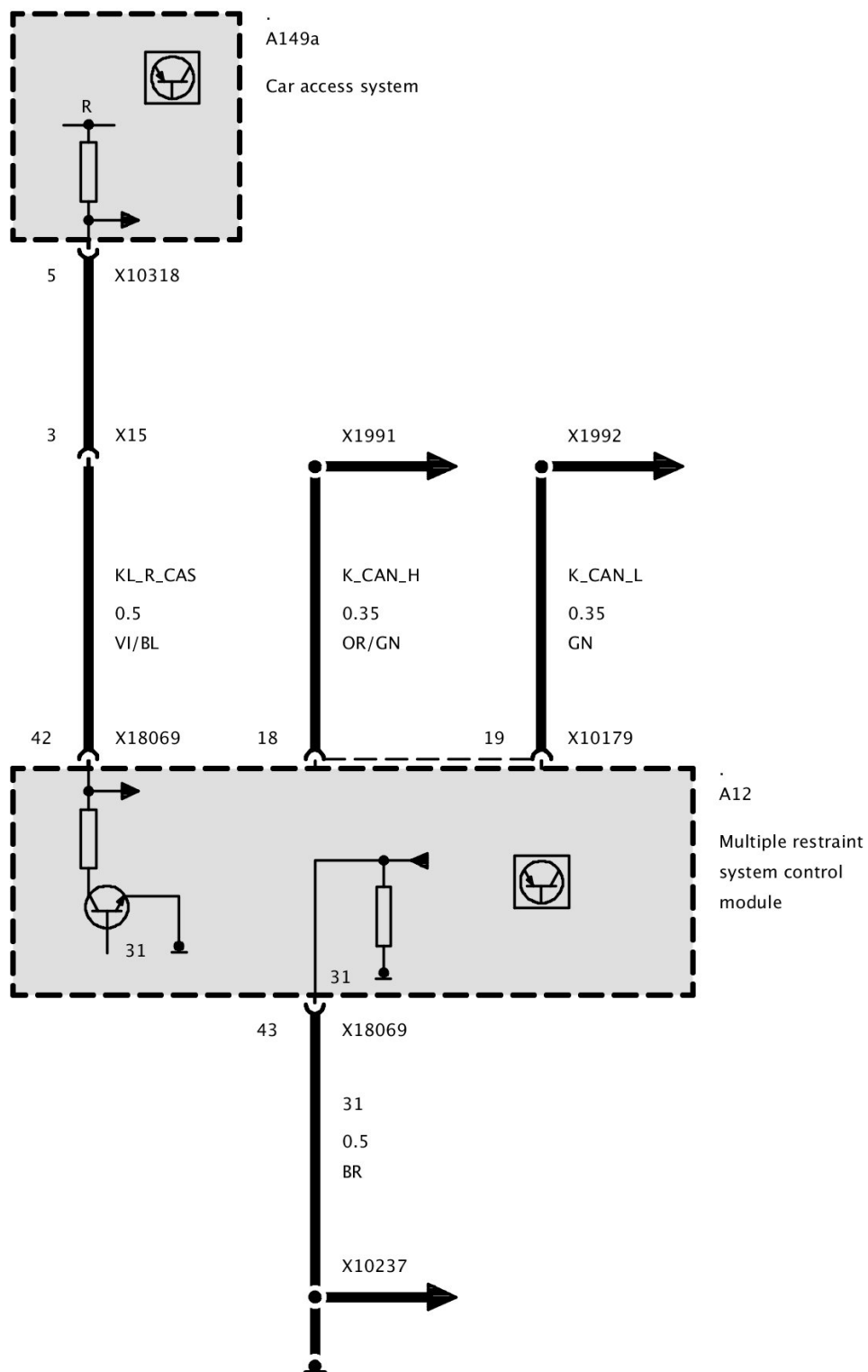
OC\_K\_BUS  
0.35  
WS/RT



Part 2

Supply, MRS Multiple Restraint System

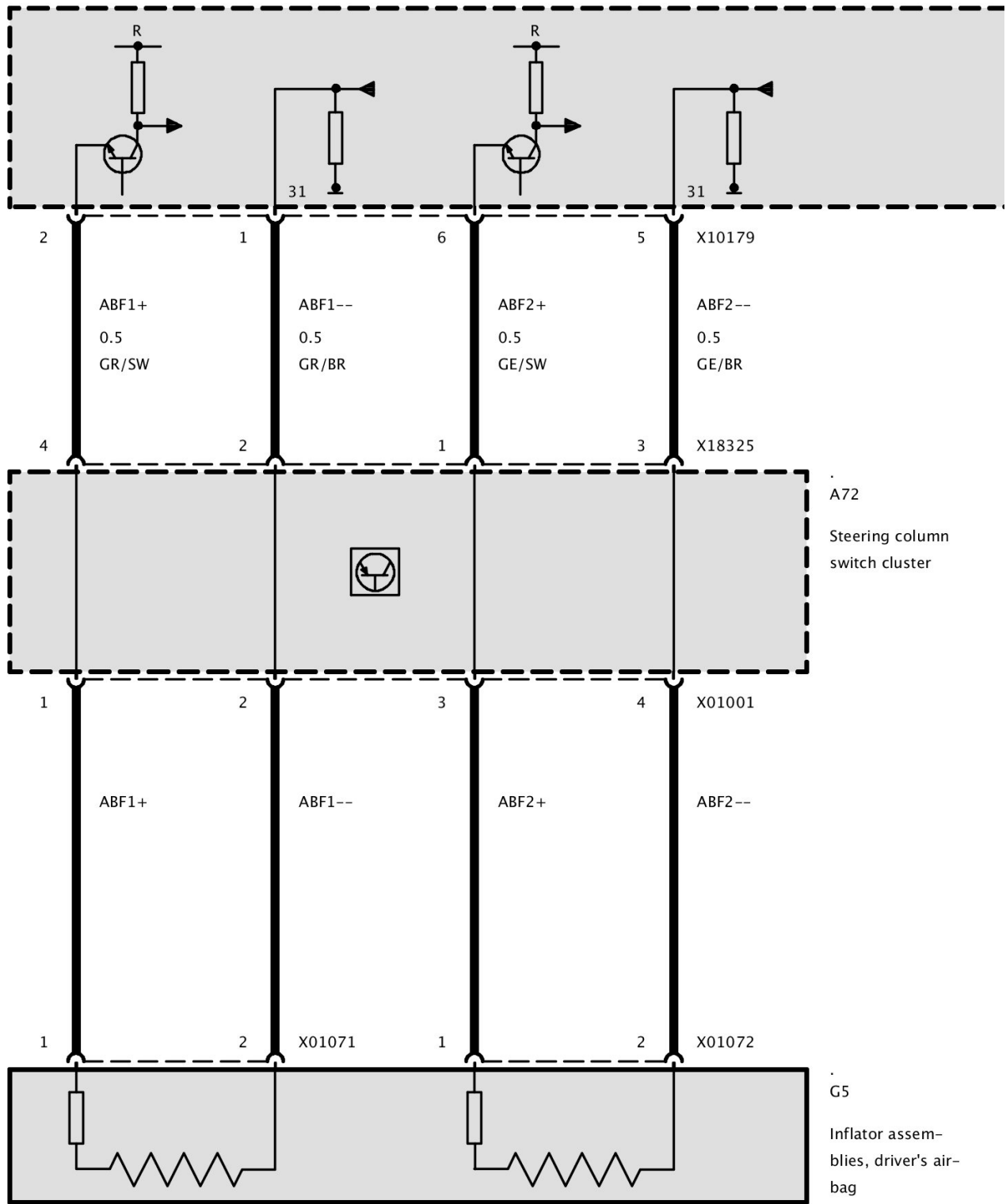
Airbag Supply



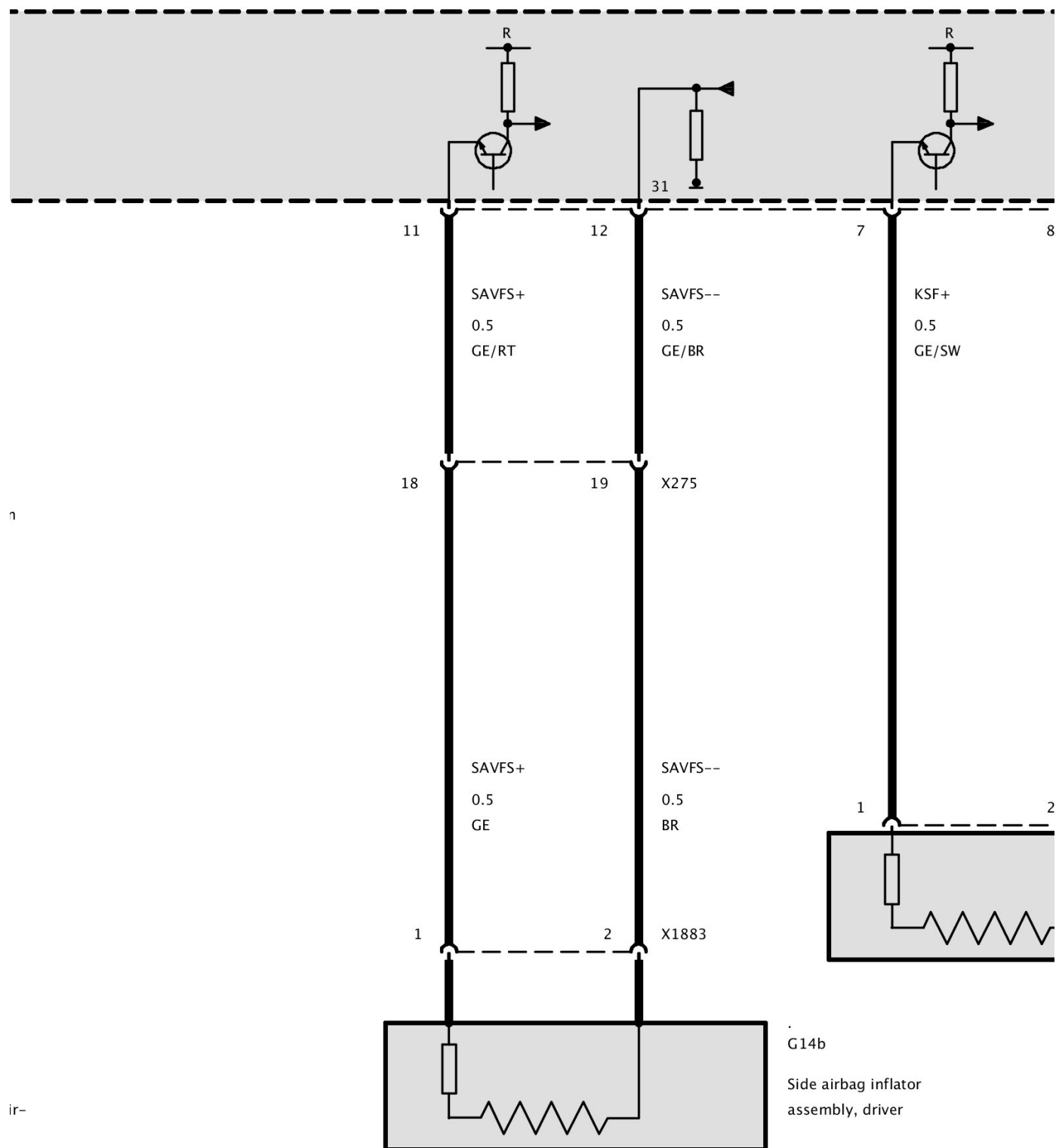
## Airbag Triggering Circuits (USA\_LHD)

### Airbag Triggering Circuits (USA\_LHD)

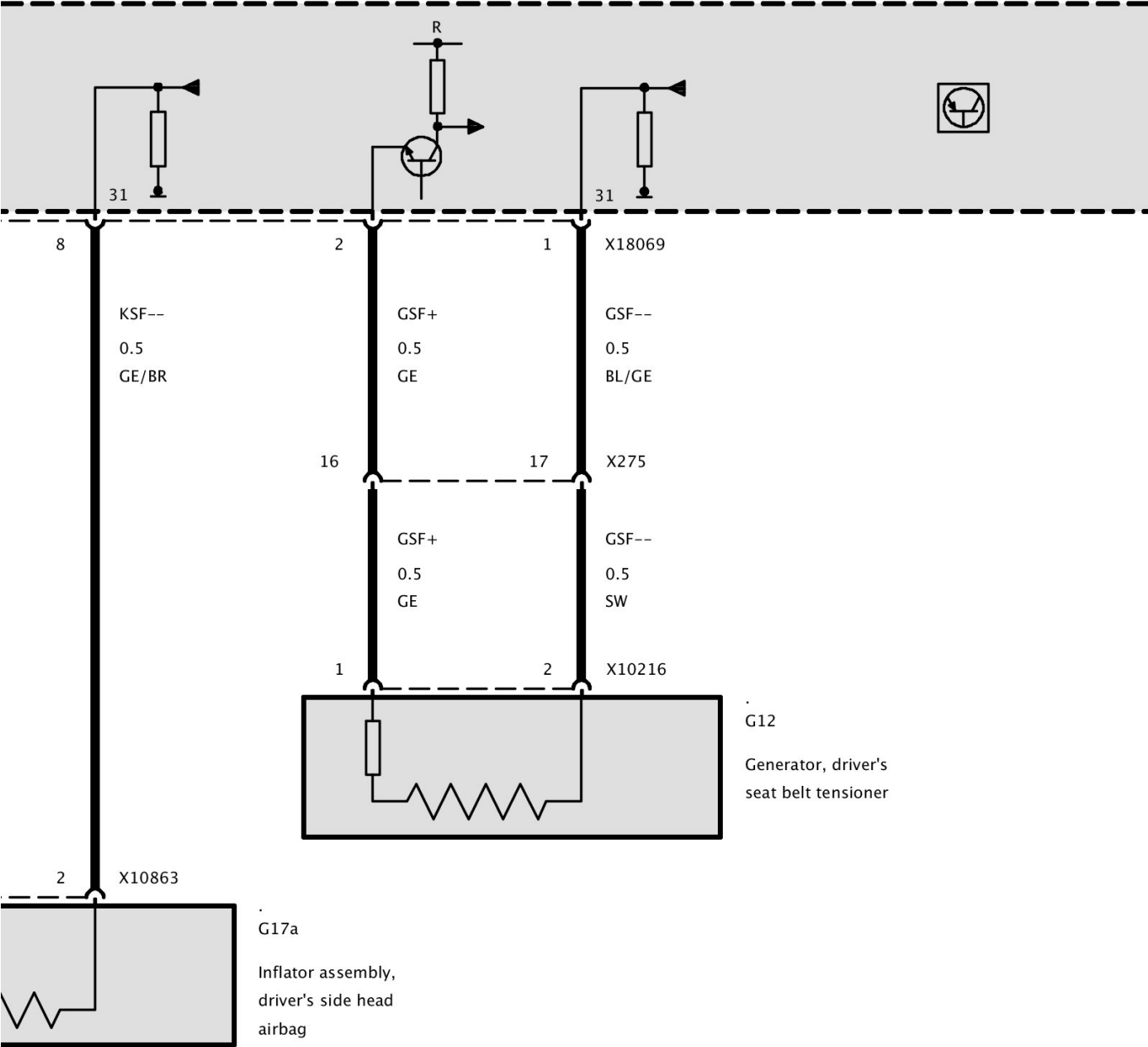




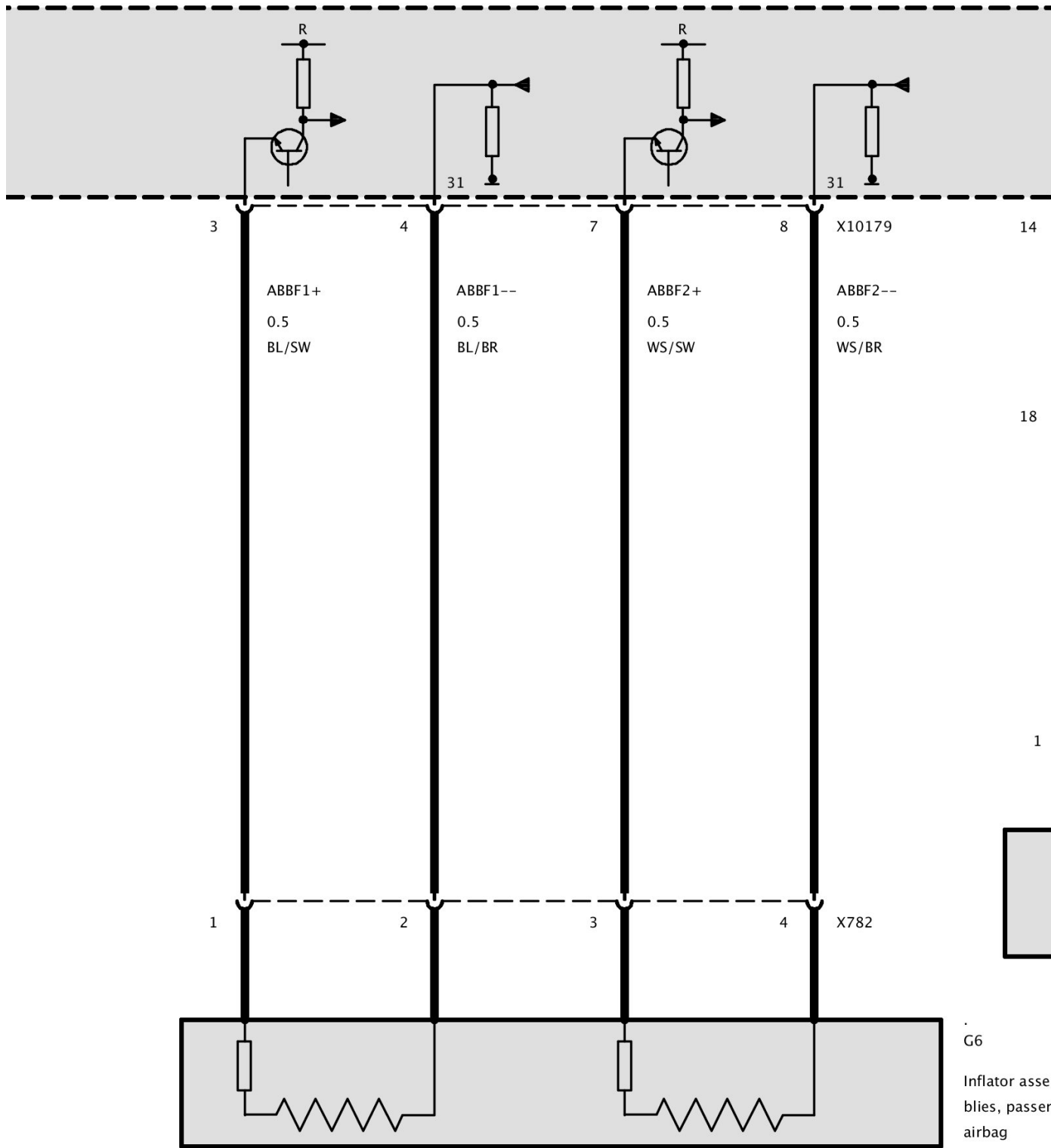
Part 1



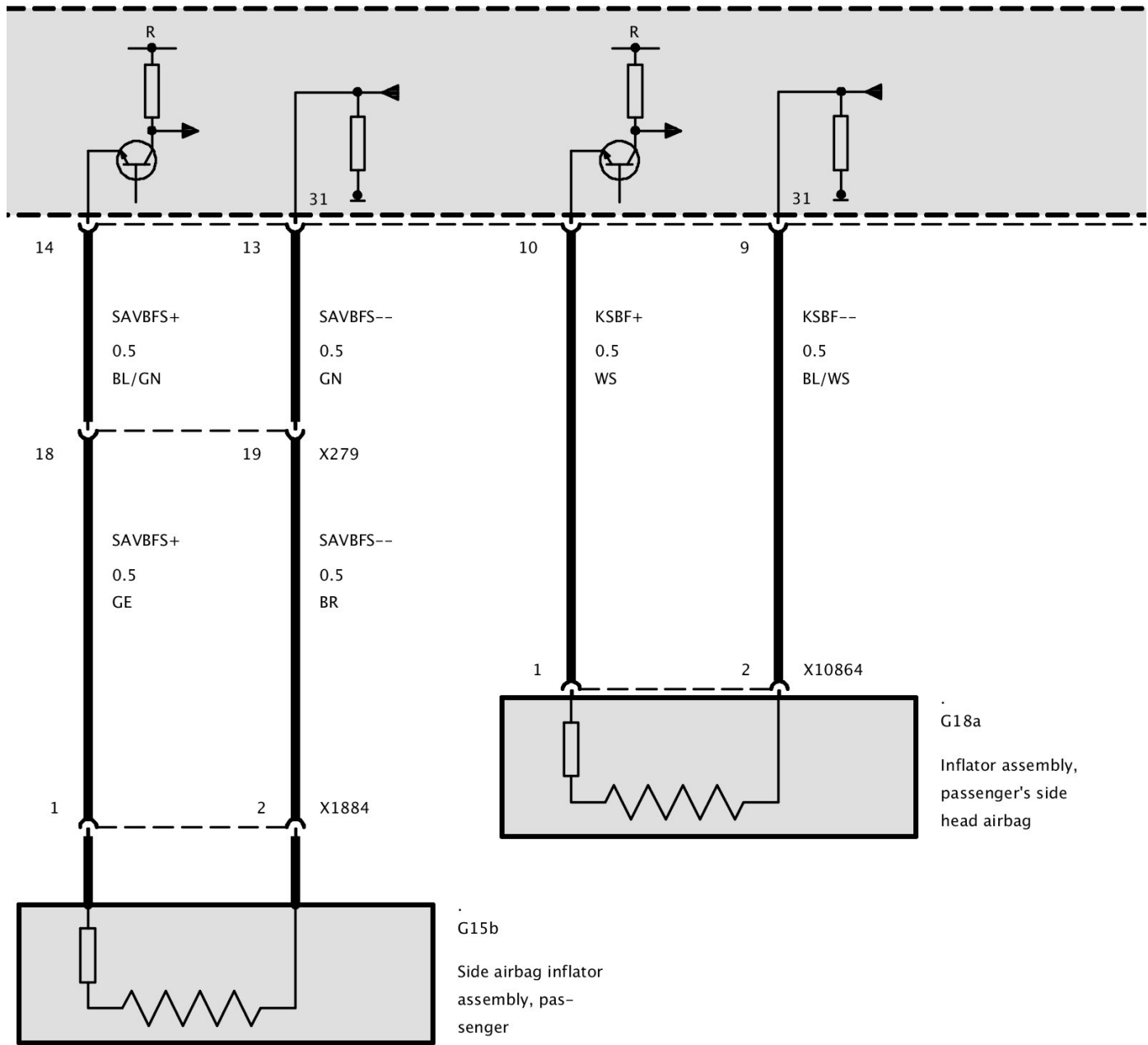
## Part 2



Part 3

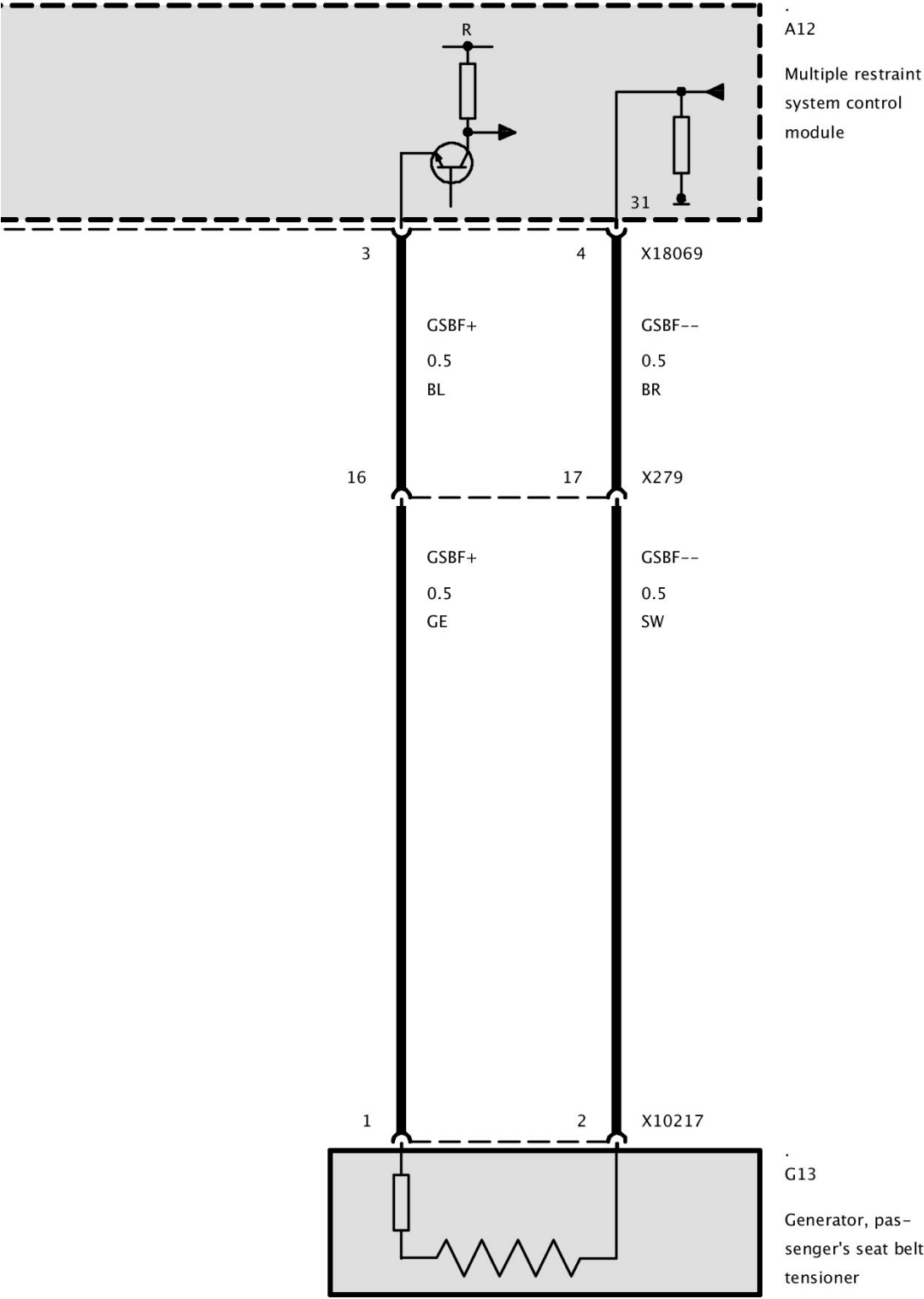


Part 4



tor assem-  
s, passenger's  
ag

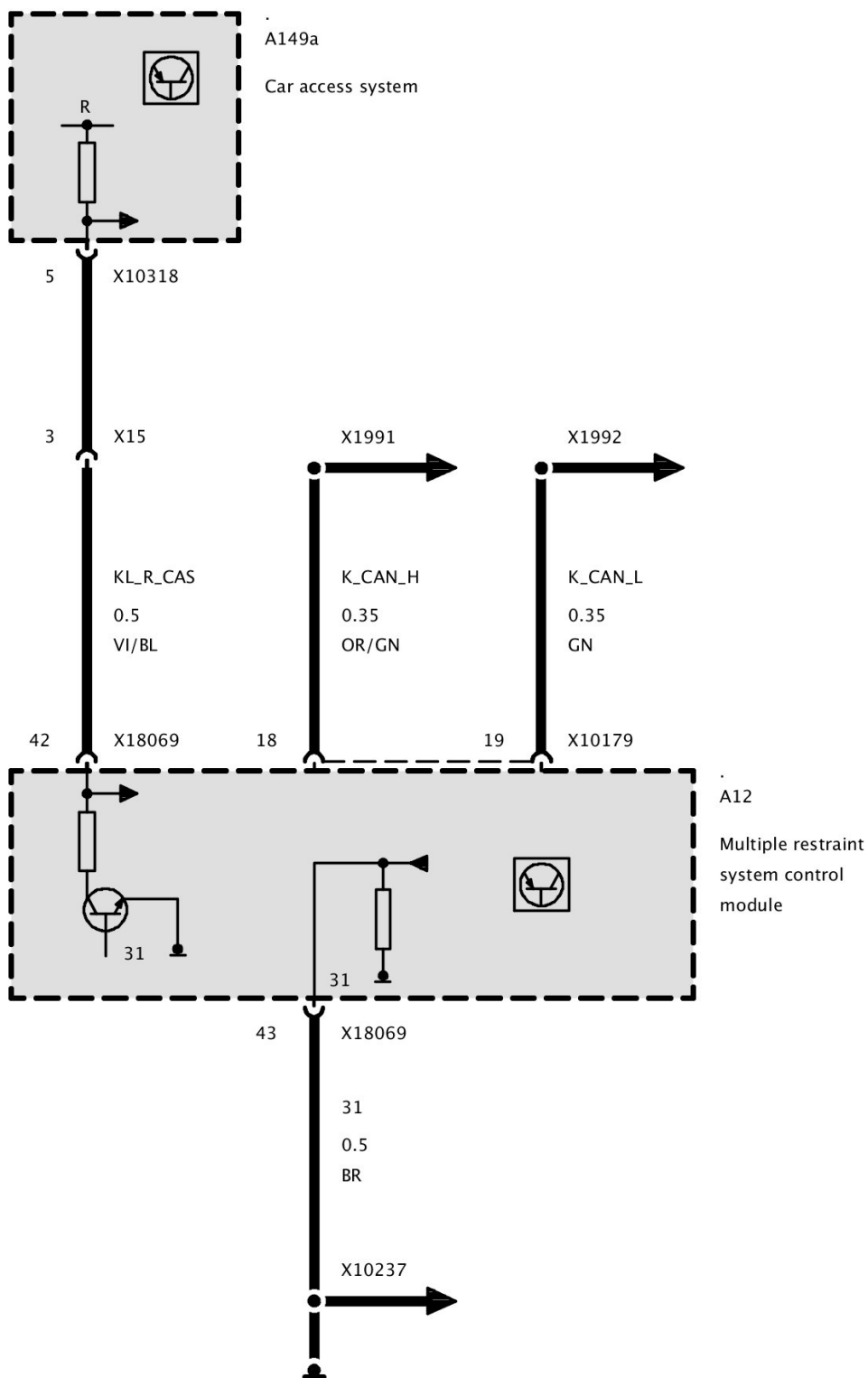
## Part 5



Part 6

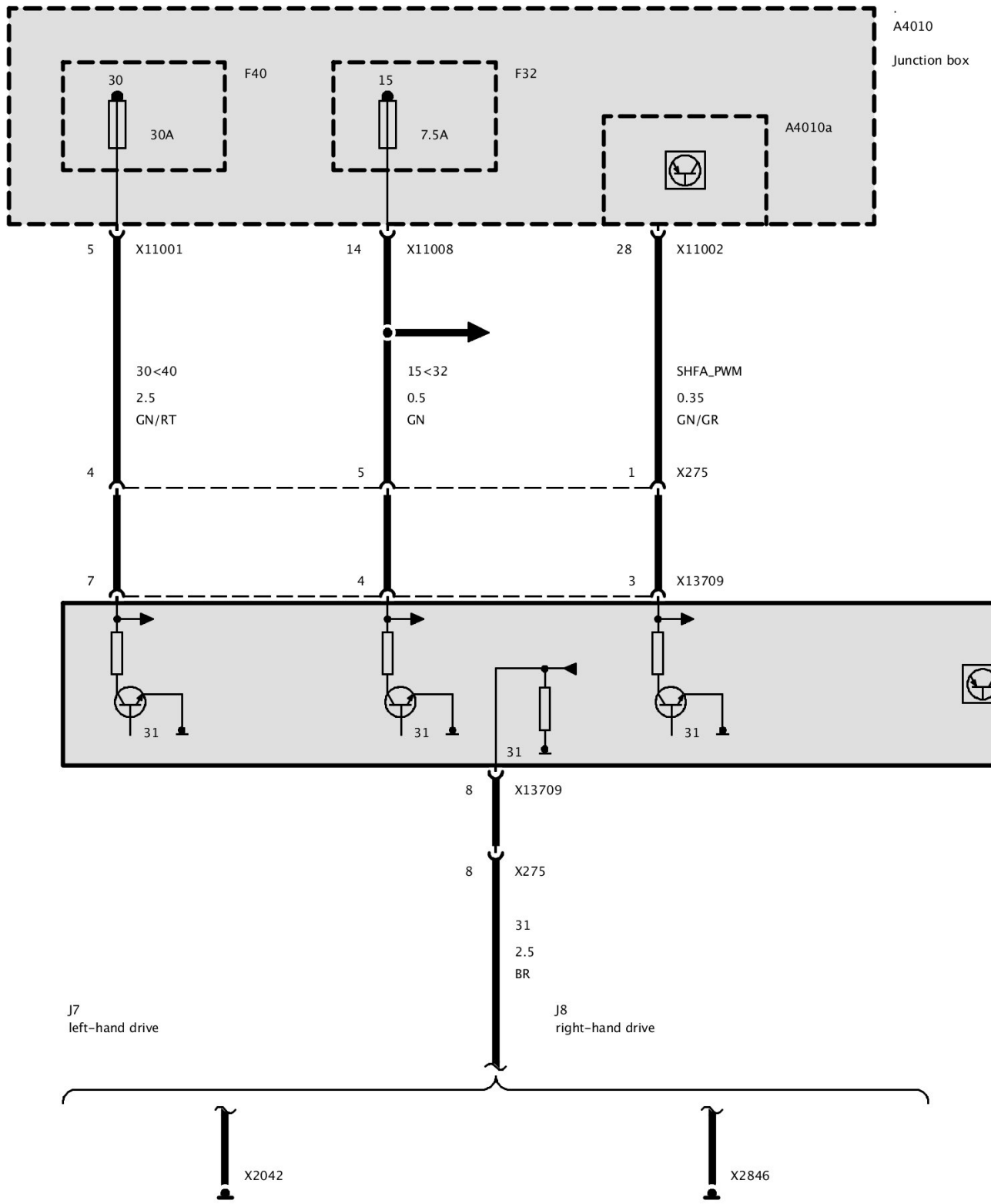
Supply, MRS Multiple Restraint System

Airbag Supply



## Driver's Seat Heating

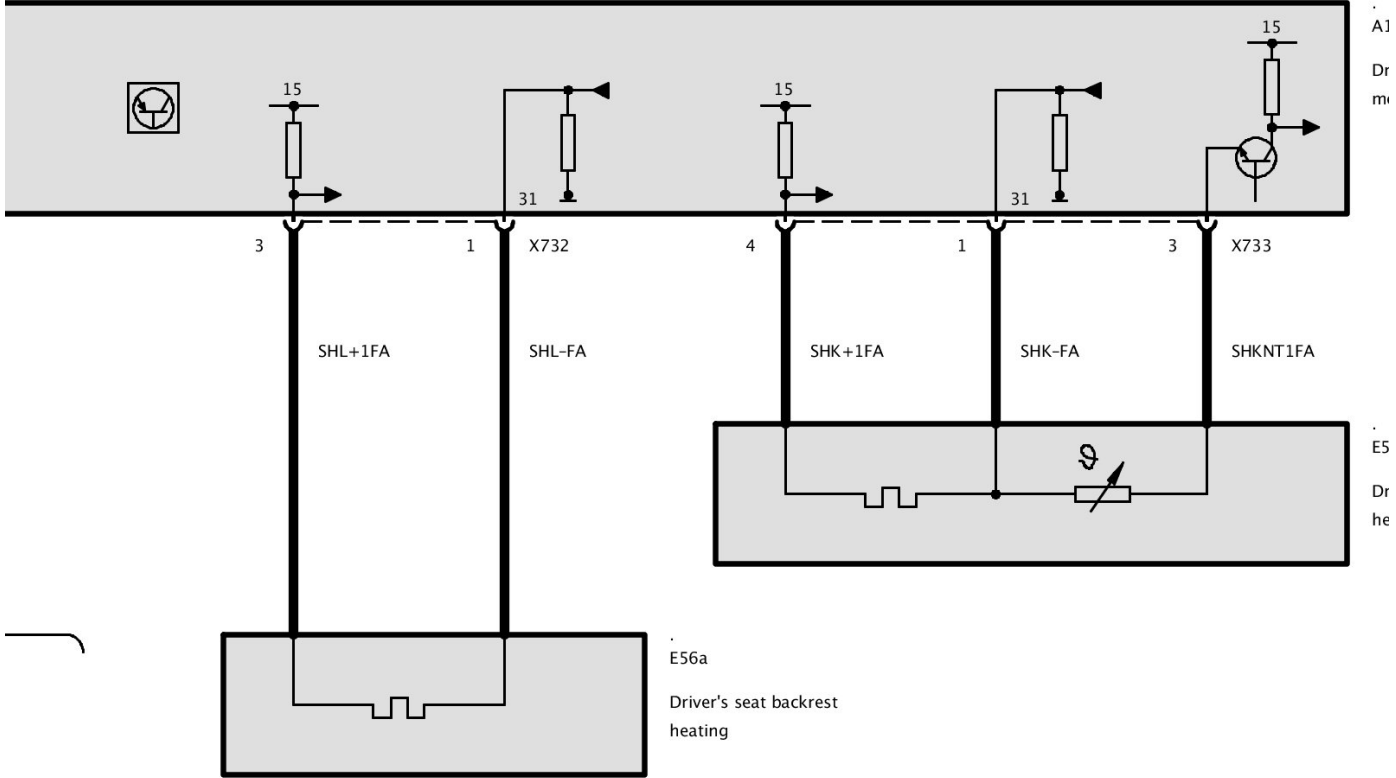
Driver's Seat Heating



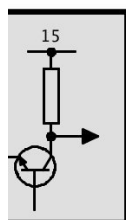
Part 1



A4010  
Junction box



Part 2



A187a  
Driver's seat heating  
module

X733

SHKNT1FA

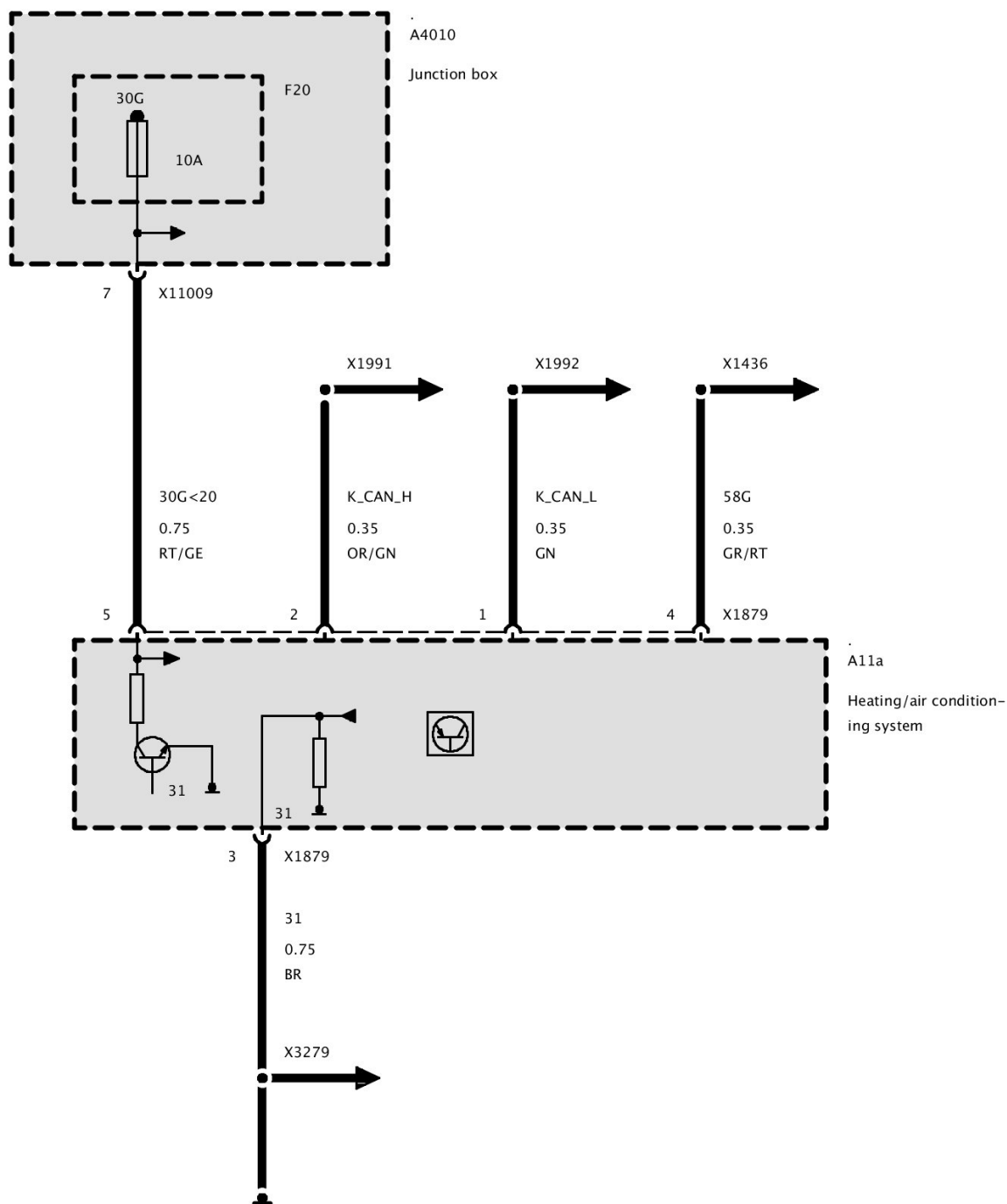


E57a  
Driver's seat cushion  
heating

### Part 3

## Supply, Heating/Air-Conditioning System

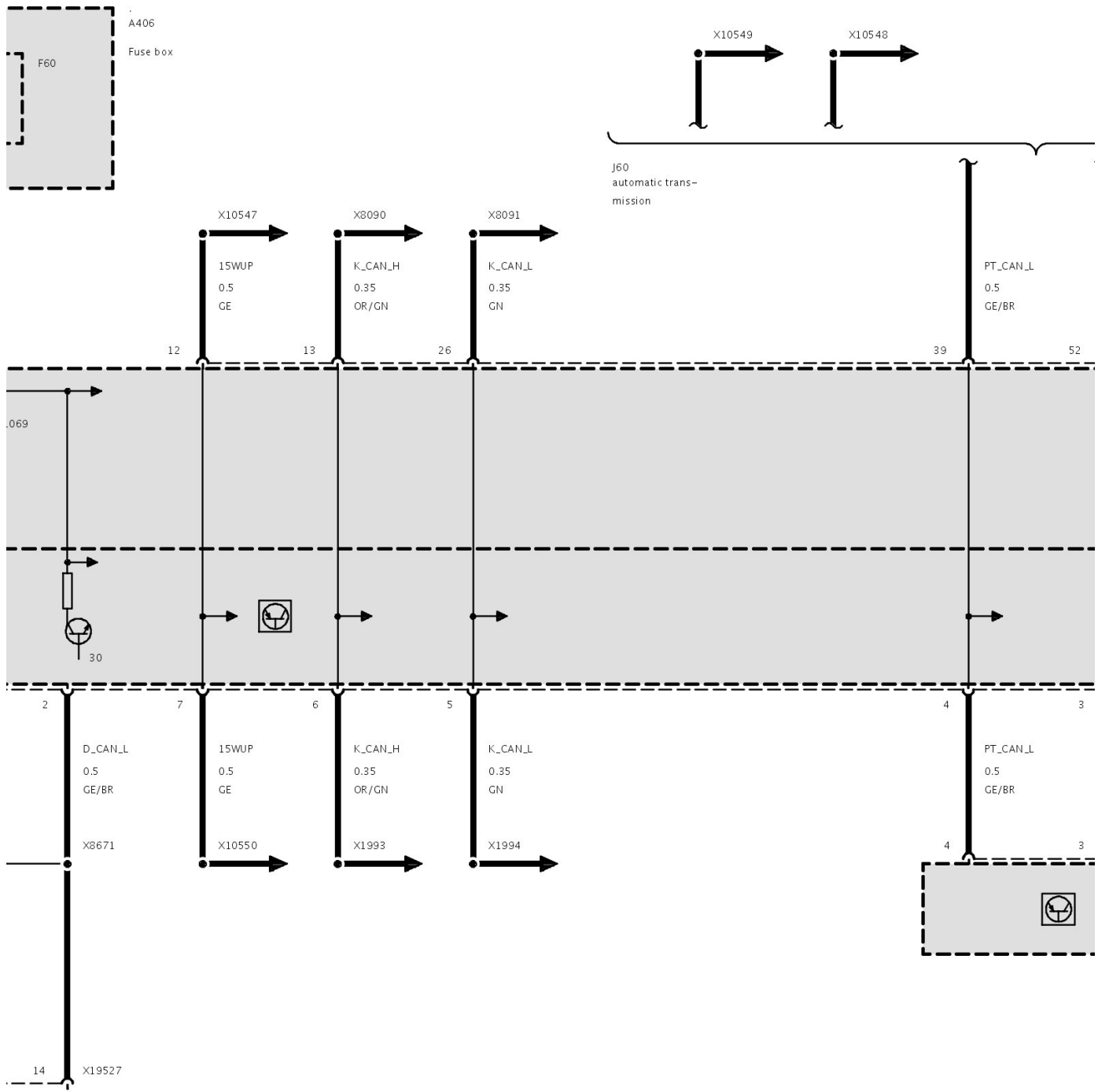
Supply, Heating And Air Conditioning Control Unit (As Of 12/08)



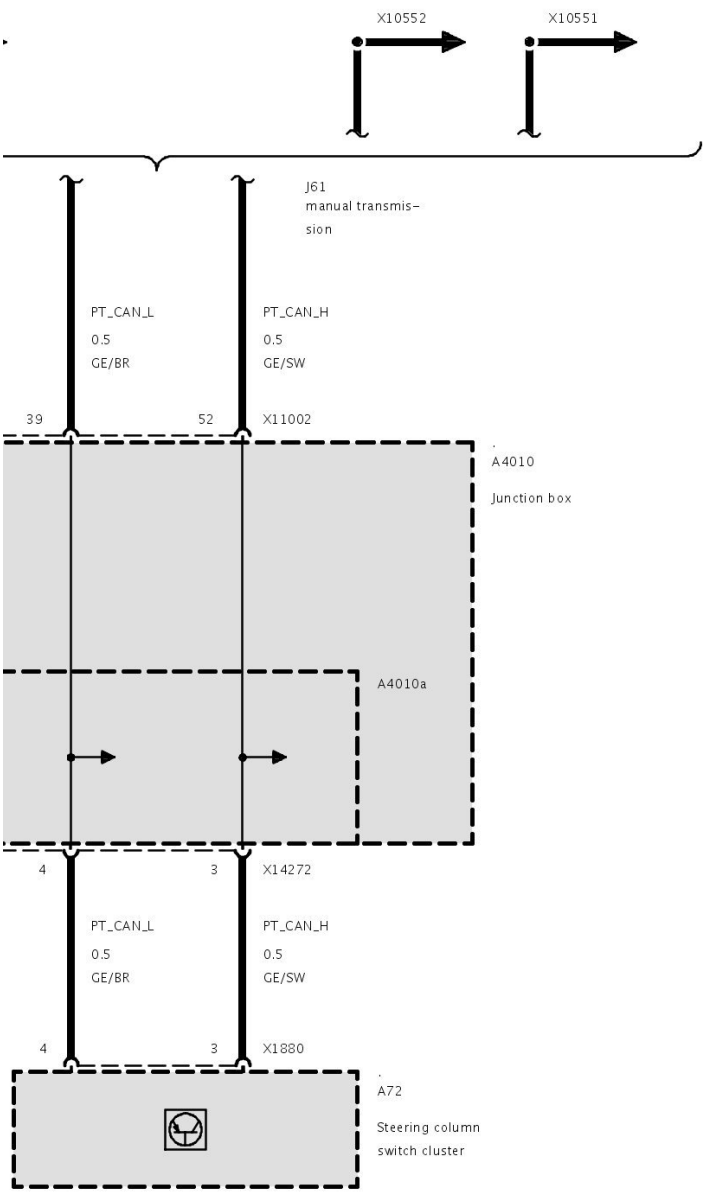
## Supply, JBE Junction-Box Electronics

Power Supply JBE Junction Box, Electronics





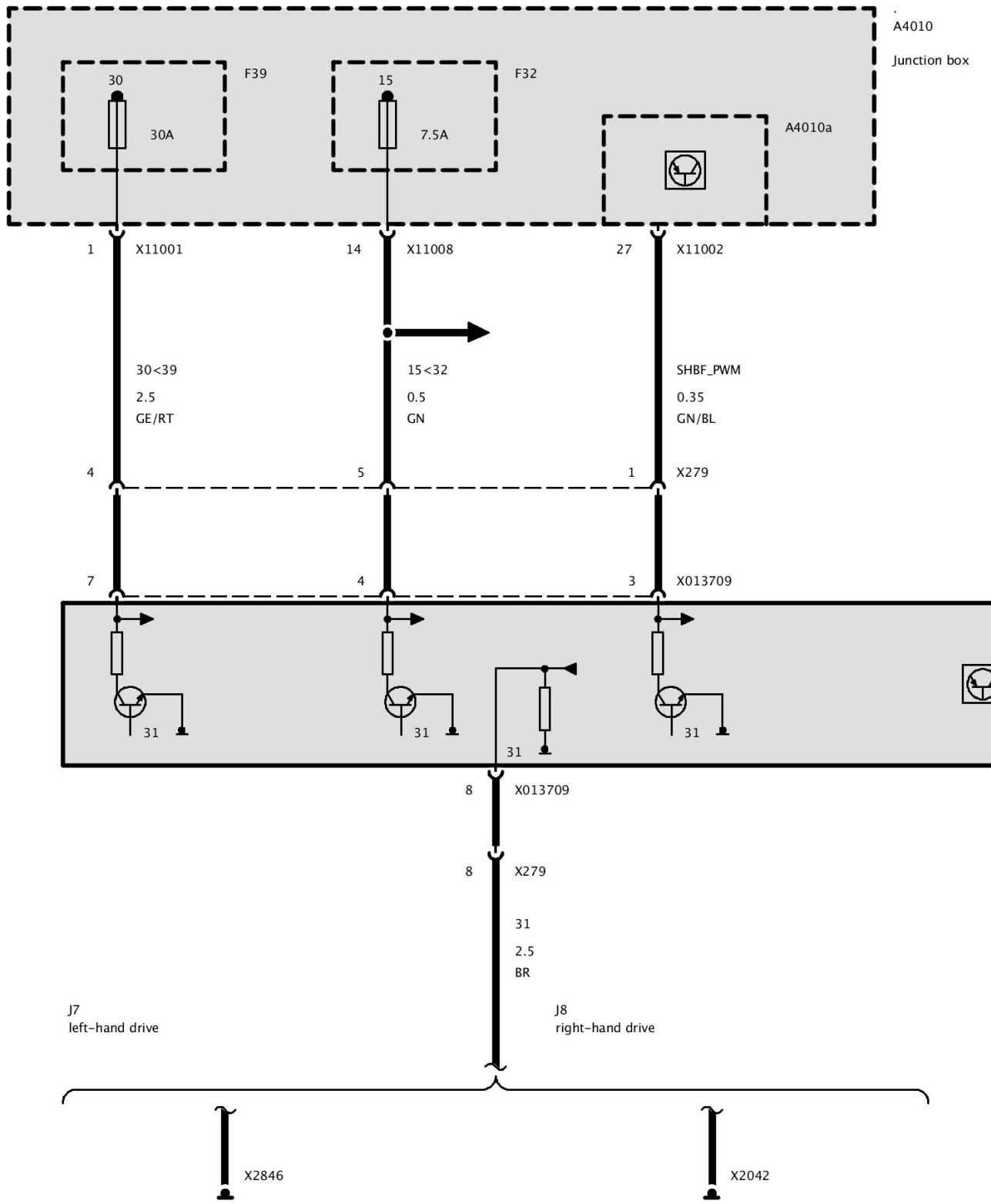
Part 2



Part 3

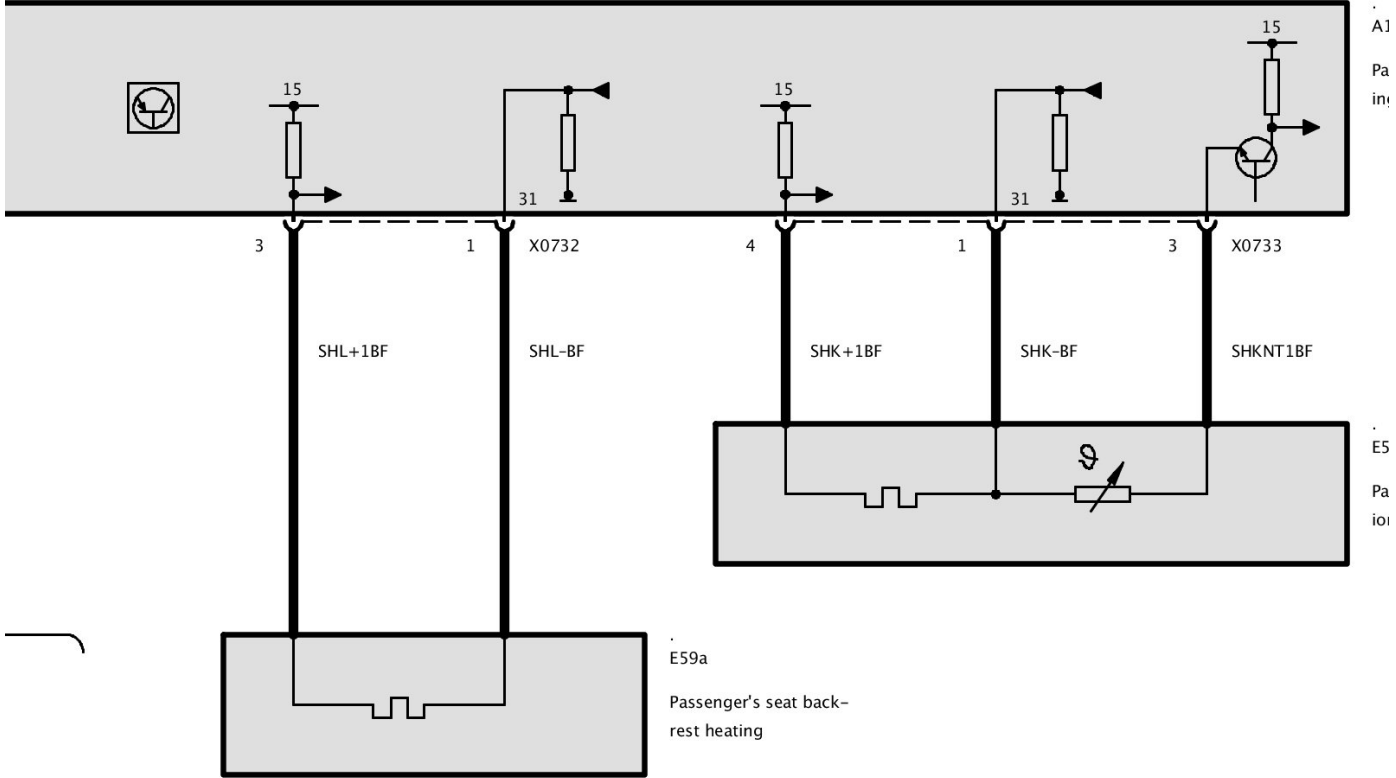
Passenger's Seat Heating

Passenger's Seat Heating



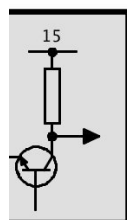
Part 1

A4010  
Junction box



Part 2





A186a  
Passenger's seat heating module

X0733

SHKNT1BF

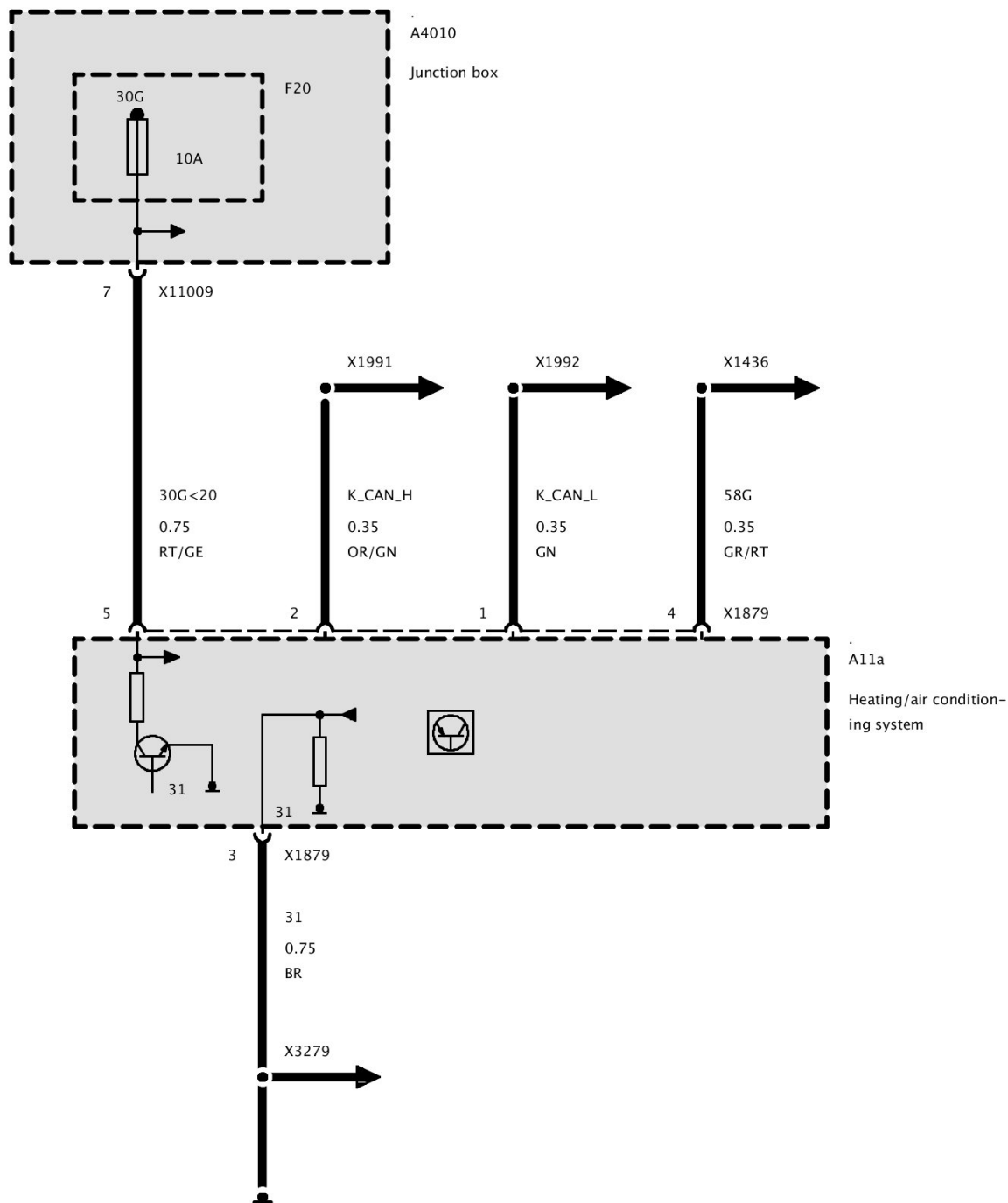


E58a  
Passenger's seat cushion heating

### Part 3

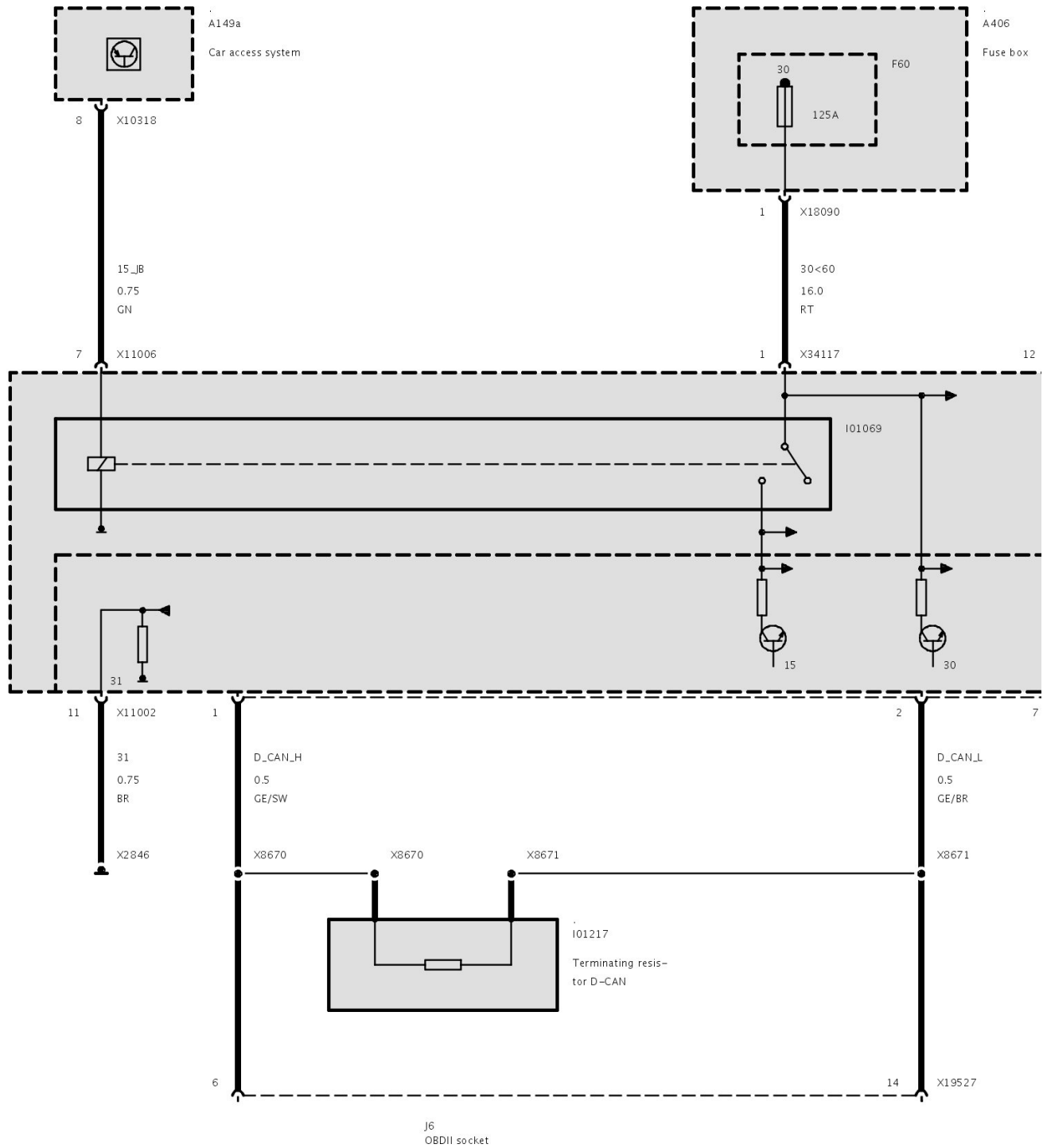
## Supply, Heating/Air-Conditioning System

Supply, Heating And Air Conditioning Control Unit (As Of 12/08)

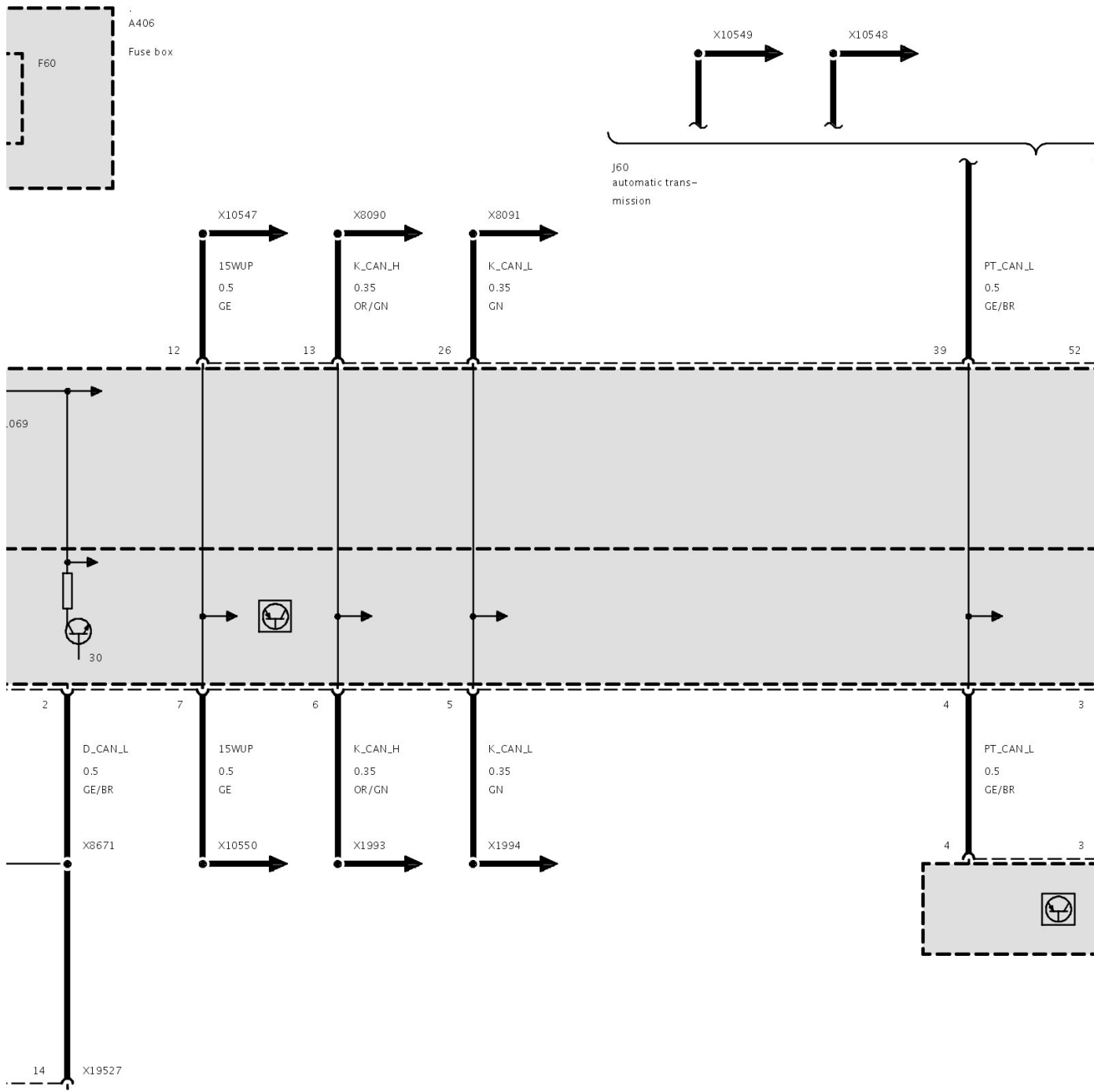


## Supply, JBE Junction-Box Electronics

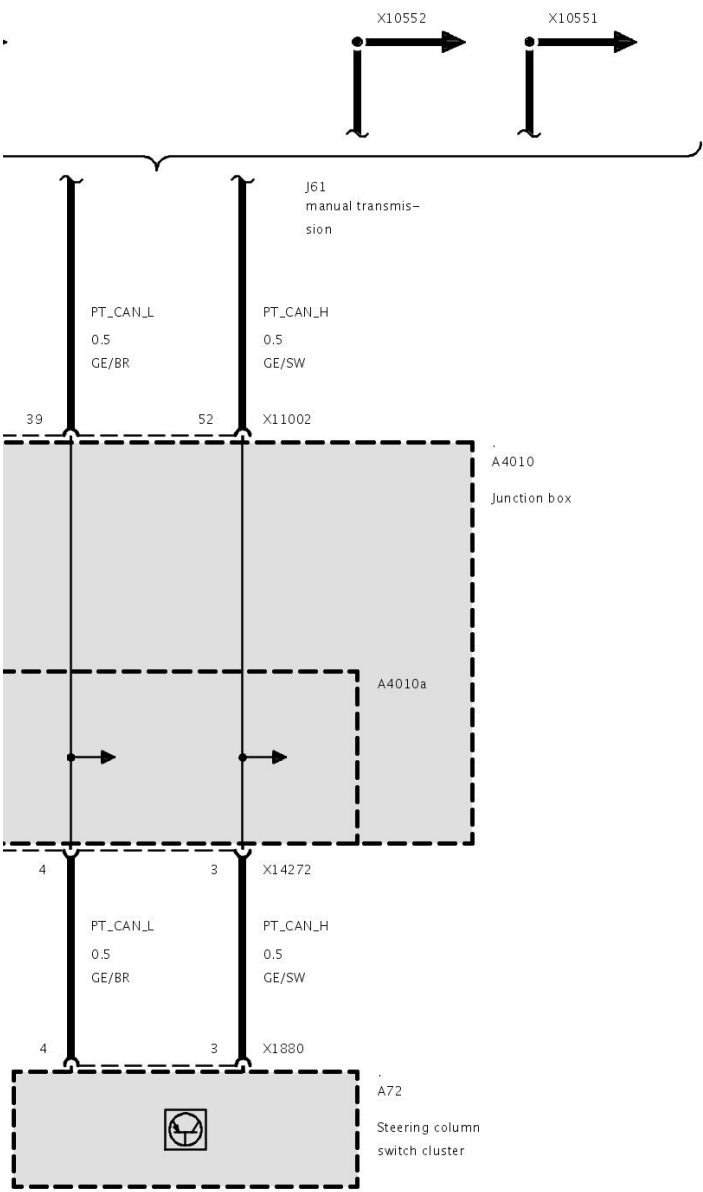
Power Supply JBE Junction Box, Electronics



Part 1



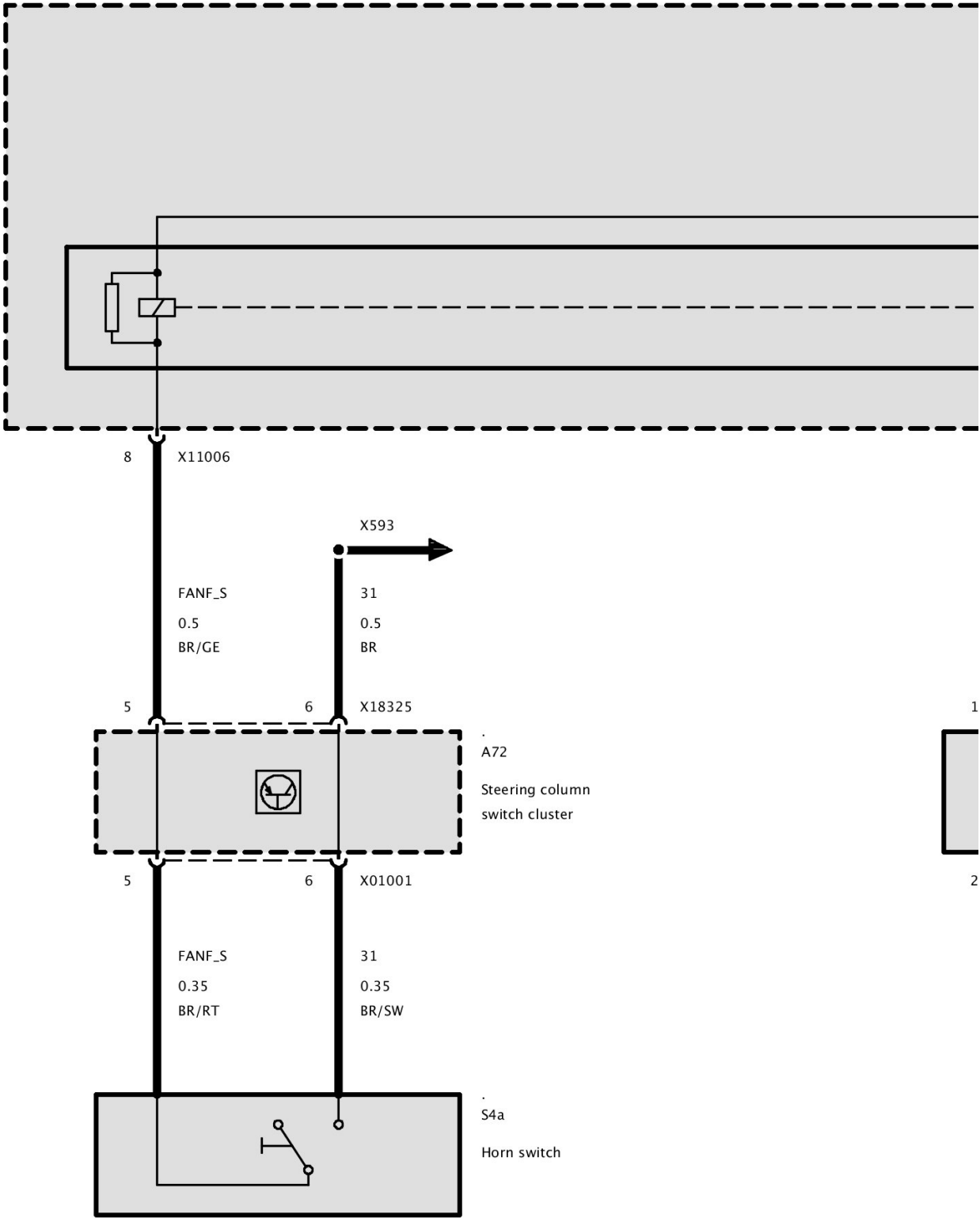
Part 2



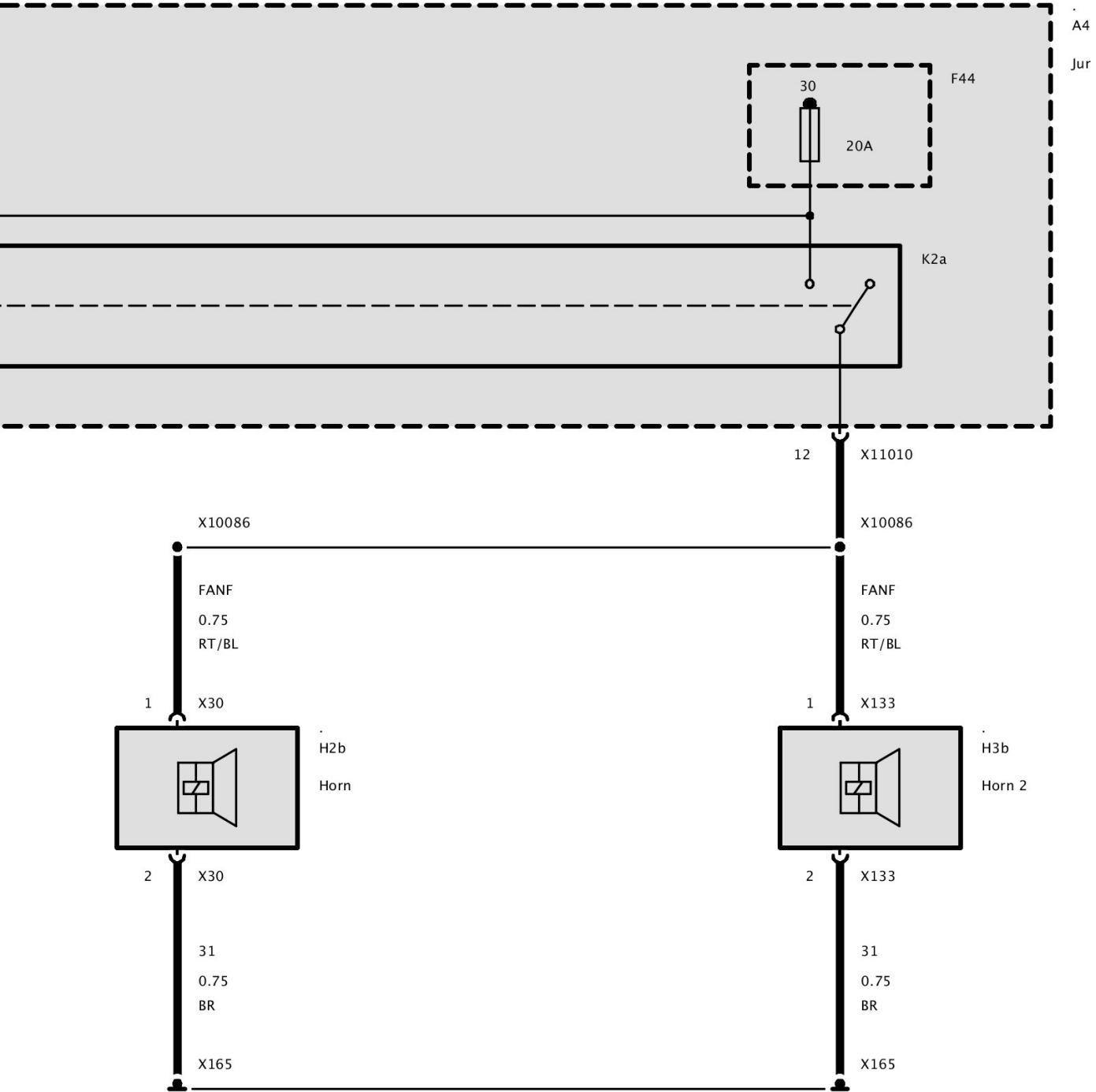
Part 3

Horn

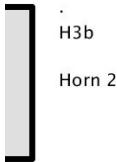
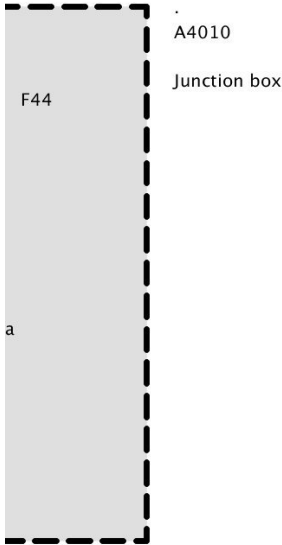
Horn



Part 1



Part 2

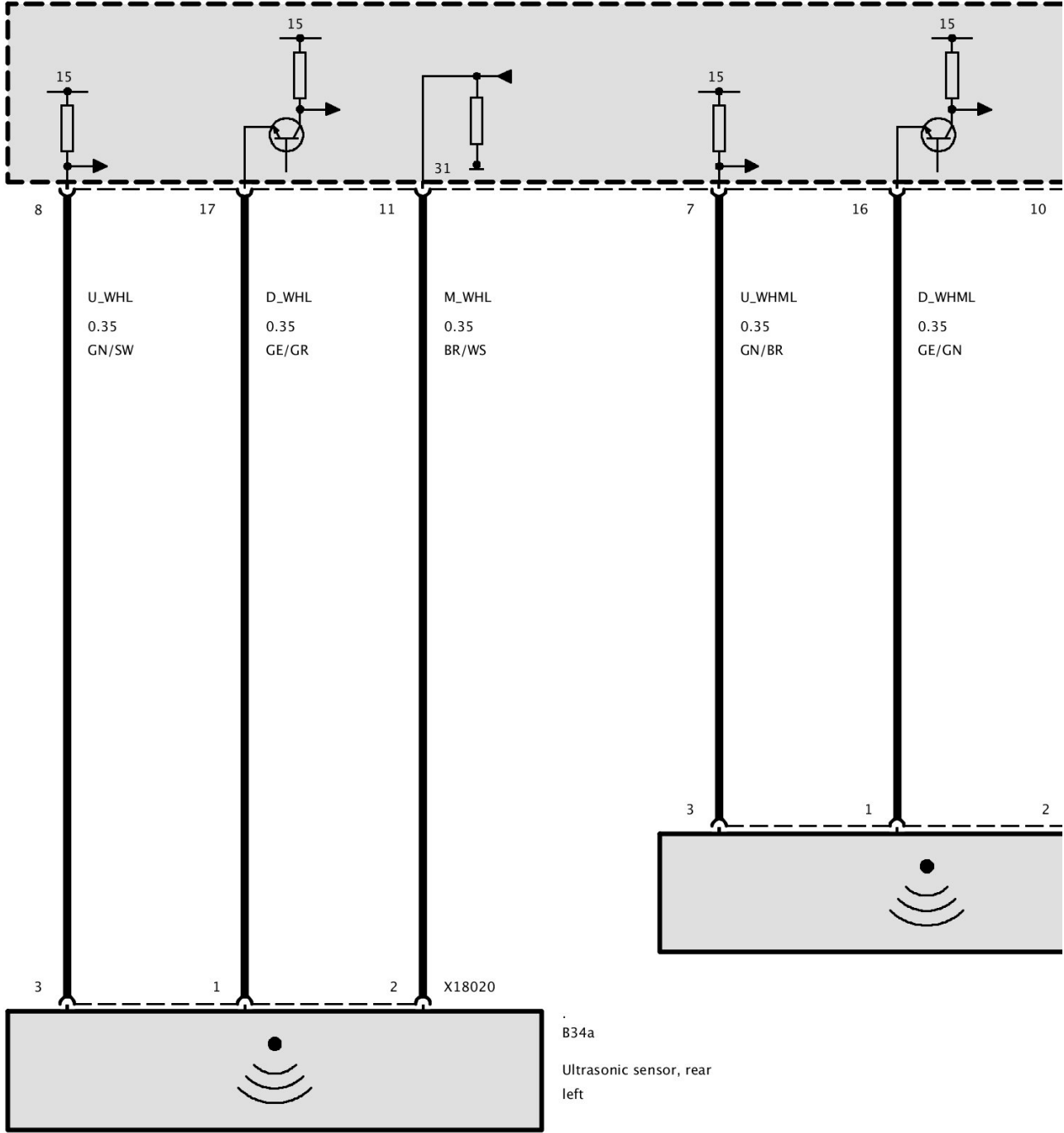


Part 3

Park Distance Control (PDC) (As Of 08/07)

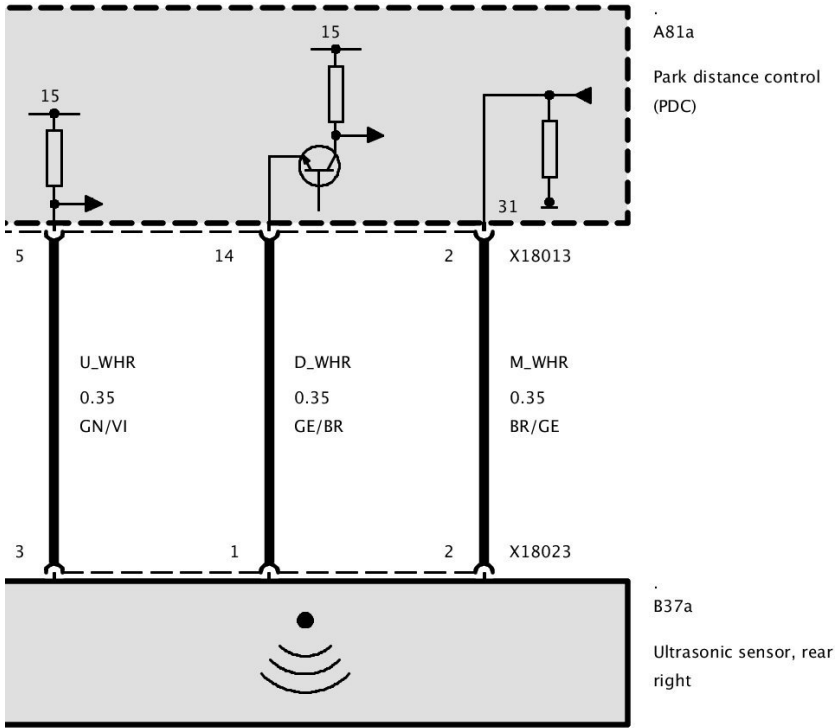
Park Distance Control (PDC) (As Of 08/07)





Part 1



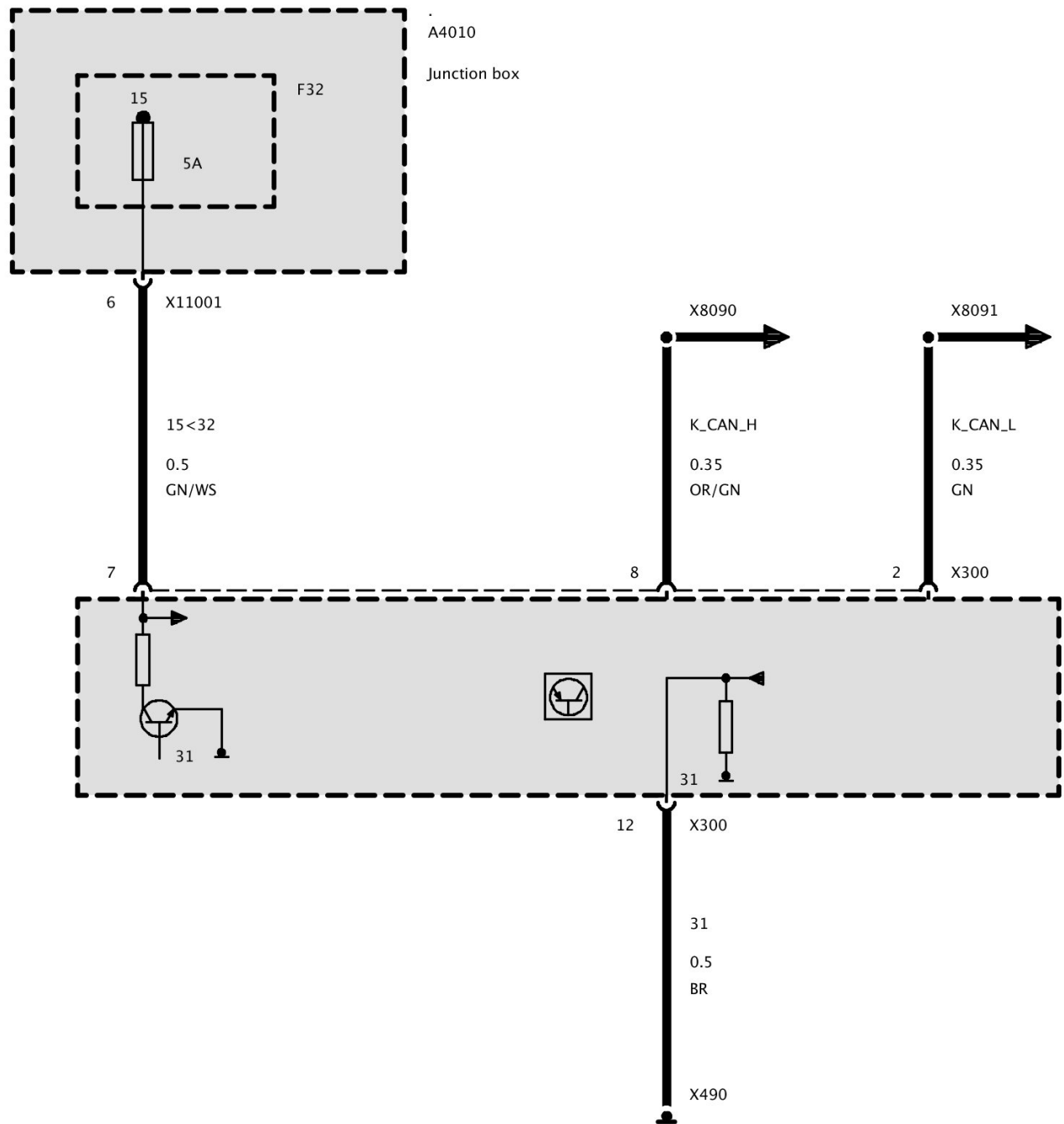


, rear

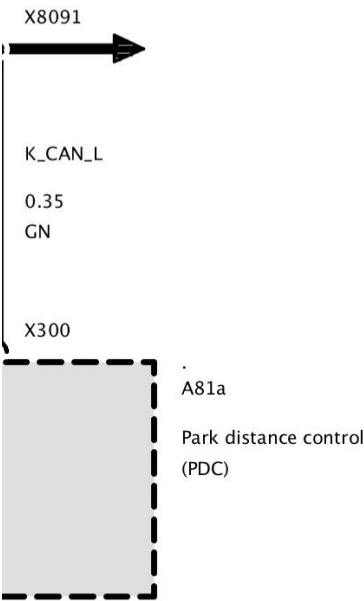
Part 3

Supply, PDC Park Distance Control

Supply, Park Distance Control Module (As Of 12/08)



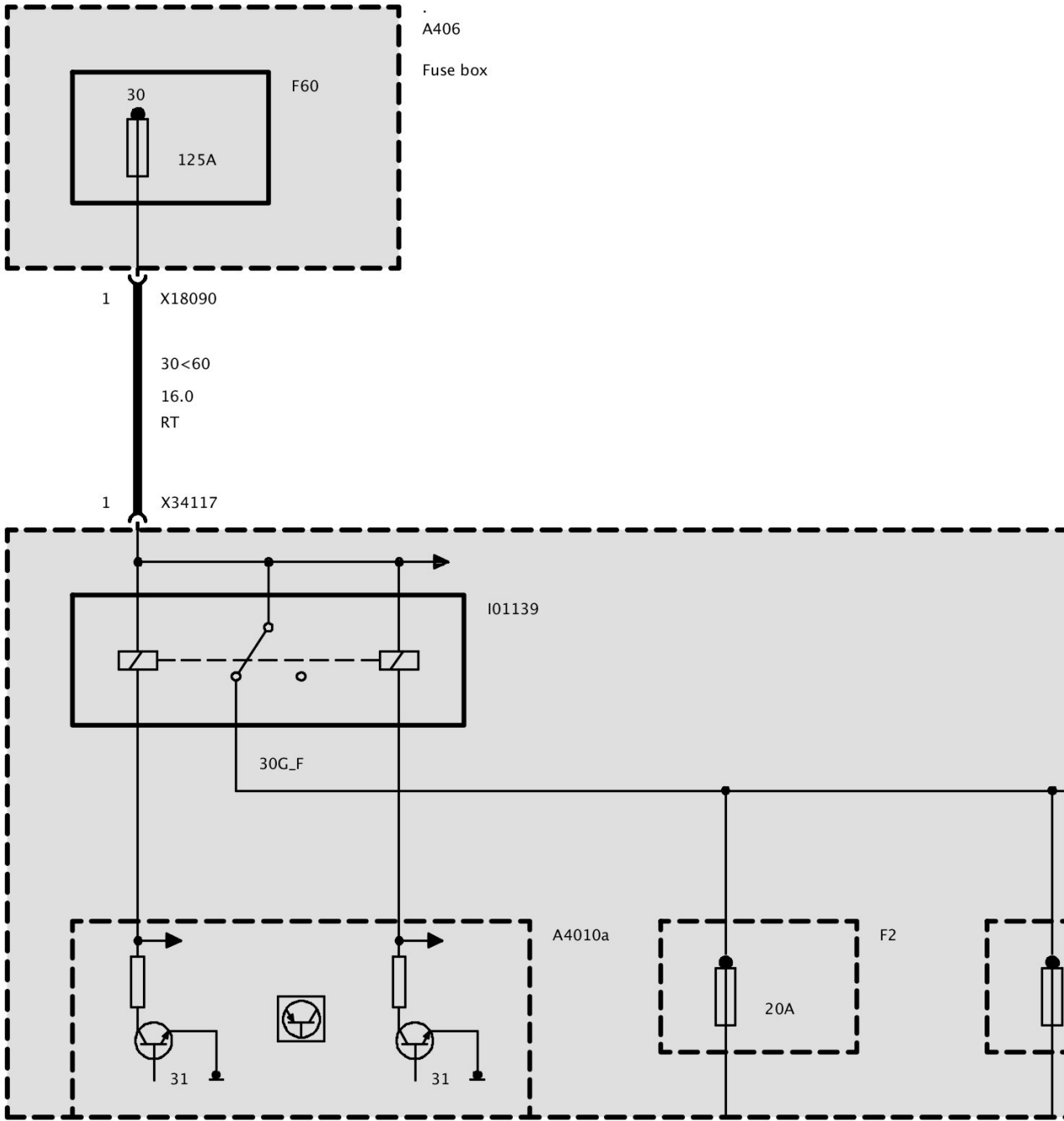
Part 1



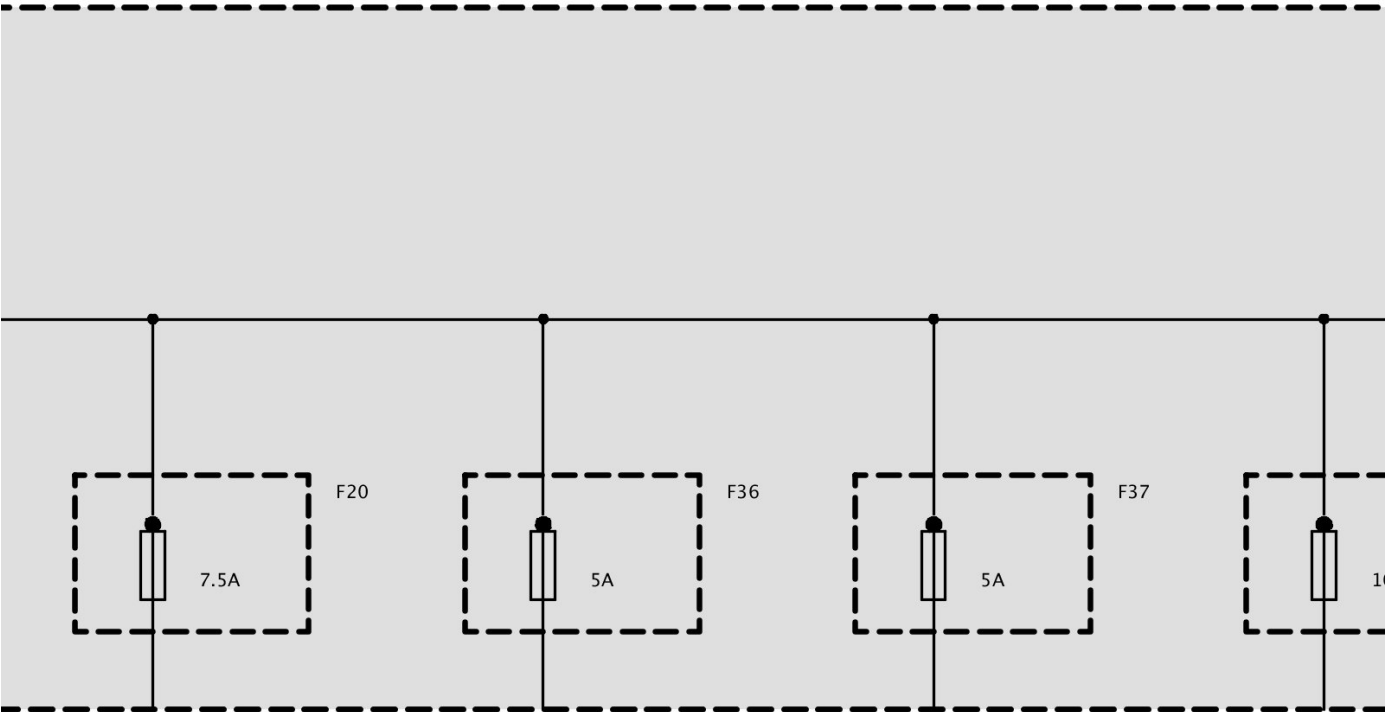
Part 2

Deactivation Or Reset Of Terminal 30g-F

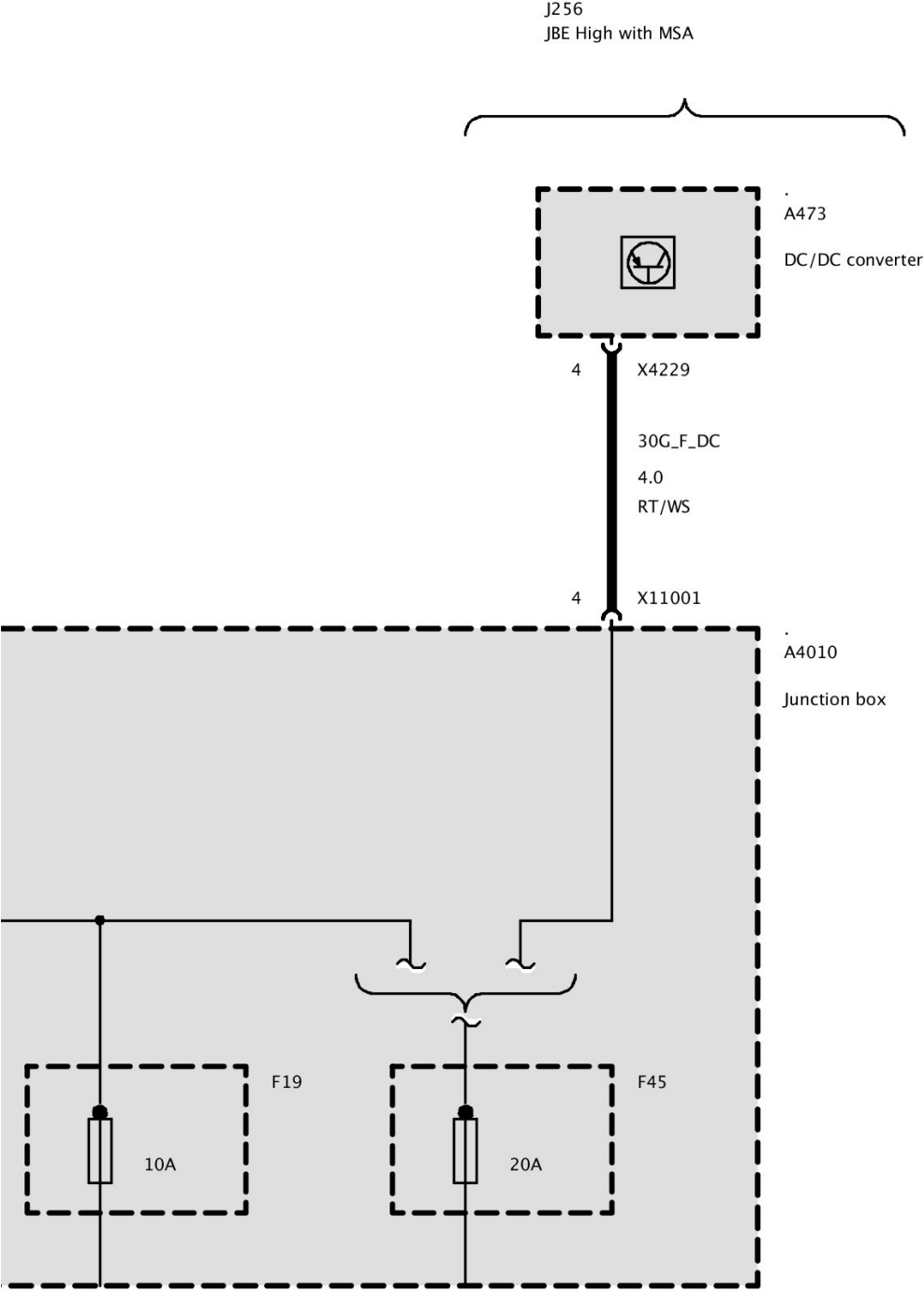
Shutdown, Closed-Circuit Current Infringement



Part 1



Part 2

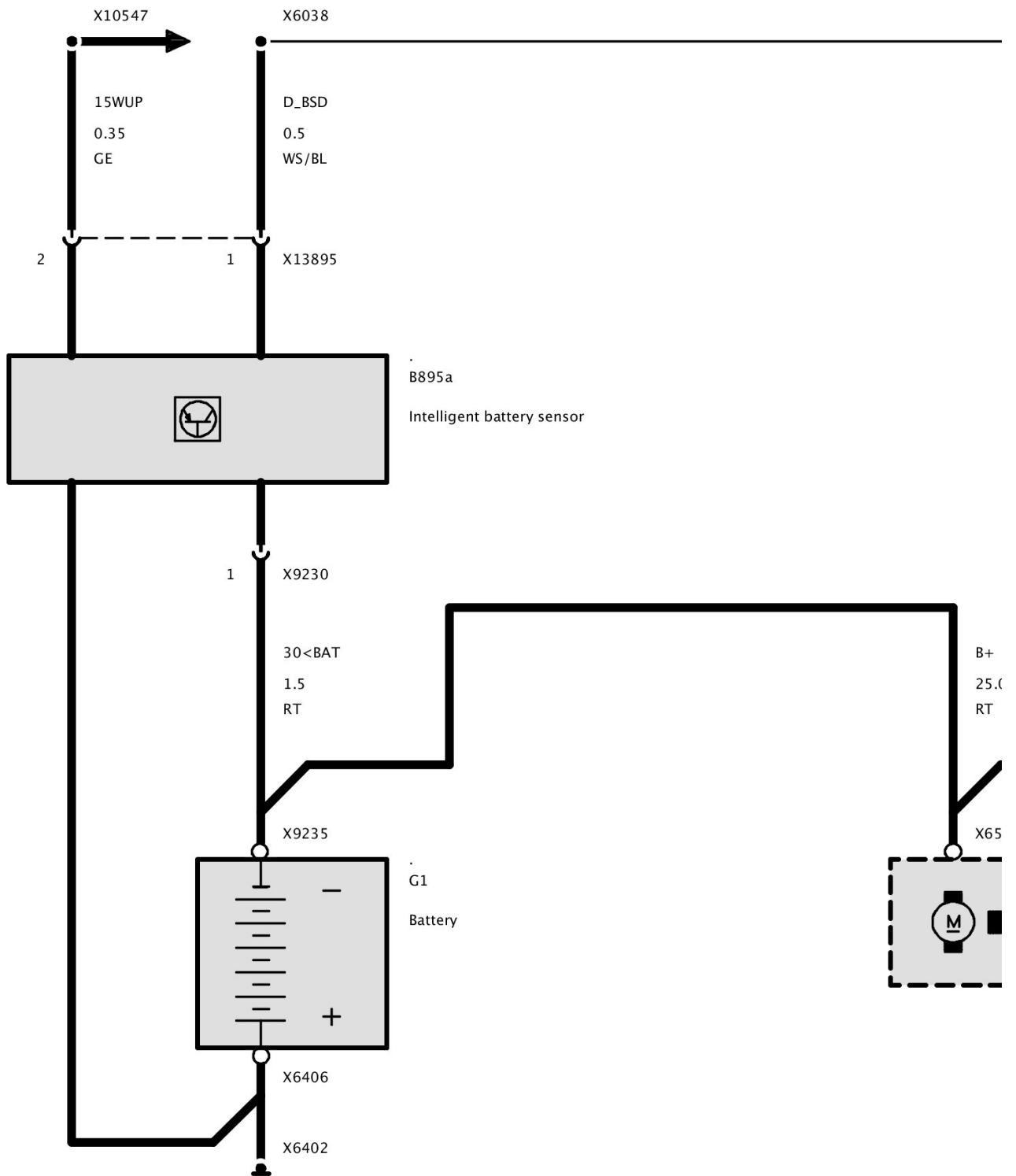


Part 3

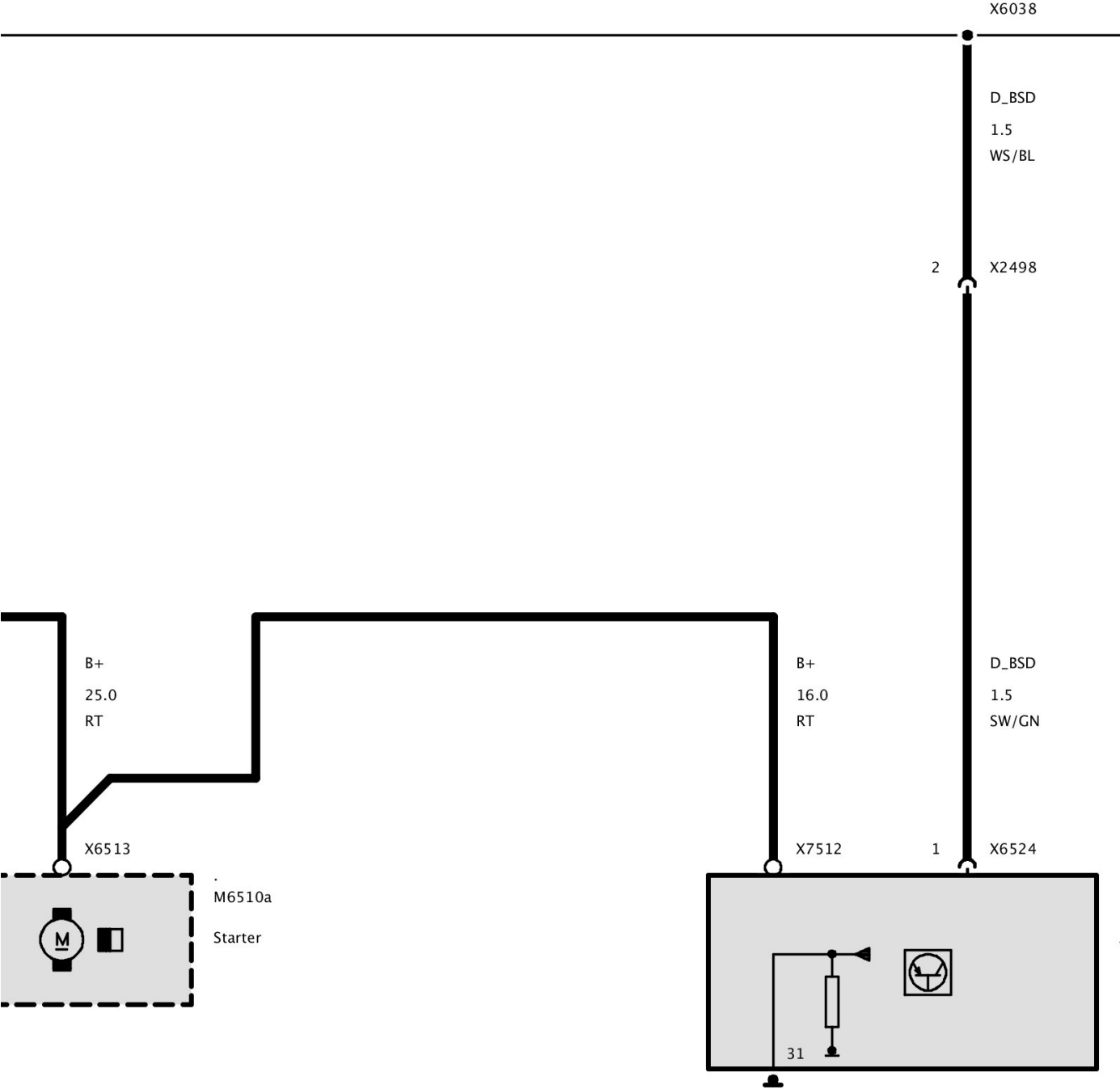
BSD Alternator (Petrol Engine)

BSD Alternator (Petrol Engine)

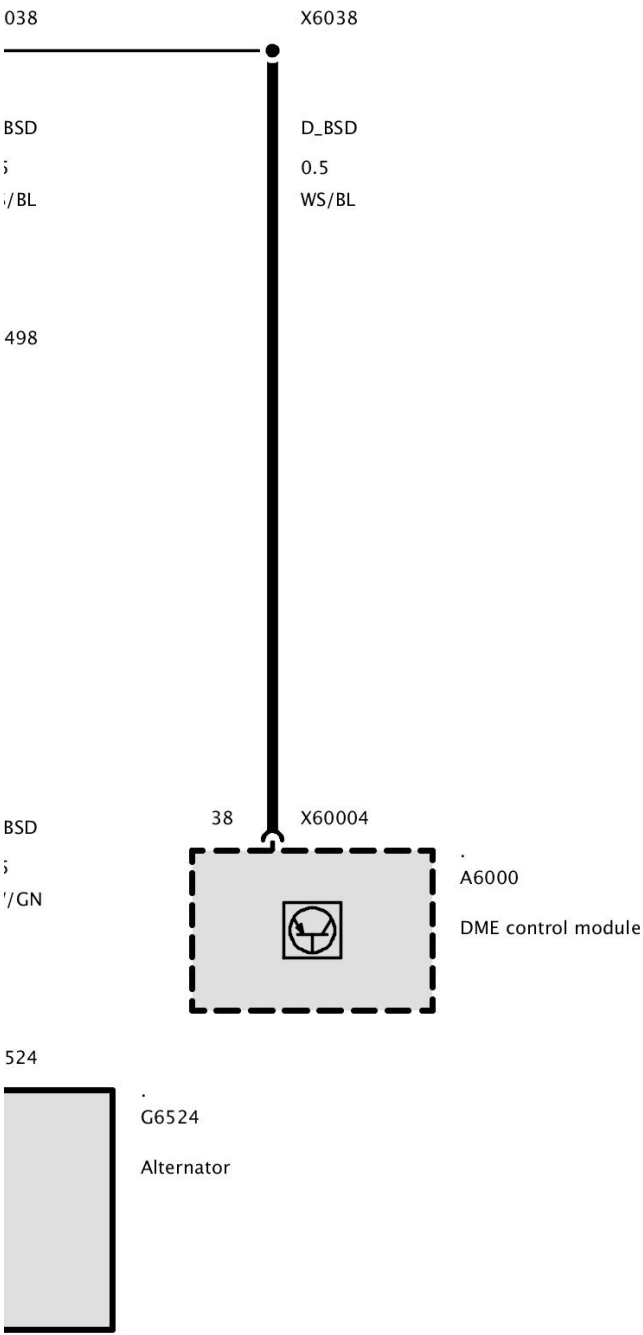




Part 1



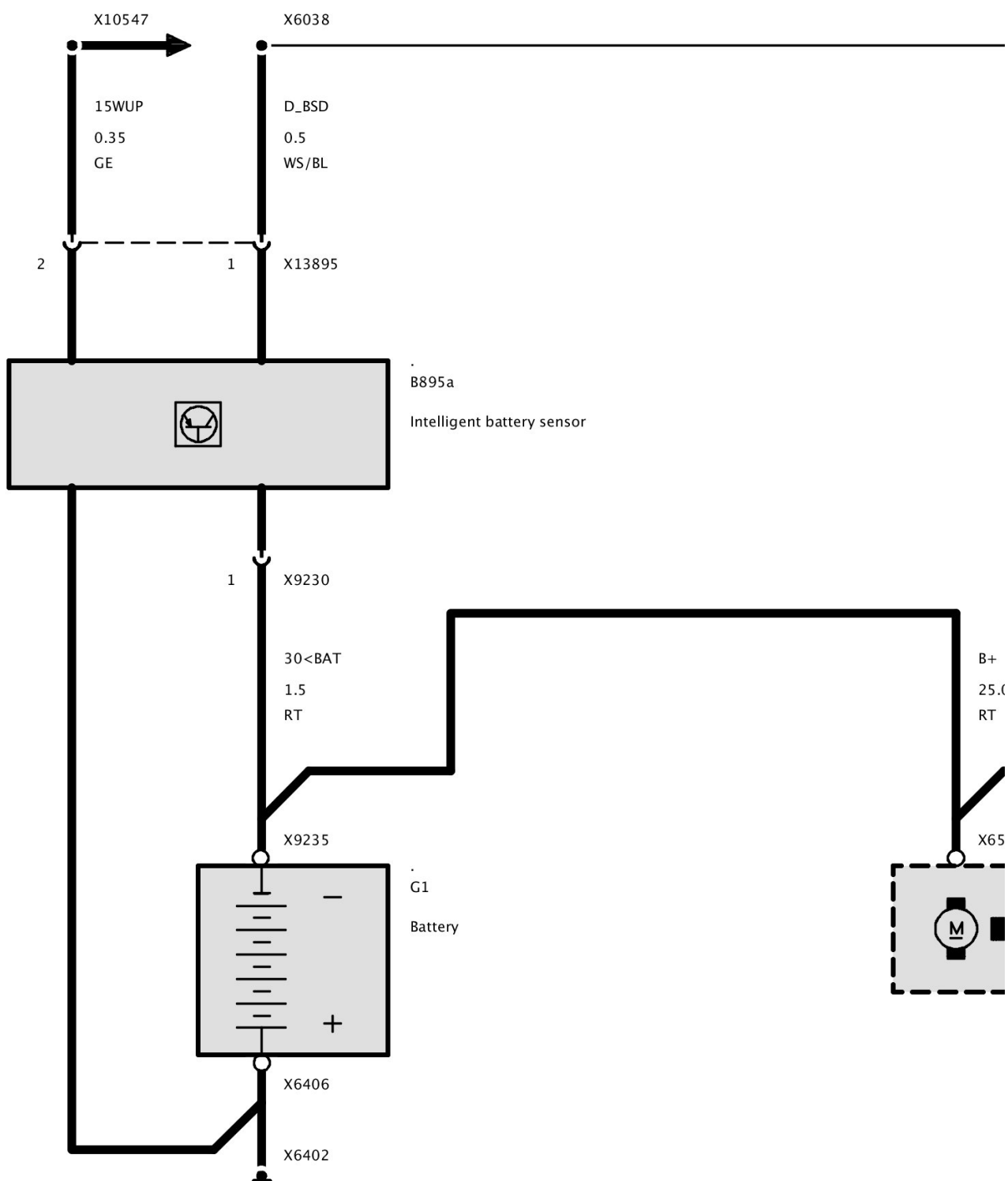
Part 2



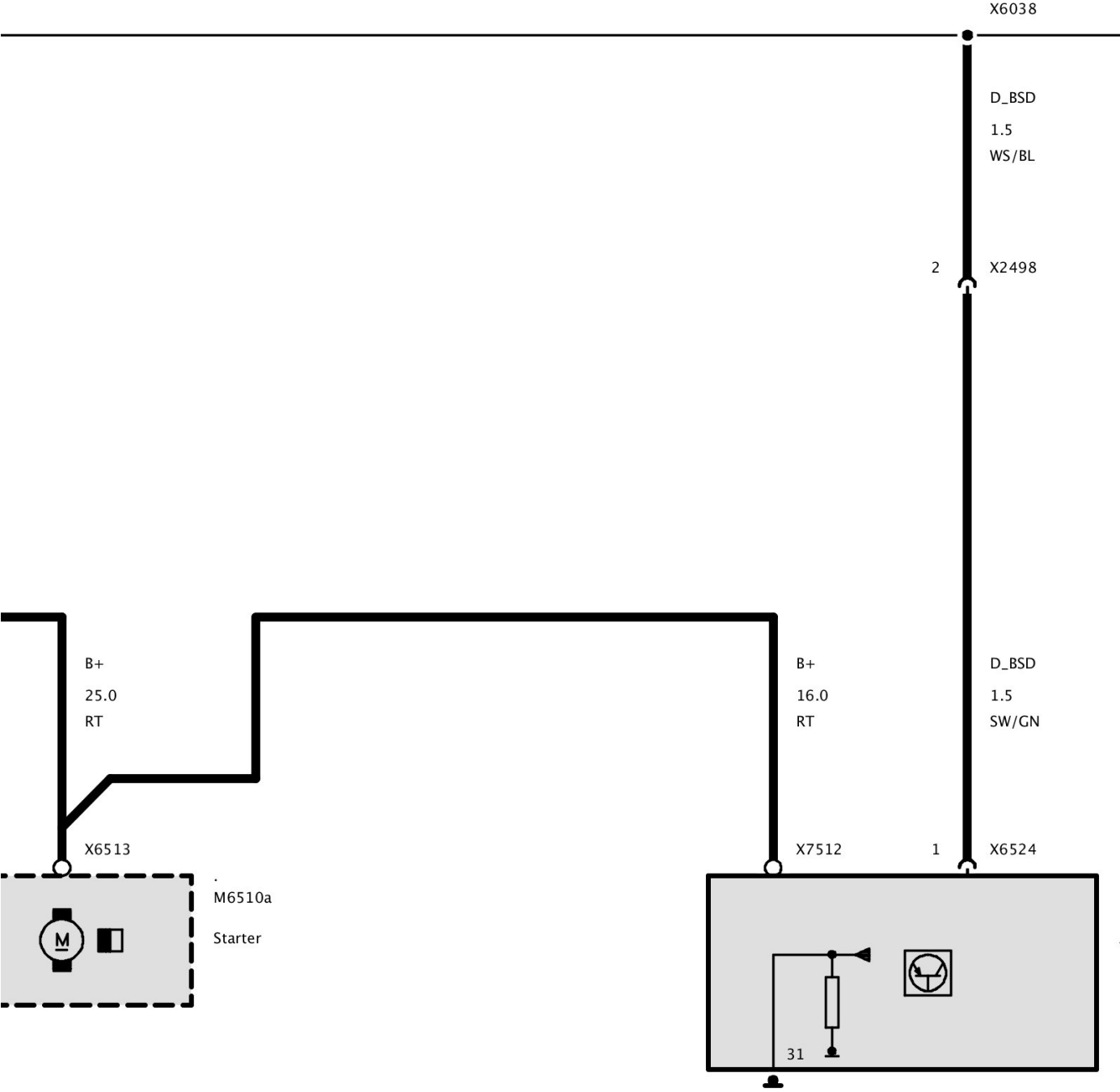
Part 3

Intelligent Battery Sensor

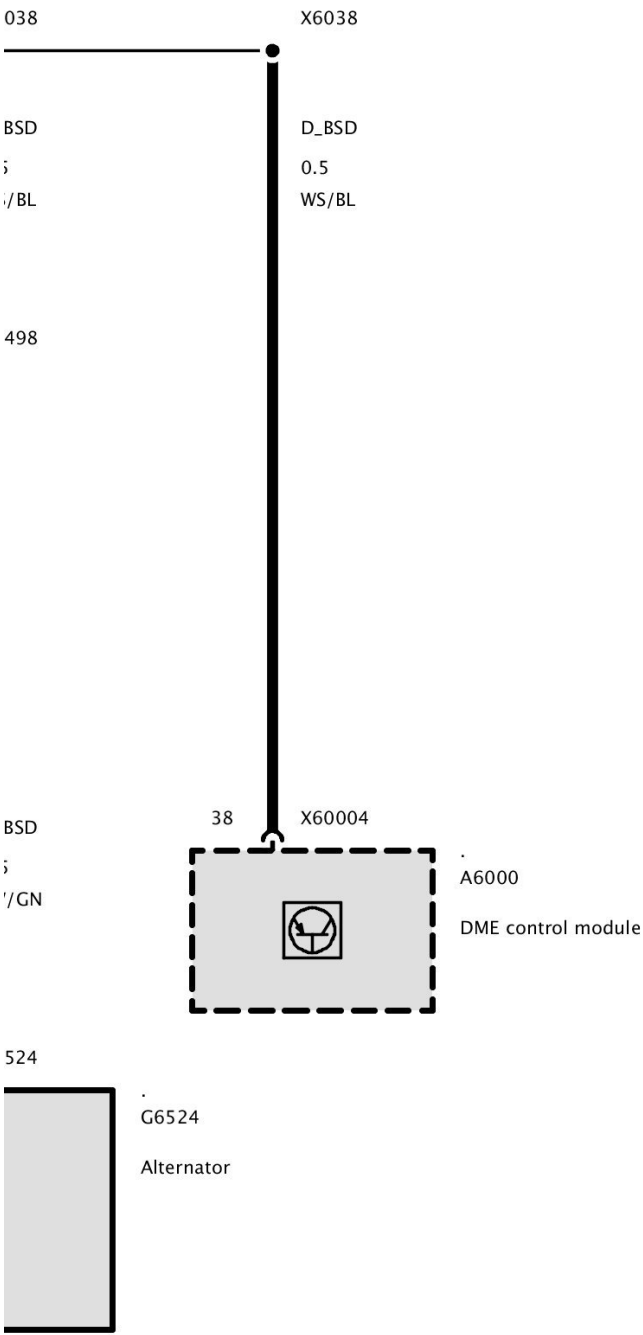
IBS Alternator (Petrol Engine)



Part 1



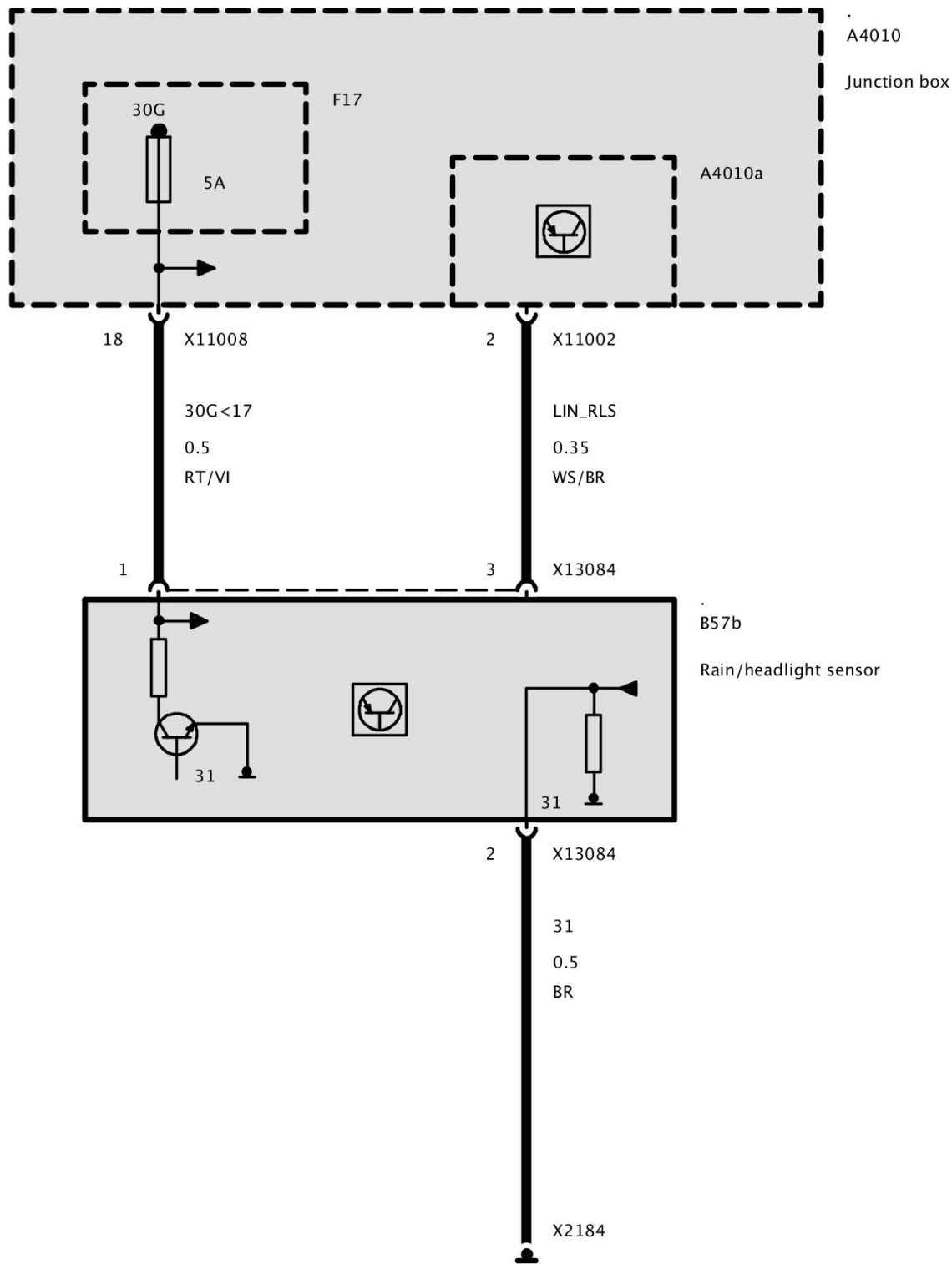
Part 2



Part 3

Wipe/Wash System, Inputs

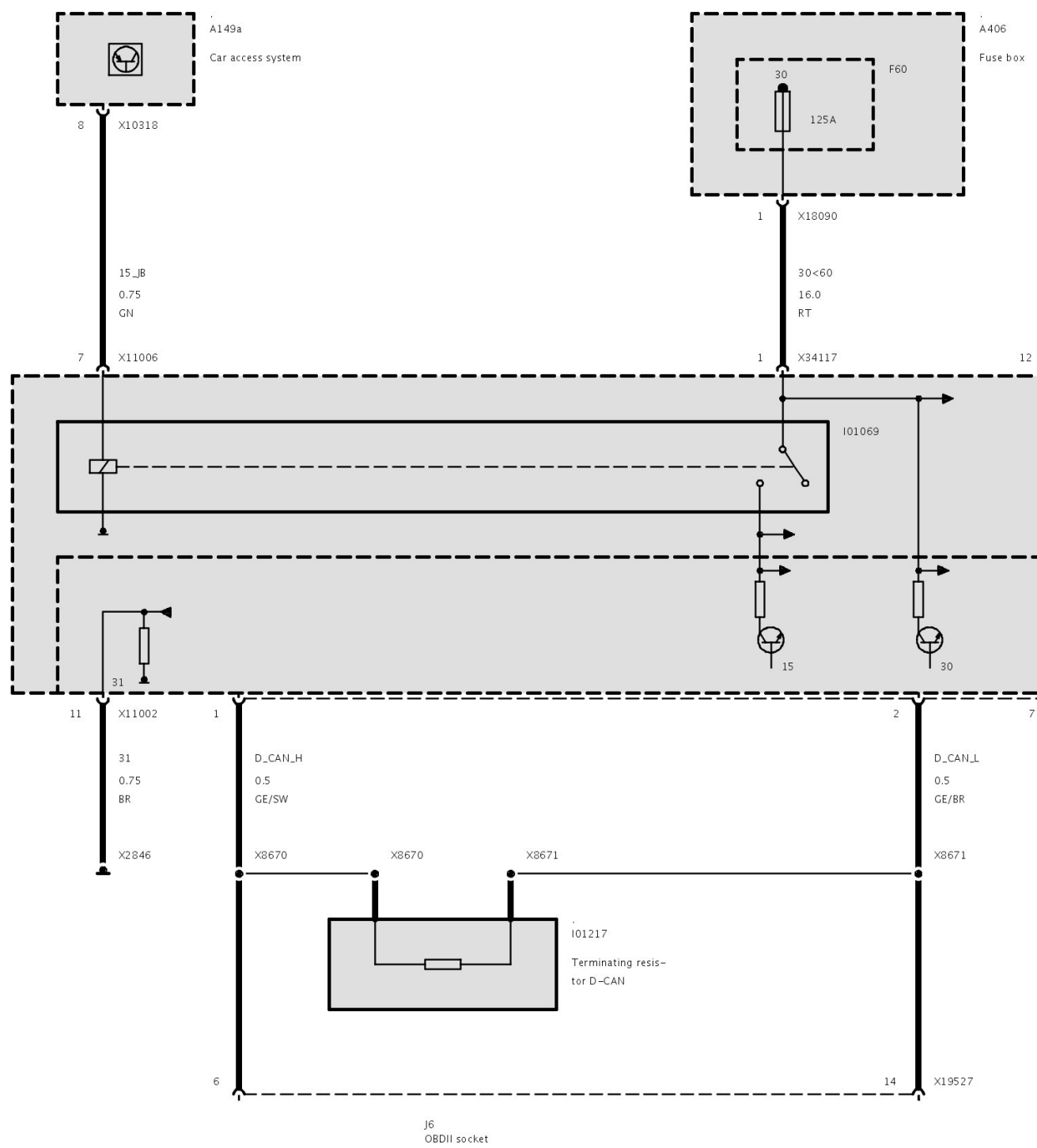
Wipe/Wash System, Inputs



Part 1

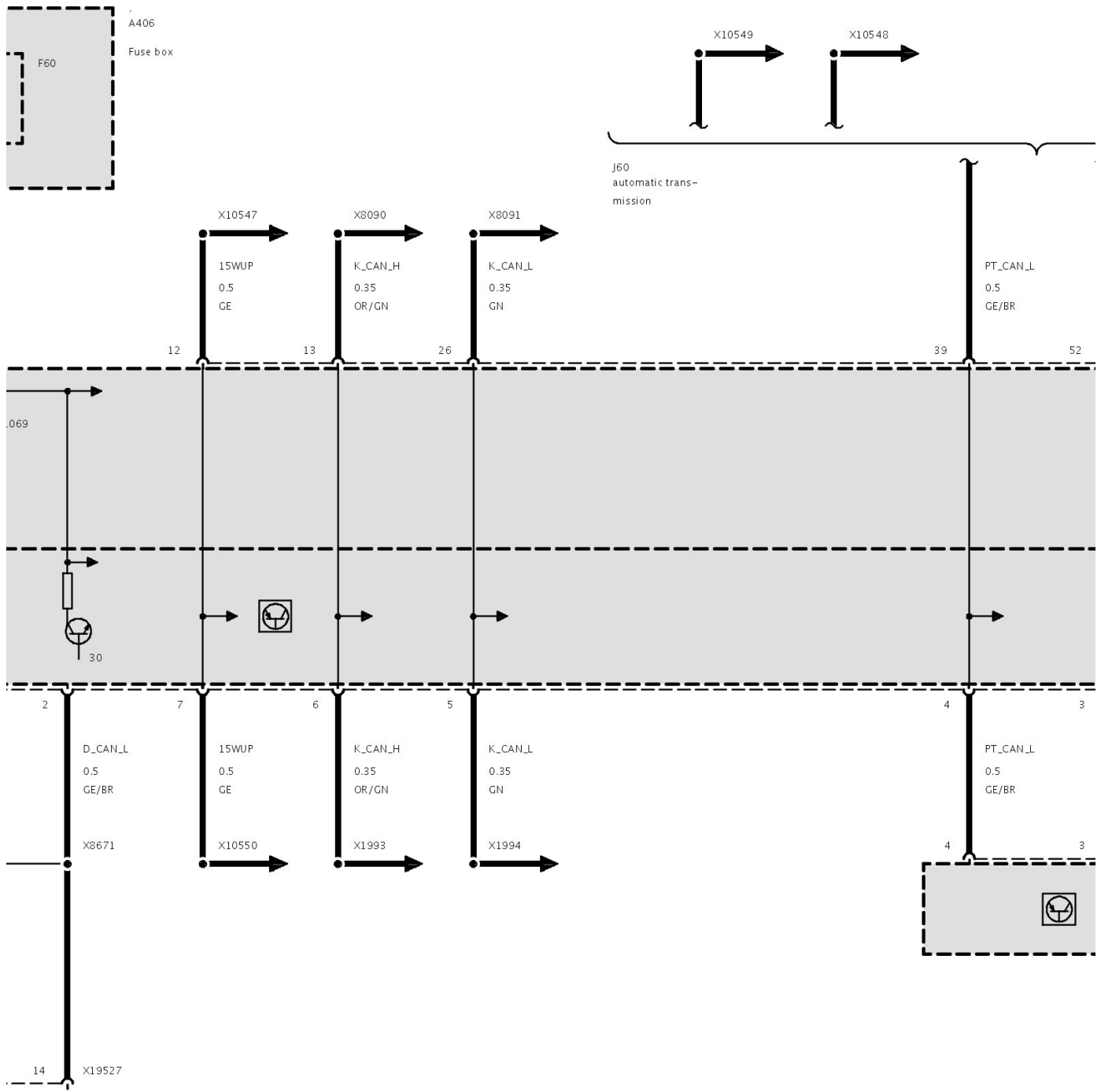
# Supply, JBE Junction-Box Electronics

Power Supply JBE Junction Box, Electronics

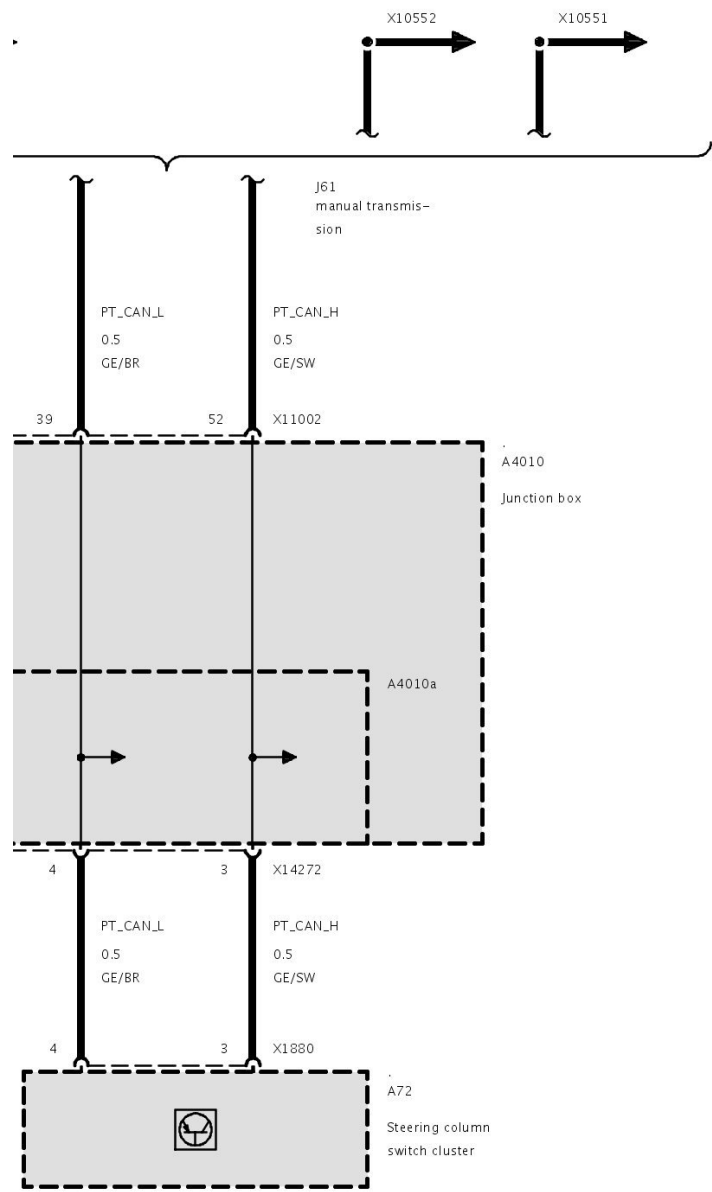


Part 1





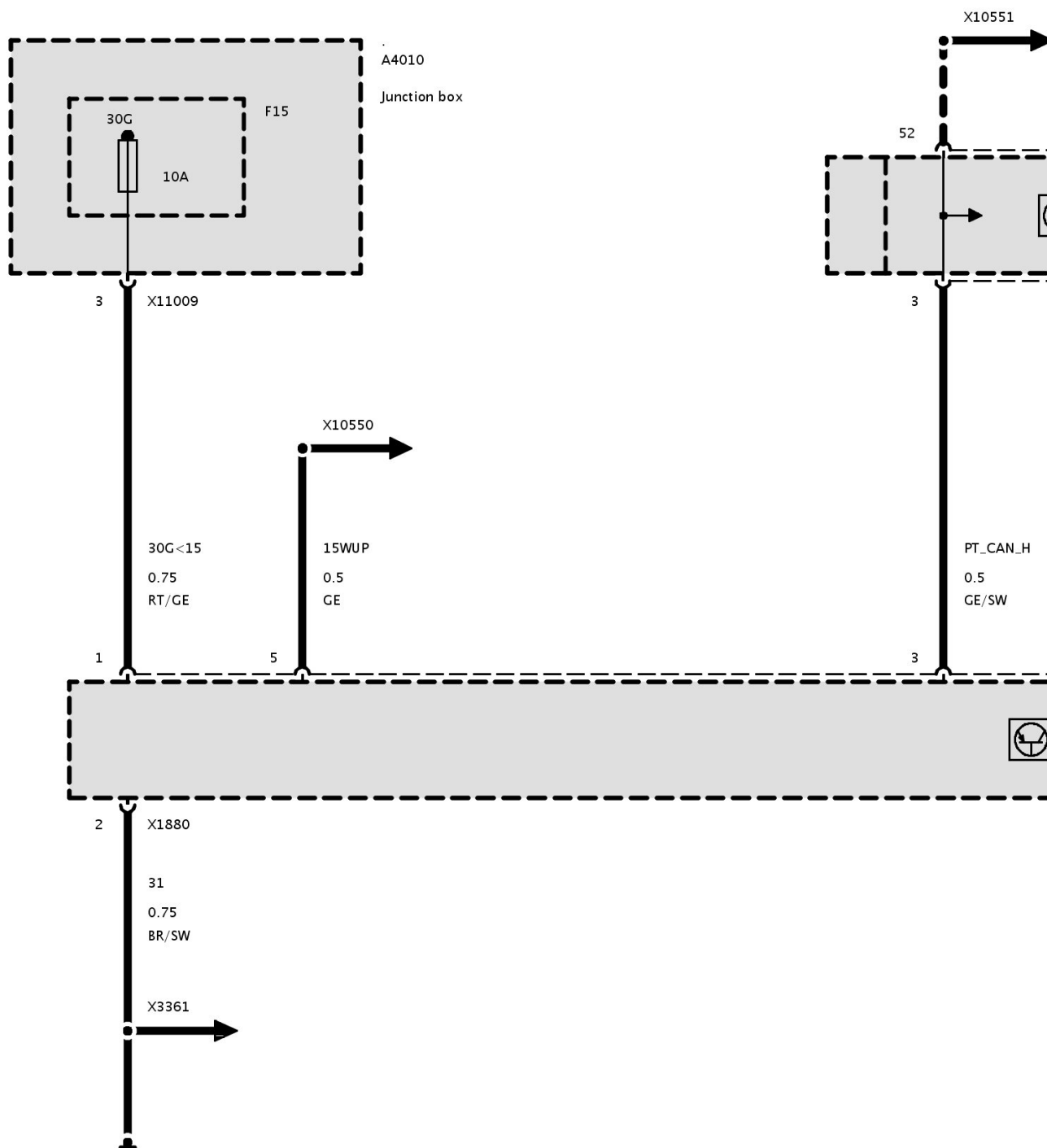
Part 2



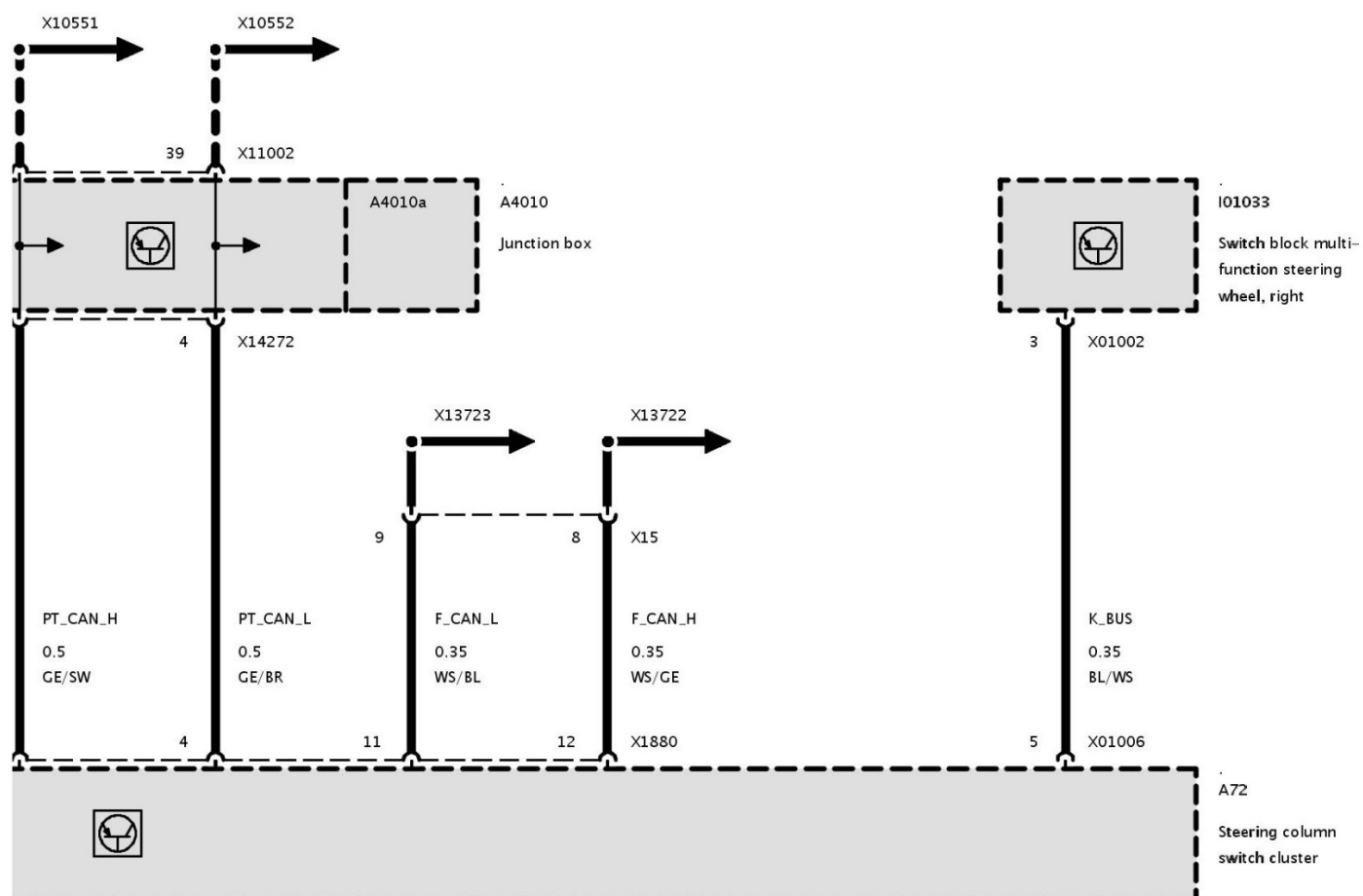
Part 3

Supply, Steering Column Switch Cluster SZL (Up To 12/08)

Supply, Steering Column Switch Cluster SZL (Up To 12/08)



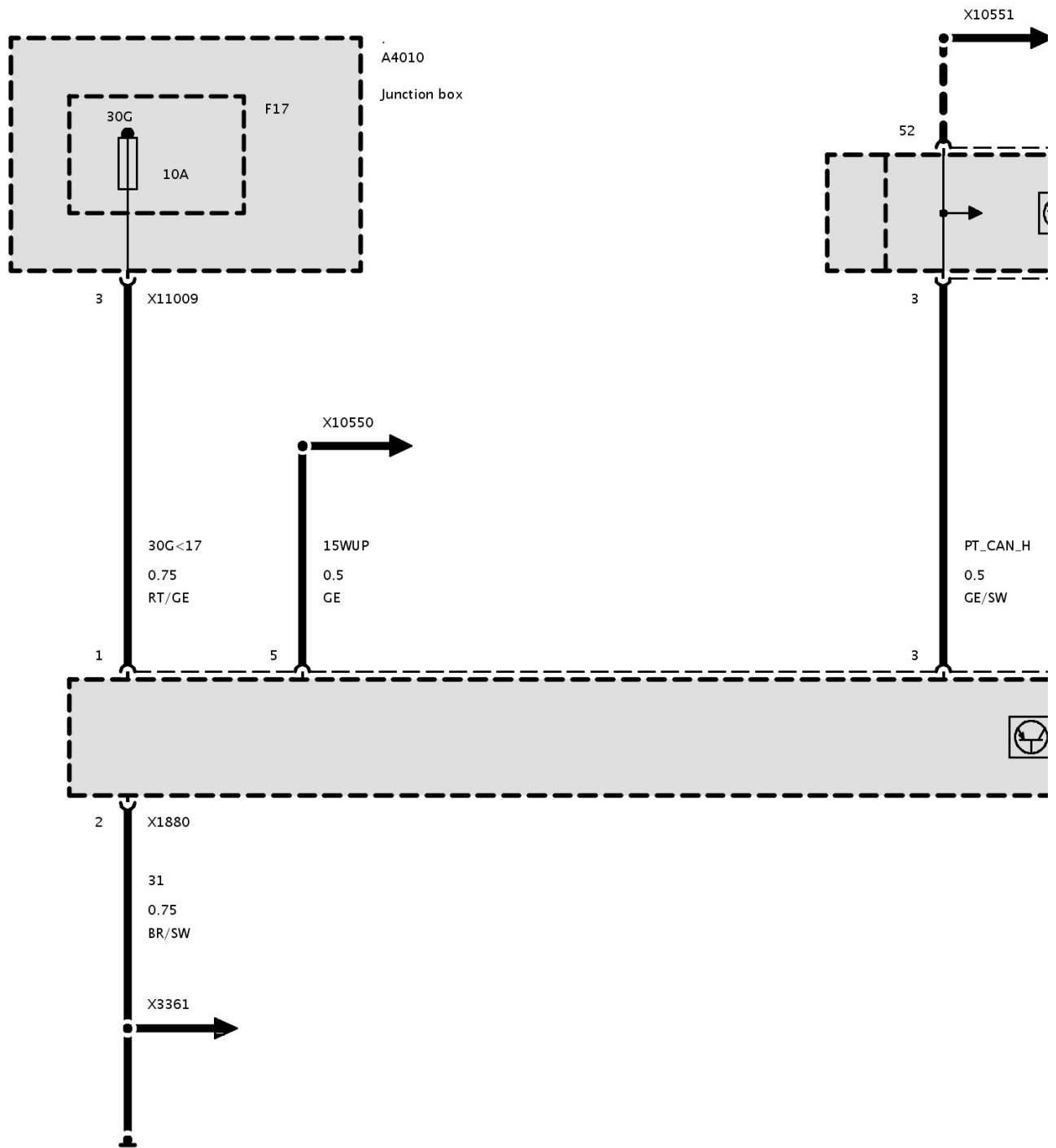
Part 1



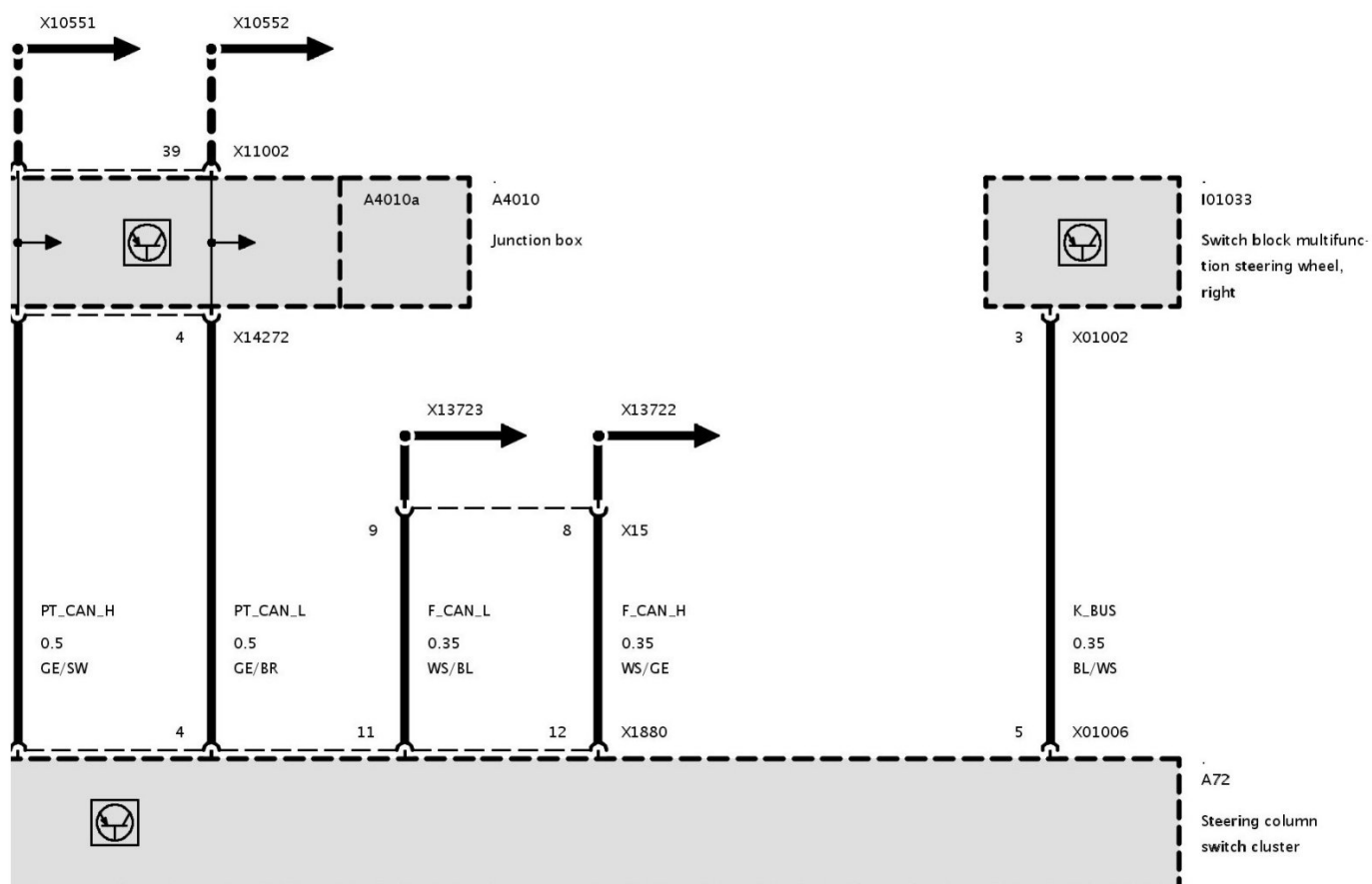
## Part 2

**Supply, Steering Column Switch Cluster SZL (As Of 12/08)**

**Supply, Steering Column Switch Cluster SZL (As Of 12/08)**



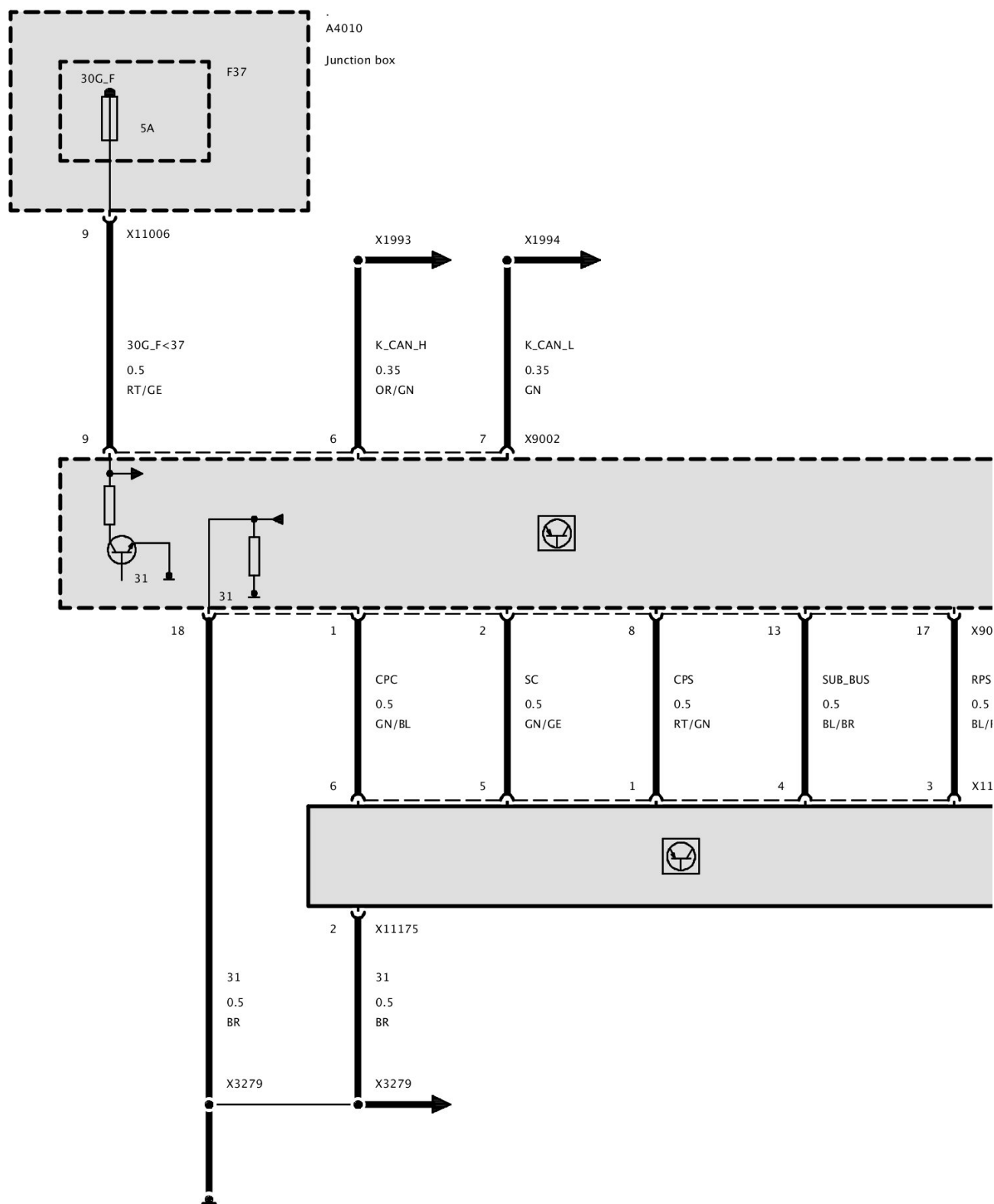
Part 1



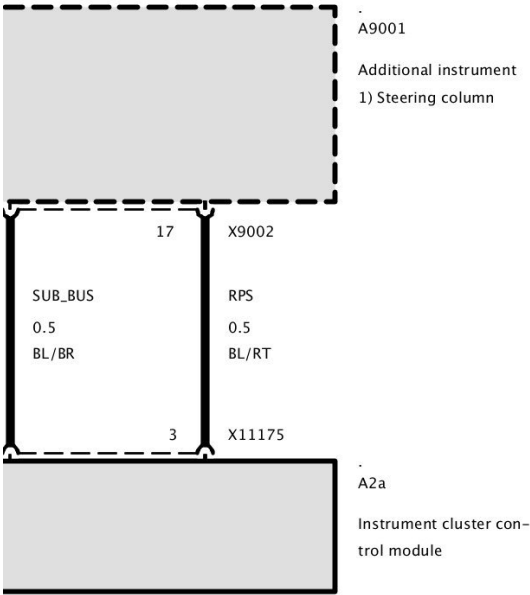
## Part 2

### Power Supply, Instrument Cluster KOMBI (Up To 12/08)

Power Supply, Instrument Cluster KOMBI (Up To 12/08)



jmoraflores@hotmail.cl

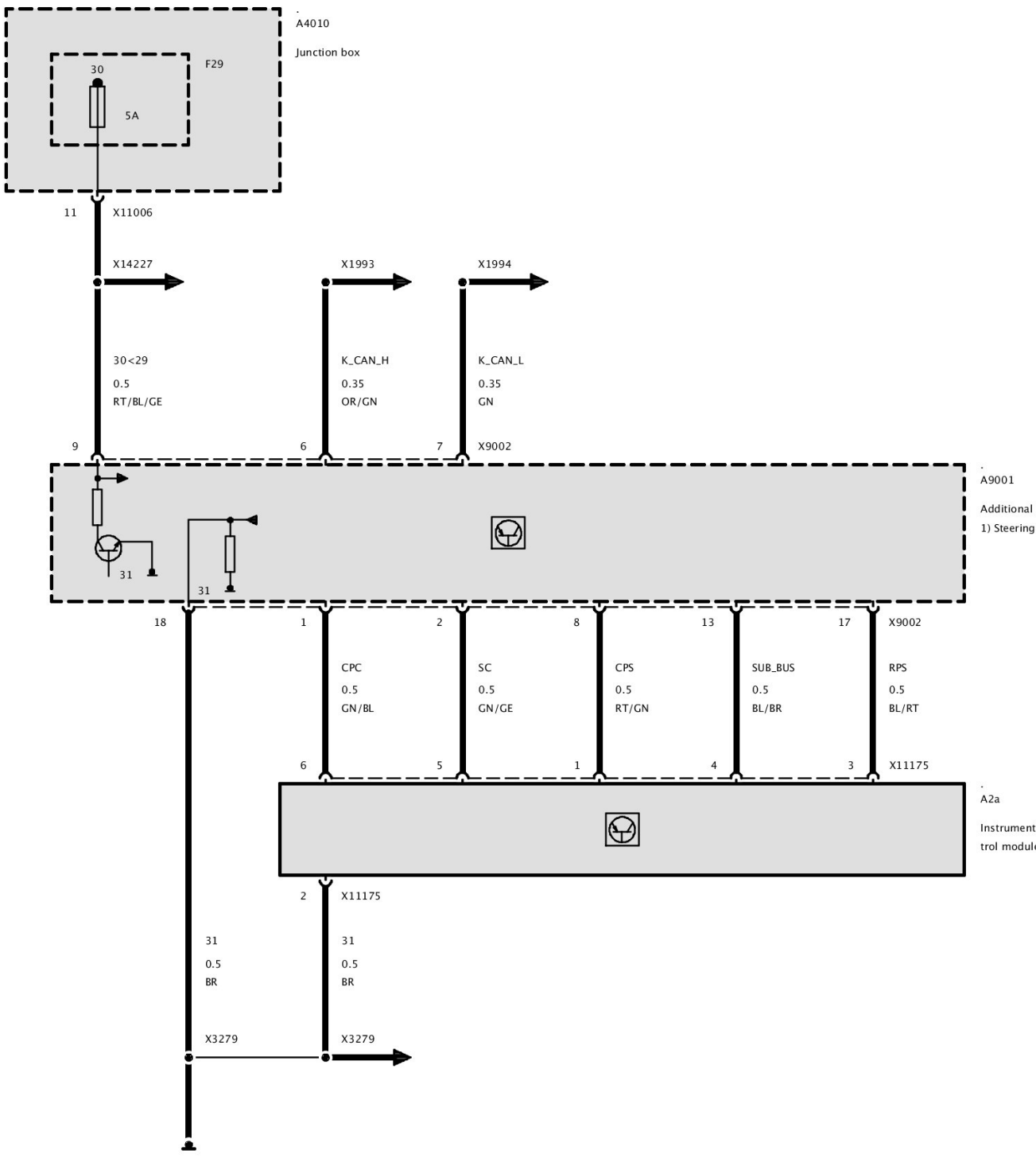


**Part 2**

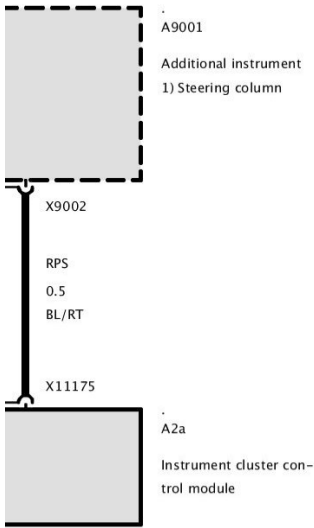
**Power Supply, Instrument Cluster KOMBI (As Of 12/08)**

Power Supply, Instrument Cluster KOMBI (As Of 12/08)





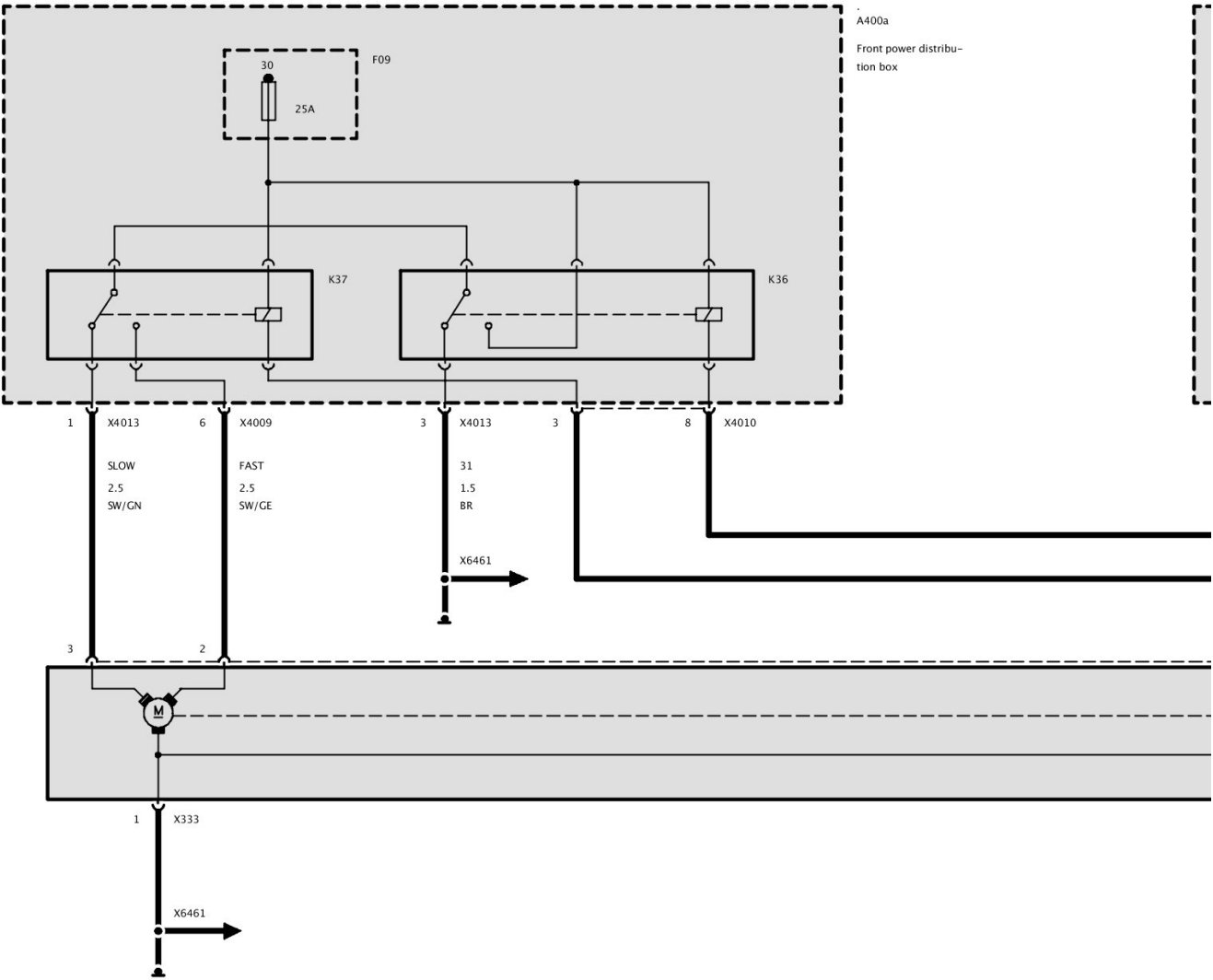
Part 1



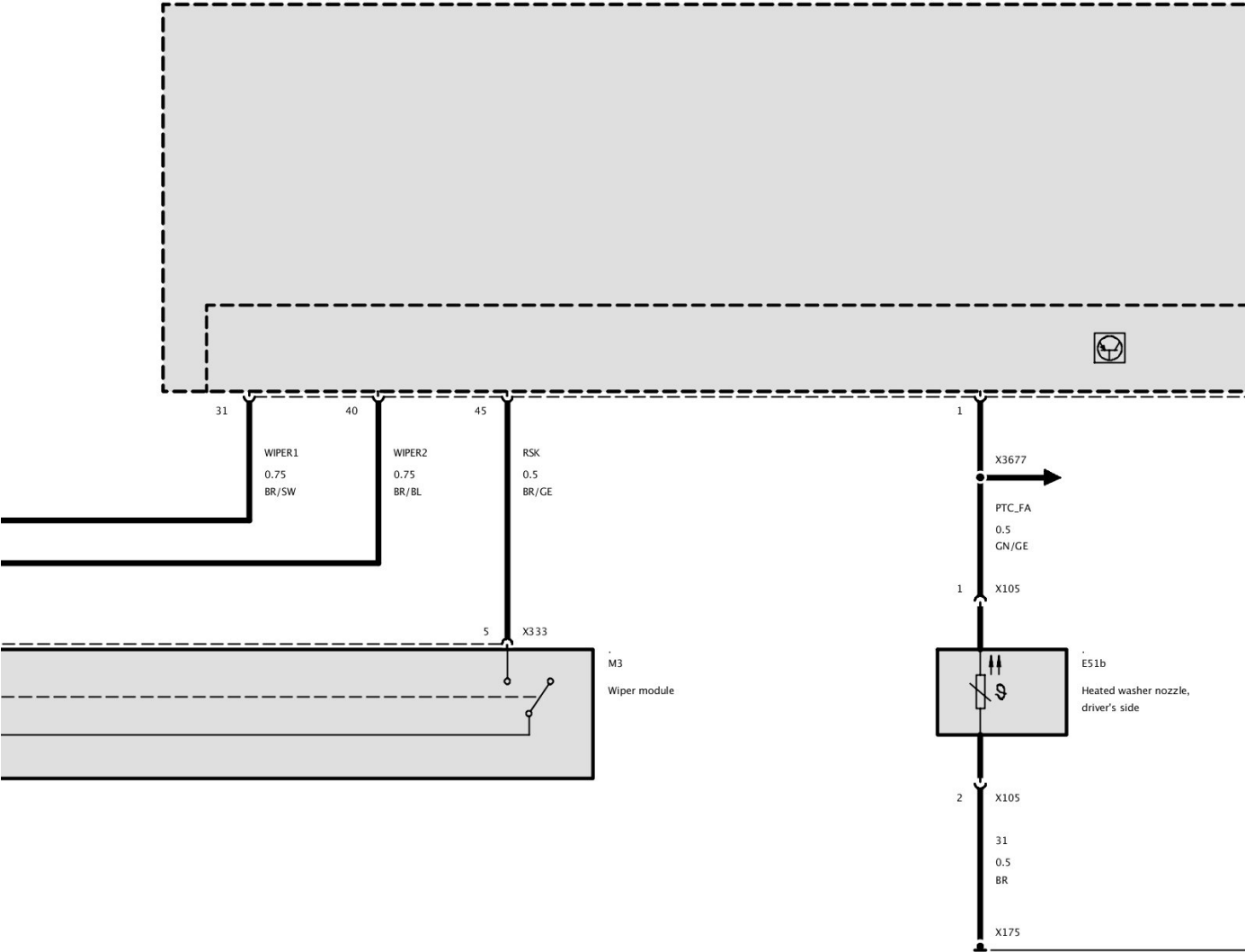
Part 2

Wipe/Wash System, Outputs (Clubman With Left-Hand Drive As Of 03/08)

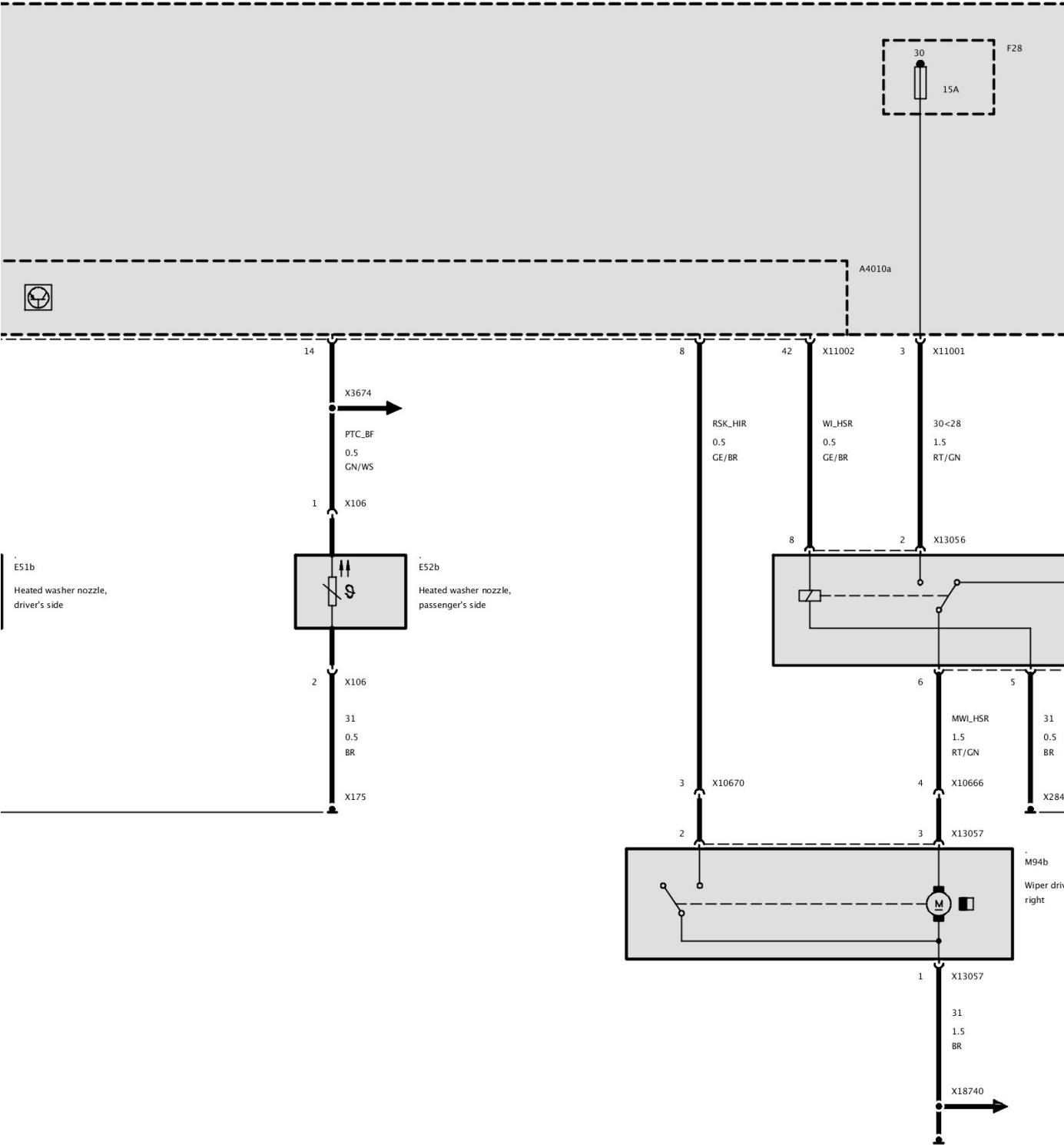
Wipe/Wash System, Outputs (Clubman With Left-Hand Drive As Of 03/08)



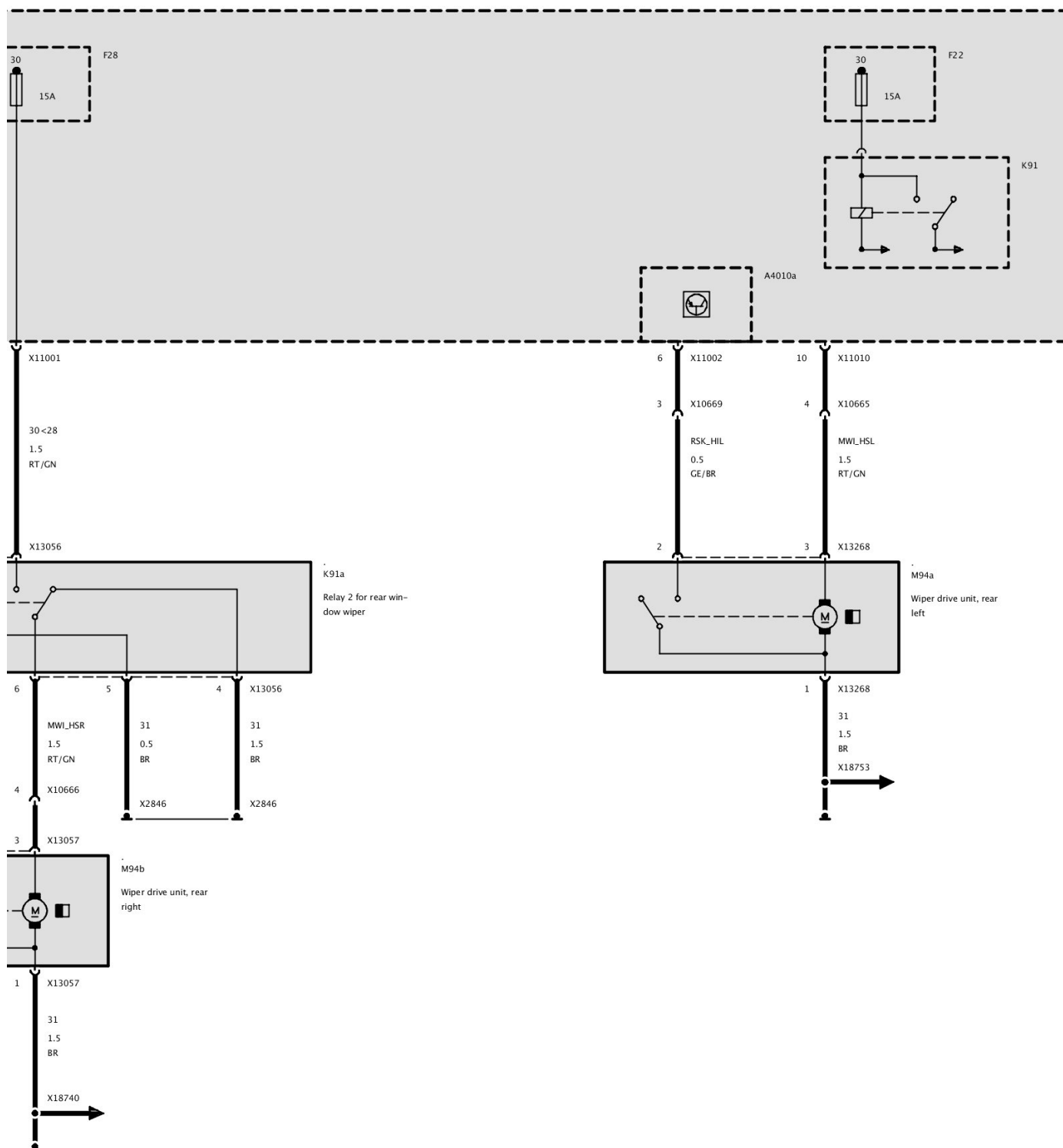
Part 1



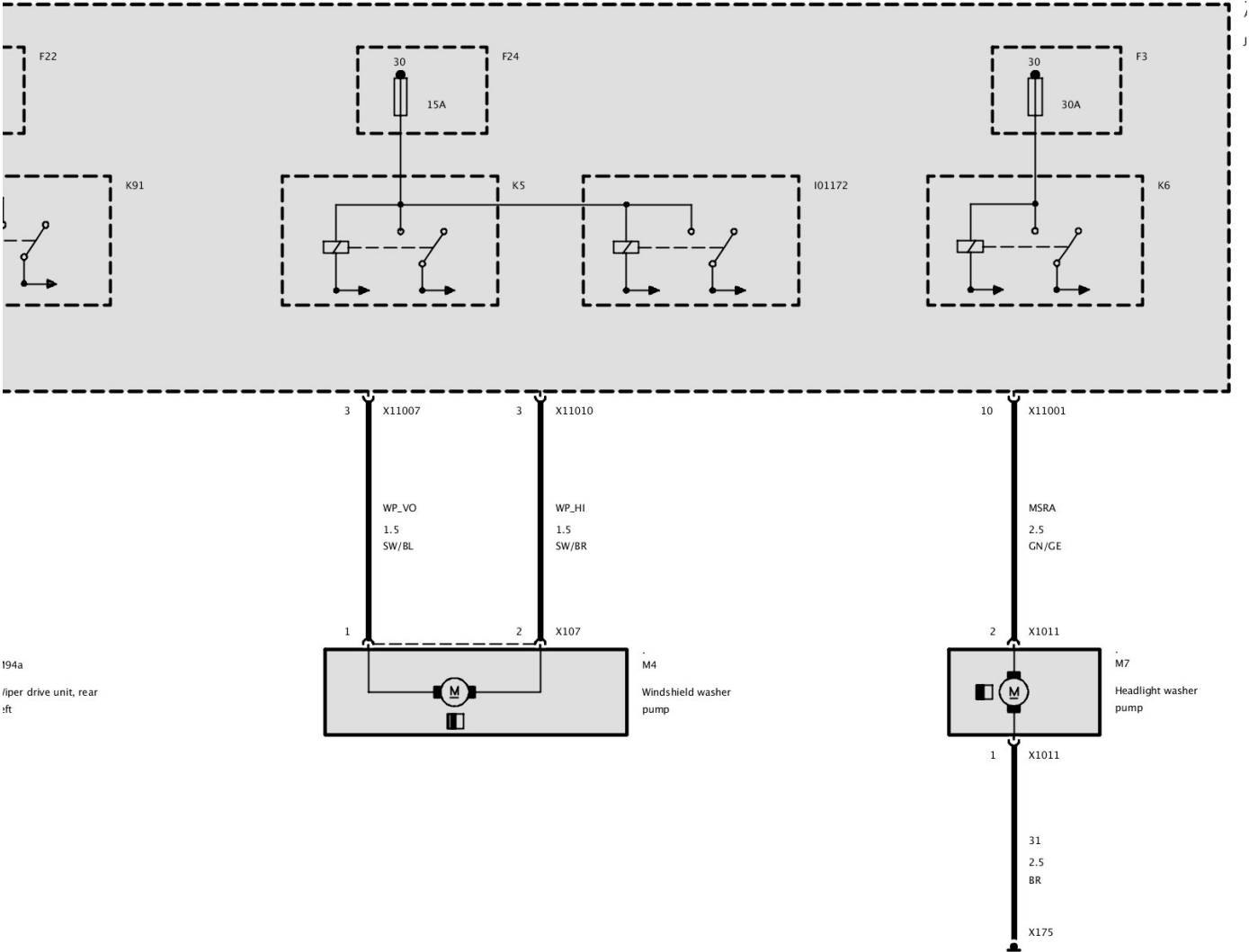
Part 2



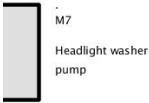
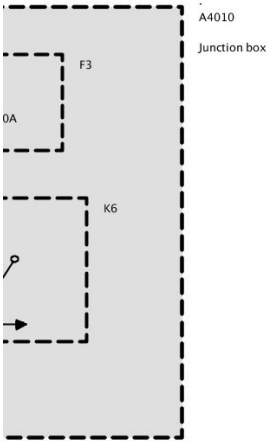
Part 3



## Part 4



Part 5

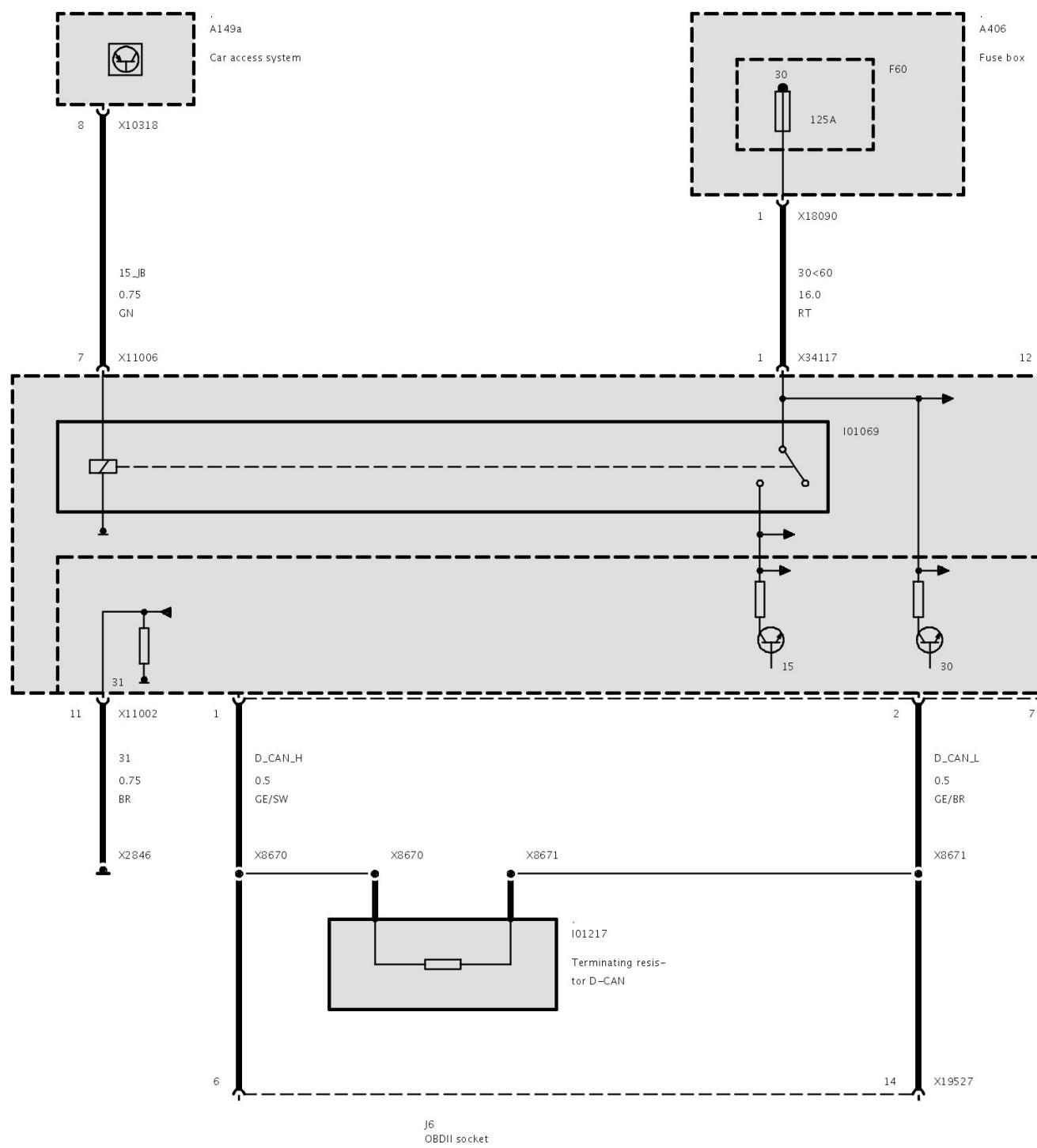


Part 6

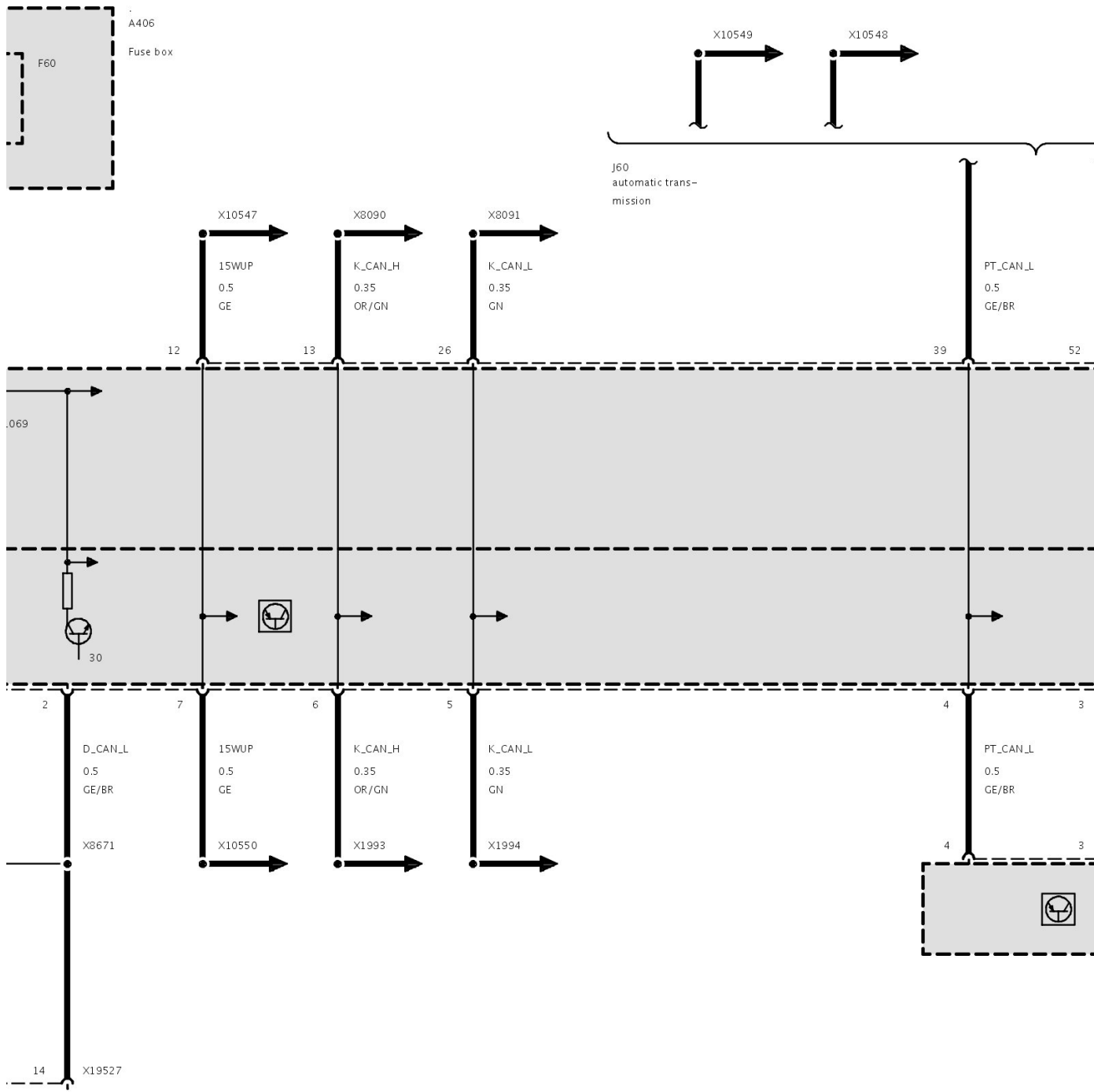
Supply, JBE Junction-Box Electronics

Power Supply JBE Junction Box, Electronics

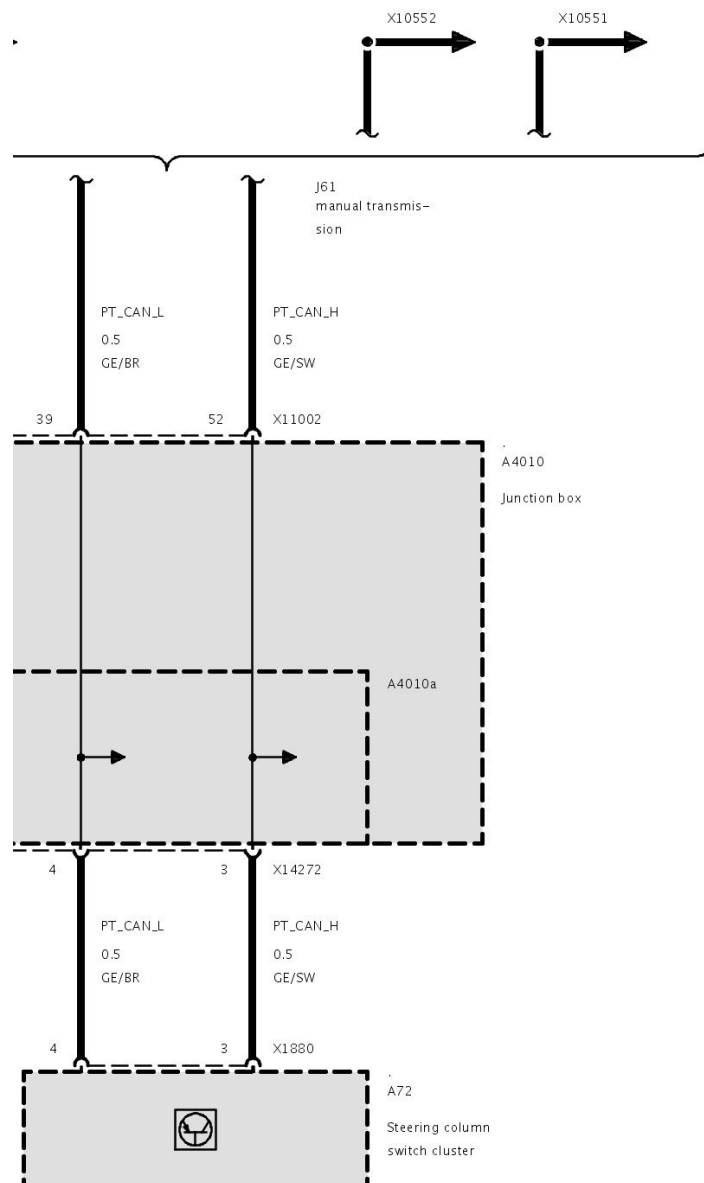




Part 1



Part 2

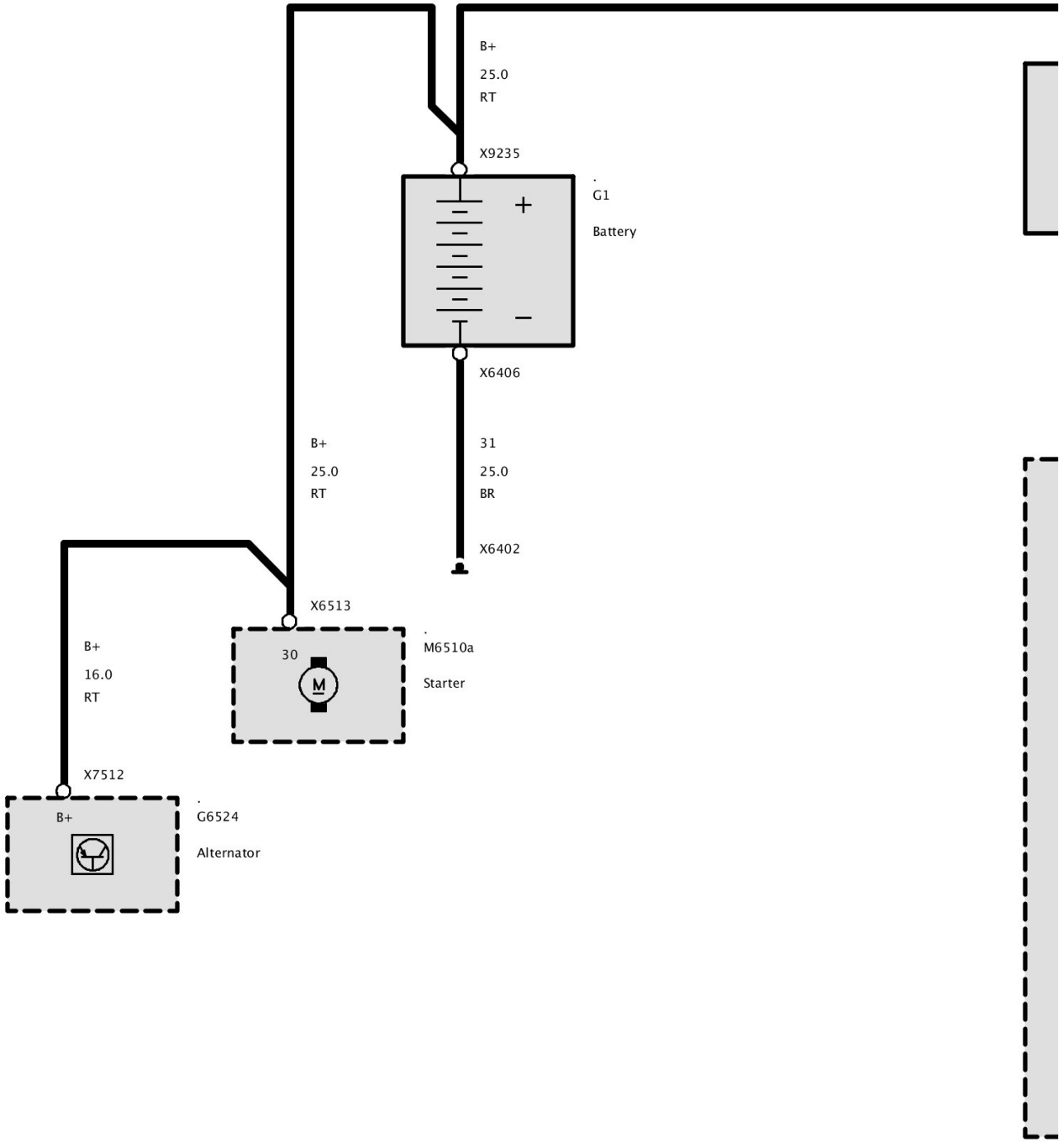


### Part 3

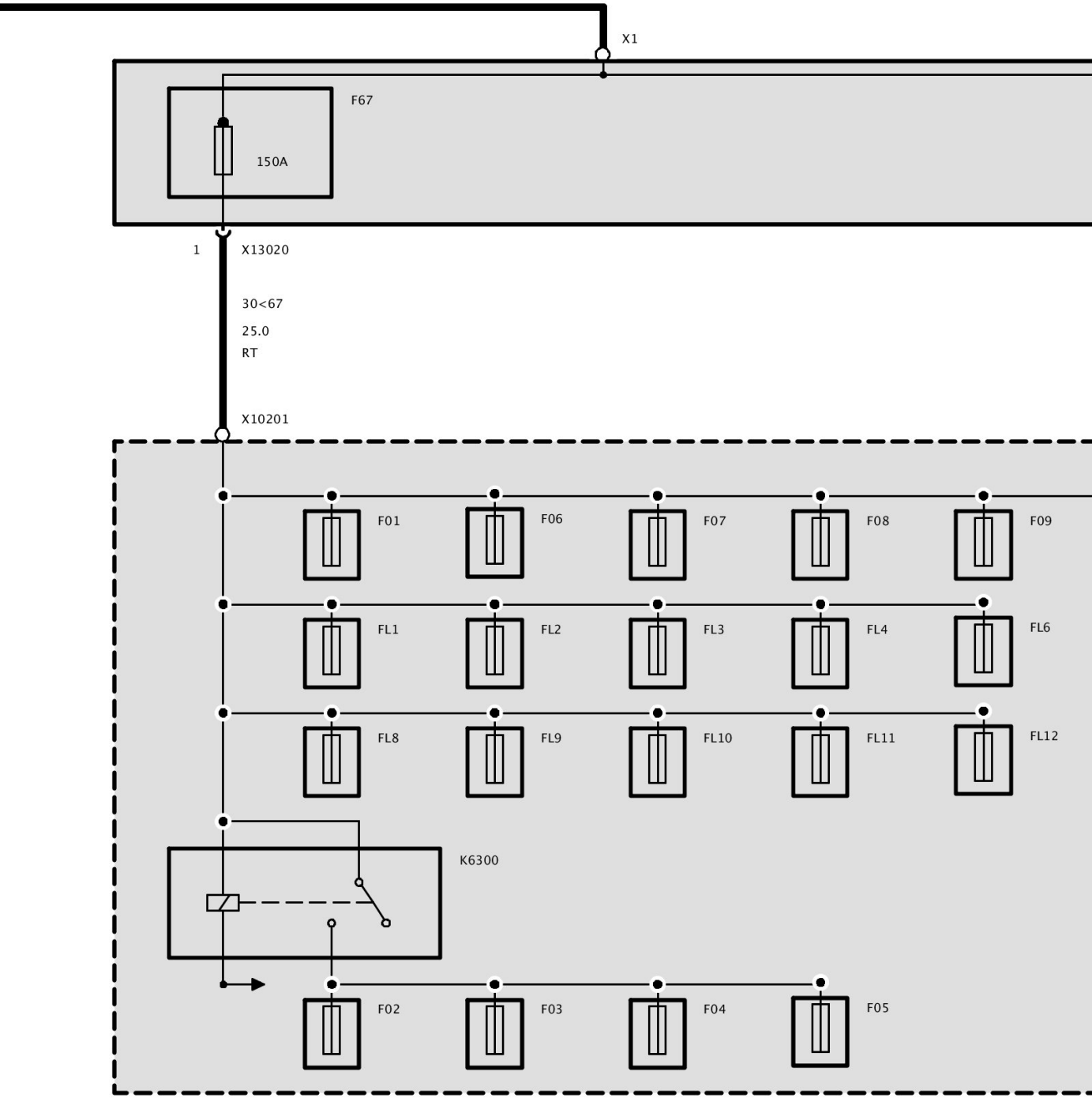
## G\_Power Supply, Triggering Units

### G1 Battery

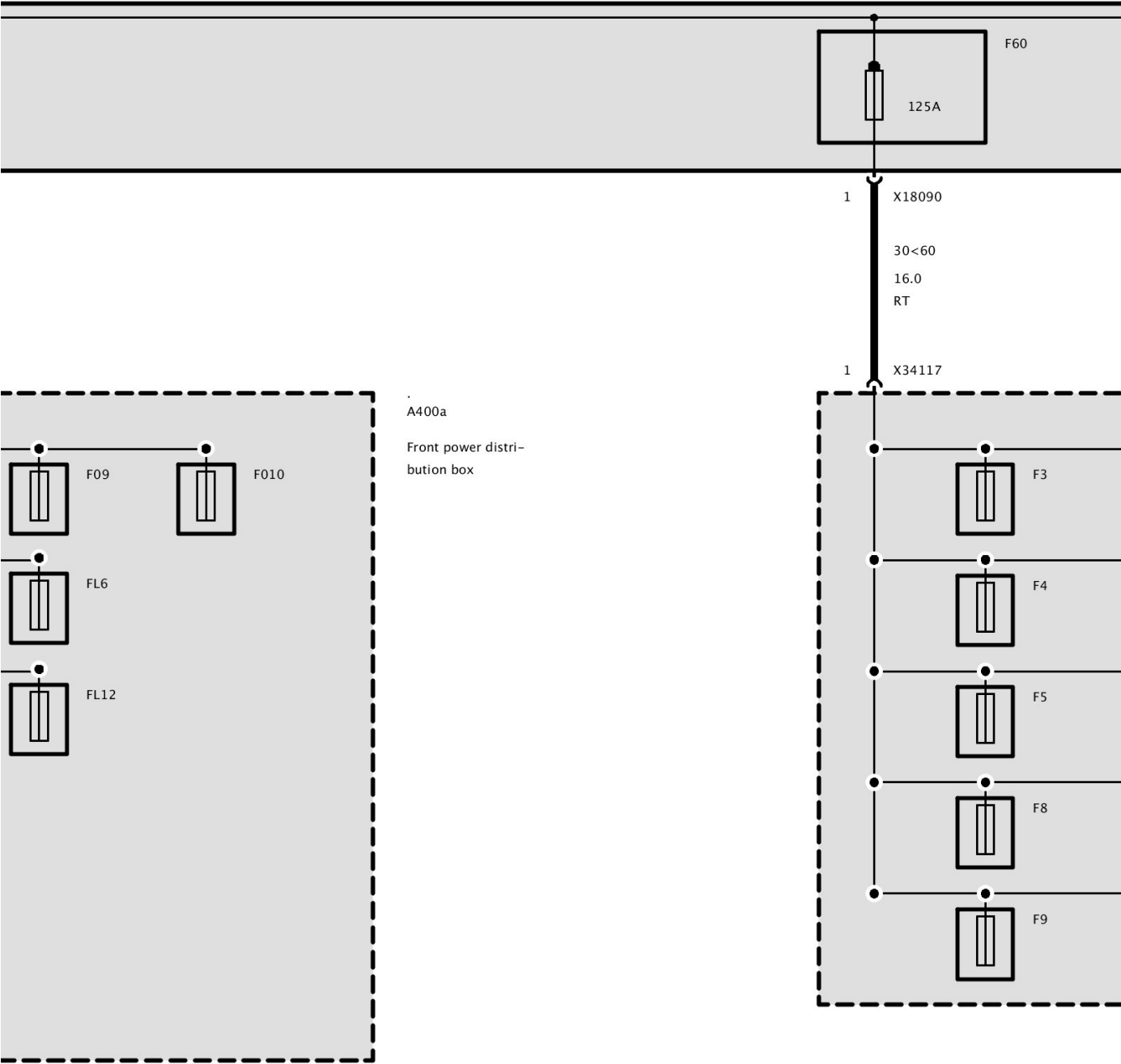
### Fuse Supply, Terminal 30



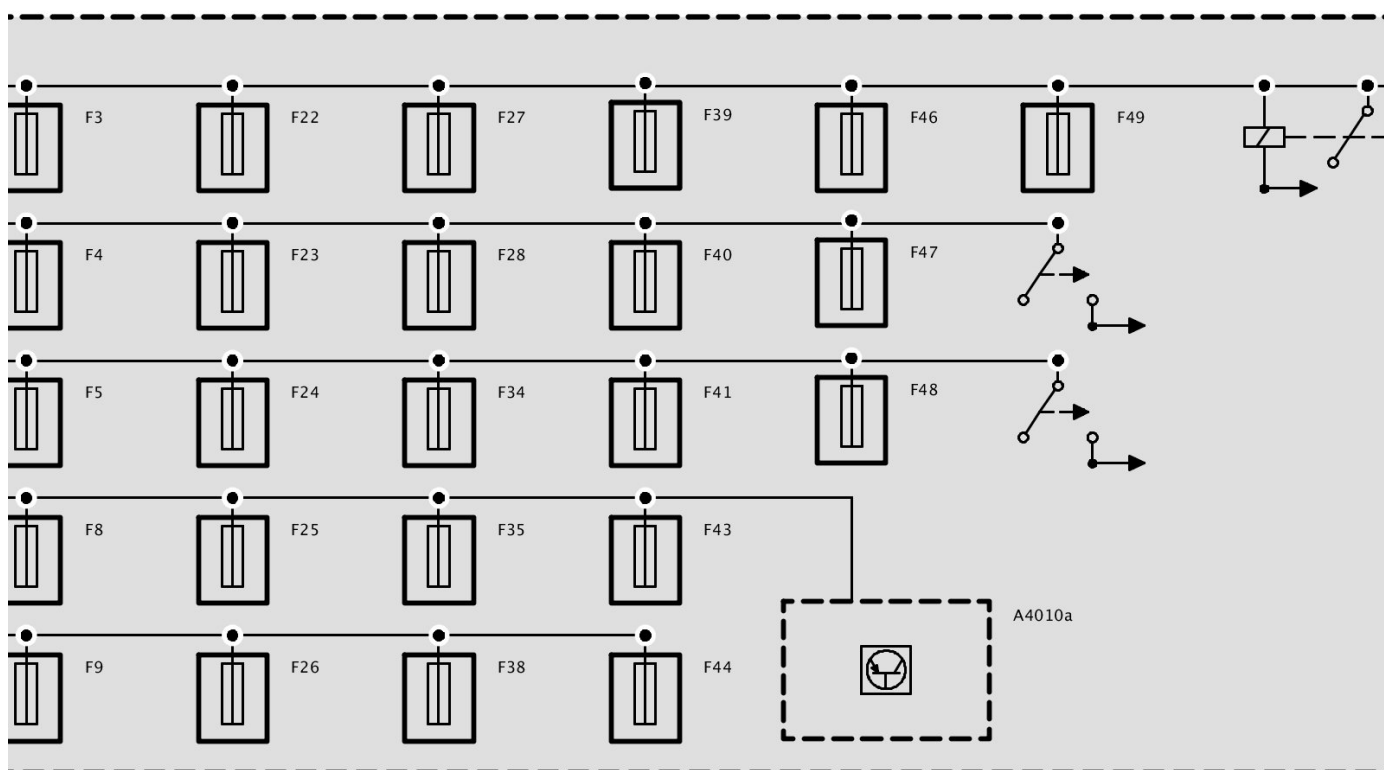
Part 1



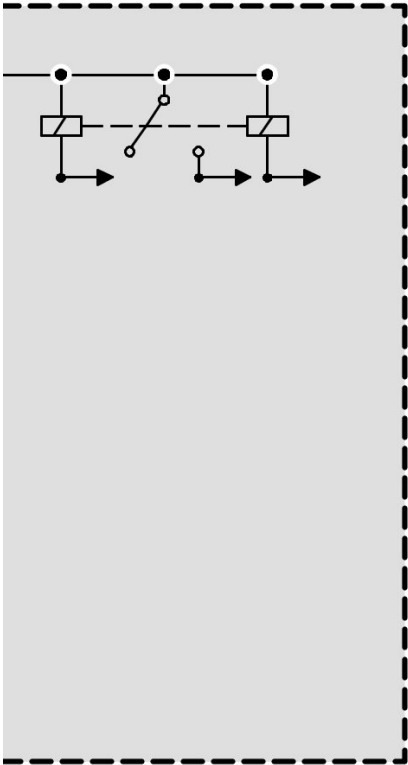
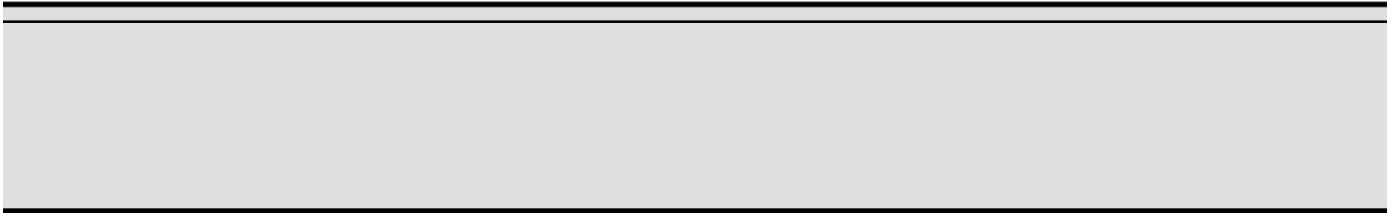
Part 2



Part 3

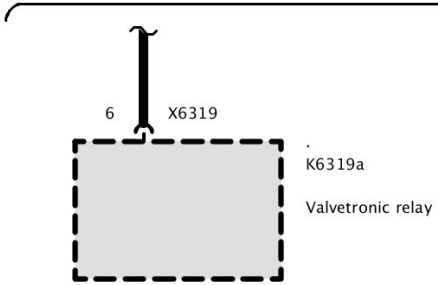


#### Part 4

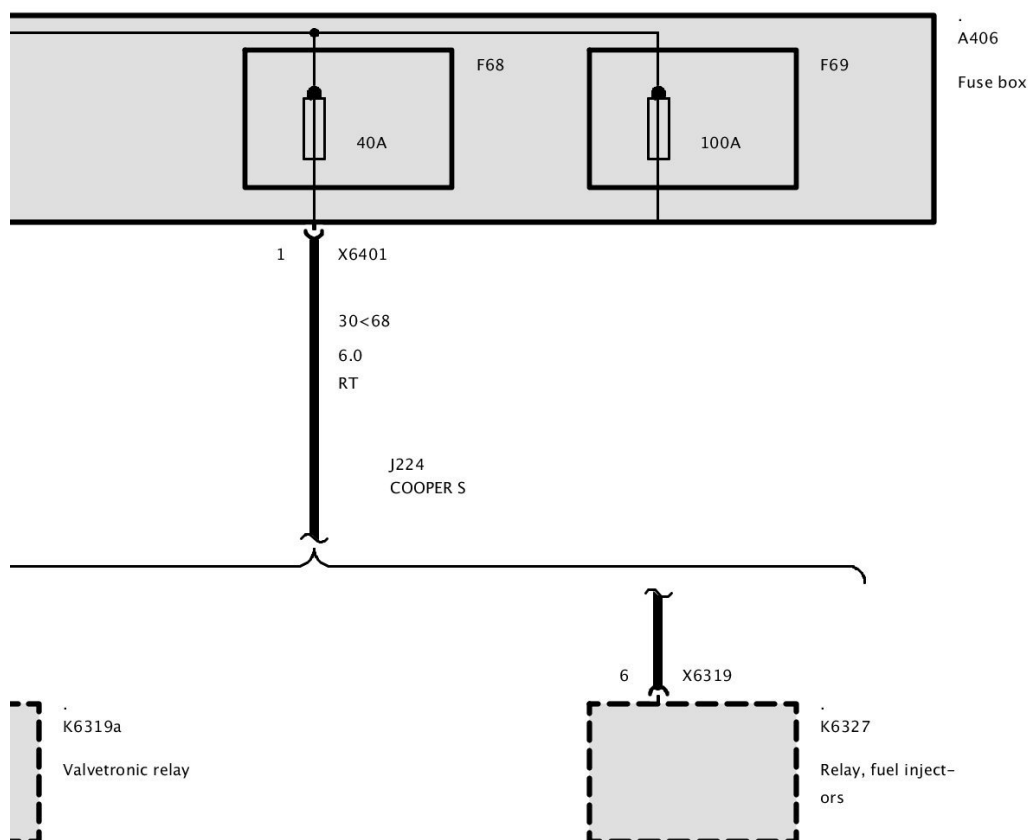


A4010  
Junction box

J225  
not COOPER S





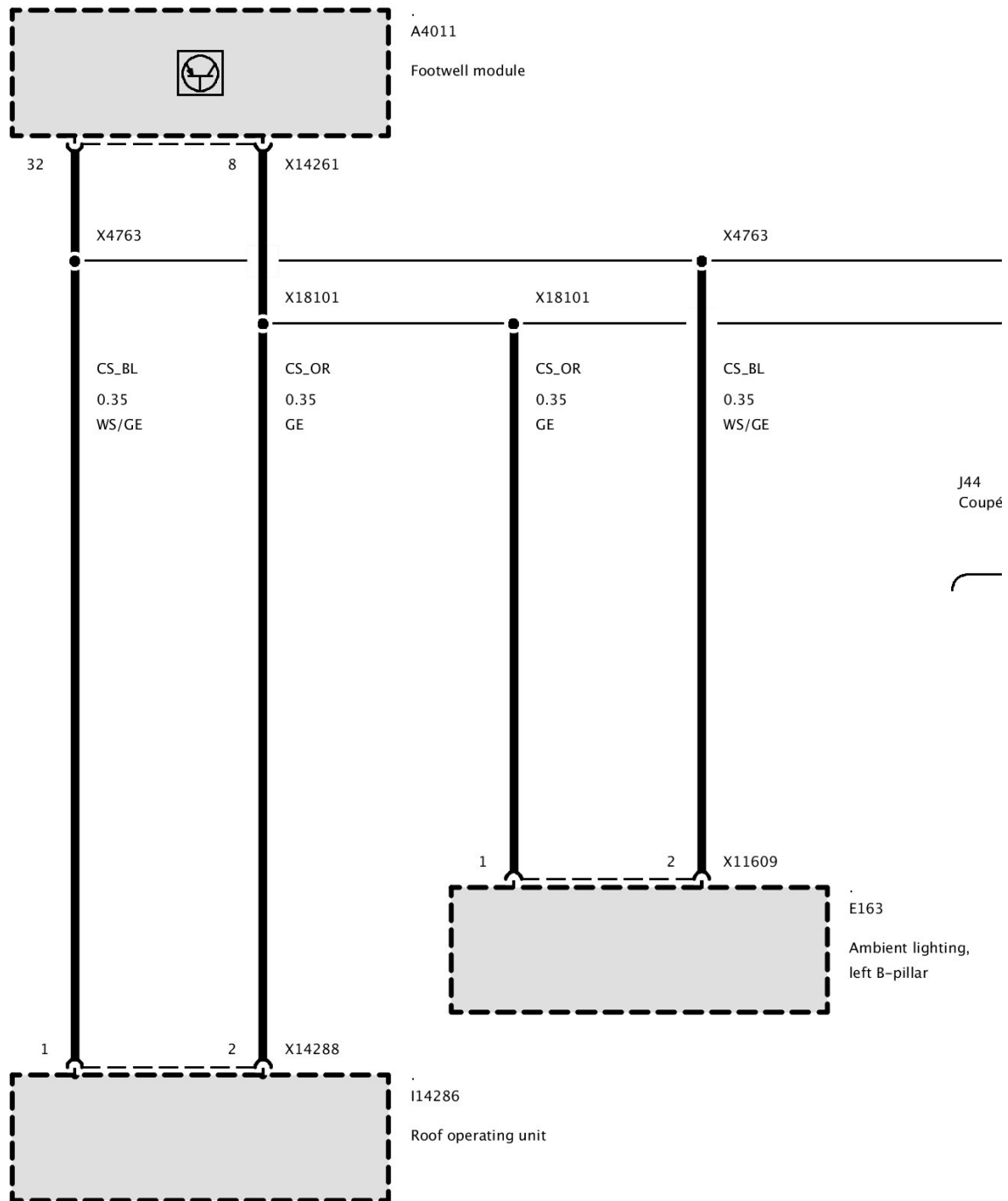


## Part 6

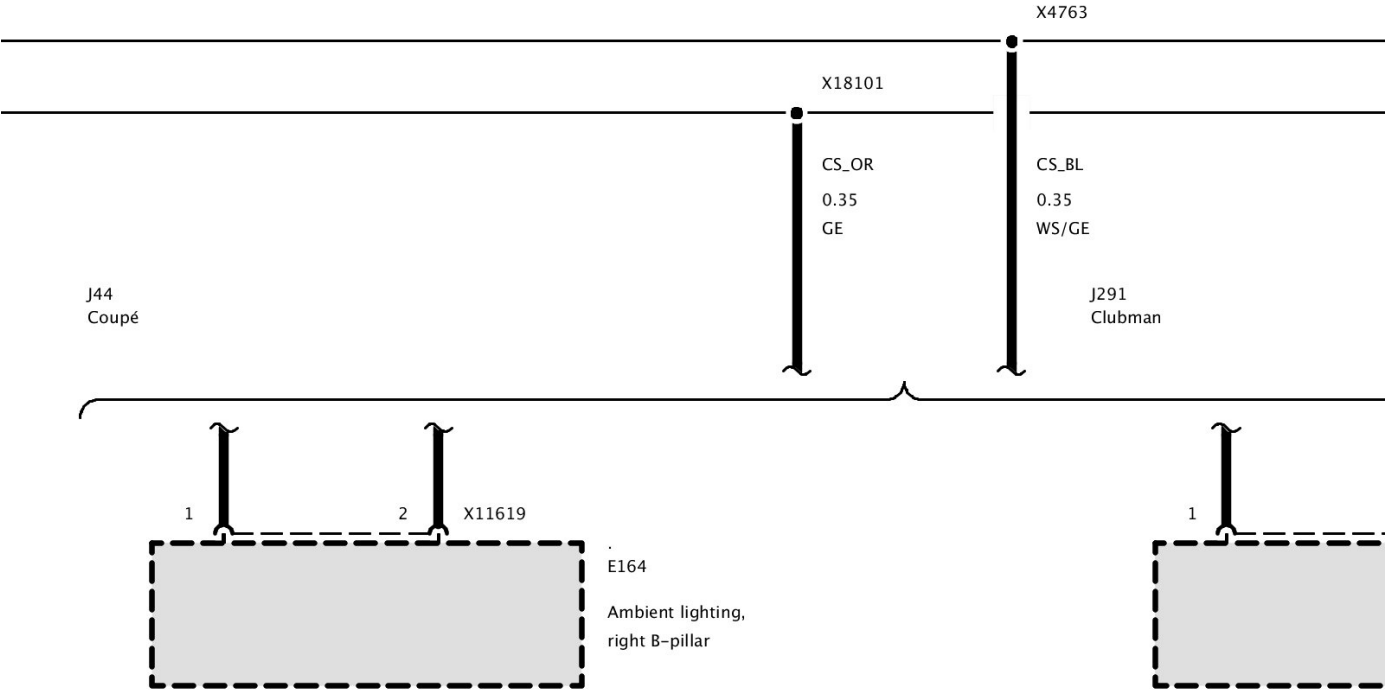
### X01436 No Adapter

#### X01436 No Adapter

Connectors X4763, X18101, X2859, X1366, X01436, X1203

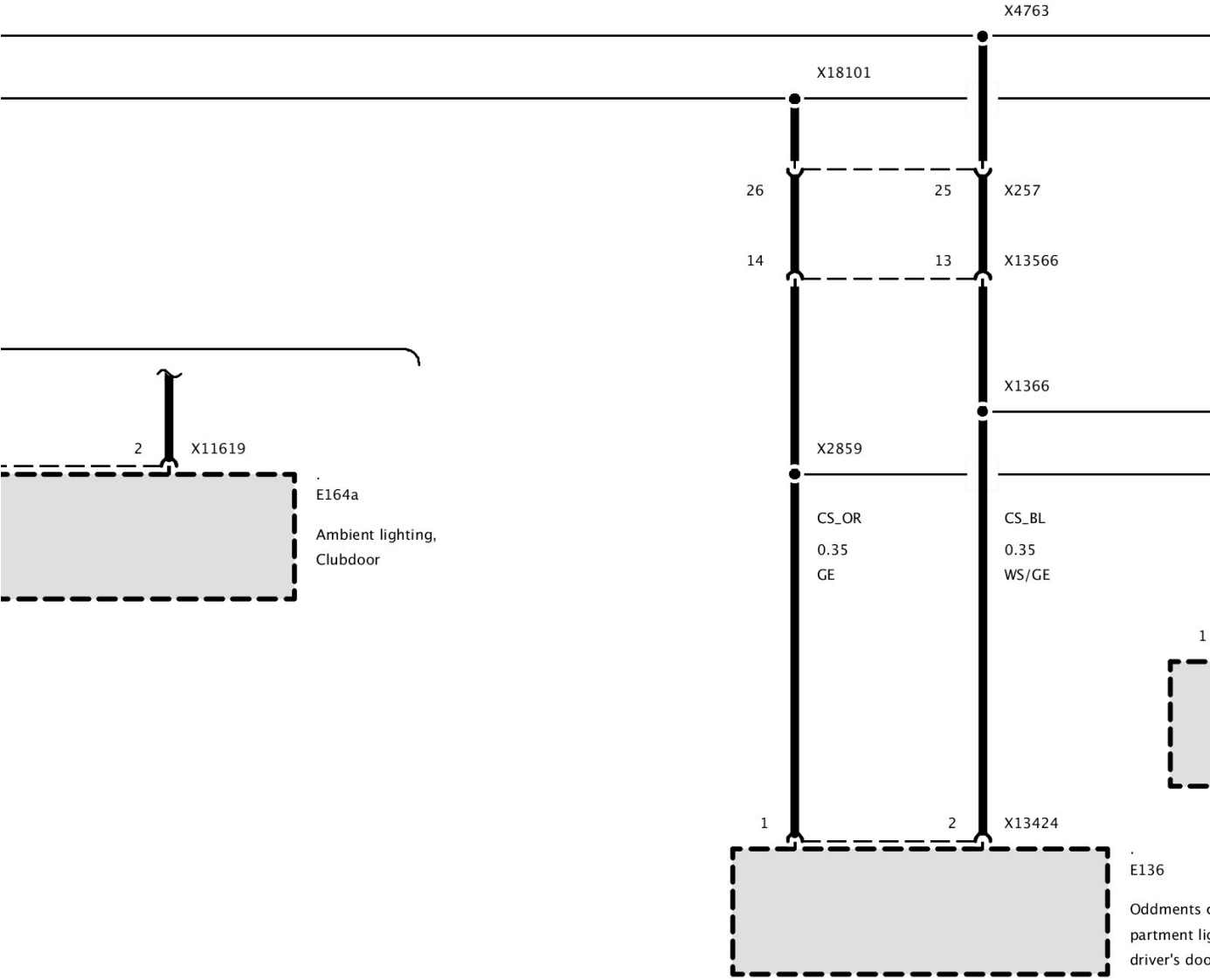


Part 1

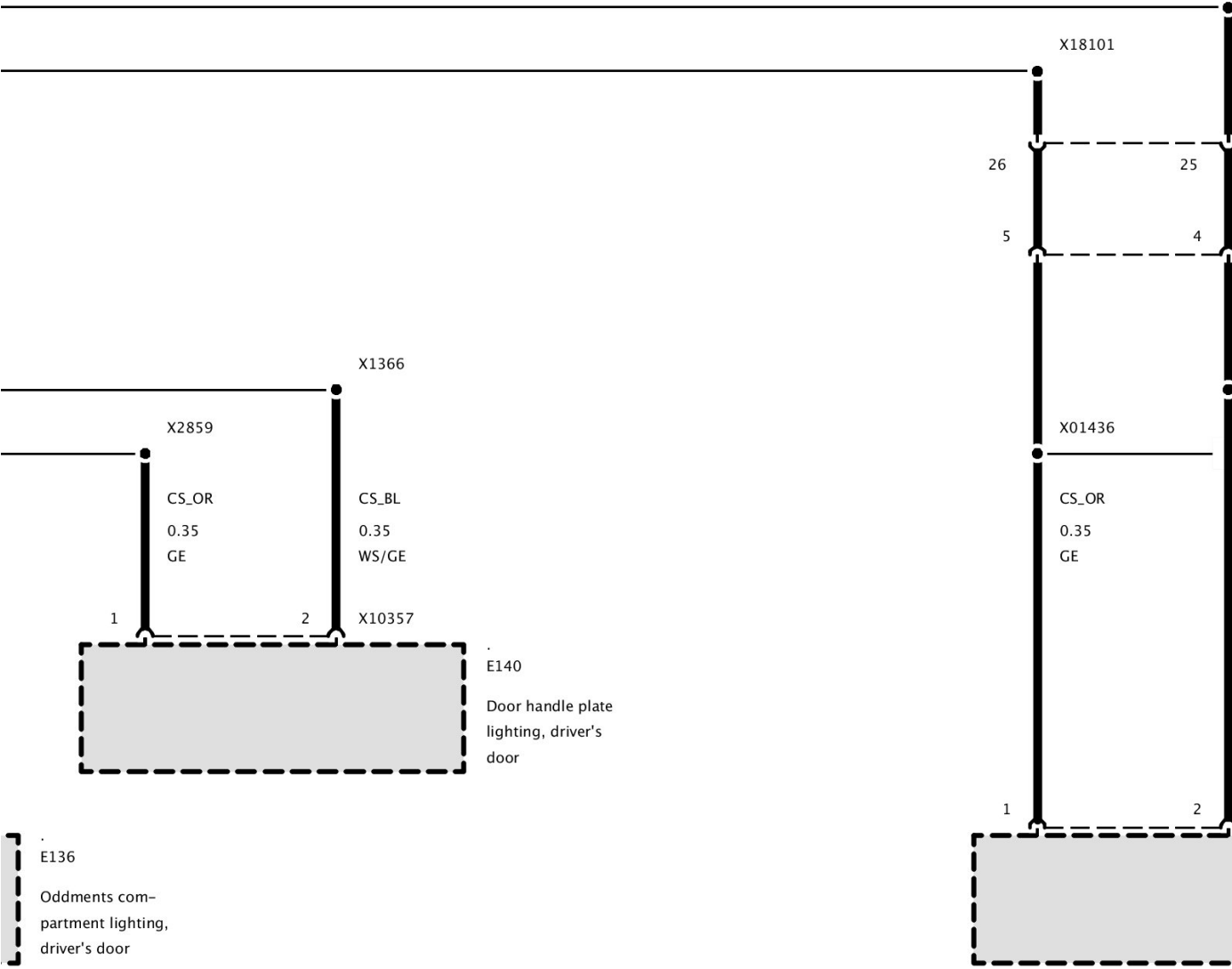


ient lighting,  
B-pillar

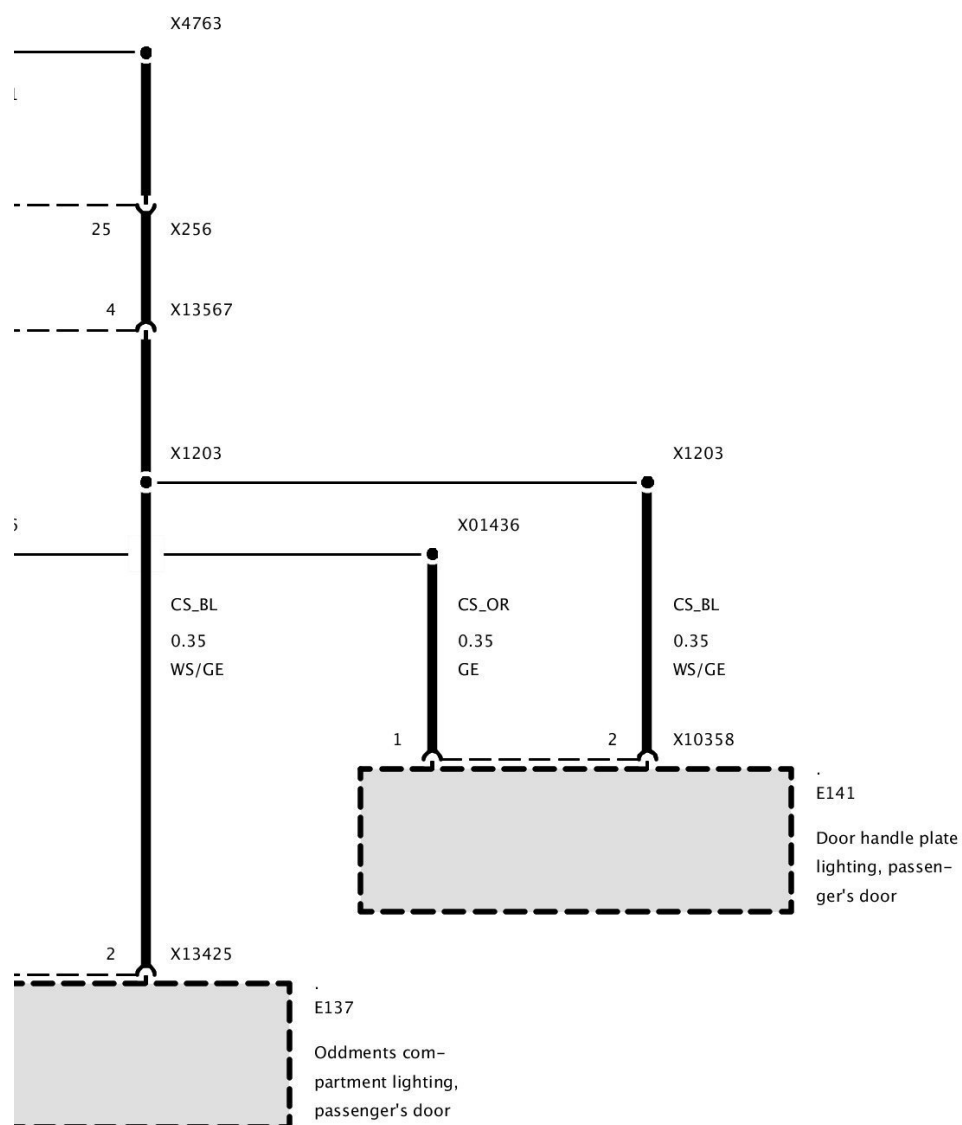
Part 2



Part 3



Part 4

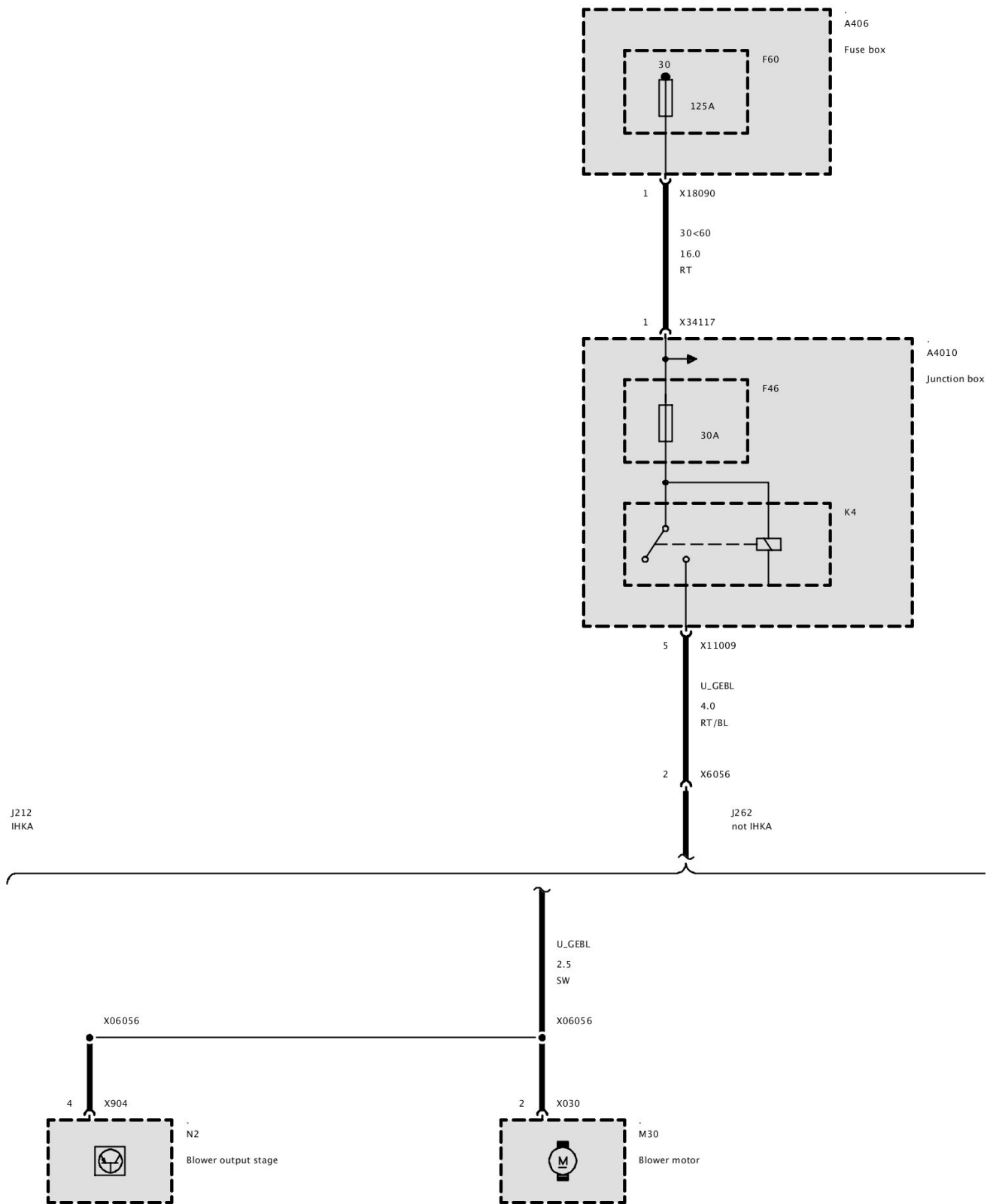


### Part 5

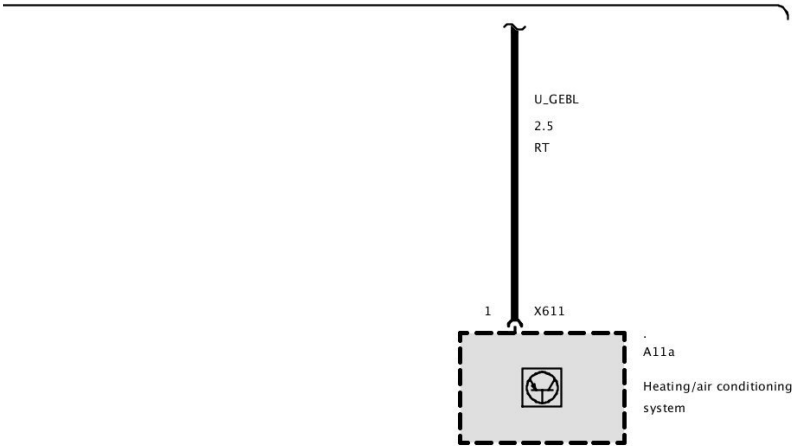
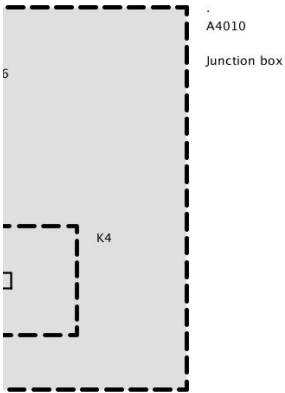
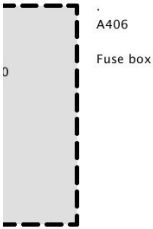
**X06056 No Adapter**

**X06056 No Adapter**

**Fuse F46**



Part 1



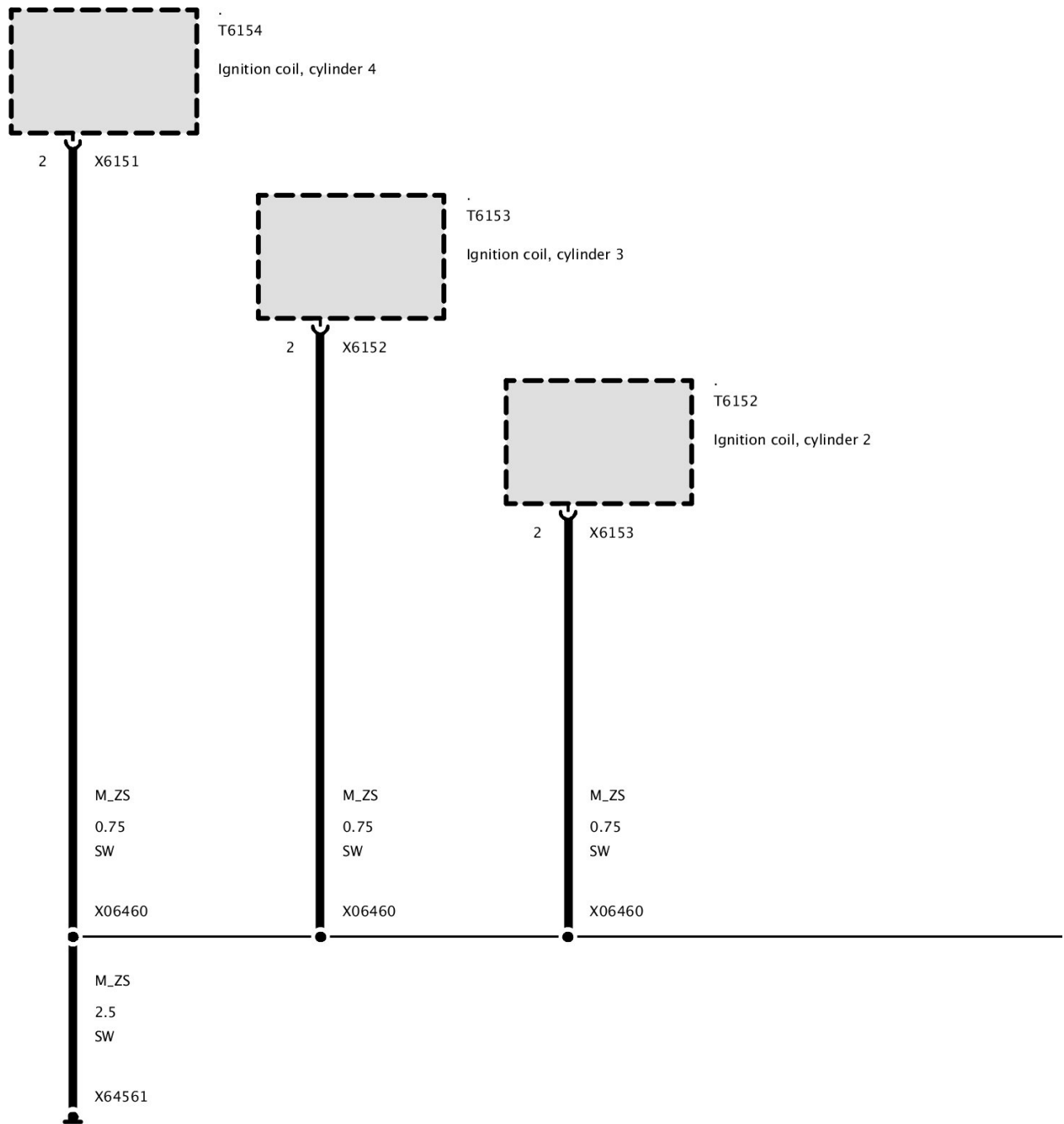
Part 2

X06460 No Adapter

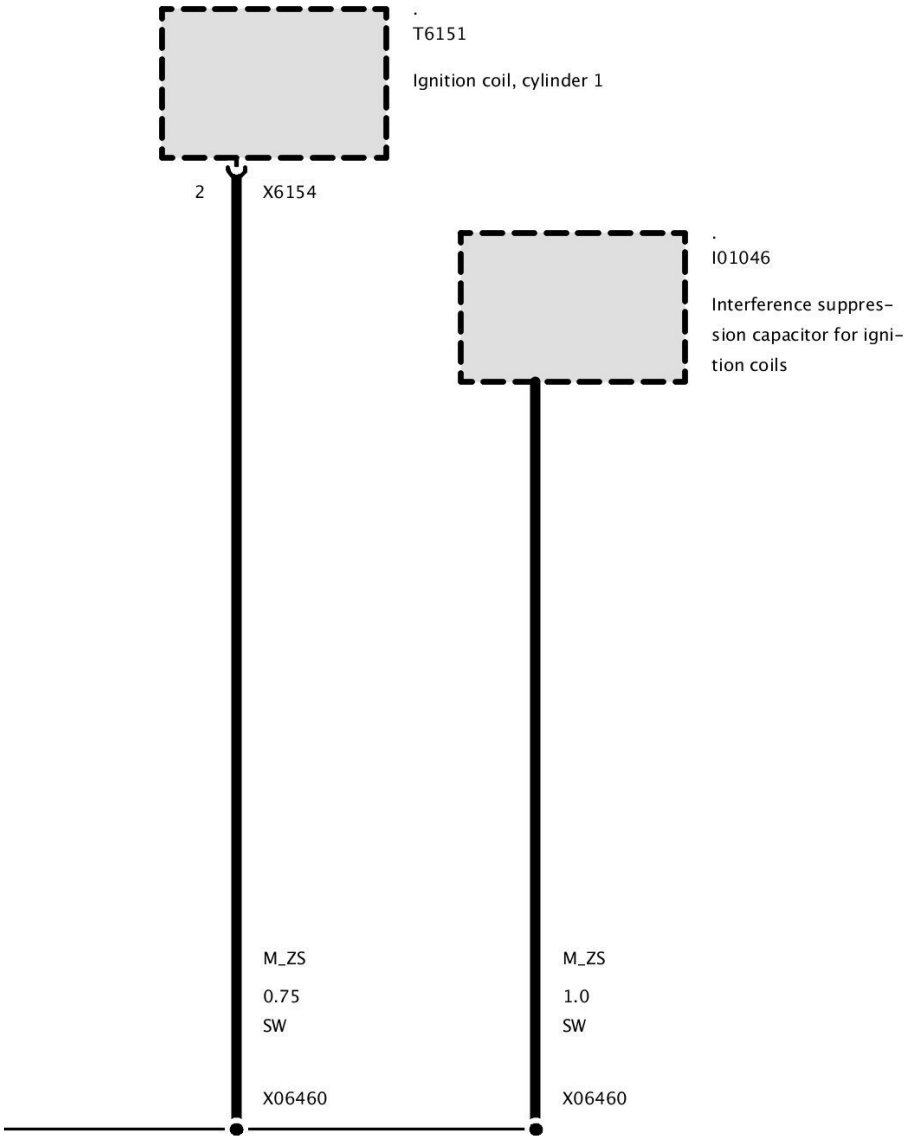
X06460 No Adapter

Ground Connector X06460, Ground Terminal X64561 (N14 Engine)

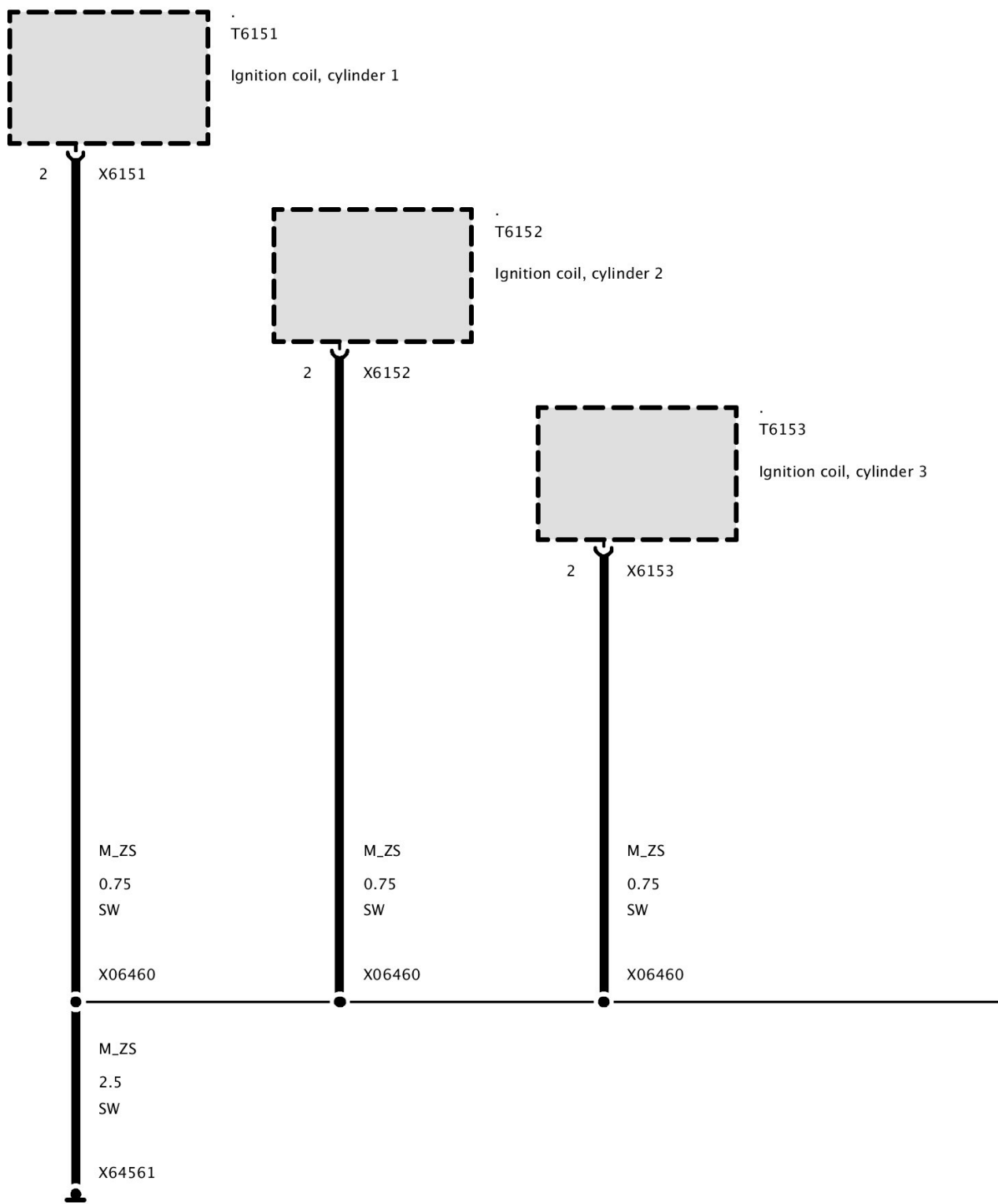




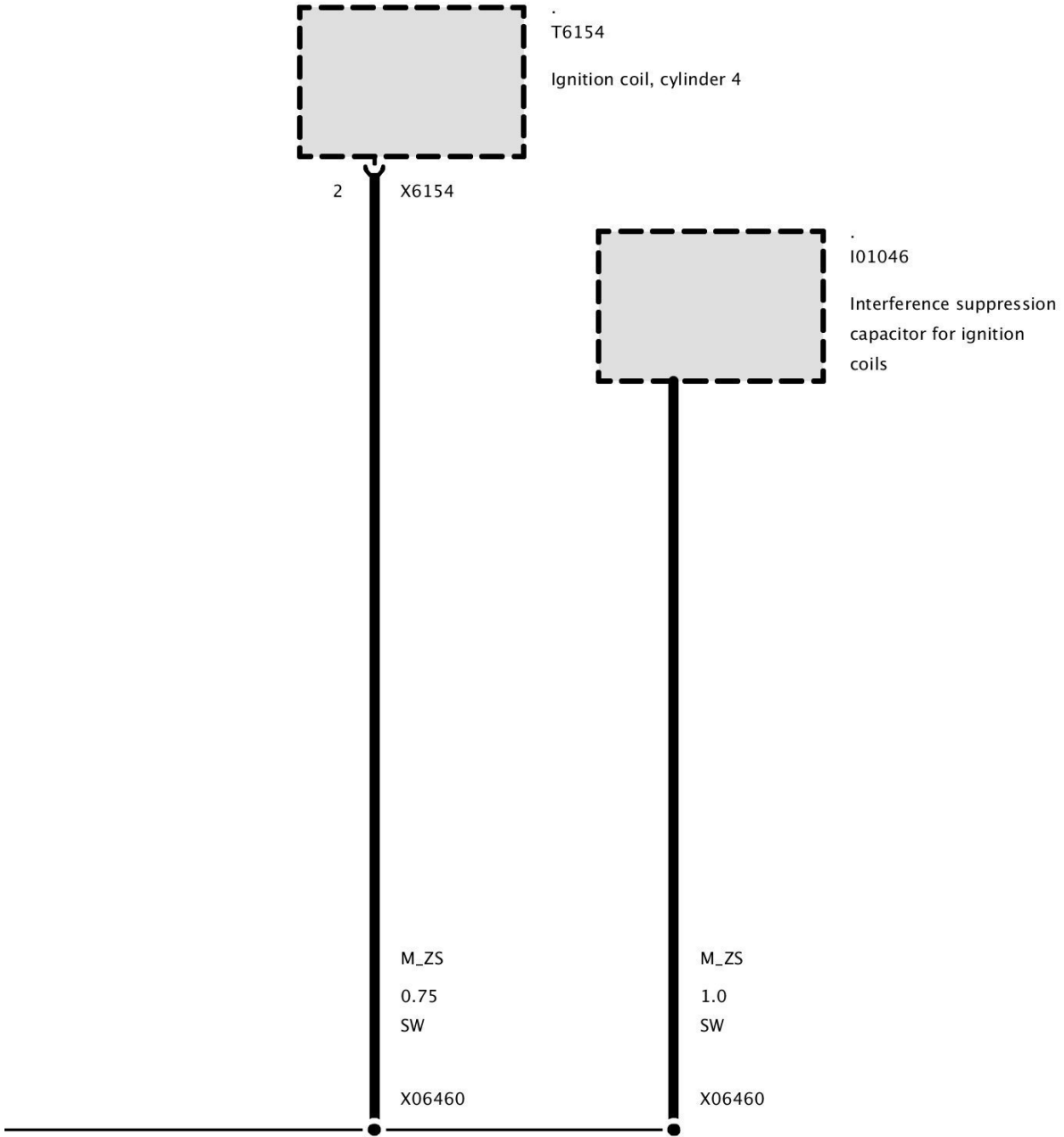
Part 1



Part 2



Part 1

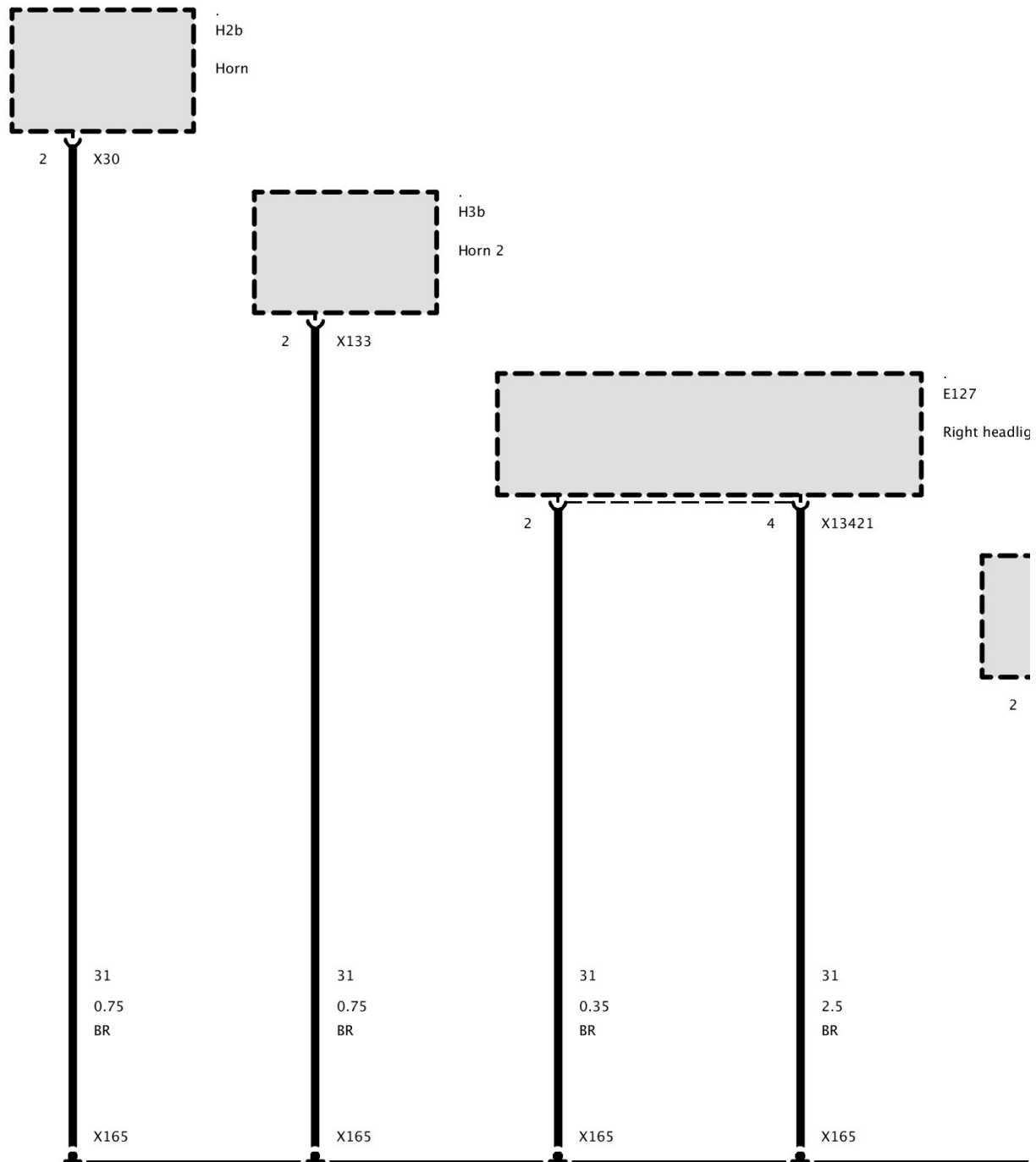


Part 2

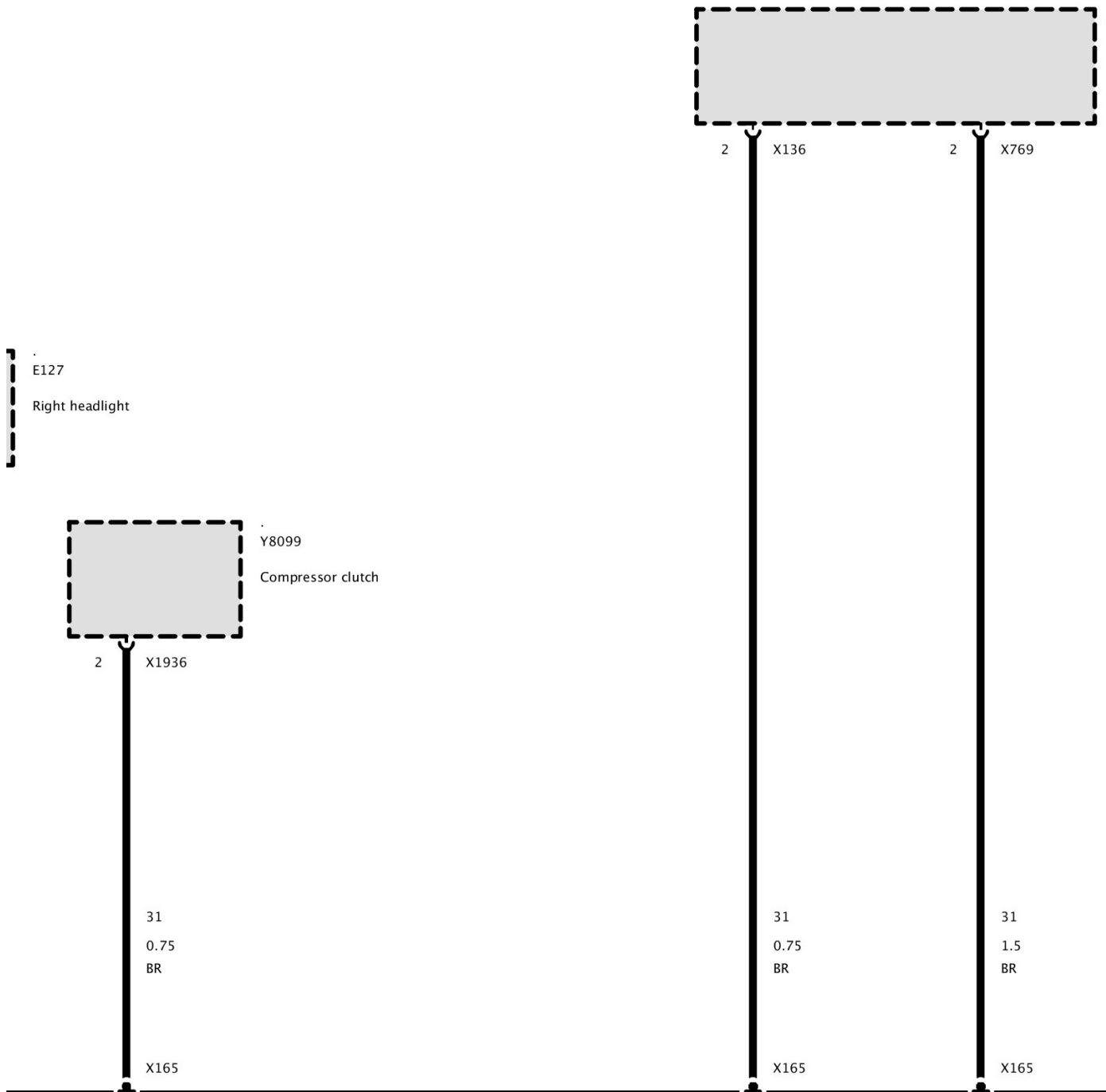
**X165 No Adapter**

**X165 No Adapter**

**Ground connection X165**



Part 1



Part 2



E9017  
Side marker/fog light,  
right

X769

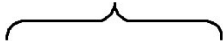


H8a  
Direction indicator light  
repeater, front right

2

X390

J2  
USA



E22  
Side marker light, front  
right

2

X767

31  
1.5  
BR

31  
0.5  
BR

31  
0.5  
BR

31  
2.5  
BR

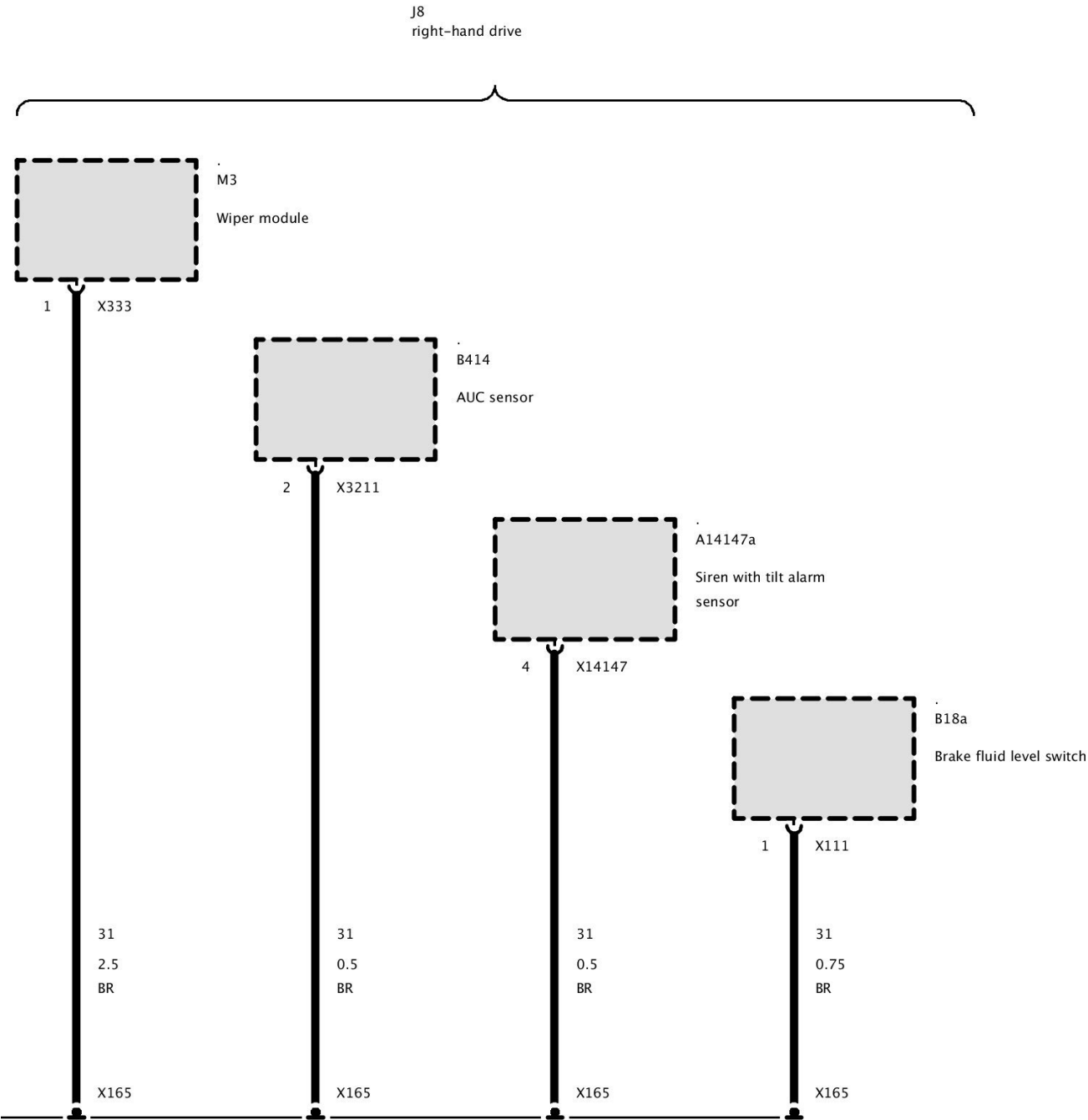
X165

X165

X165

X1

Part 3



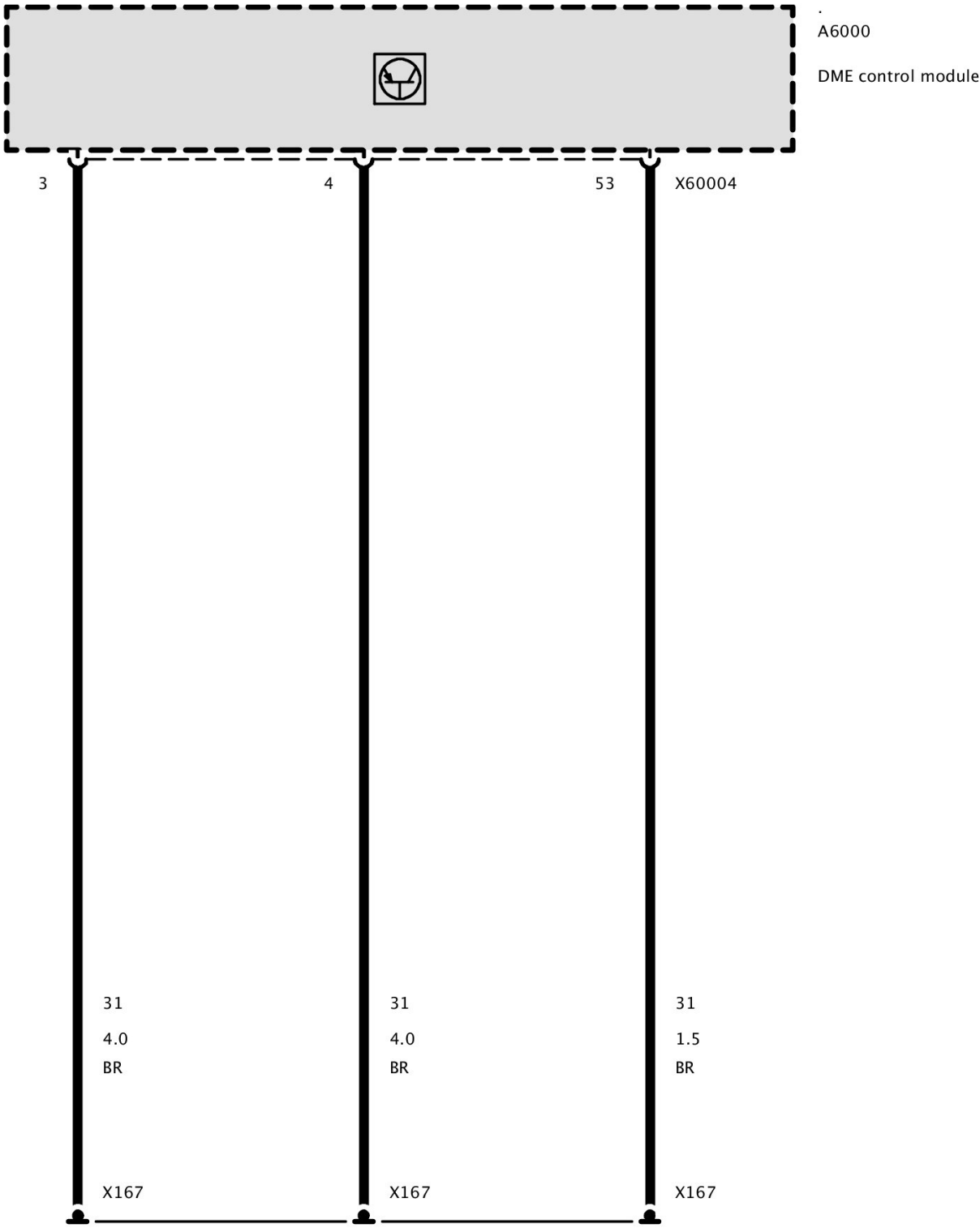
Part 4

X167 No Adapter

X167 No Adapter

Ground Connection X167

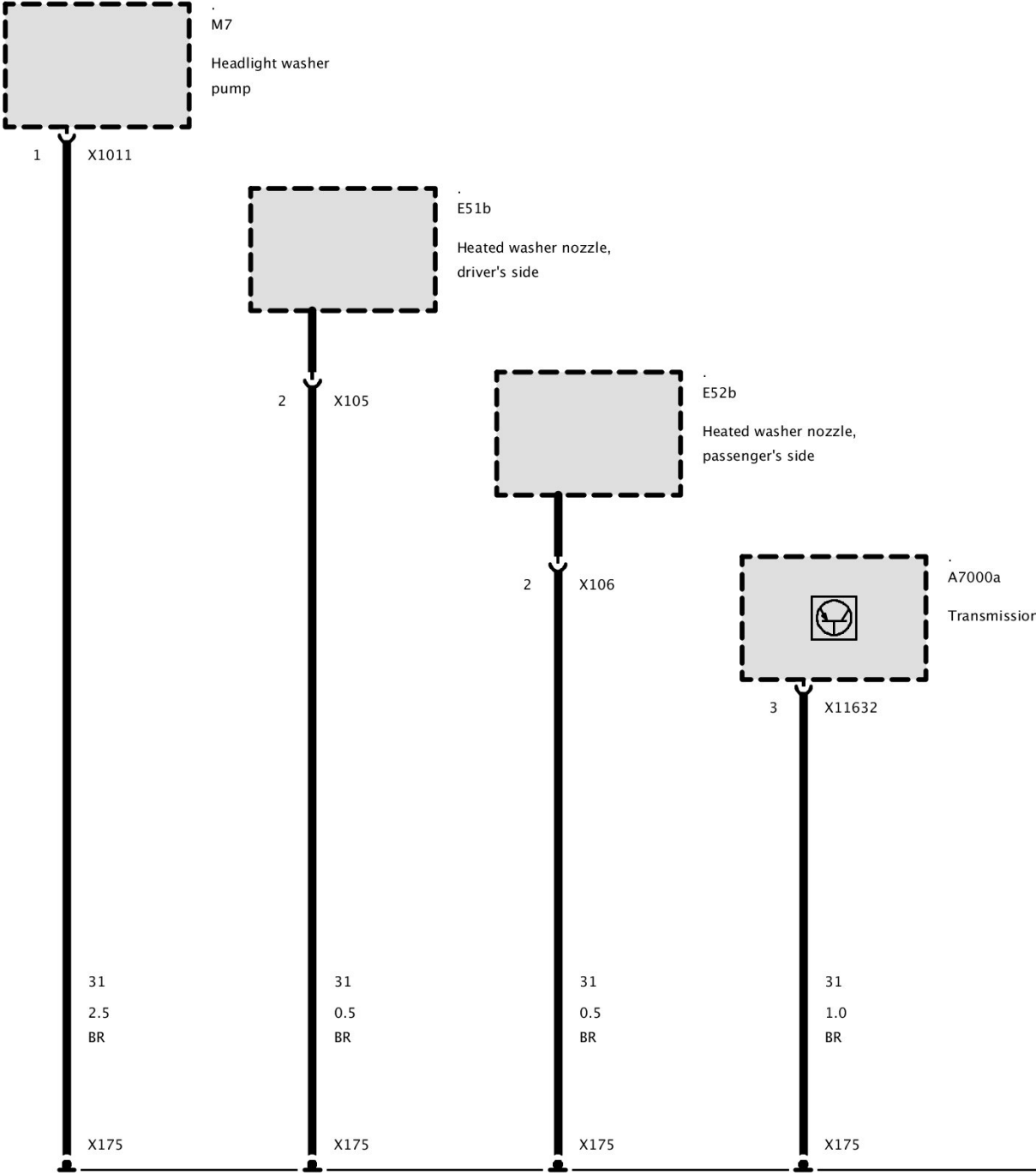




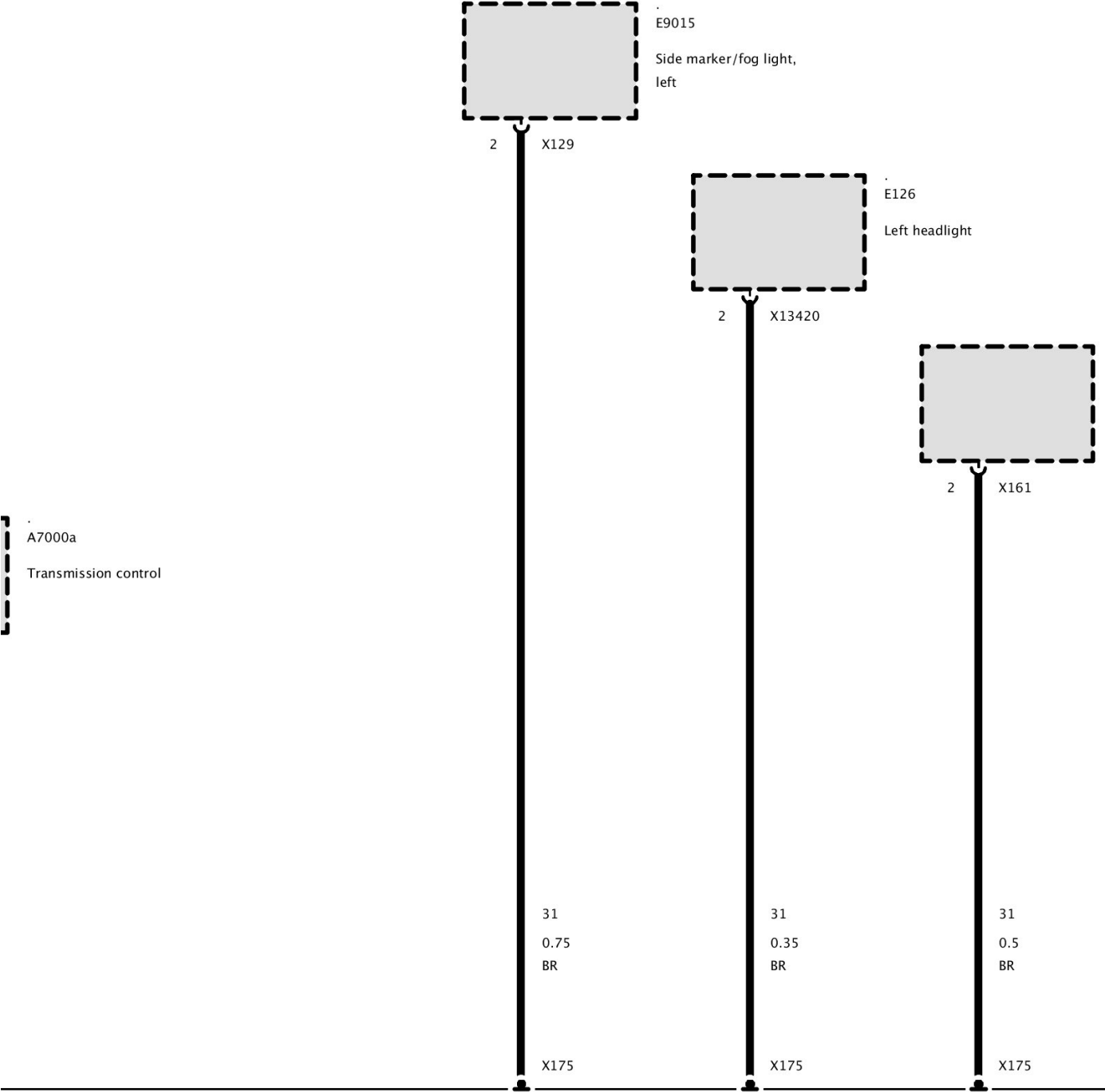
**X175 No Adapter**

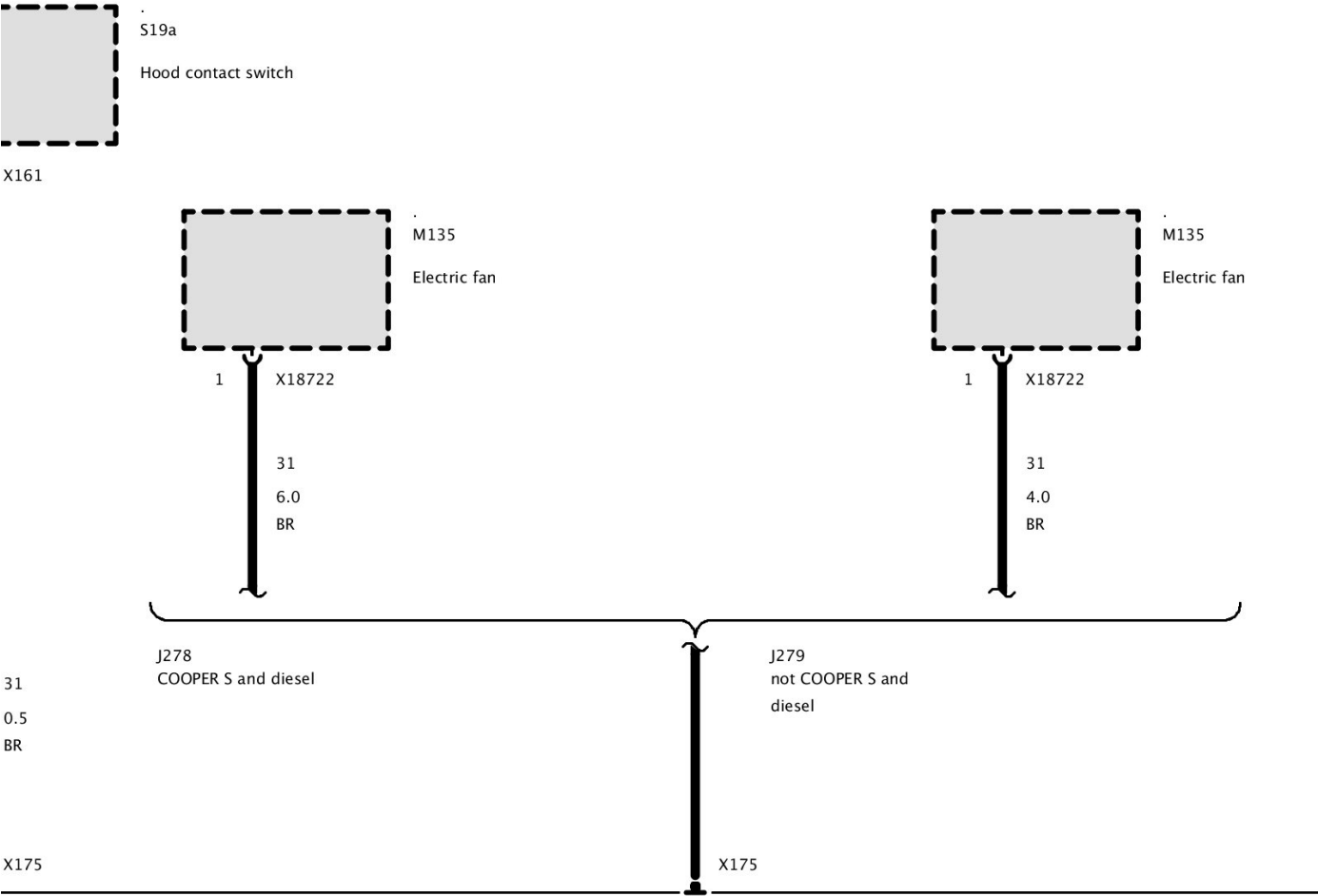
**X175 No Adapter**

**Ground Connection X175**

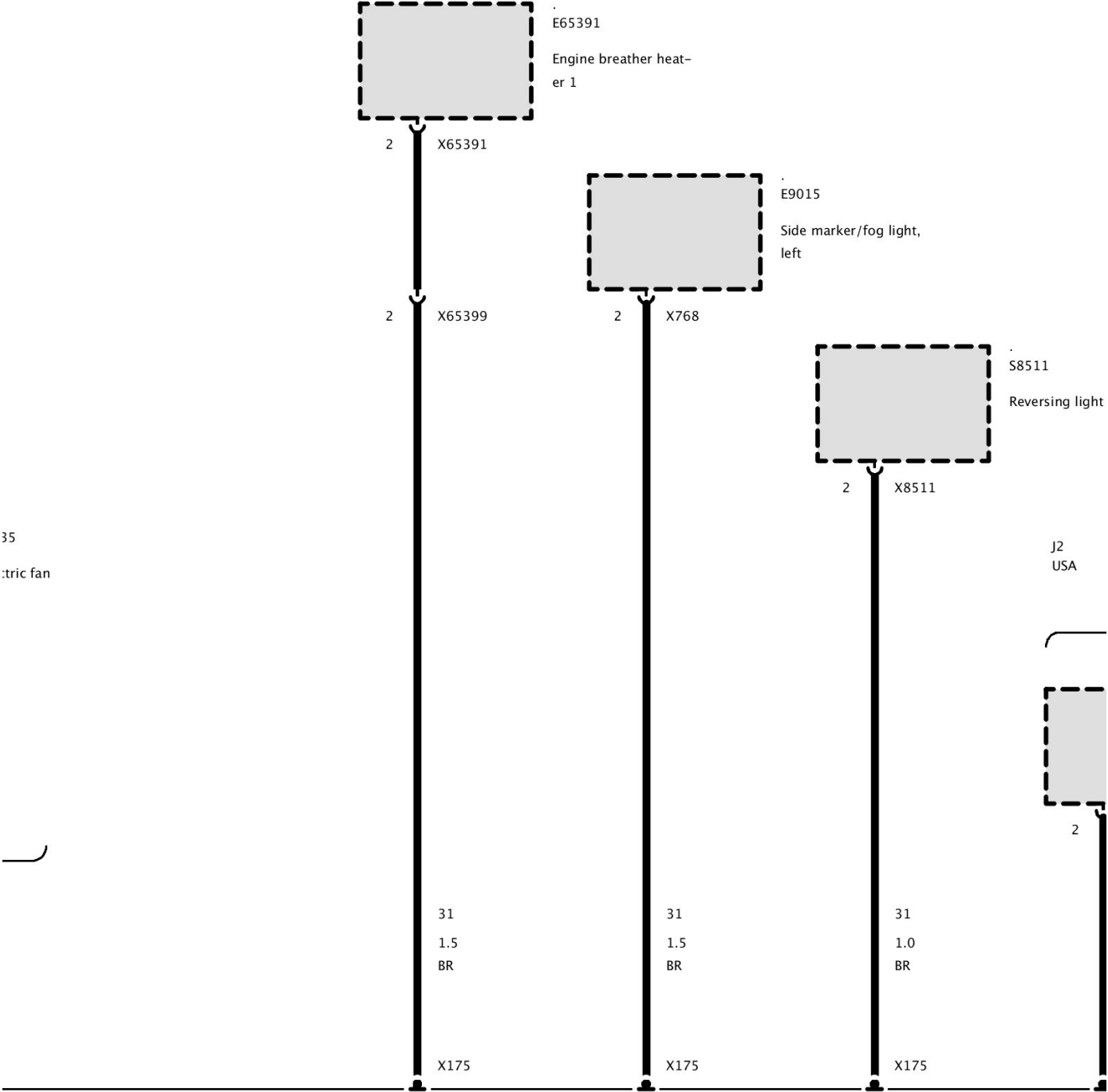


Part 1

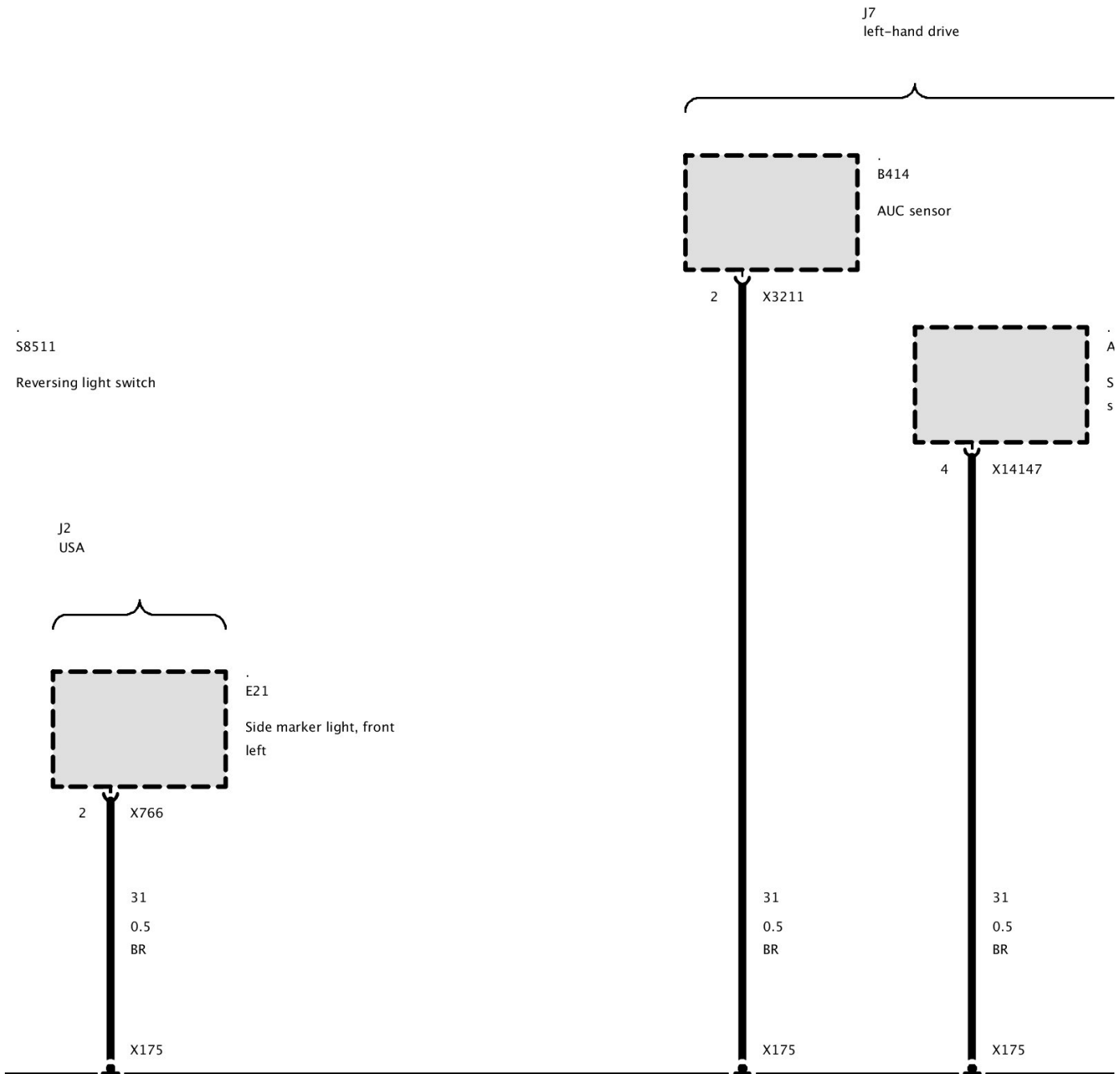




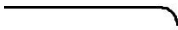
Part 3



Part 4

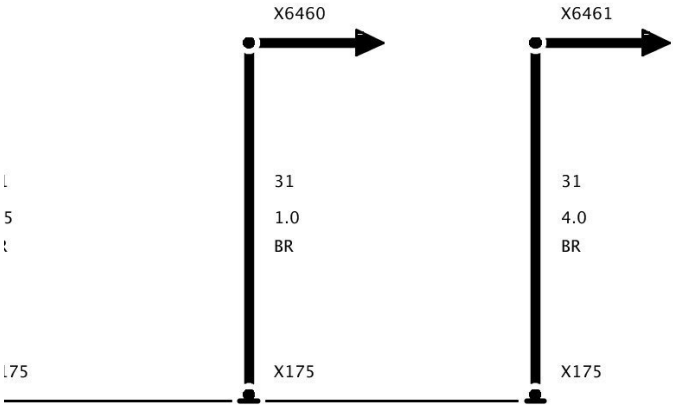


Part 5



A14147a  
Siren with tilt alarm  
sensor

A14147

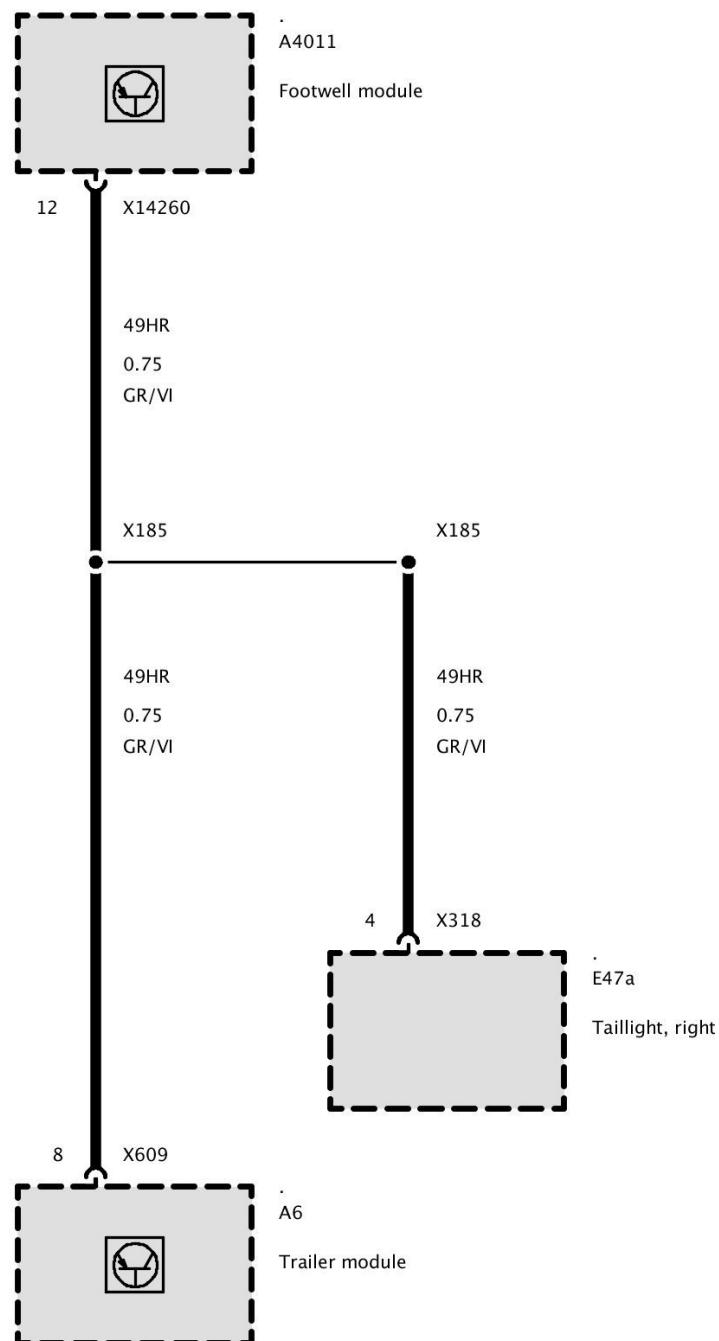


Part 6

X185 No Adapter

X185 No Adapter

Connector X185

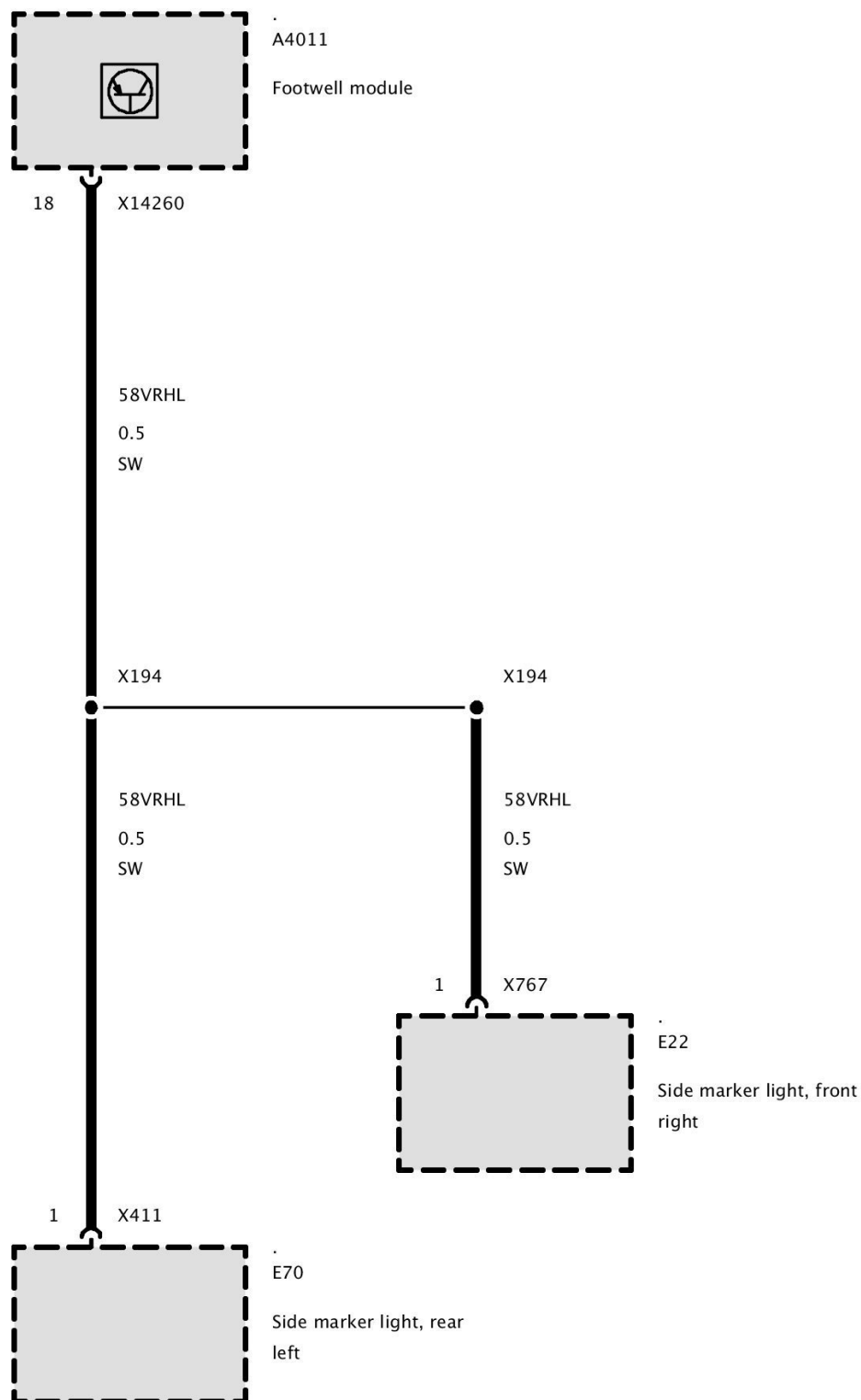


**X194 No Adapter**

**X194 No Adapter**

**Connector X194**

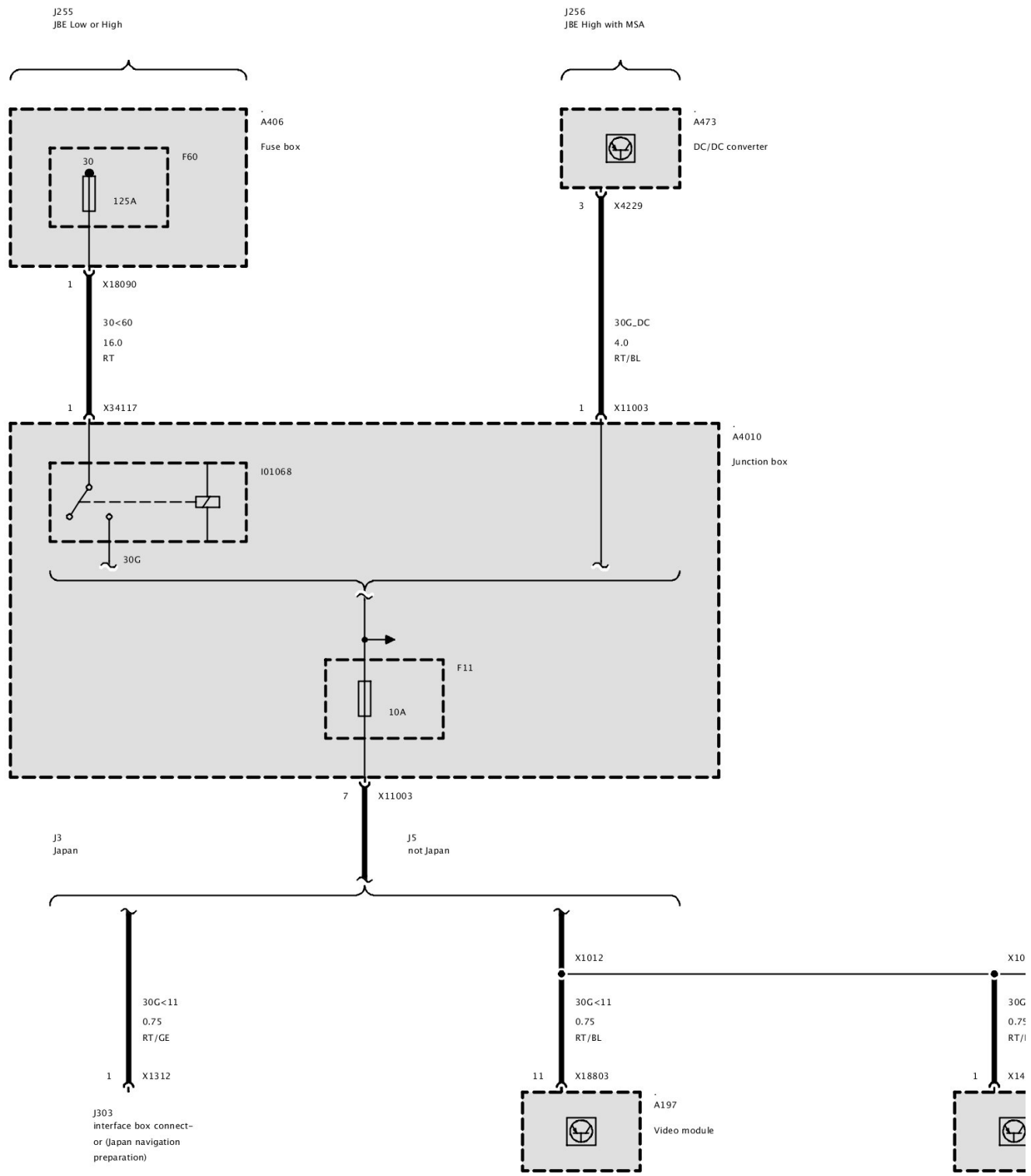




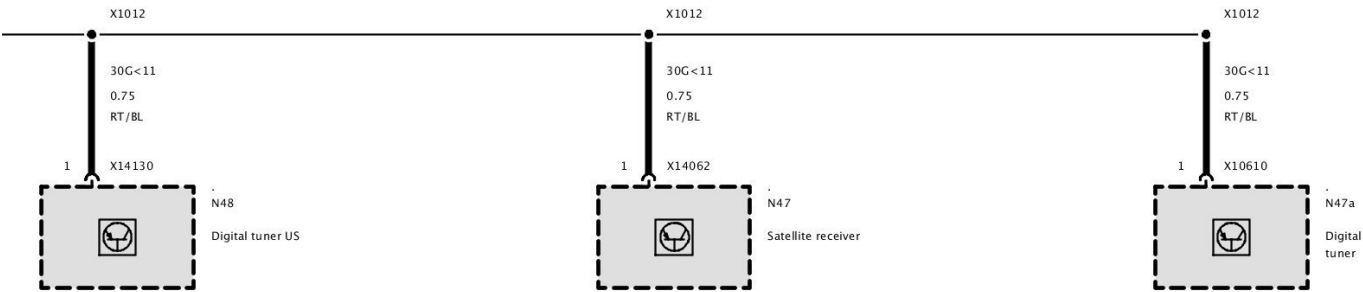
**X1012 No Adapter**

**X1012 No Adapter**

**Fuse F11**



Part 1

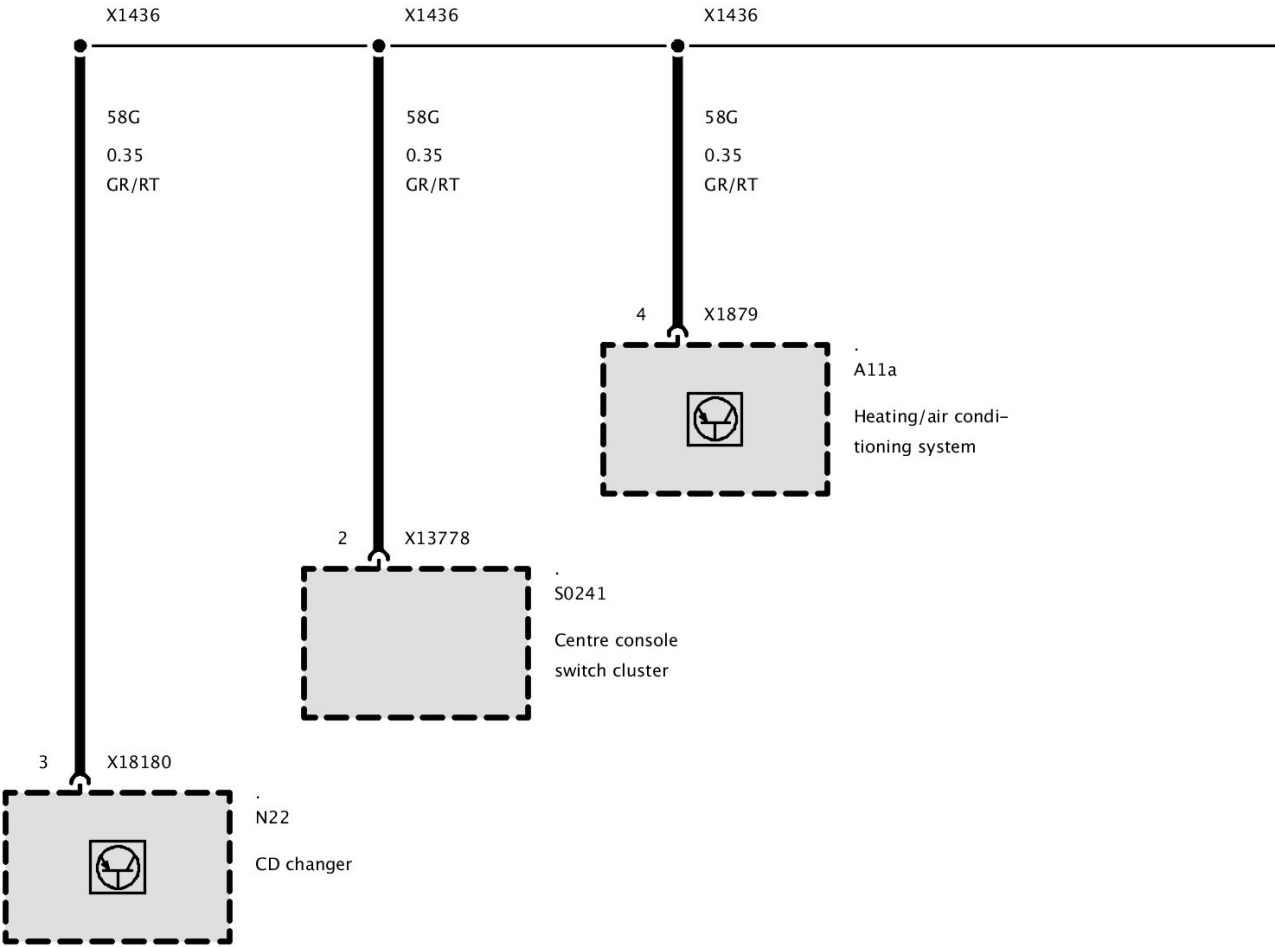


Part 2

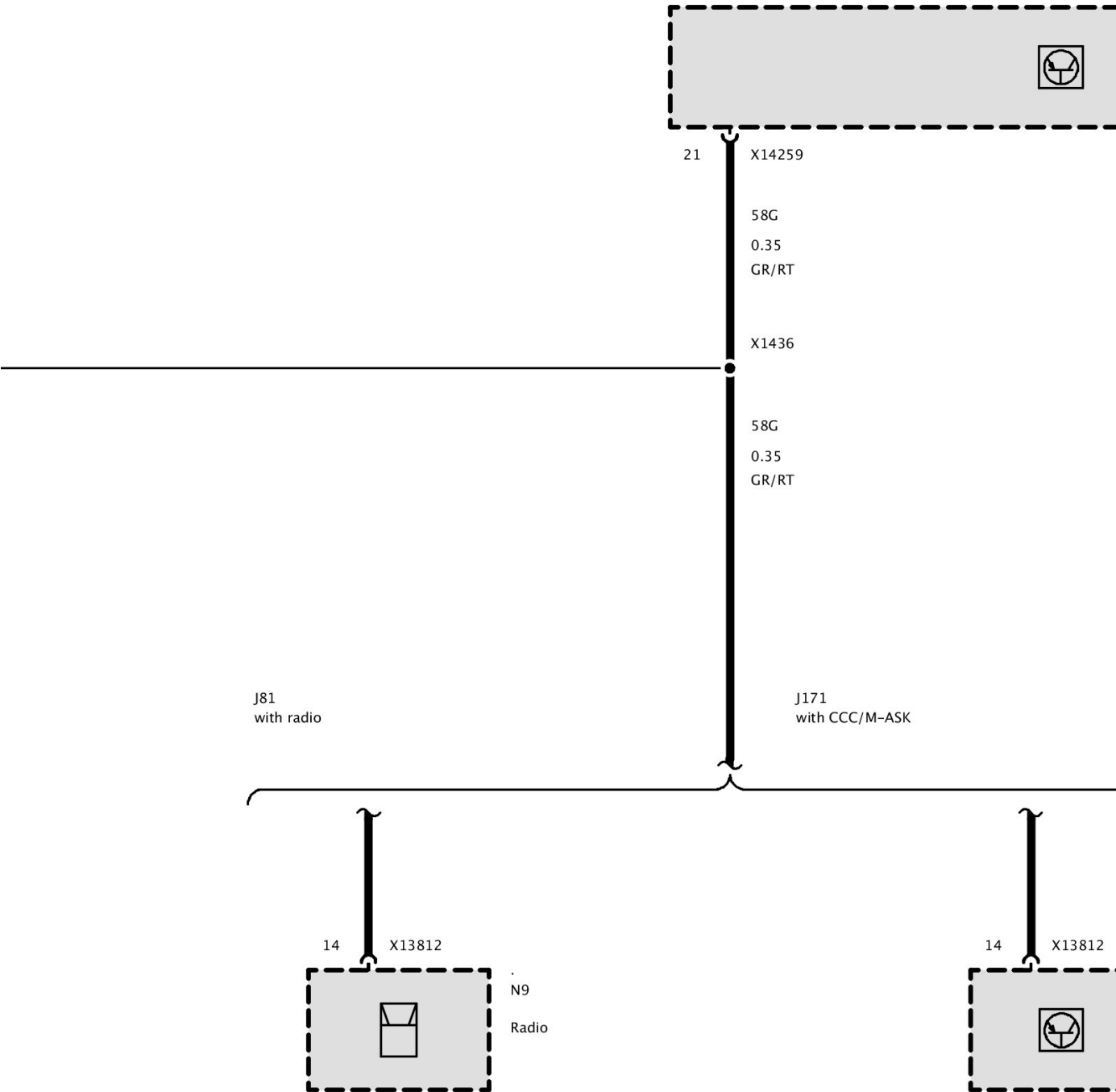
X1019 No Adapter

X1019 No Adapter

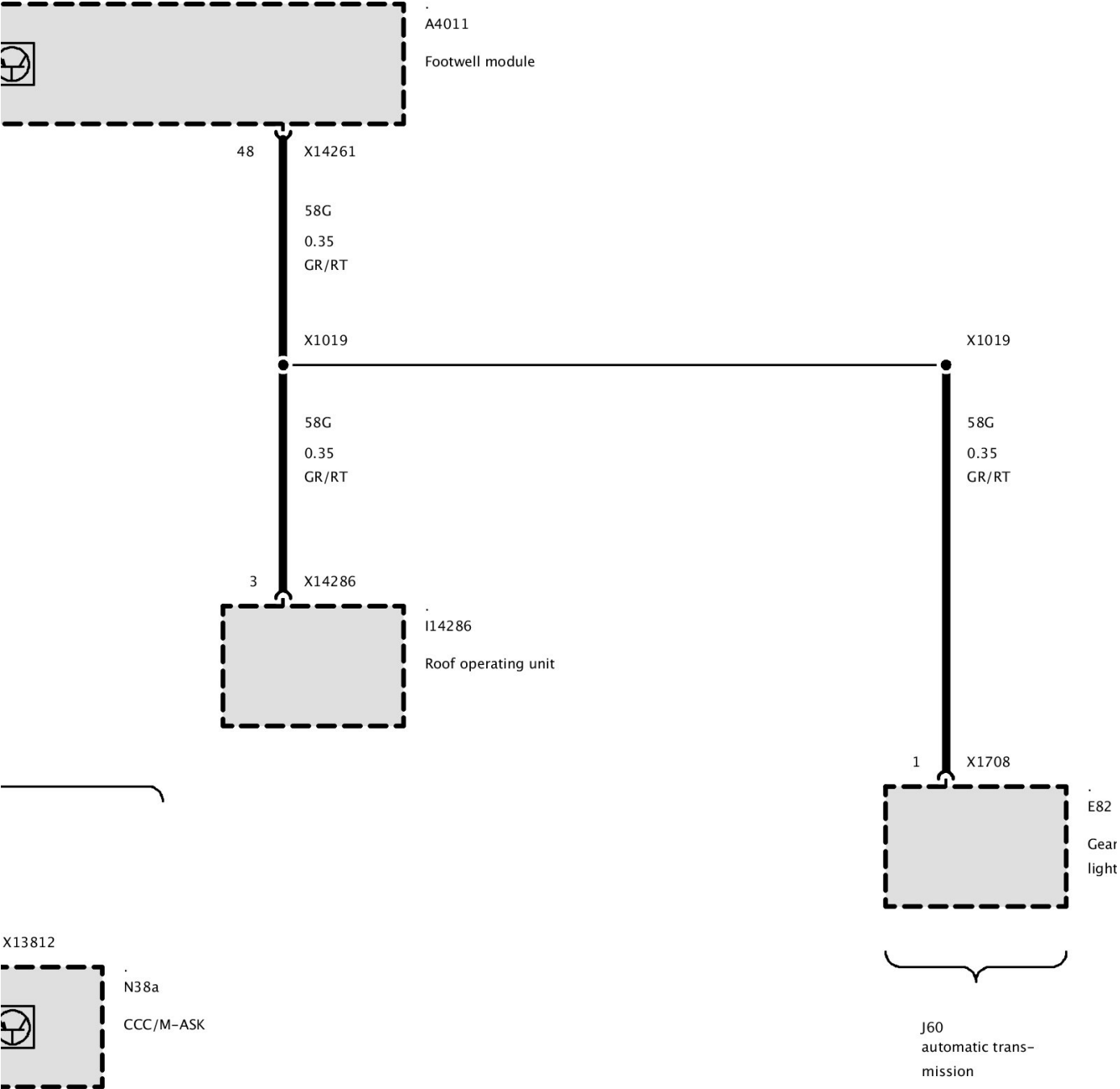
Connector, Instrument and Locator Lighting X1019, X1436



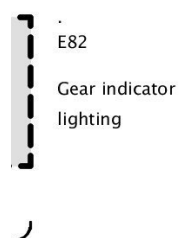
Part 1



Part 2



Part 3

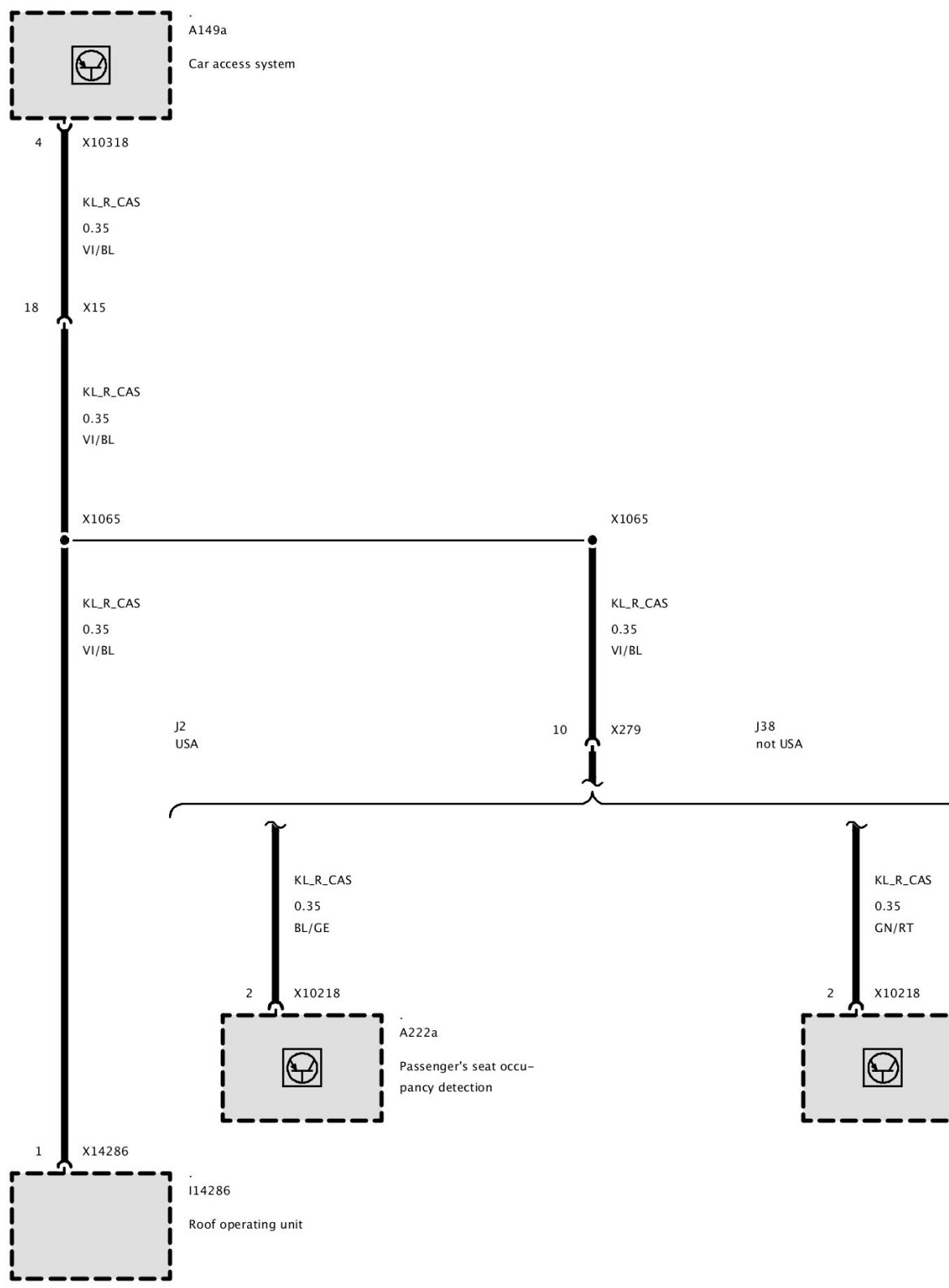


#### Part 4

**X1065 No Adapter**

**X1065 No Adapter**

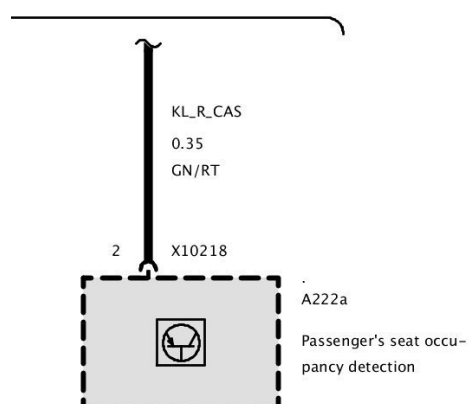
**Connector X1065**



Part 1



J38  
not USA



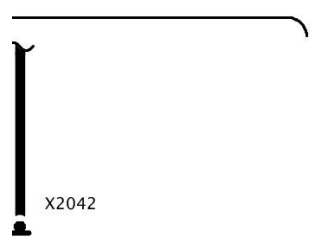
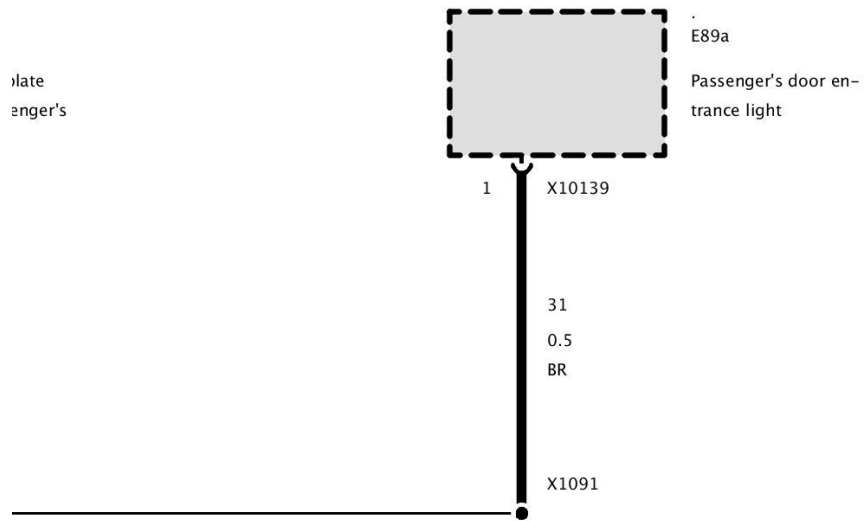
## Part 2

### X1091 No Adapter

### X1091 No Adapter

### Ground Connector X1091



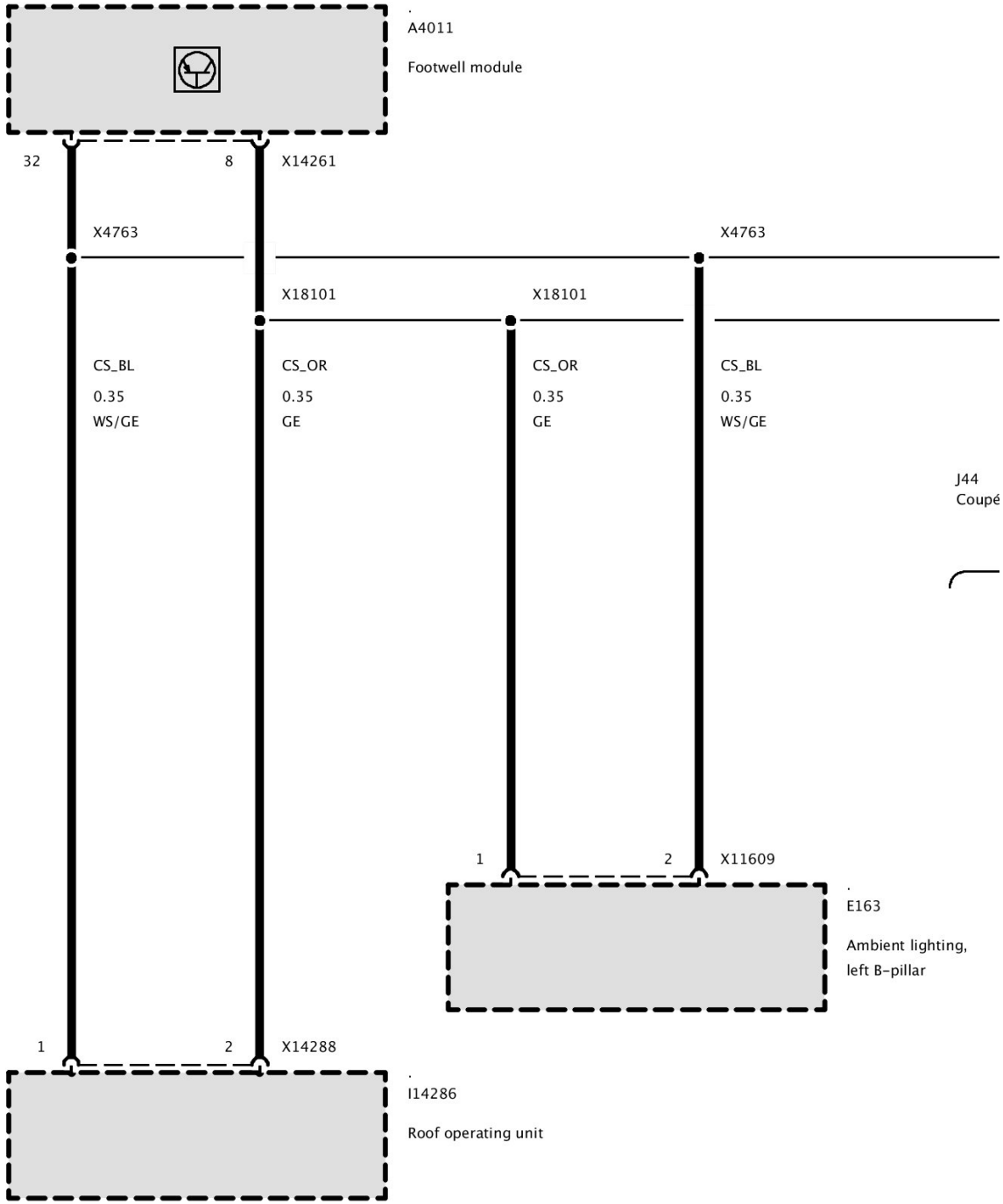


Part 2

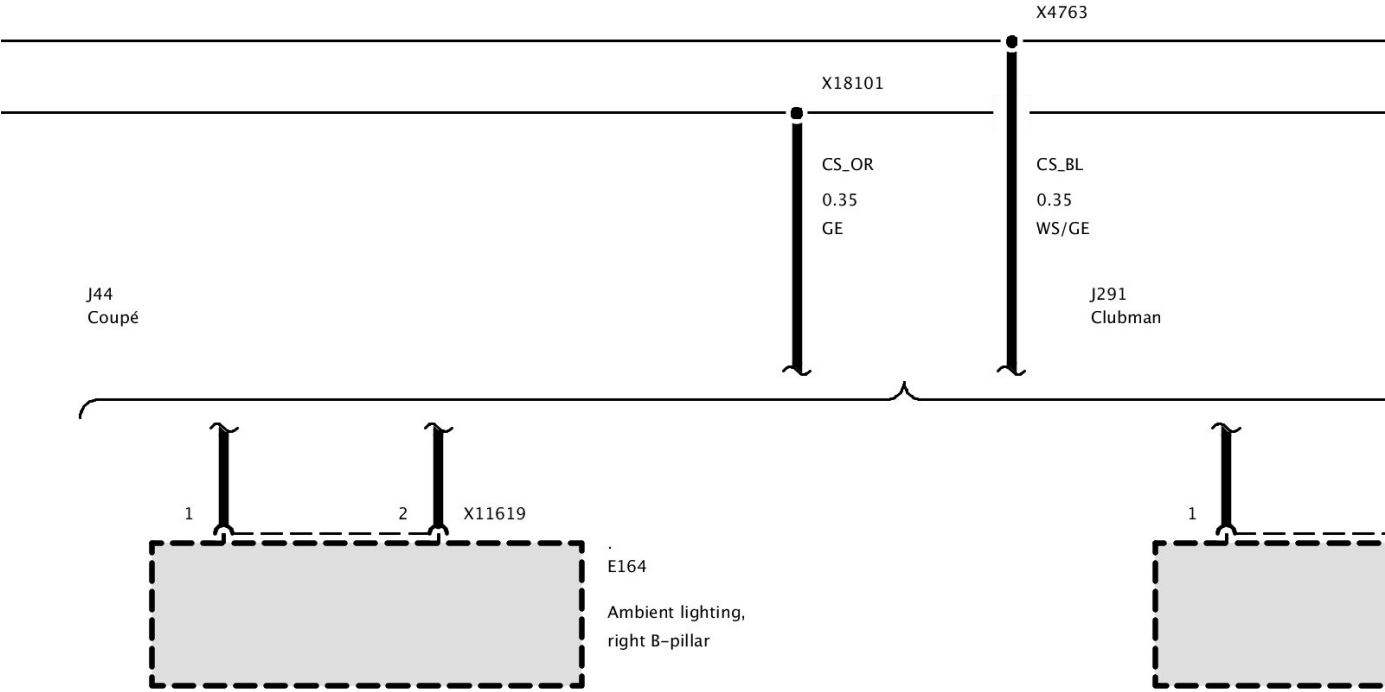
X1203 No Adapter

X1203 No Adapter

Connectors X4763, X18101, X2859, X1366, X01436, X1203

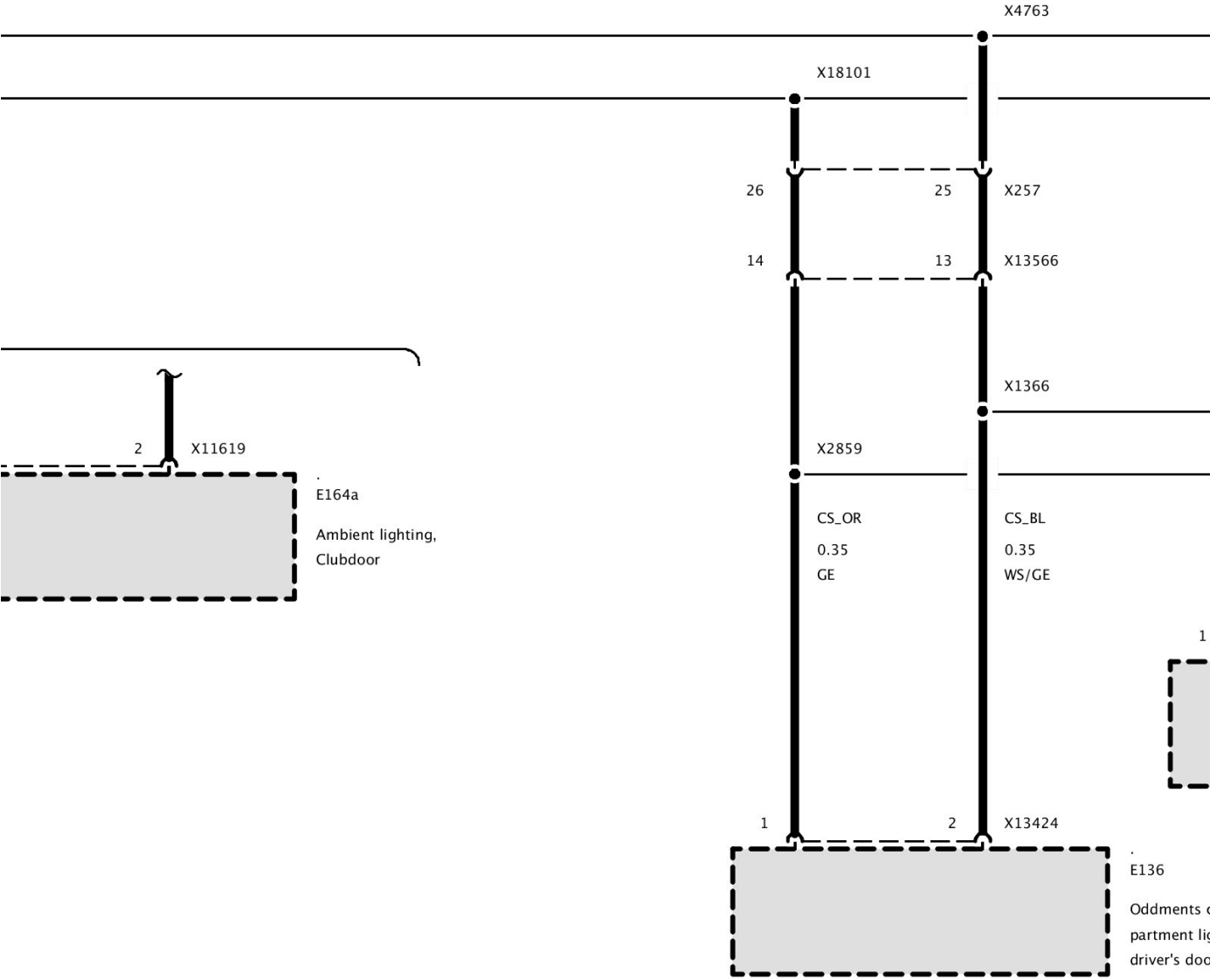


Part 1

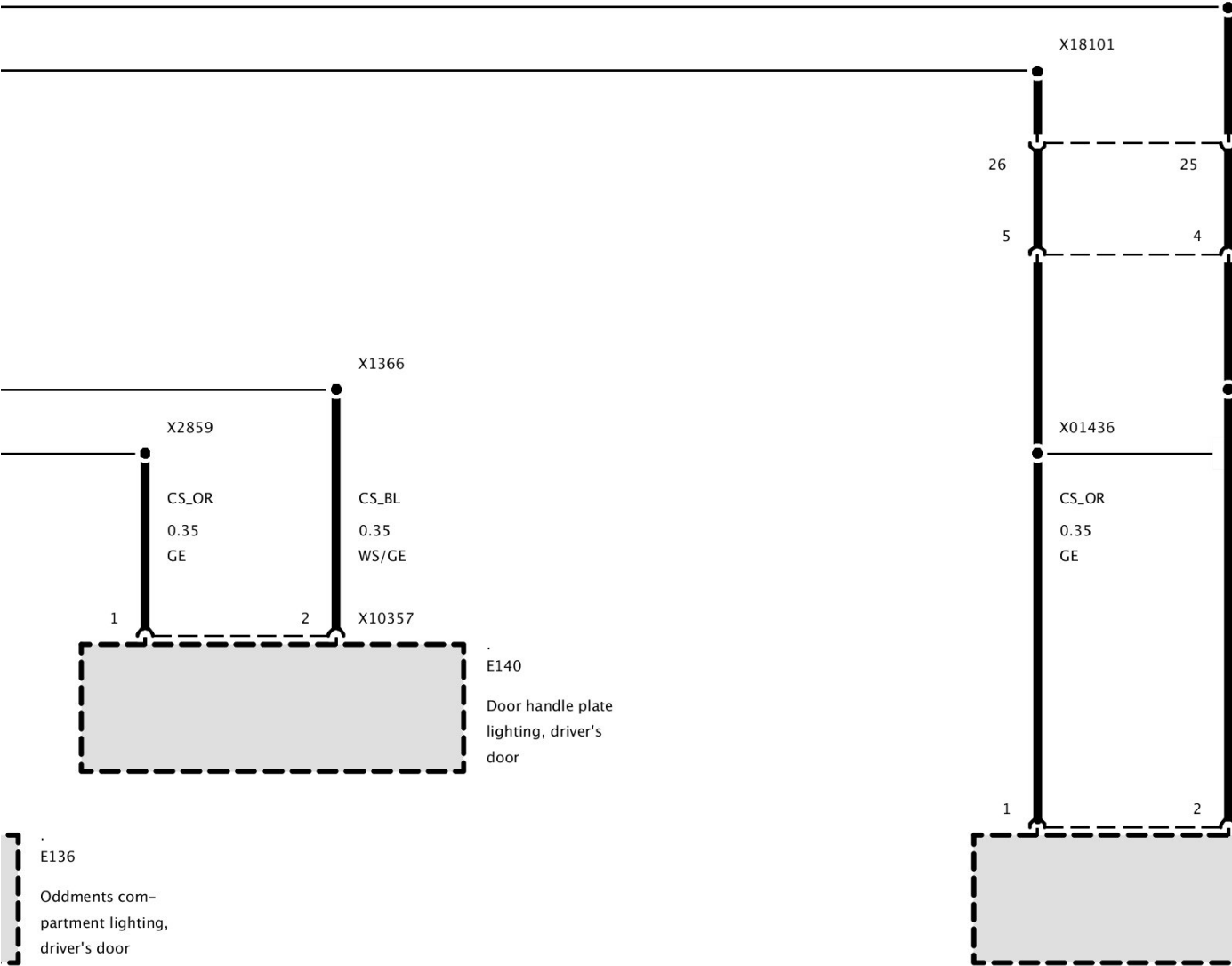


ient lighting,  
-pillar

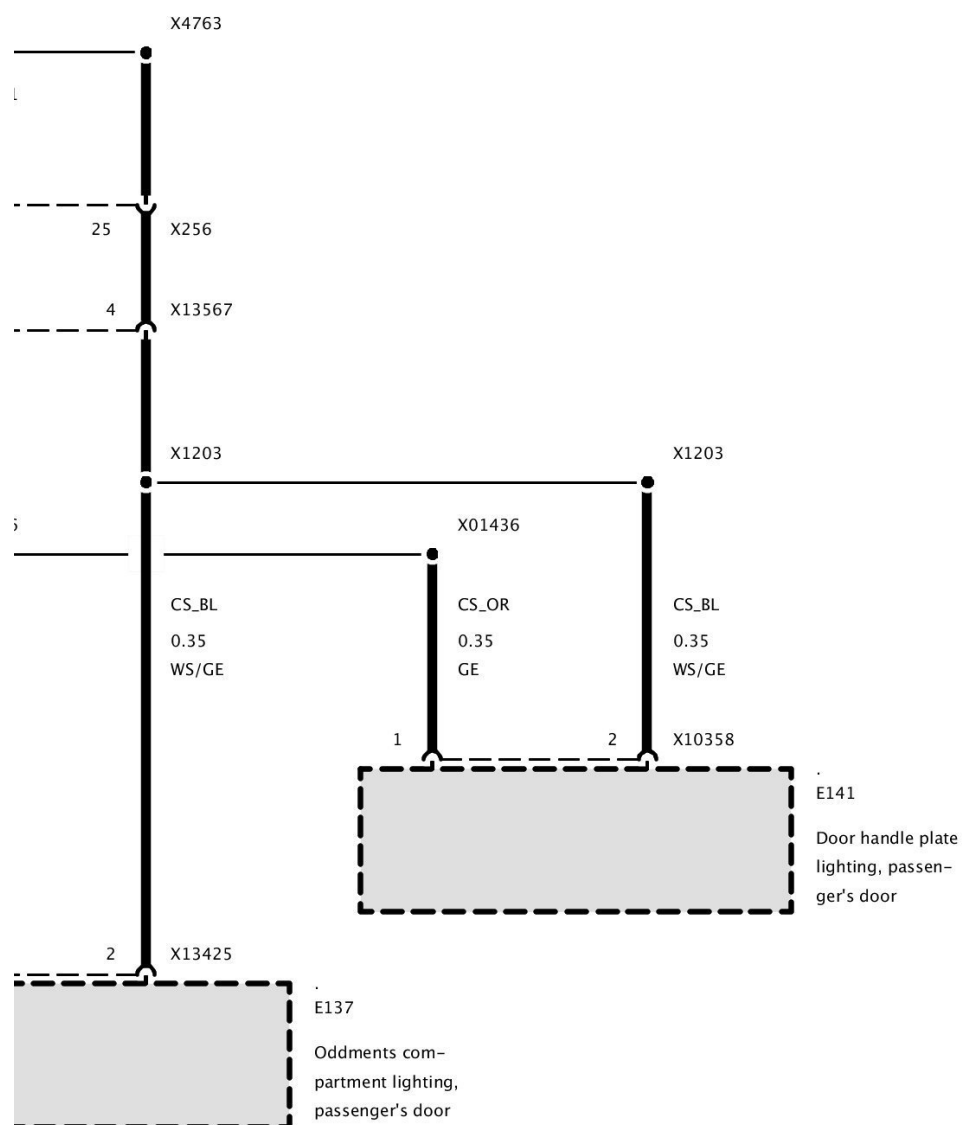
Part 2



Part 3



Part 4



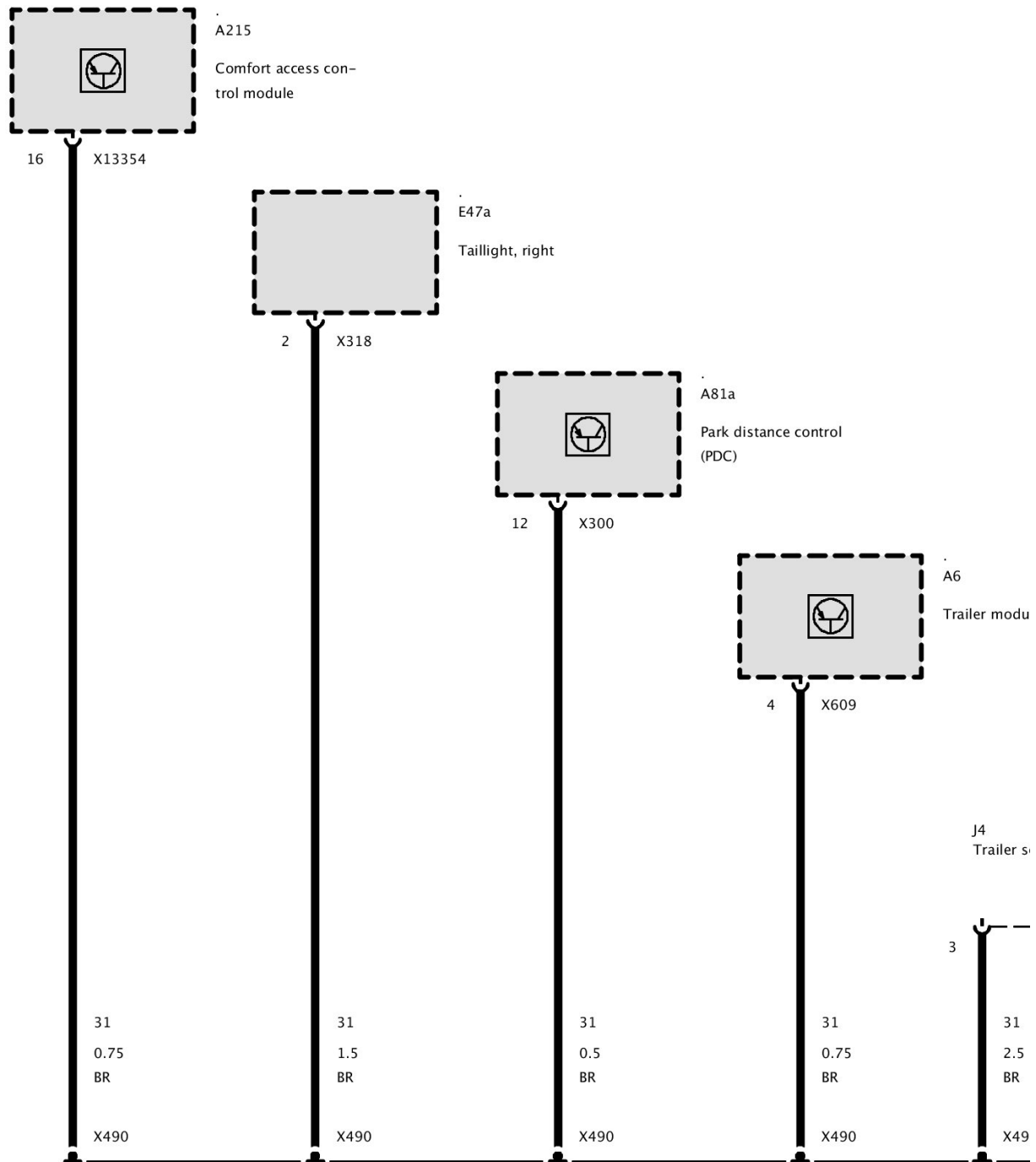
### Part 5

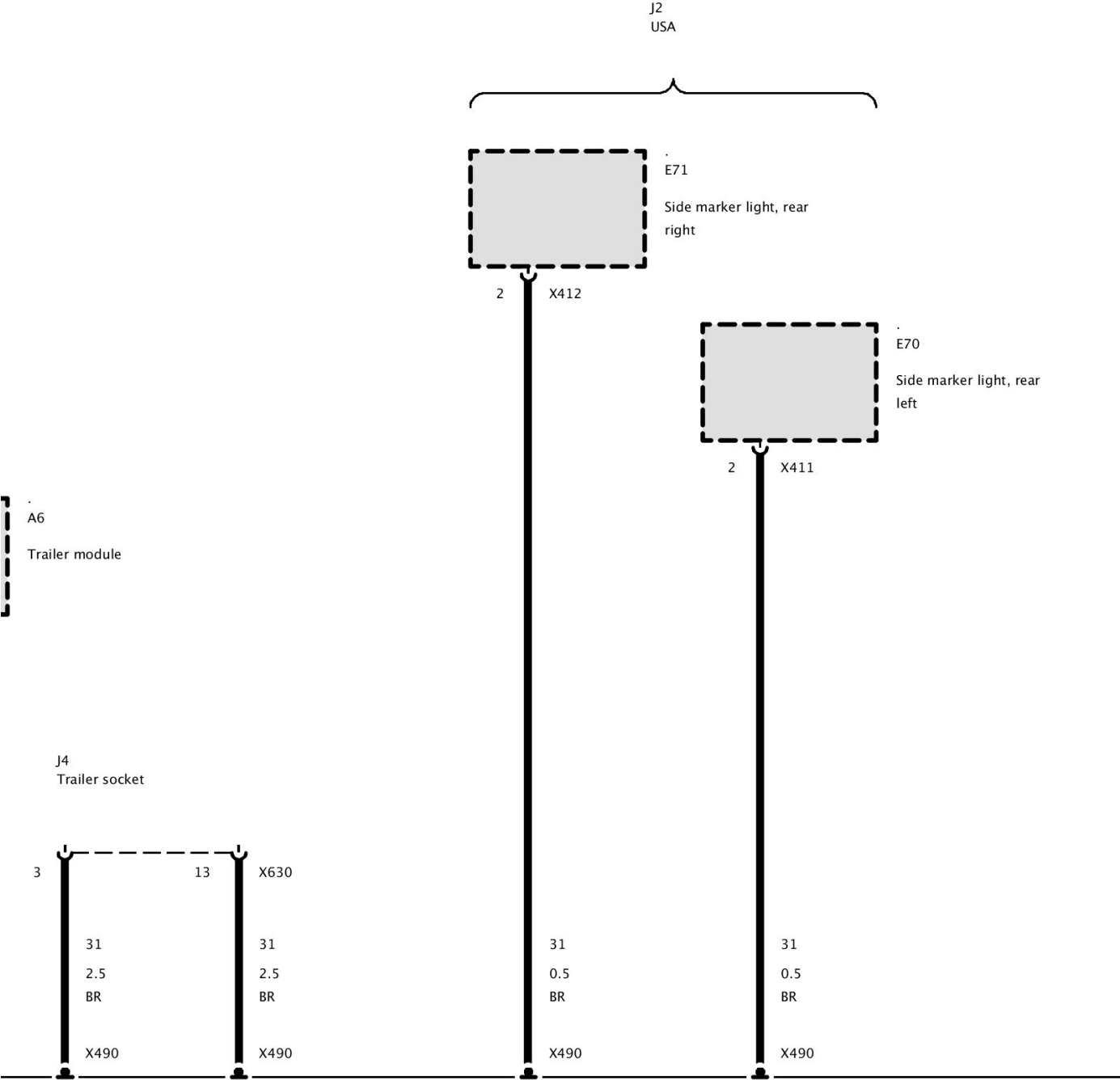
**Ground Connection X490, Connector X1256, X9641, X13229 (Up to 03/08)**

**X1256 No Adapter**

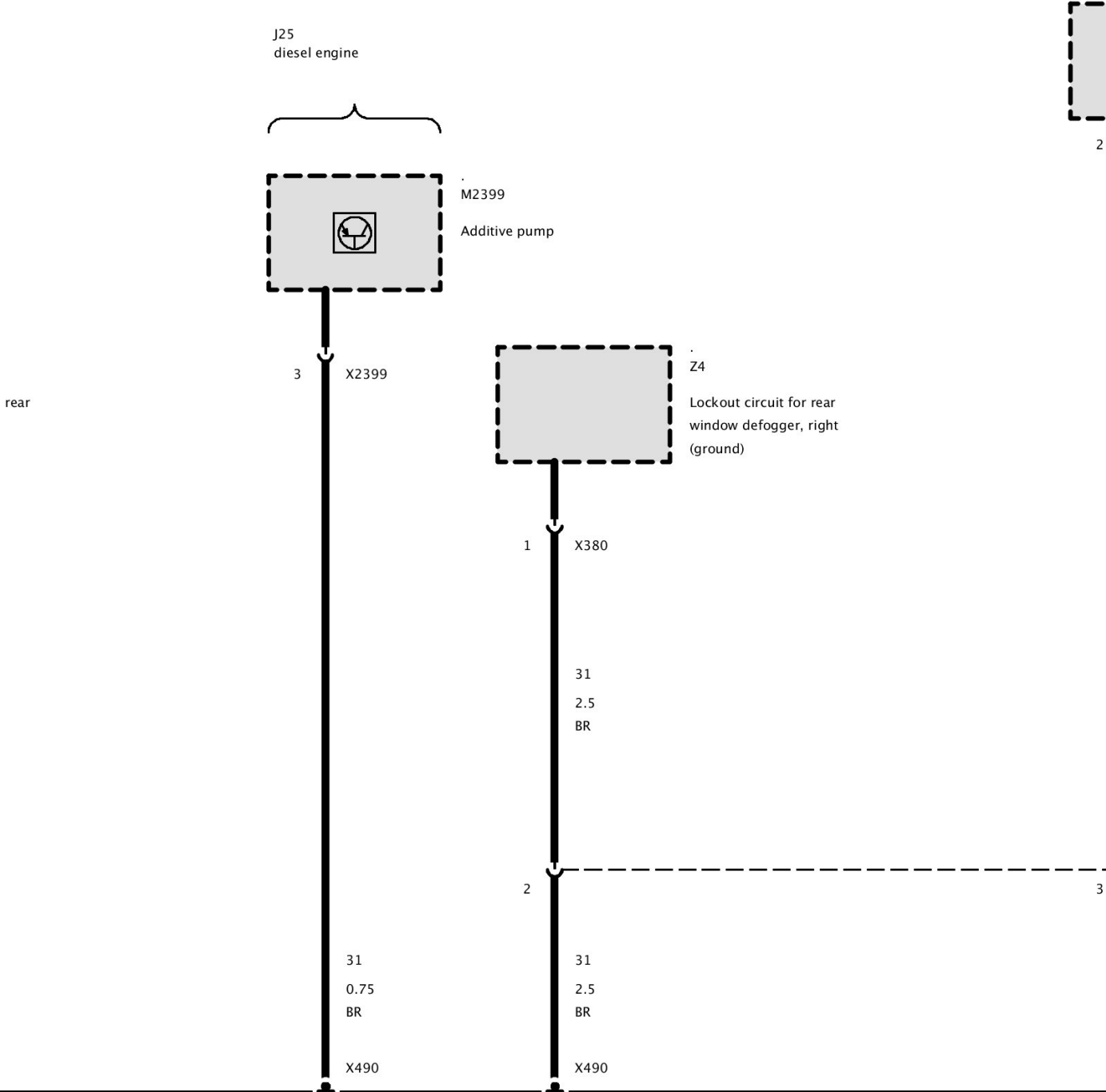
**Ground Connection X490, Connector X1256, X9641, X13229 (Up to 03/08)**



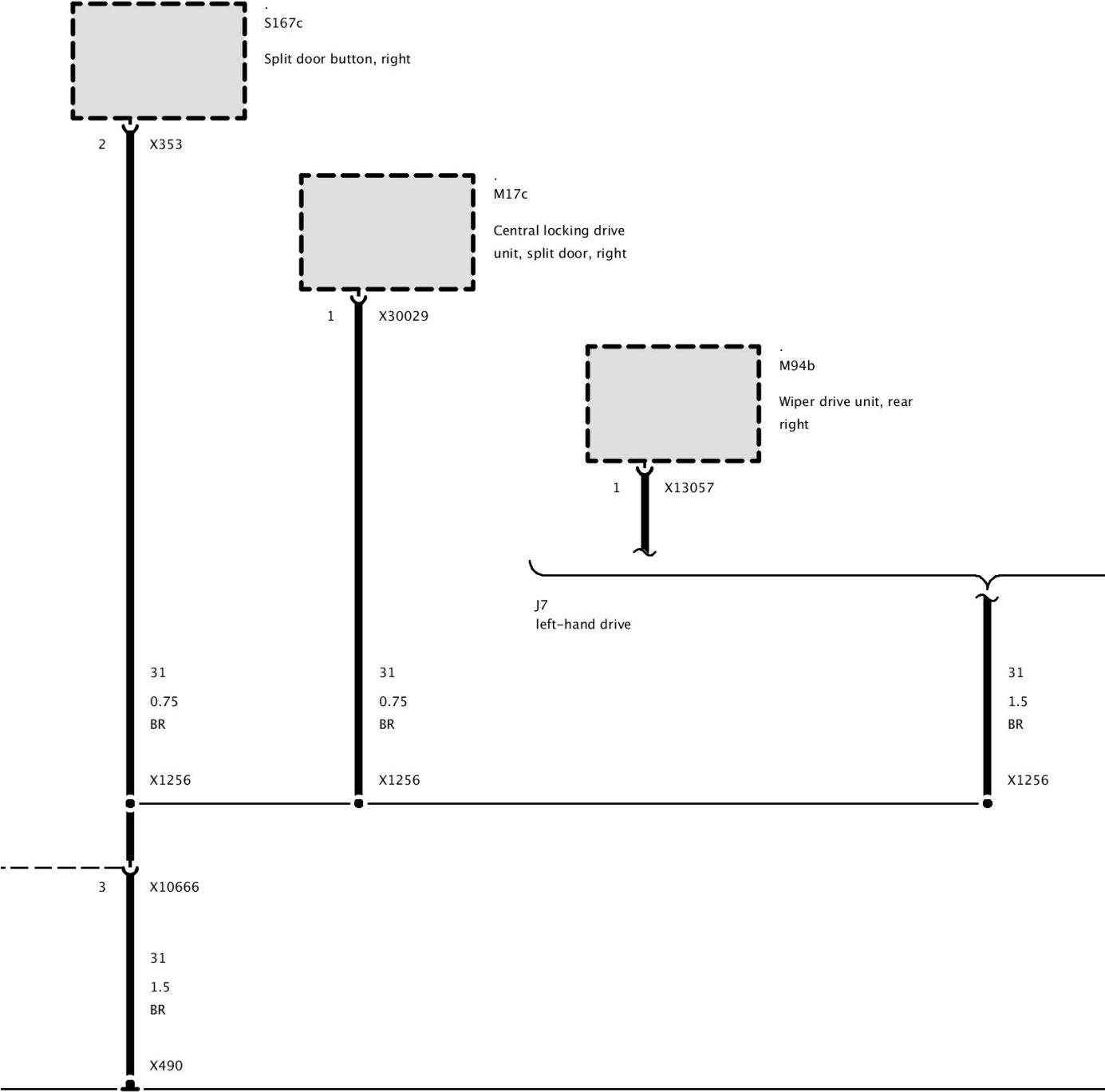




Part 2

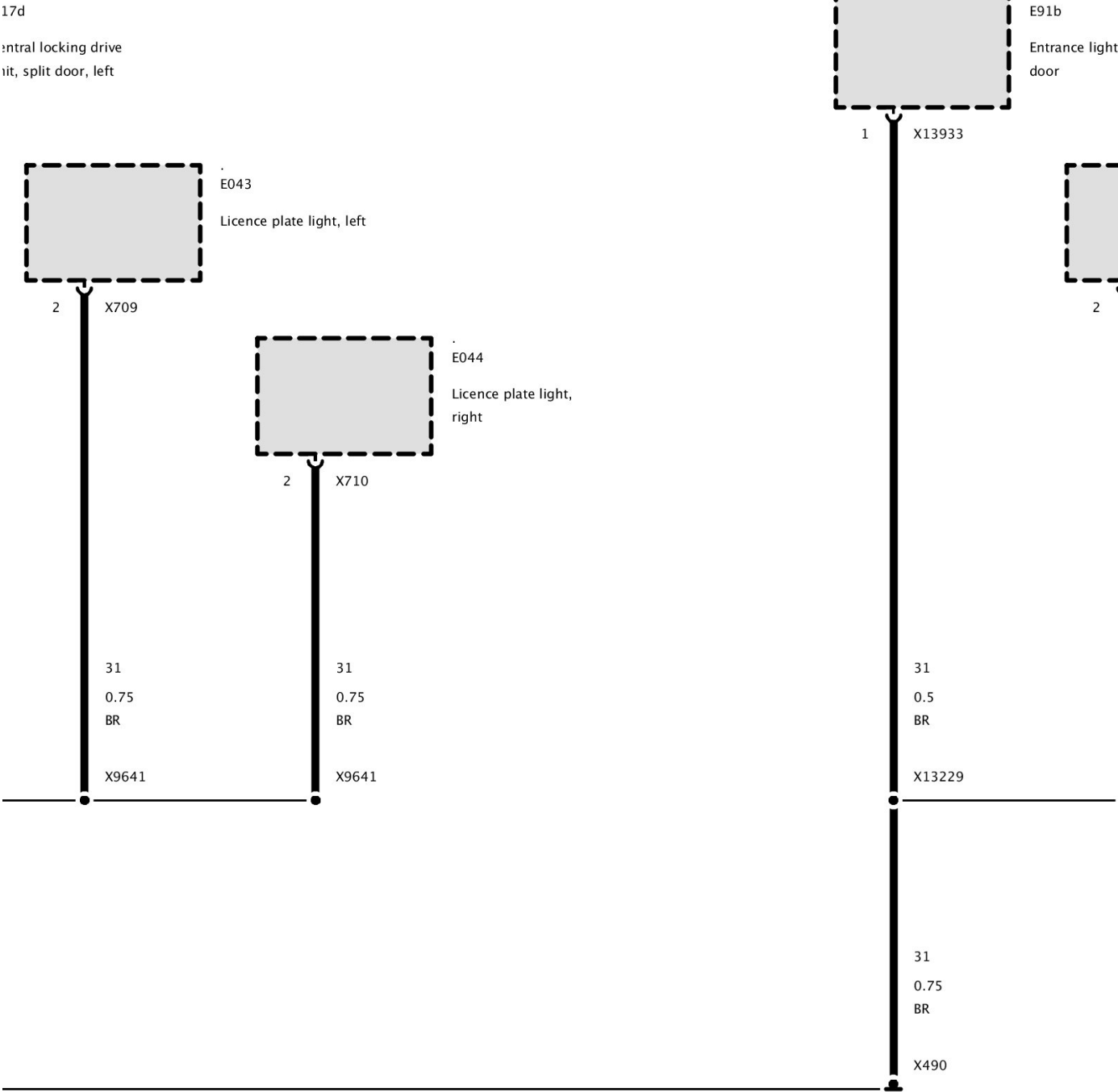


Part 3

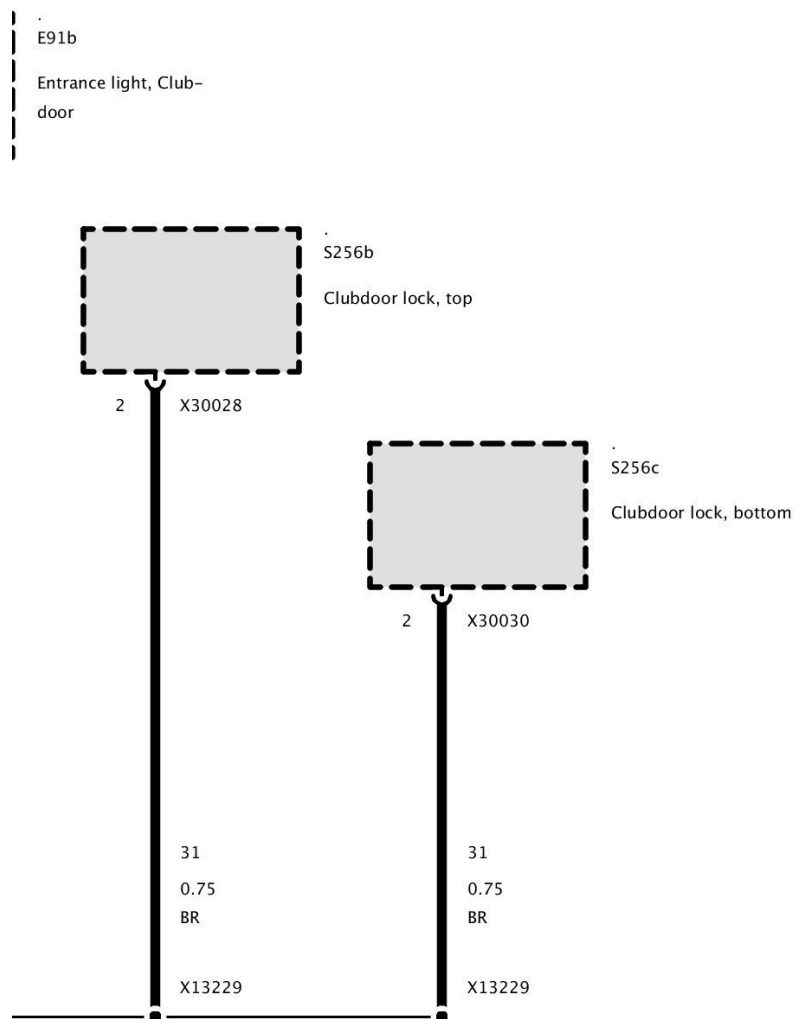


Part 4





Part 6

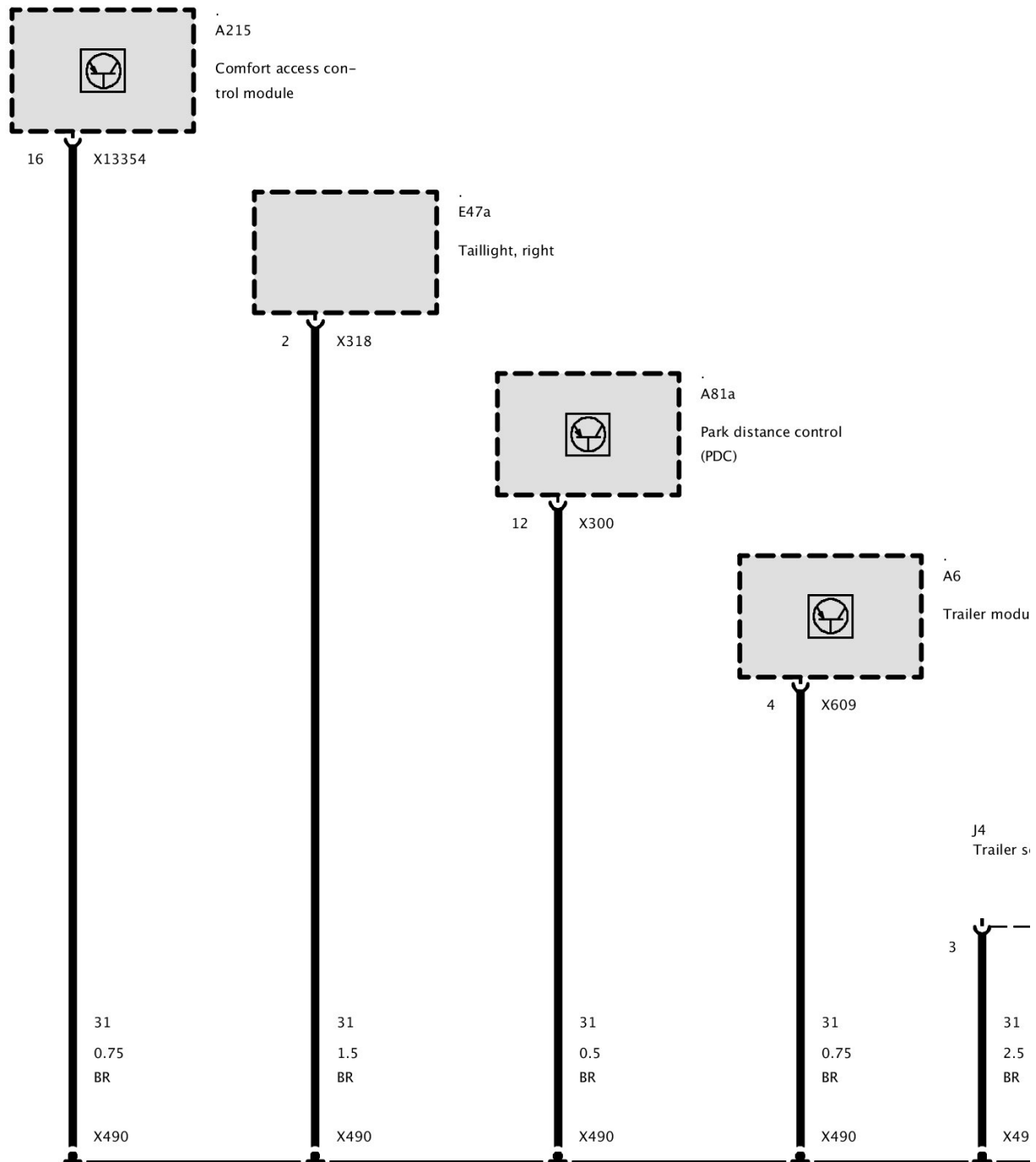


## Part 7

**Ground Connection X490, Connector X1256, X9641, X13229 (As of 03/08)**

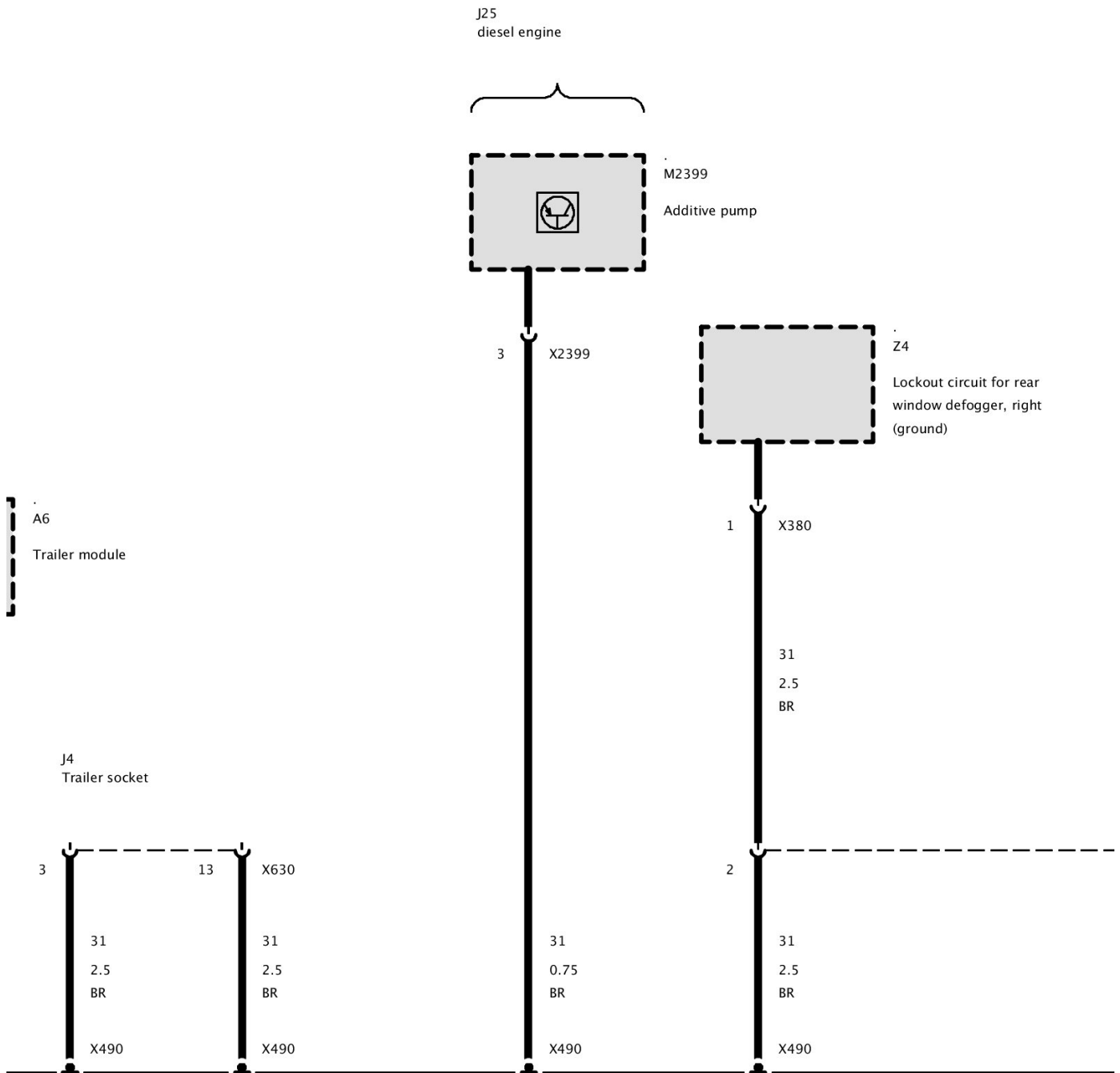
**X1256 No Adapter**

**Ground Connection X490, Connector X1256, X9641, X13229 (As of 03/08)**

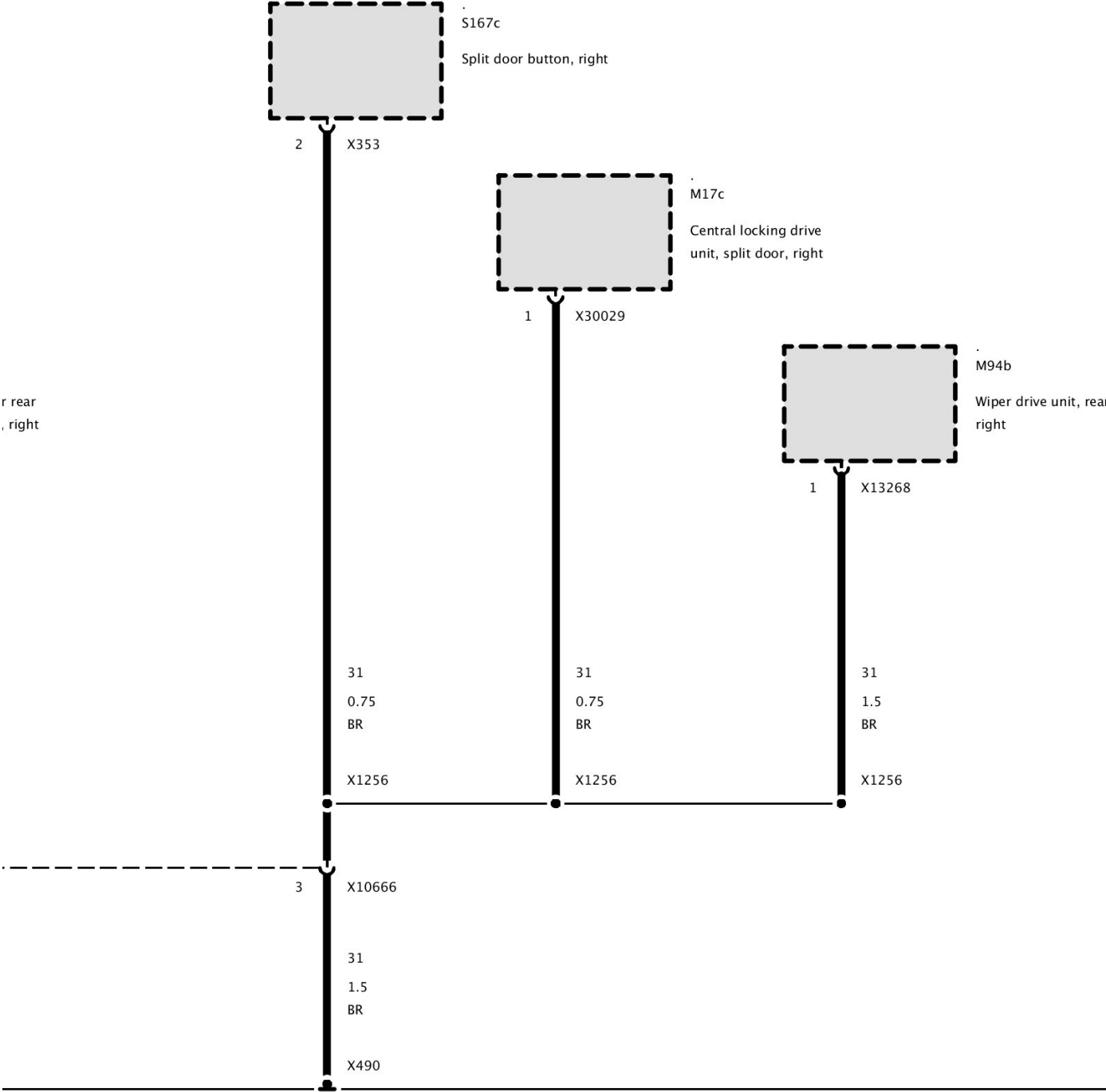


Part 1

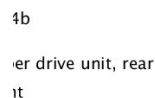




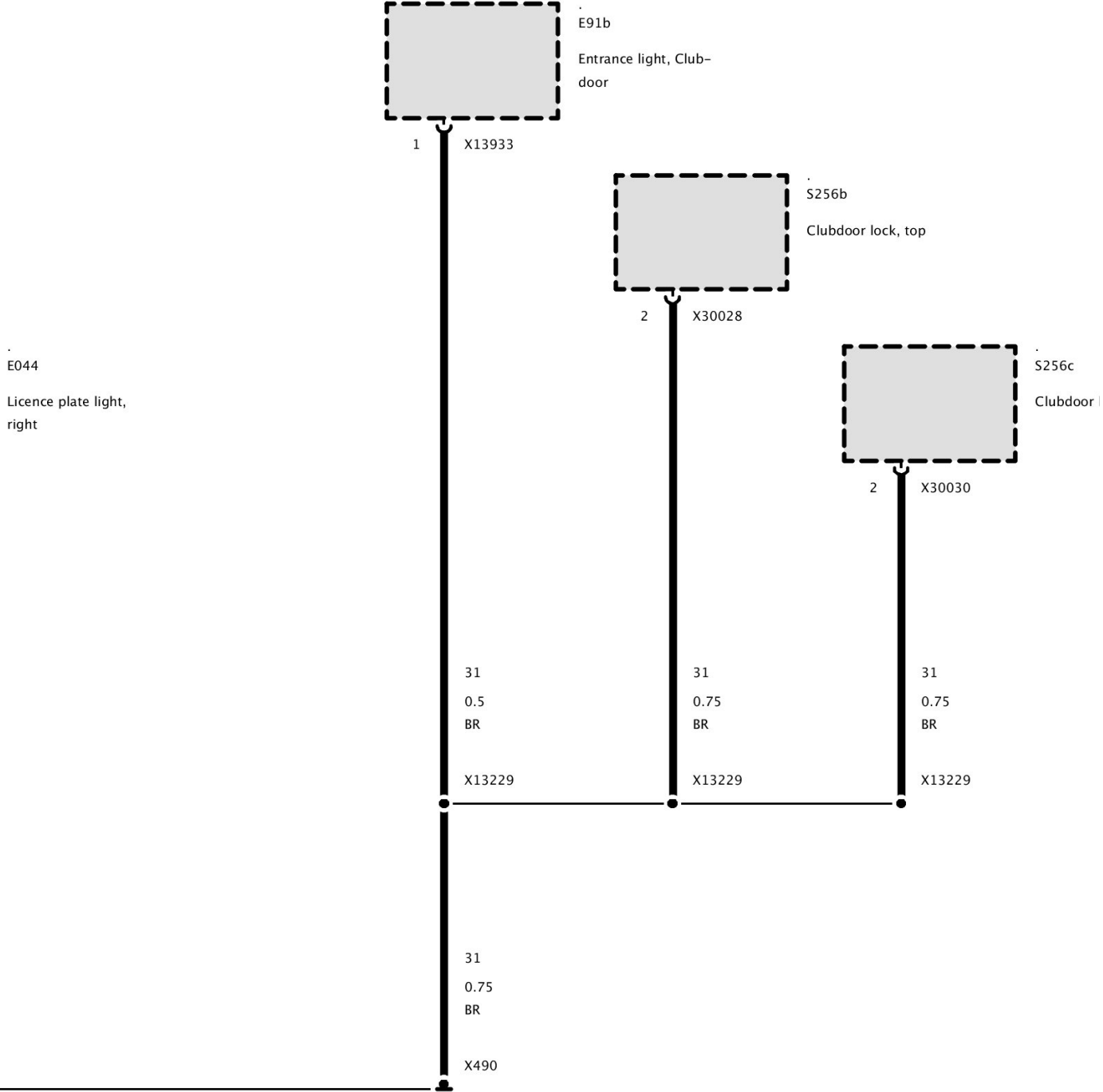
Part 2



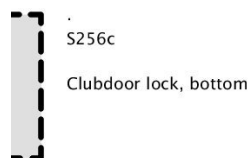
Part 3



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Part 5

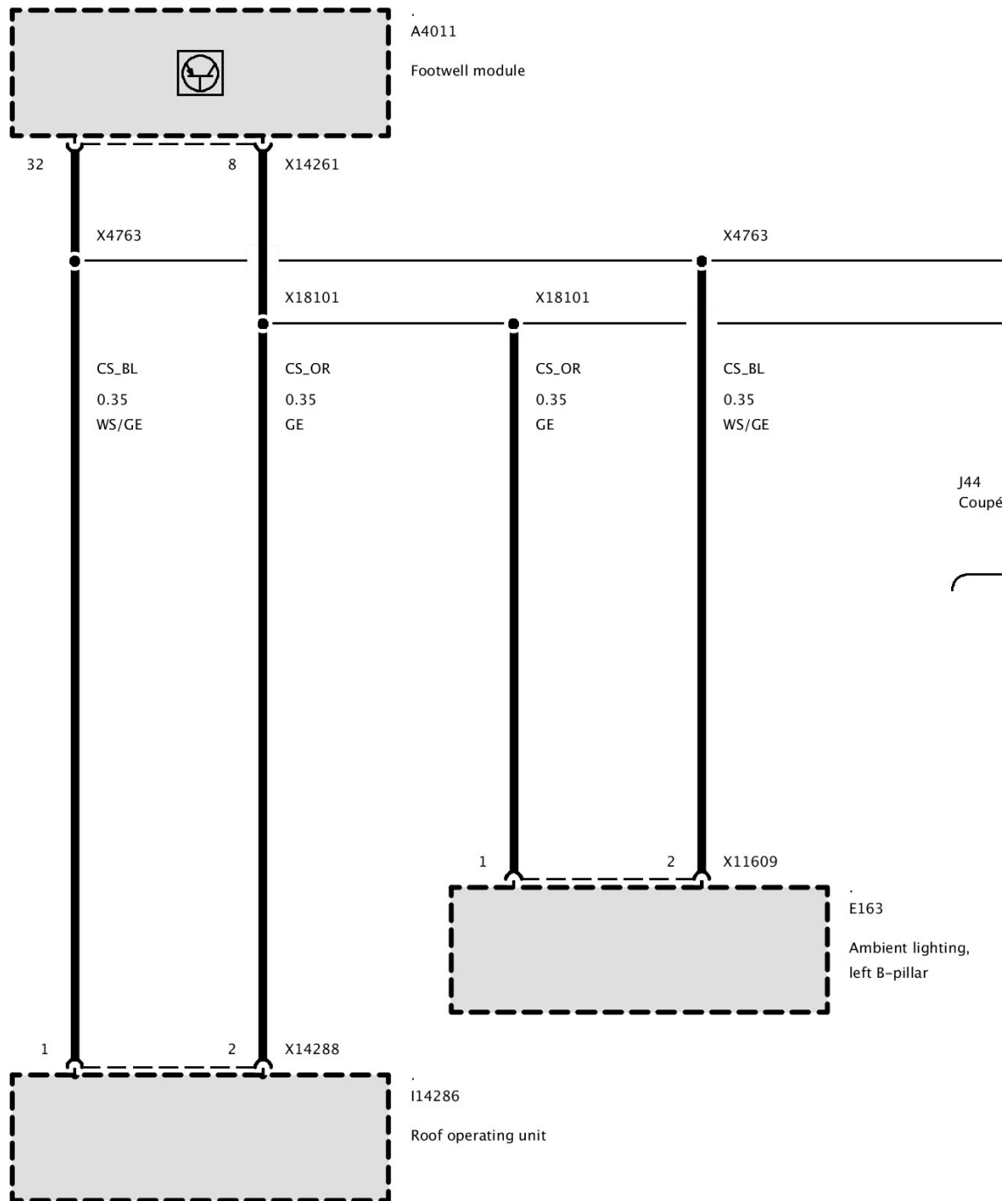


## Part 6

### X1366 No Adapter

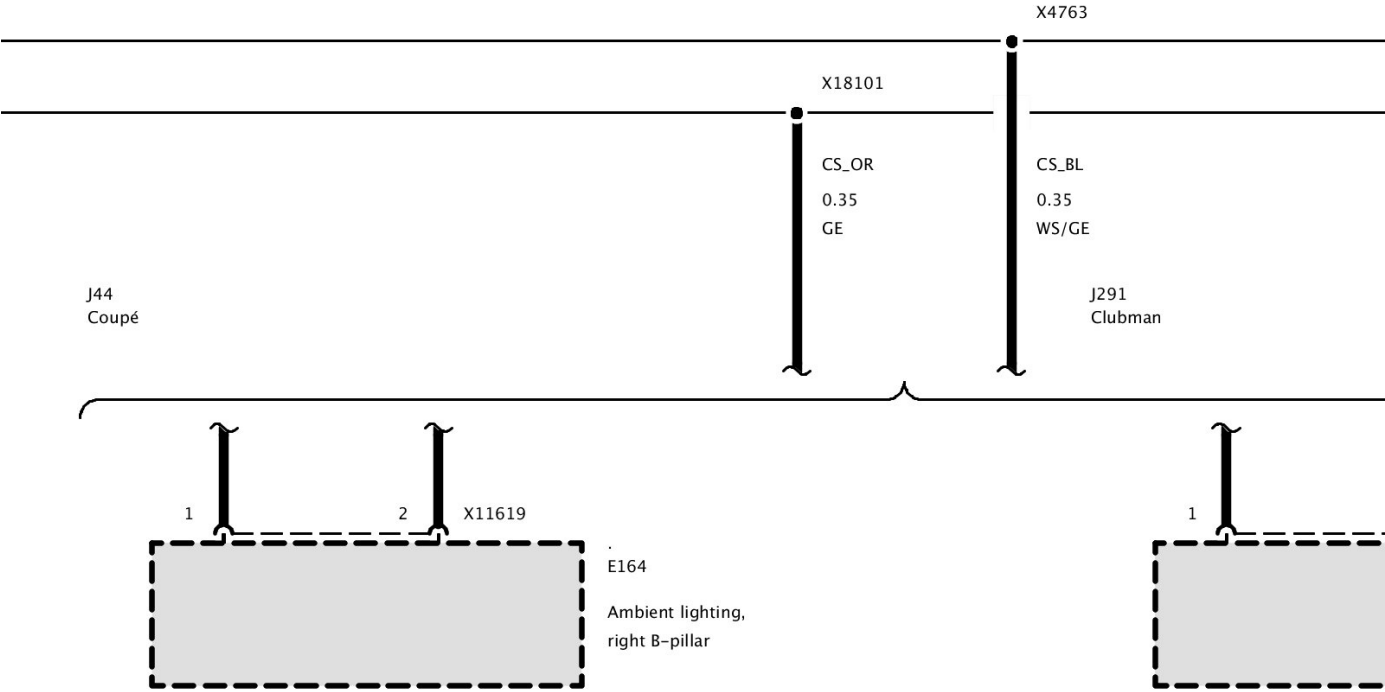
#### X1366 No Adapter

Connectors X4763, X18101, X2859, X1366, X01436, X1203

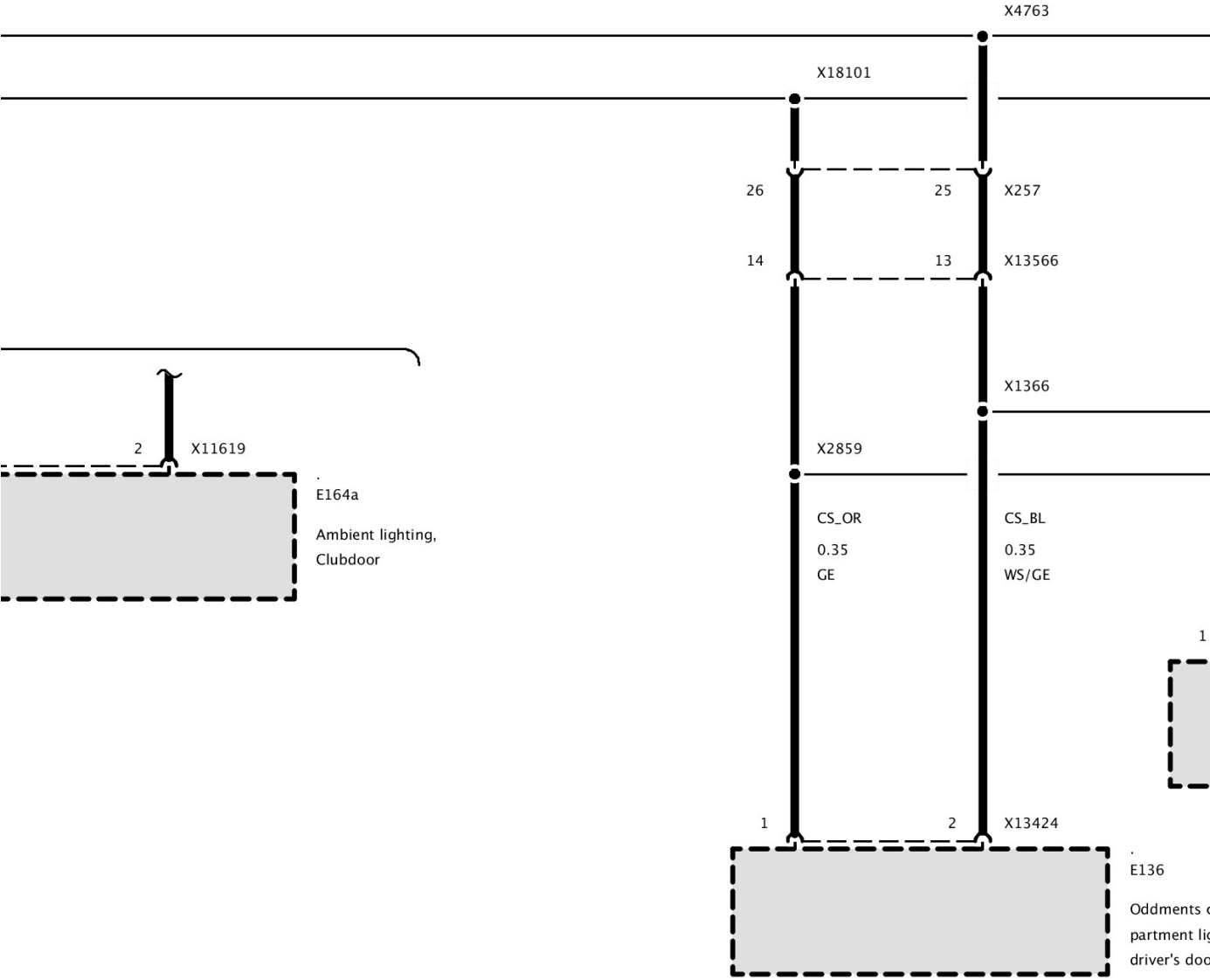


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Part 1

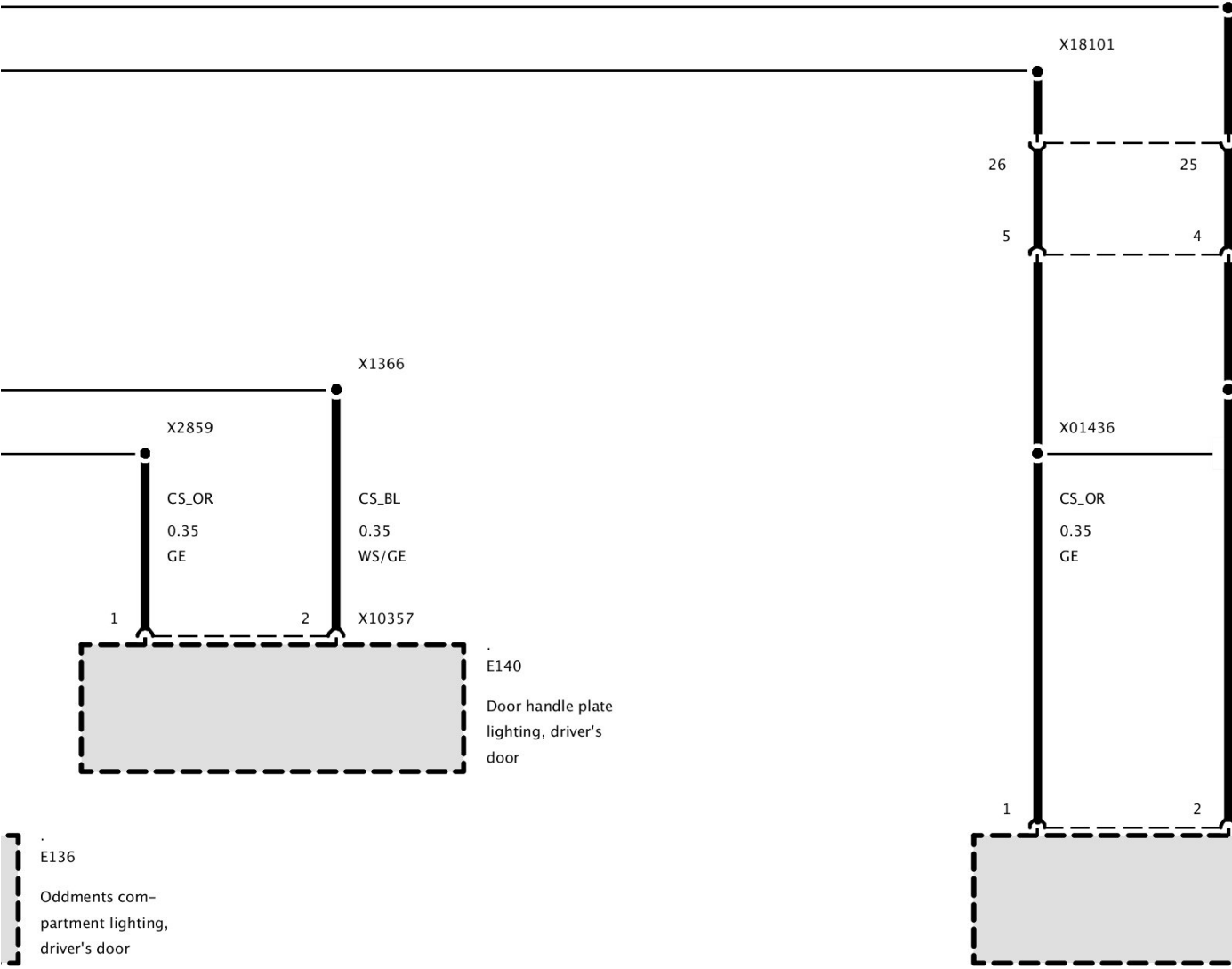


Part 2

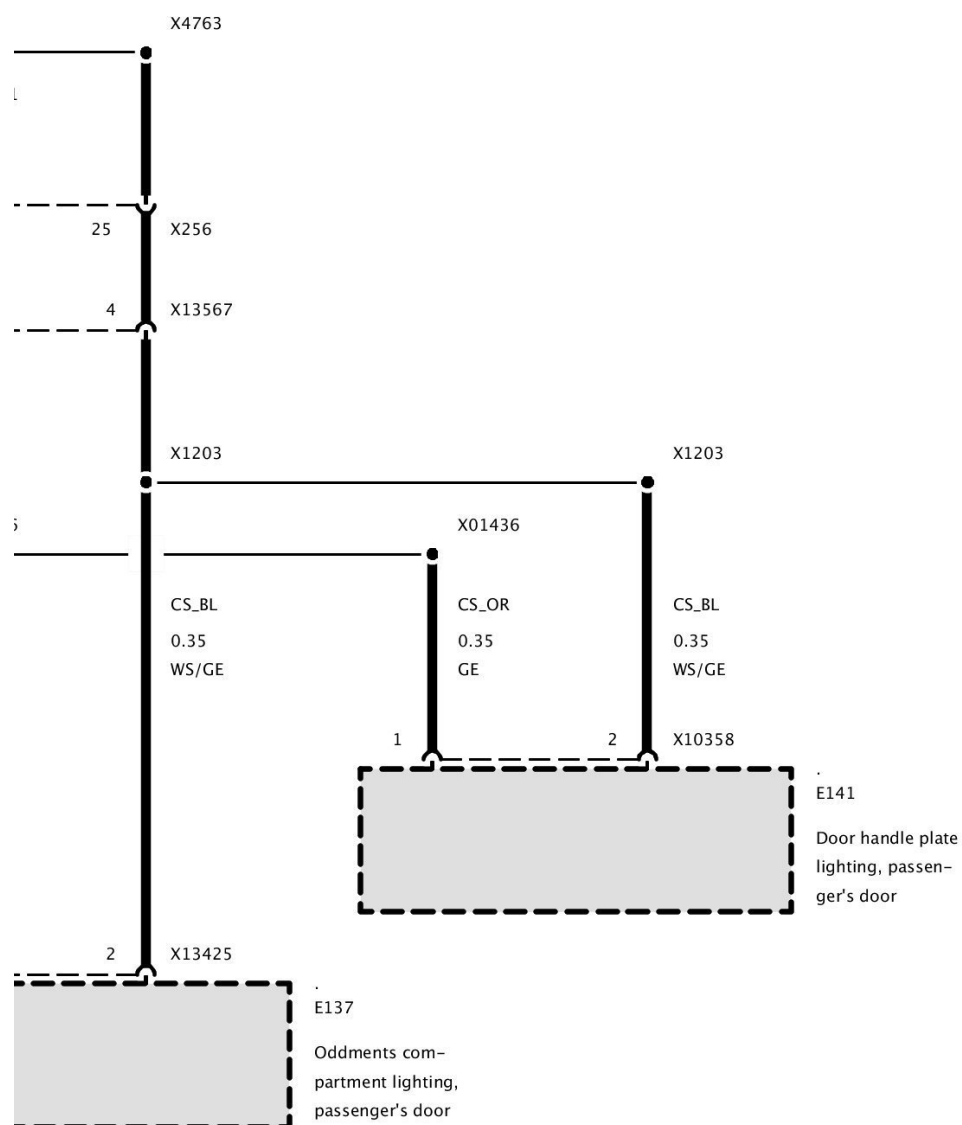


Part 3





Part 4

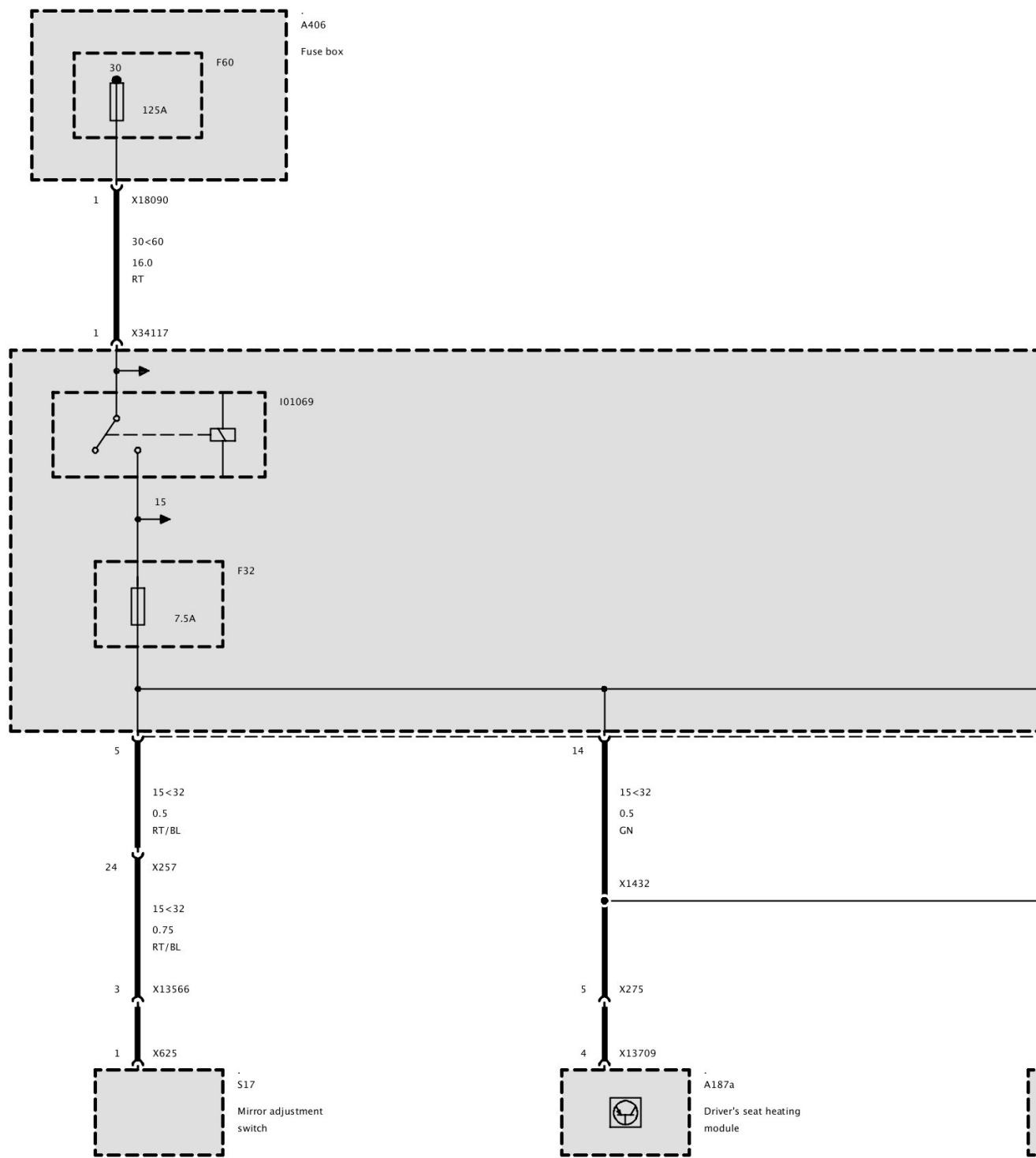


## Part 5

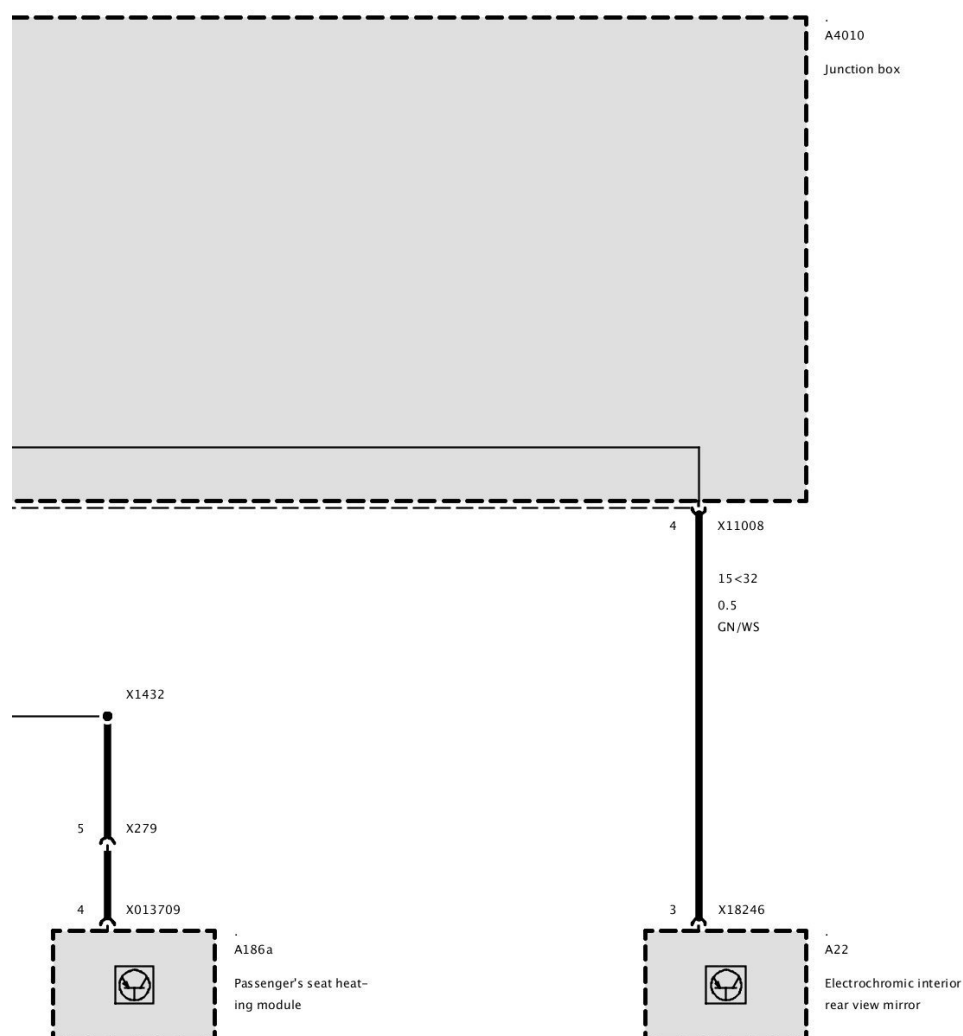
### X1432 No Adapter

### X1432 No Adapter

### Fuse F32



Part 1

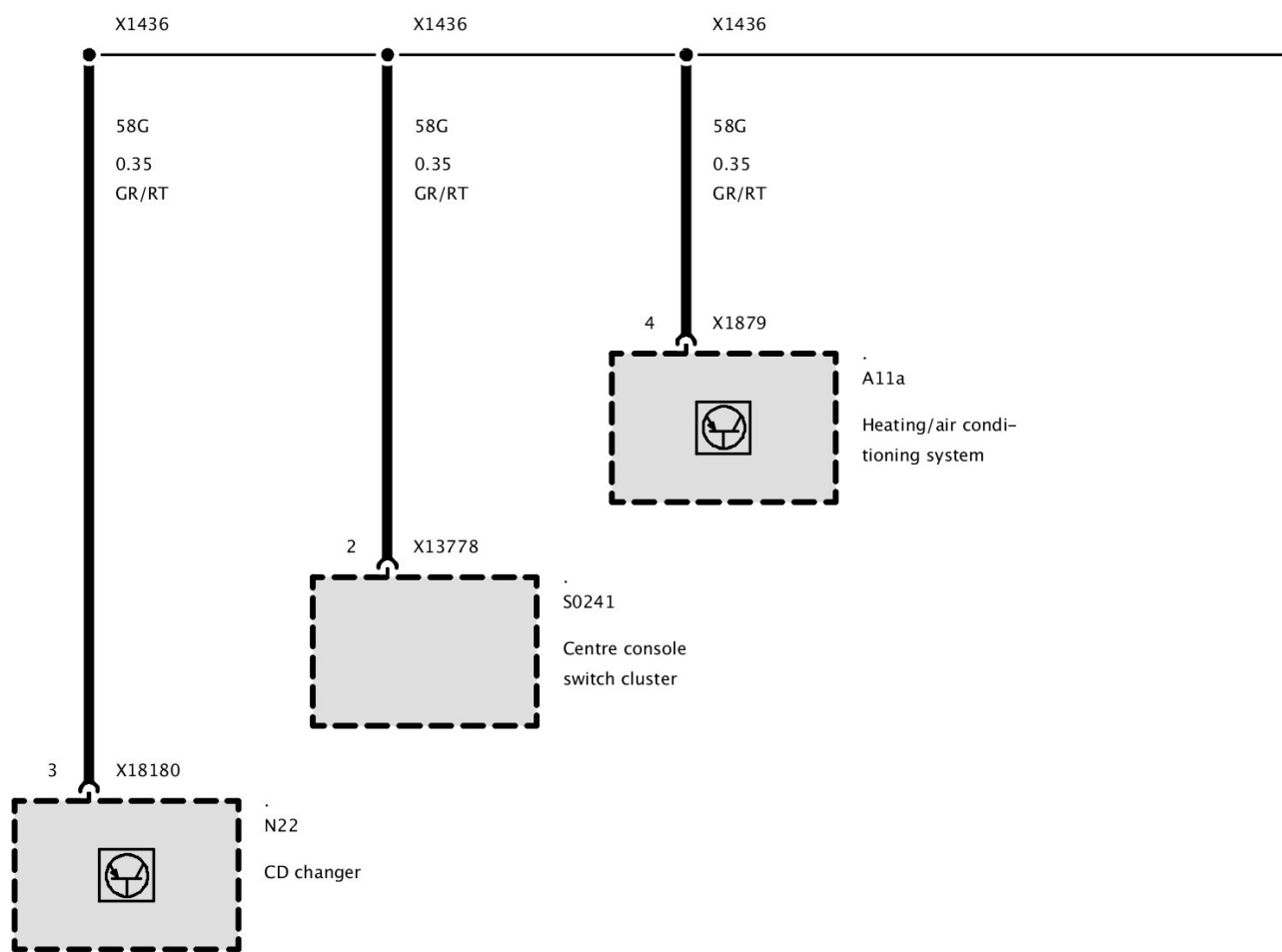


## Part 2

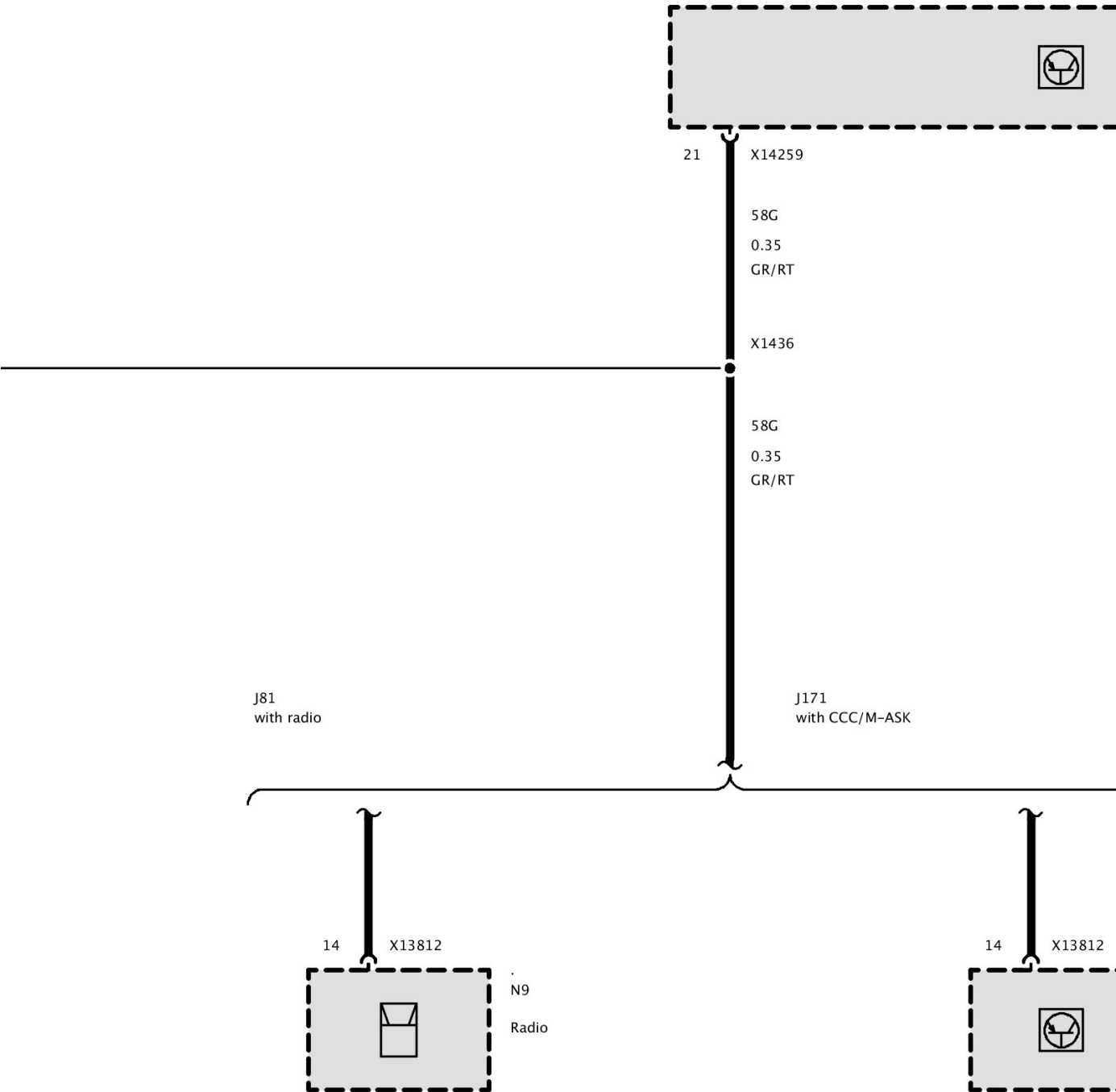
### X1436 No Adapter

### X1436 No Adapter

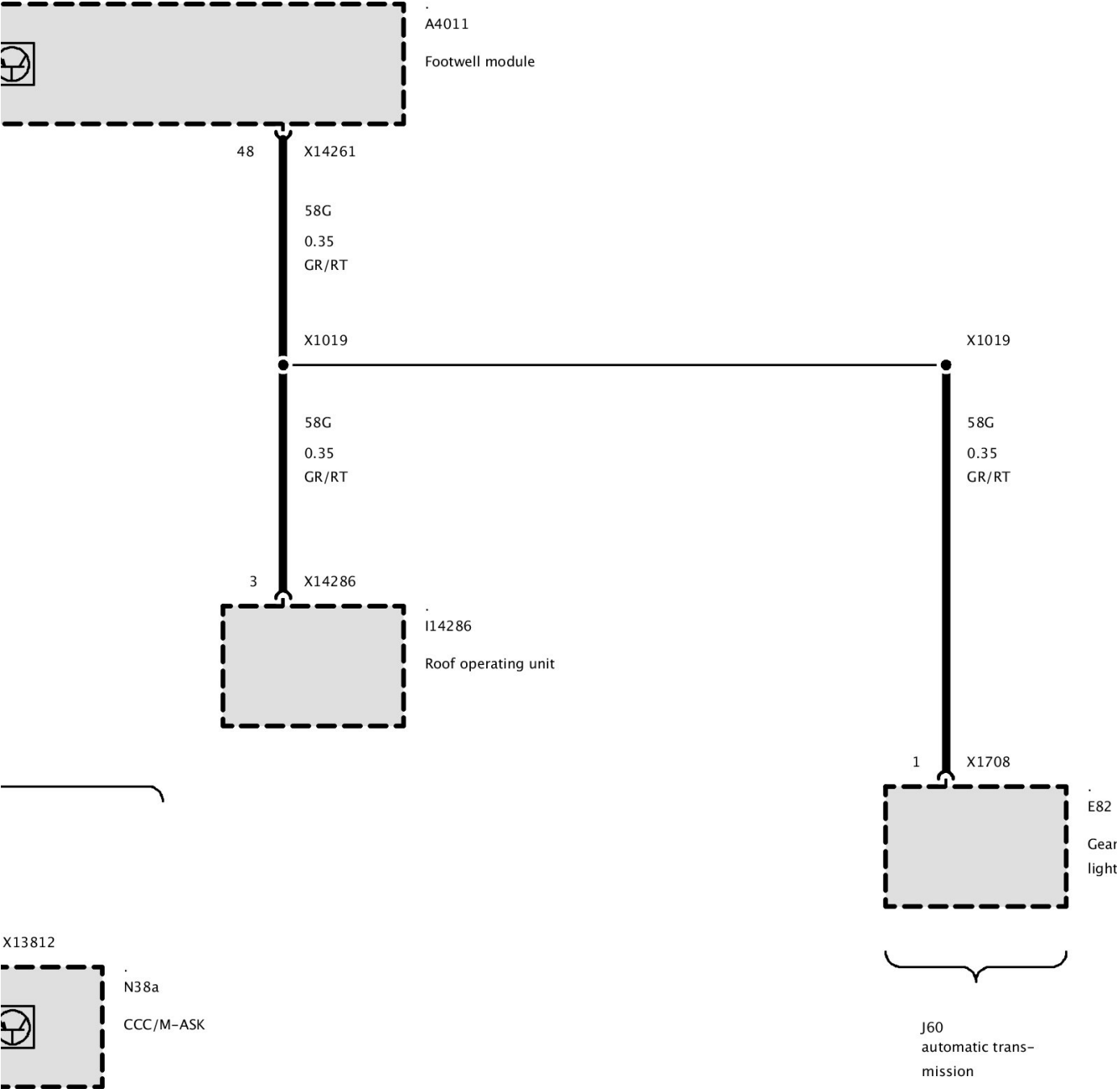
### Connector, Instrument and Locator Lighting X1019, X1436



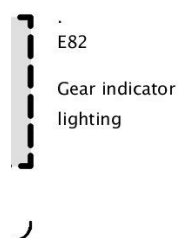
Part 1



Part 2



Part 3



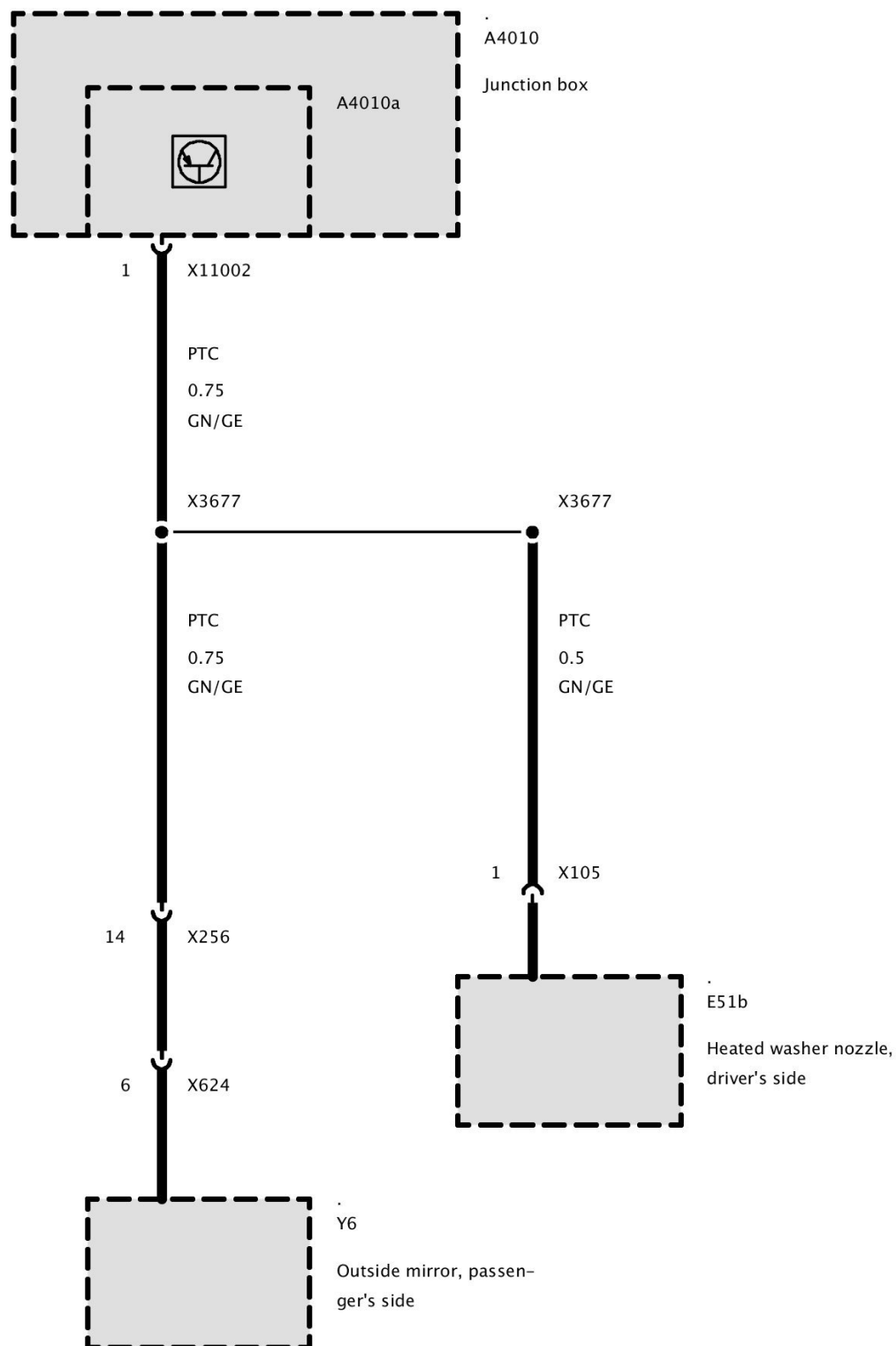
#### Part 4

**X1464 No Adapter**

**X1464 No Adapter**

**Connector X3677**

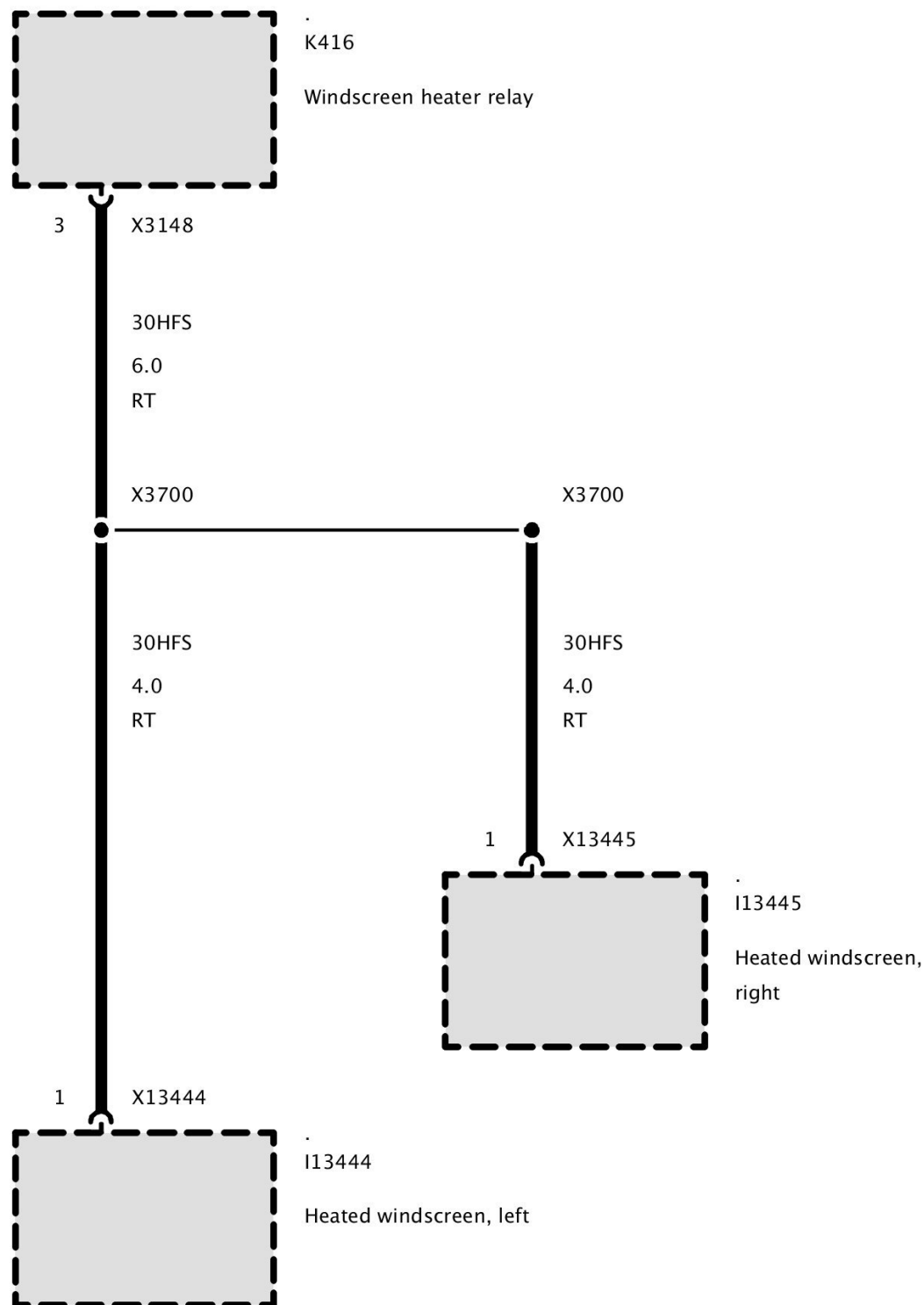




**X1465 No Adapter**

**X1465 No Adapter**

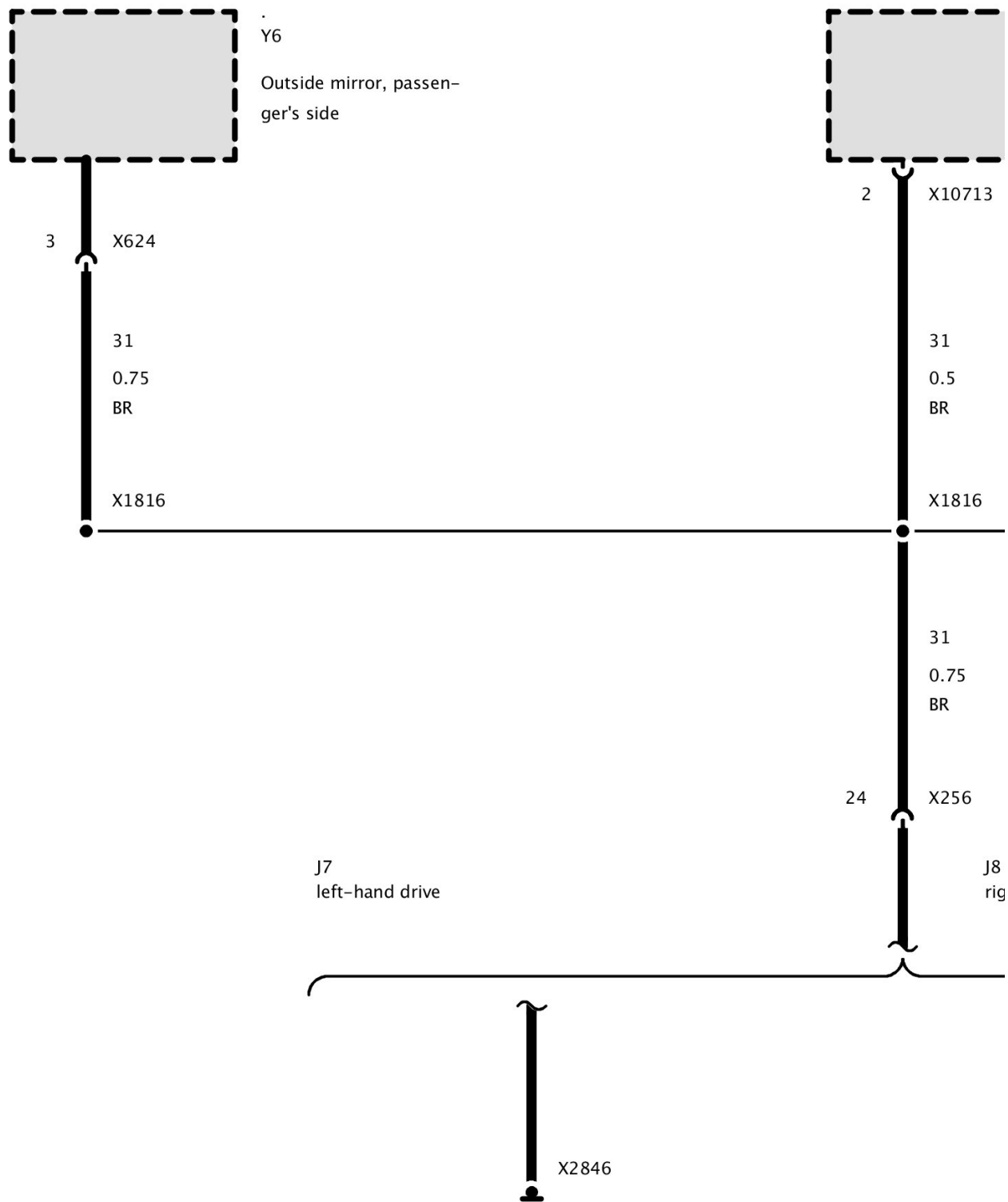
**Connector X3700**



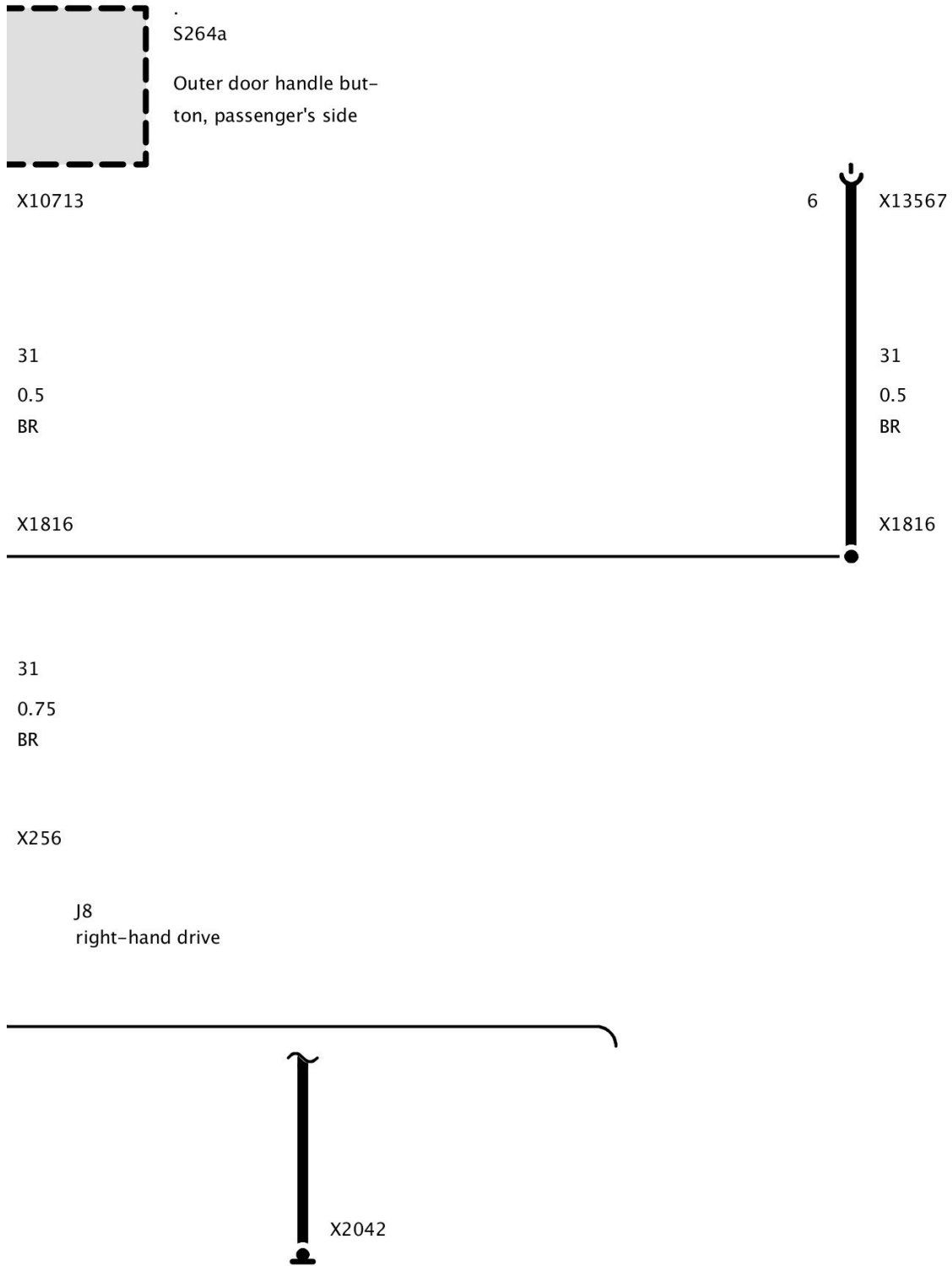
**X1816 No Adapter**

**X1816 No Adapter**

**Ground Connector X1816**



Part 1

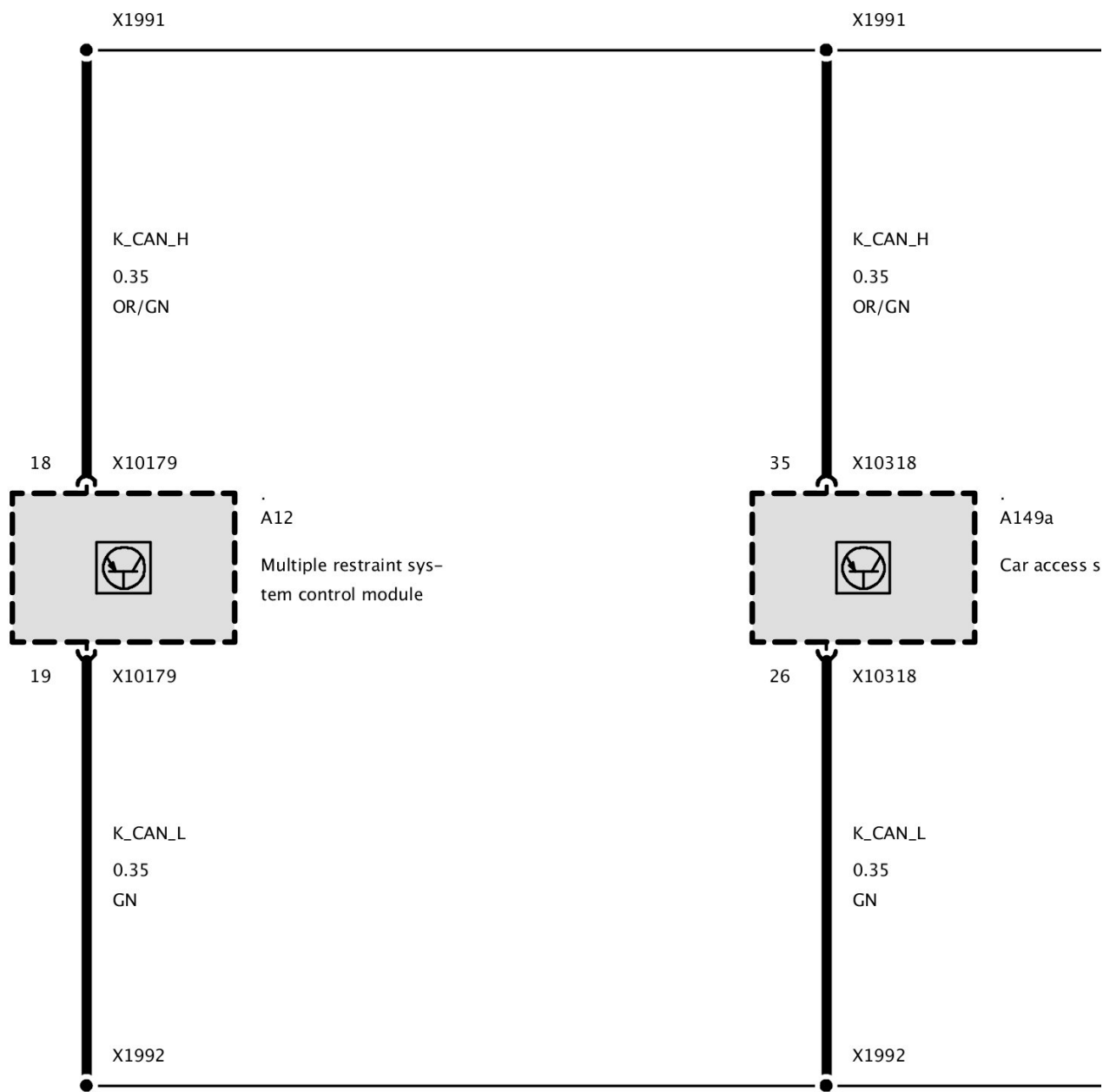


Part 2

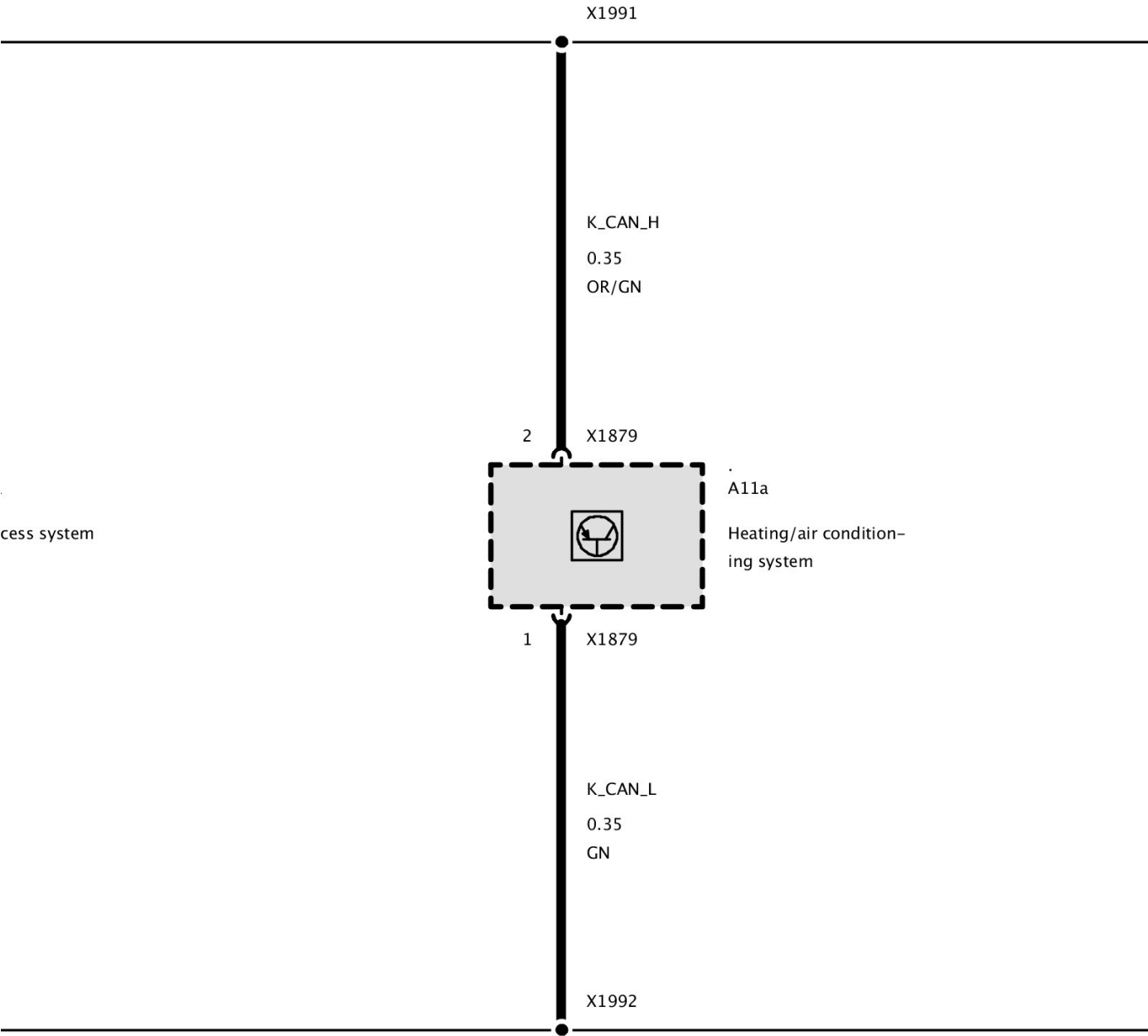
Connector, CAN Bus (As of 08/07 Up to 12/08)

X1991 No Adapter

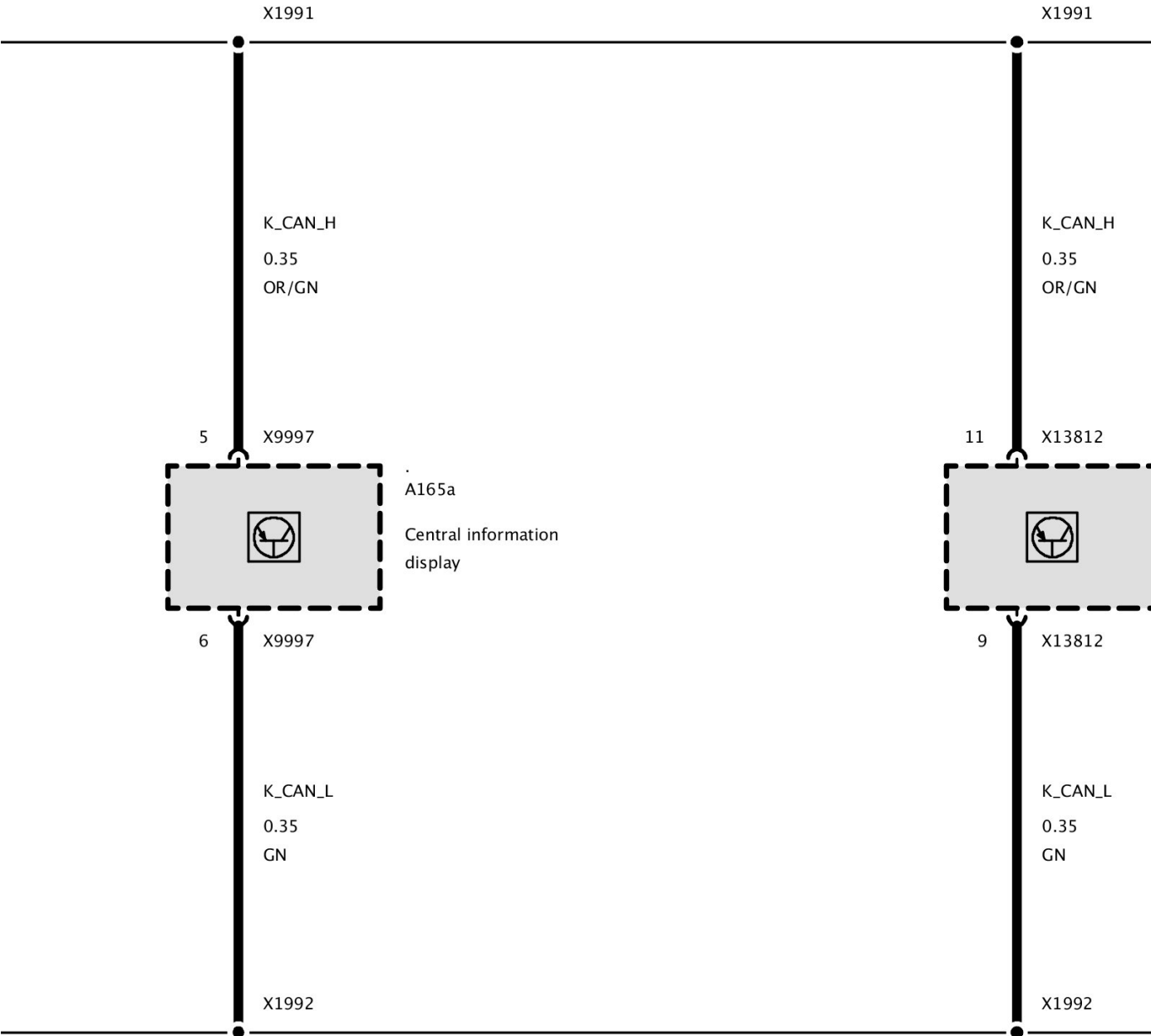
Connector, CAN Bus (As of 08/07 Up to 12/08)



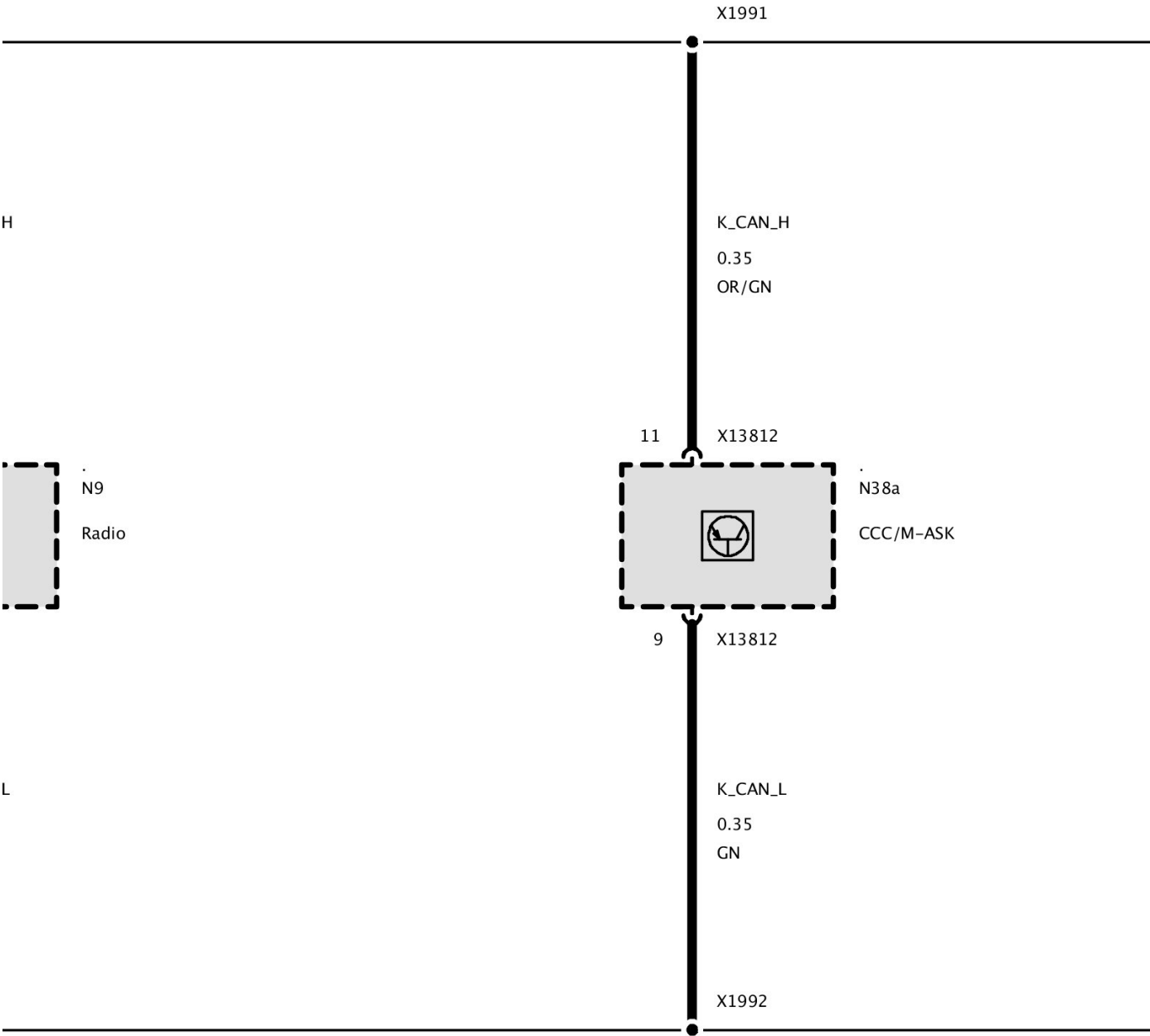
Part 1



Part 2

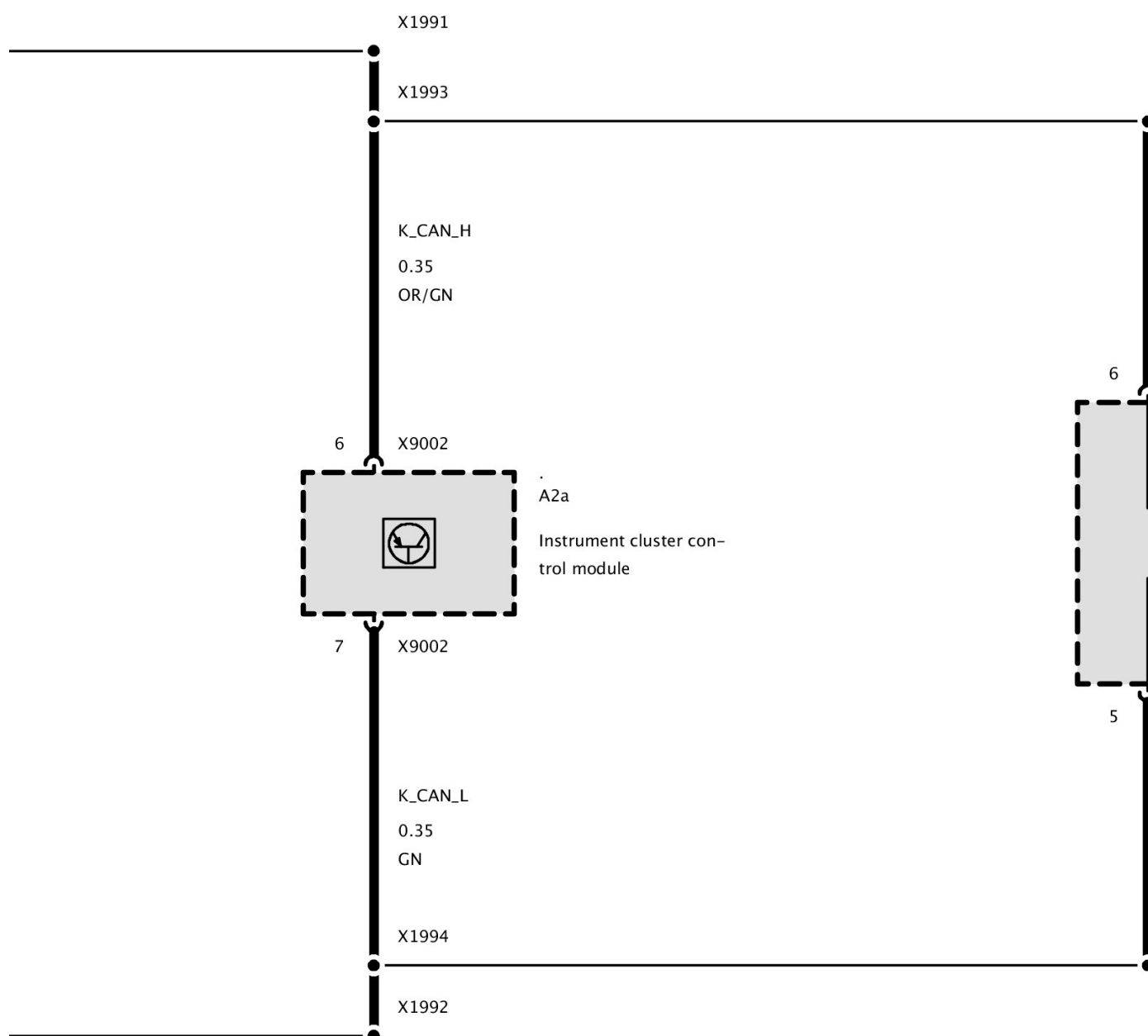


Part 3

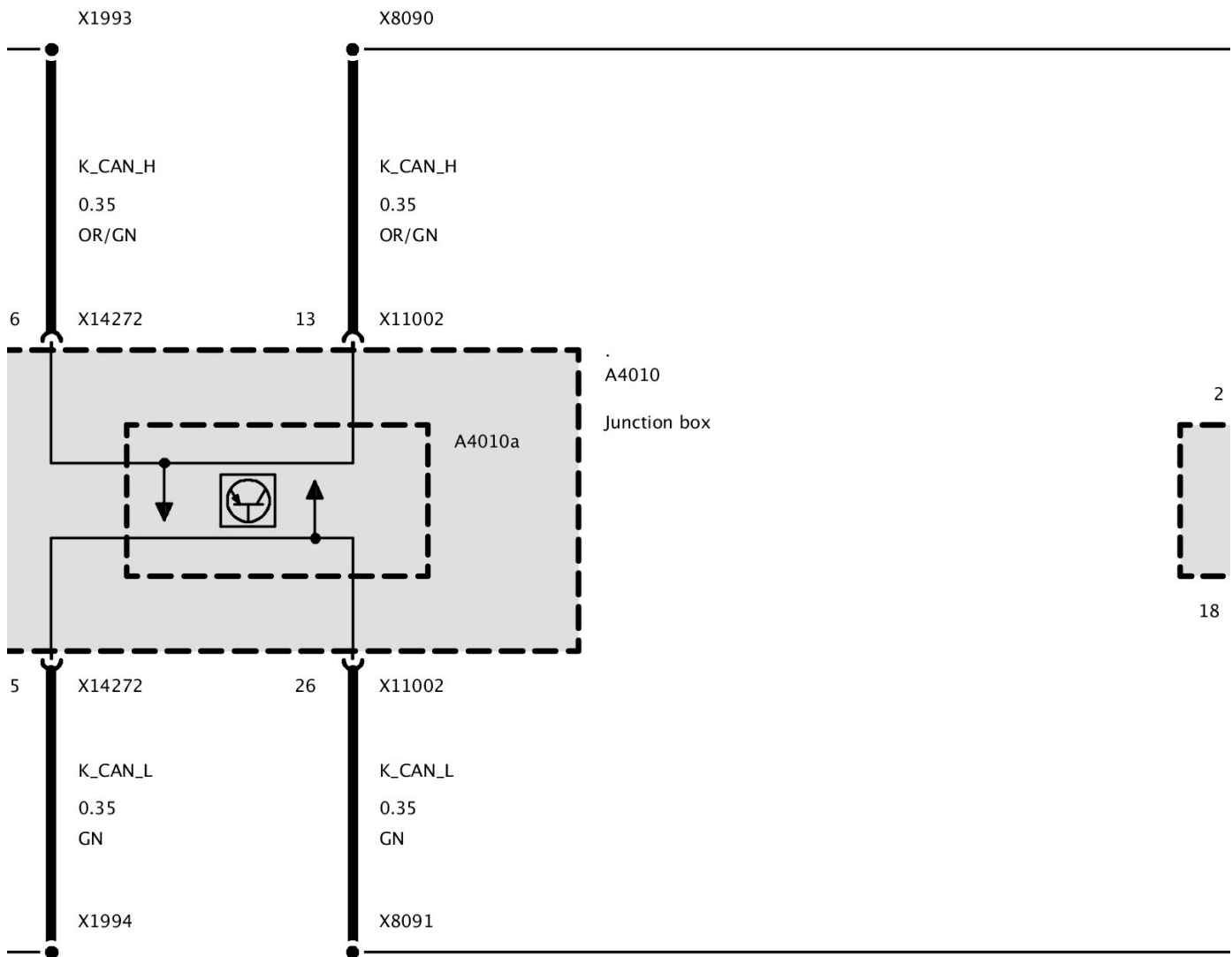


Part 4

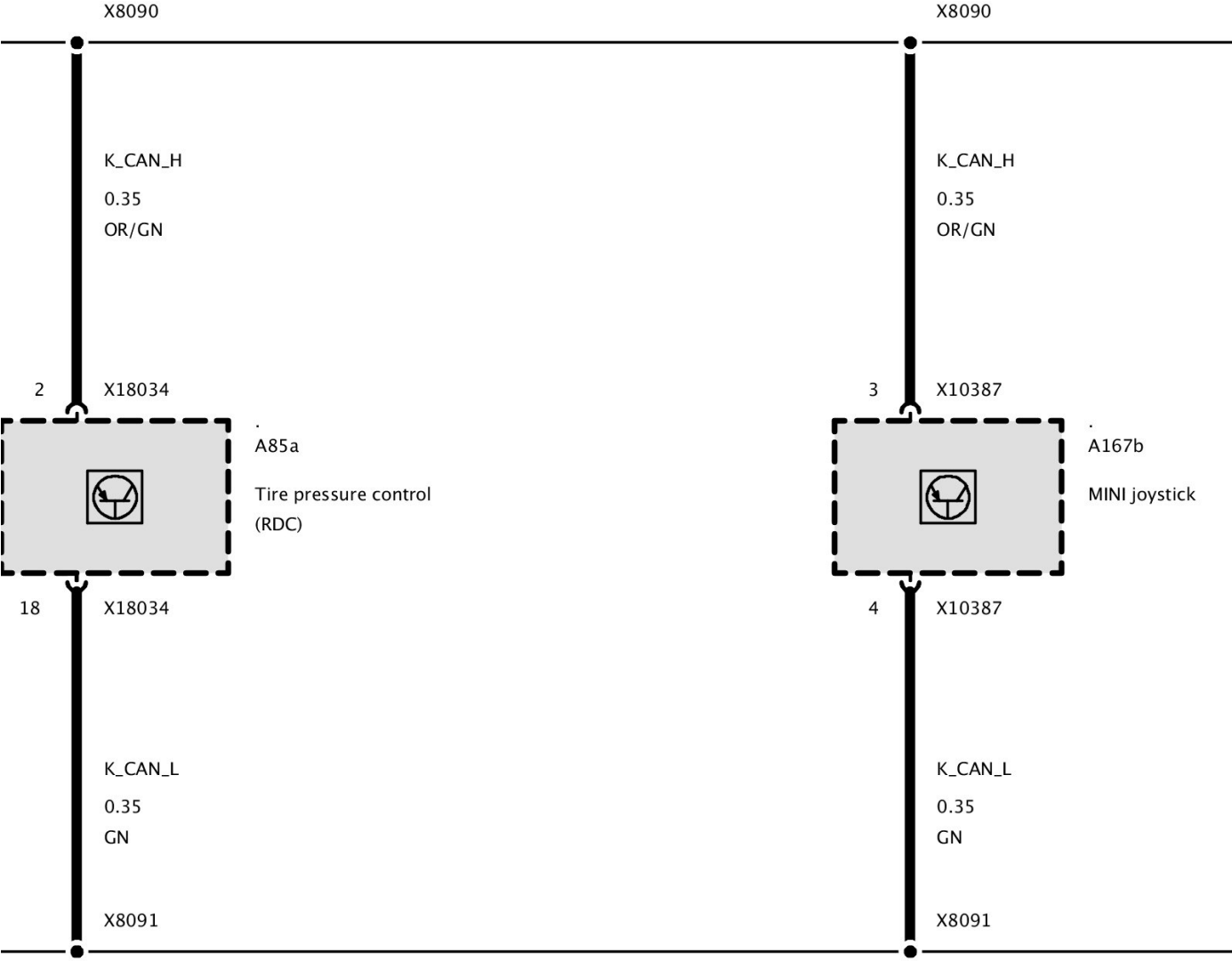




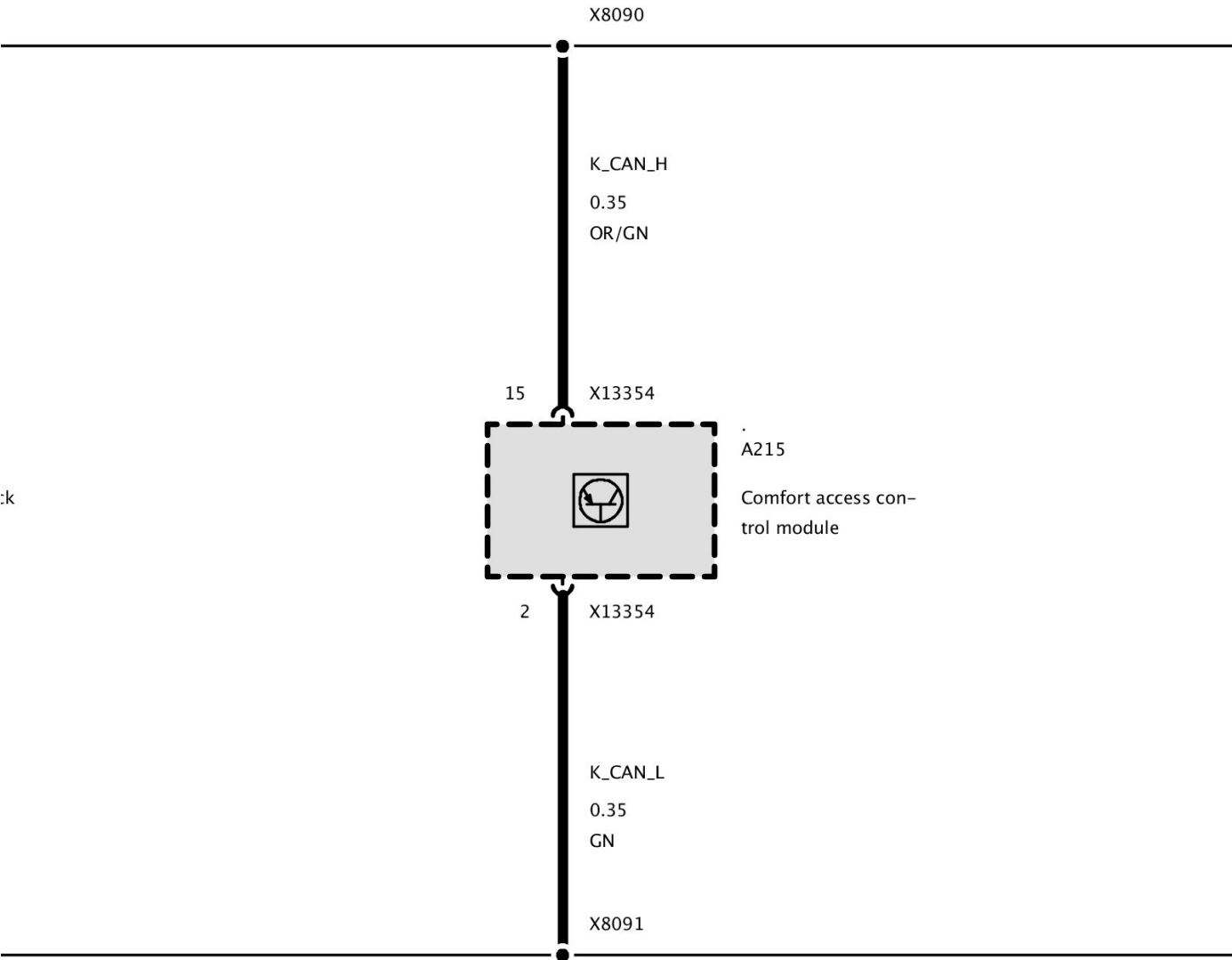
jmoraflores@hotmail.cl



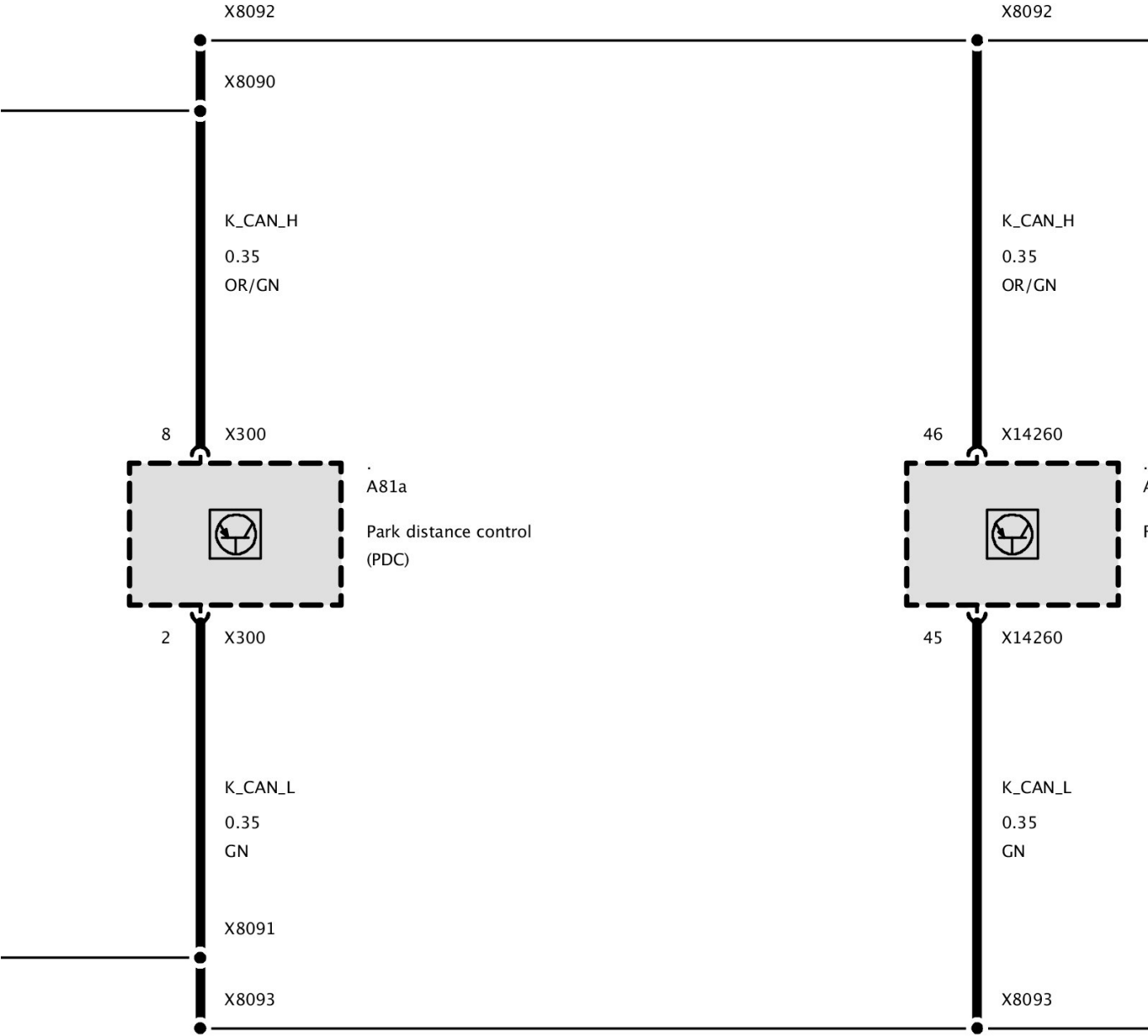
Part 6



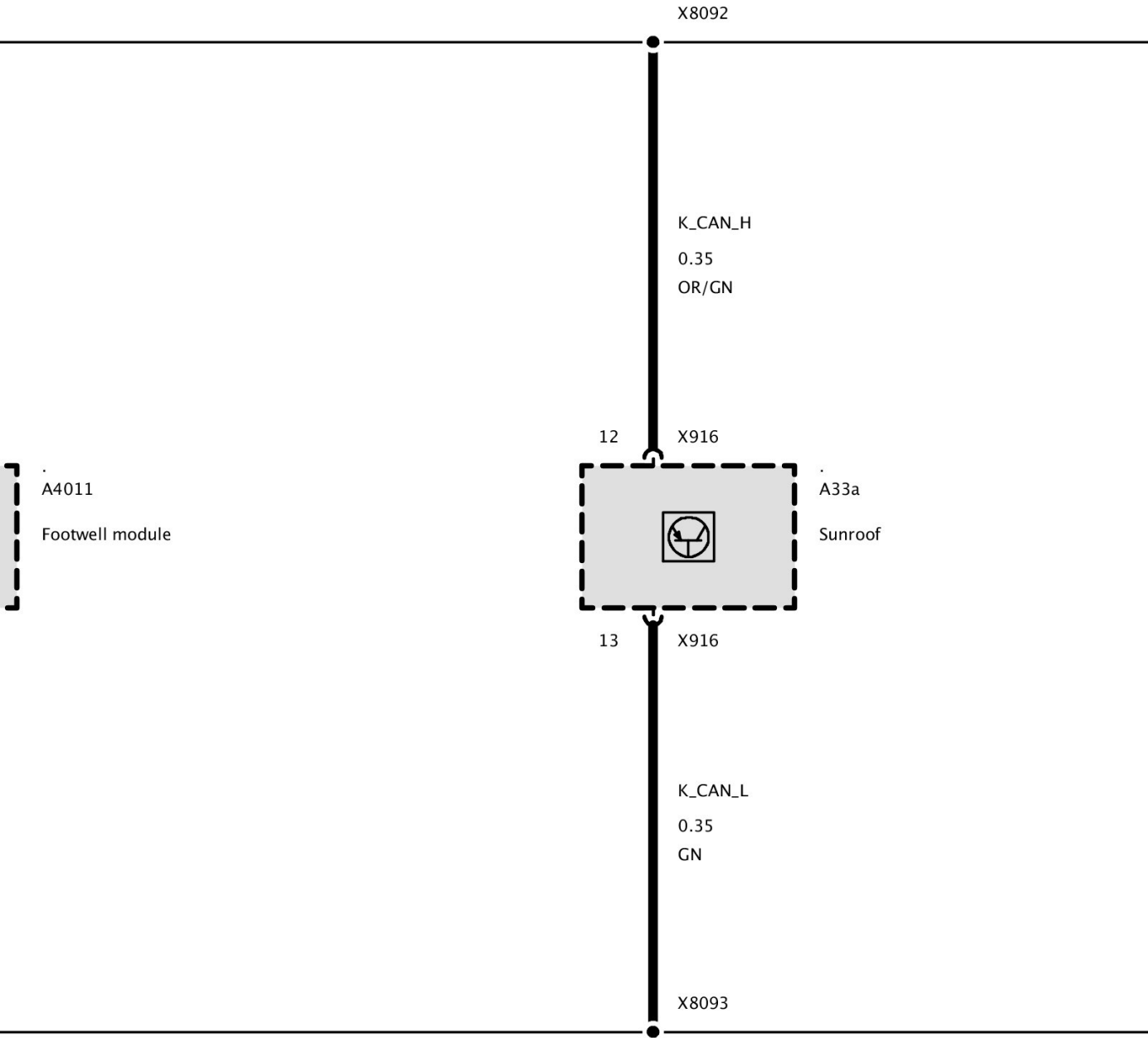
Part 7



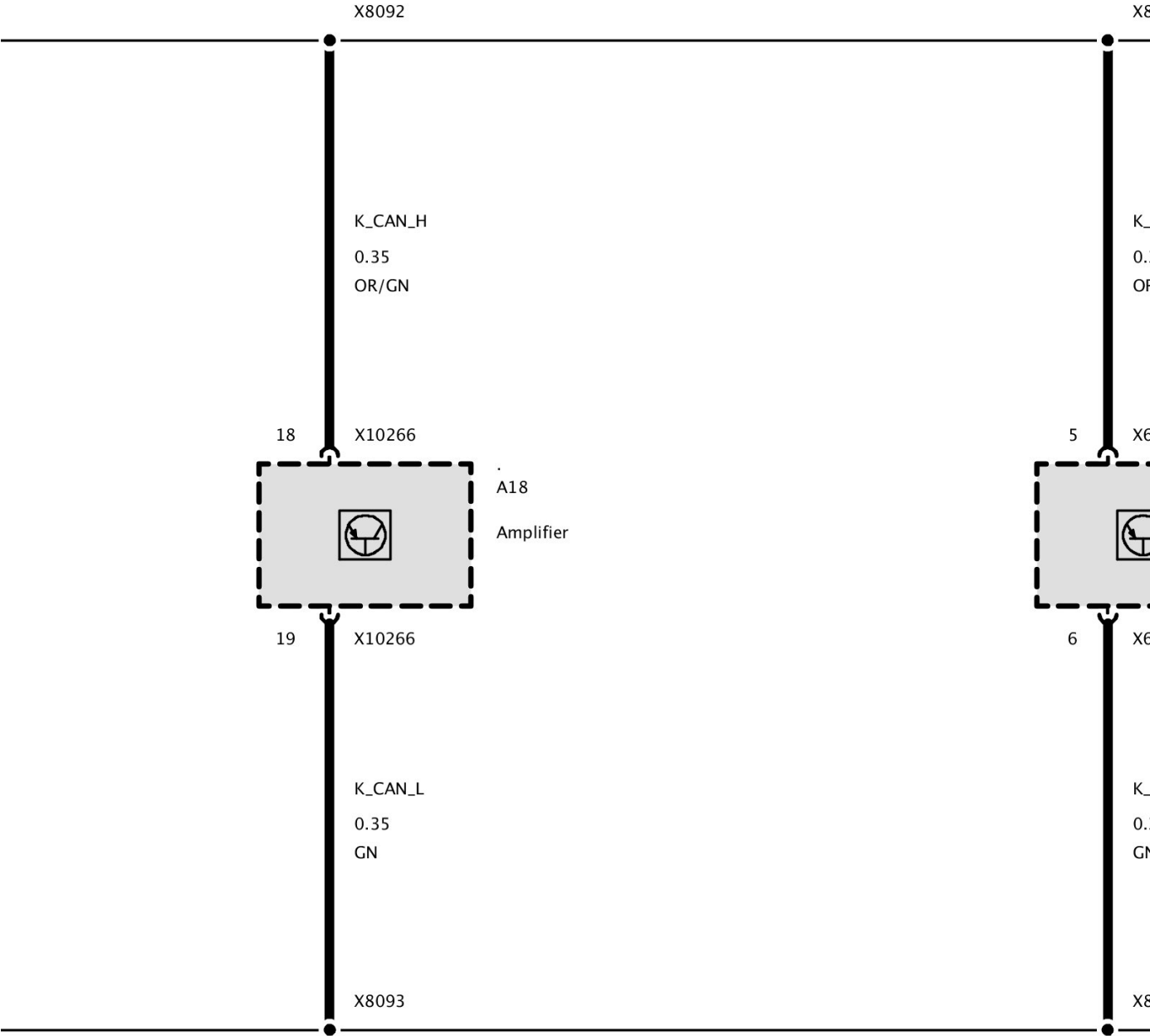
Part 8



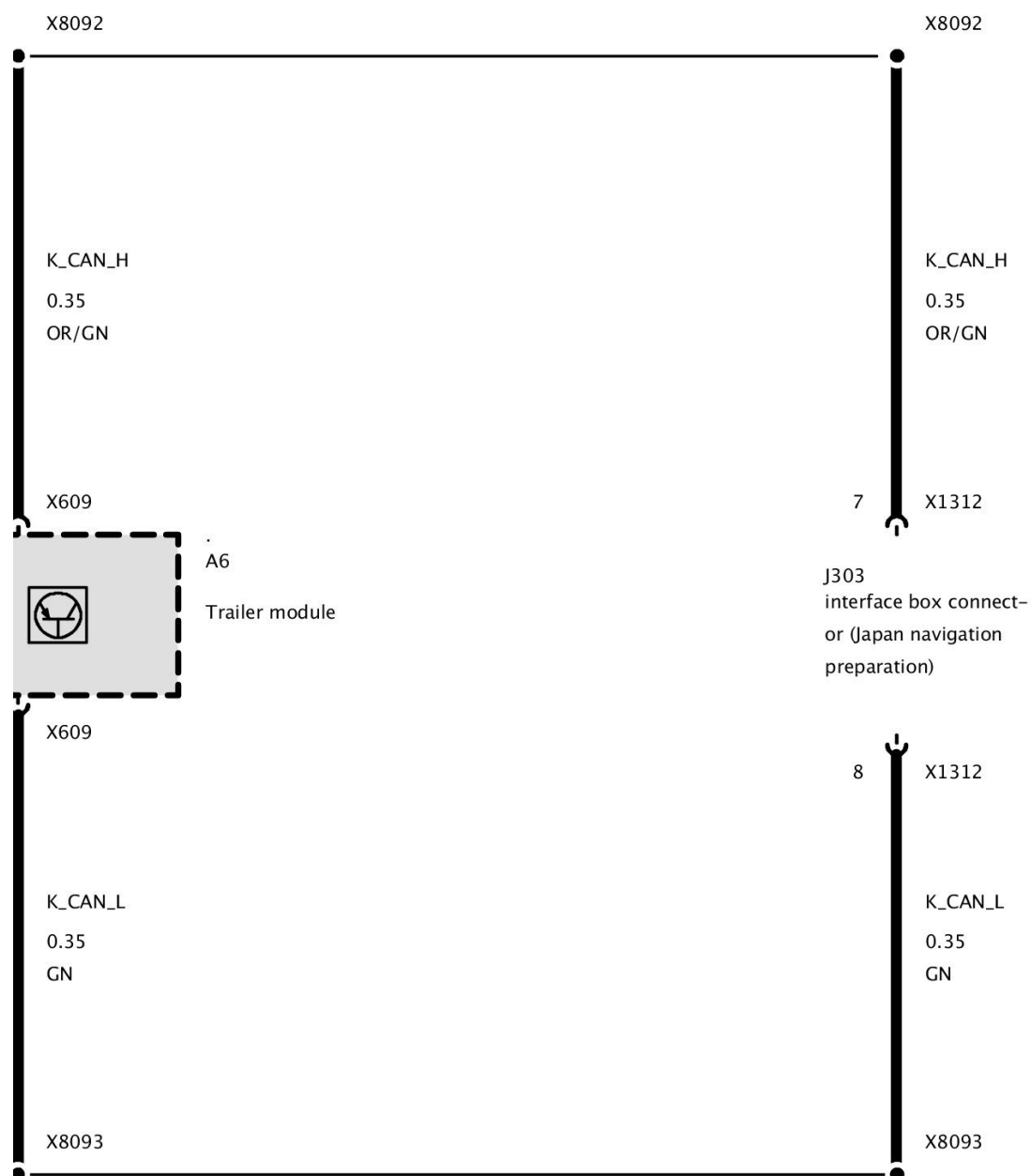
Part 9



Part 10



Part 11



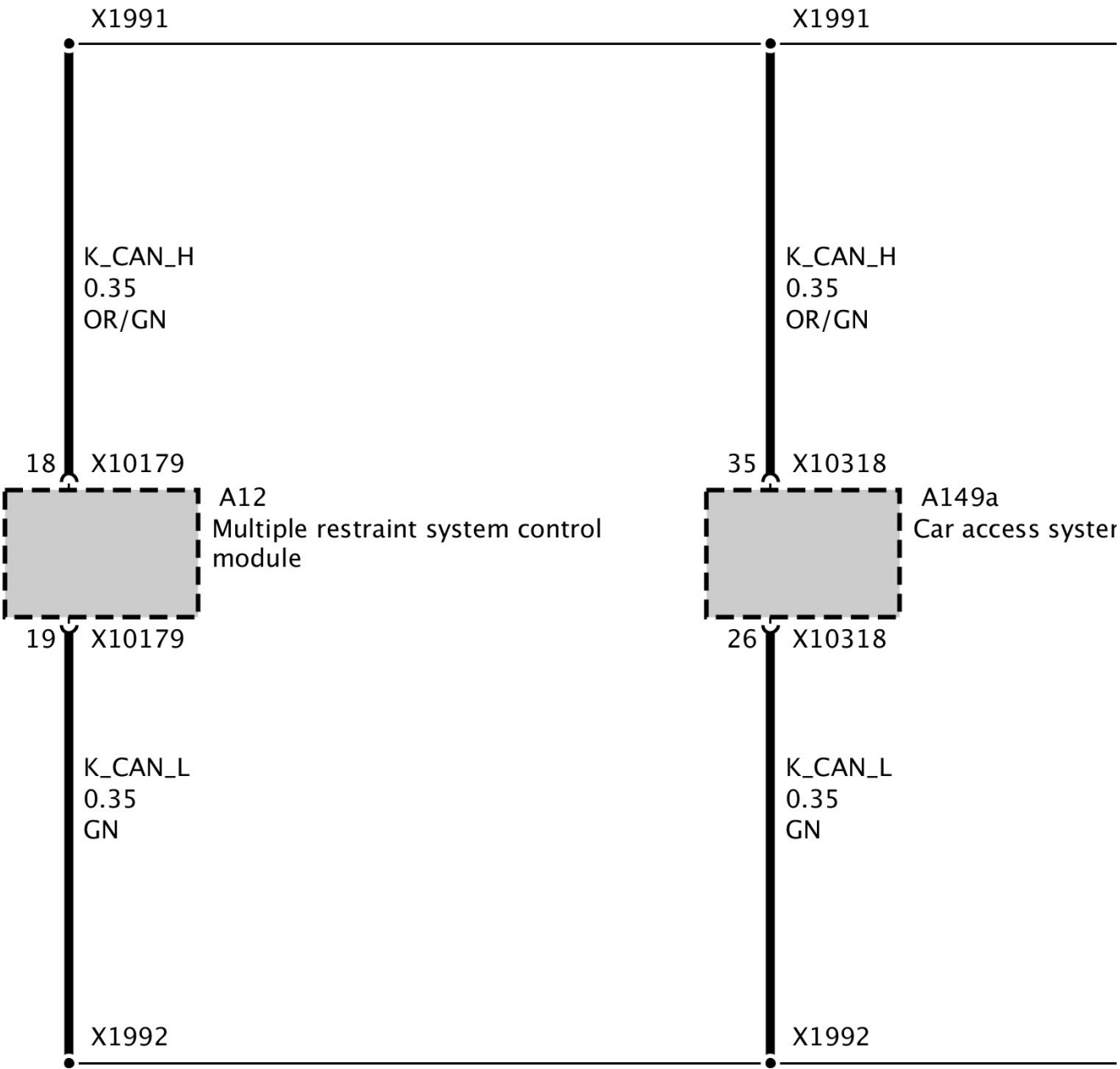
## Part 12

### Connector, CAN Bus (As of 12/08)

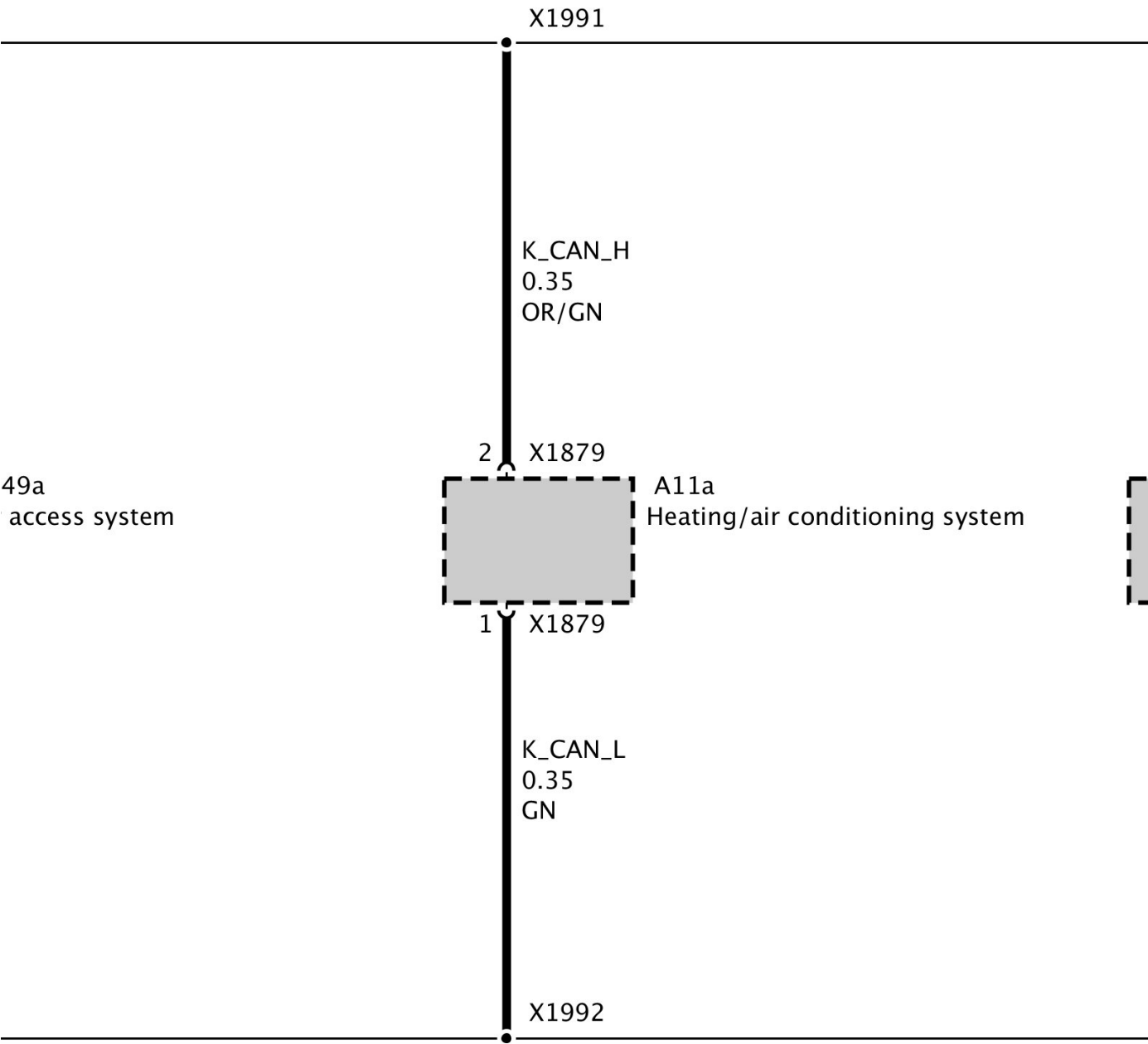
X1991 No Adapter

Connector, CAN Bus (As of 12/08)

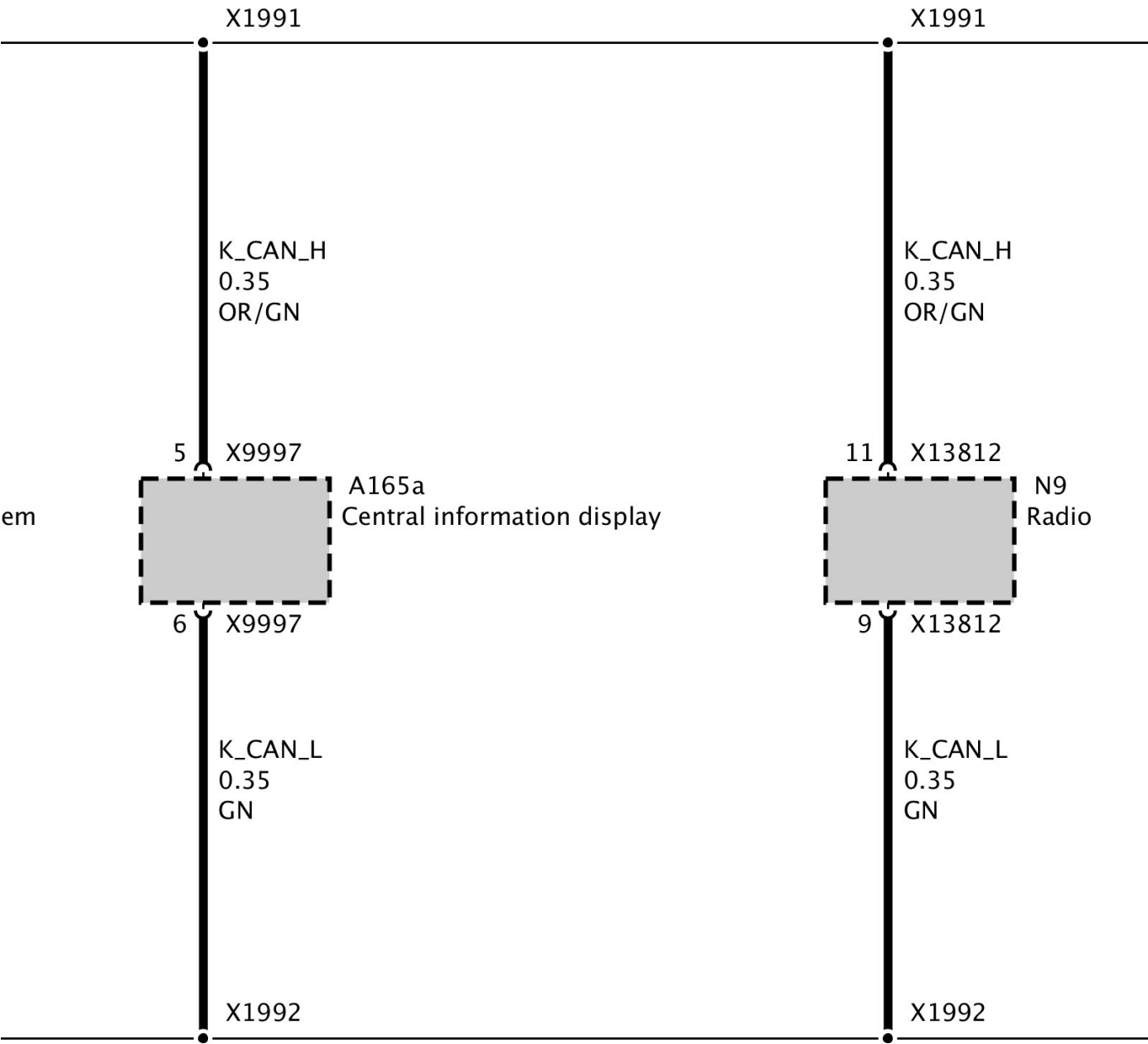




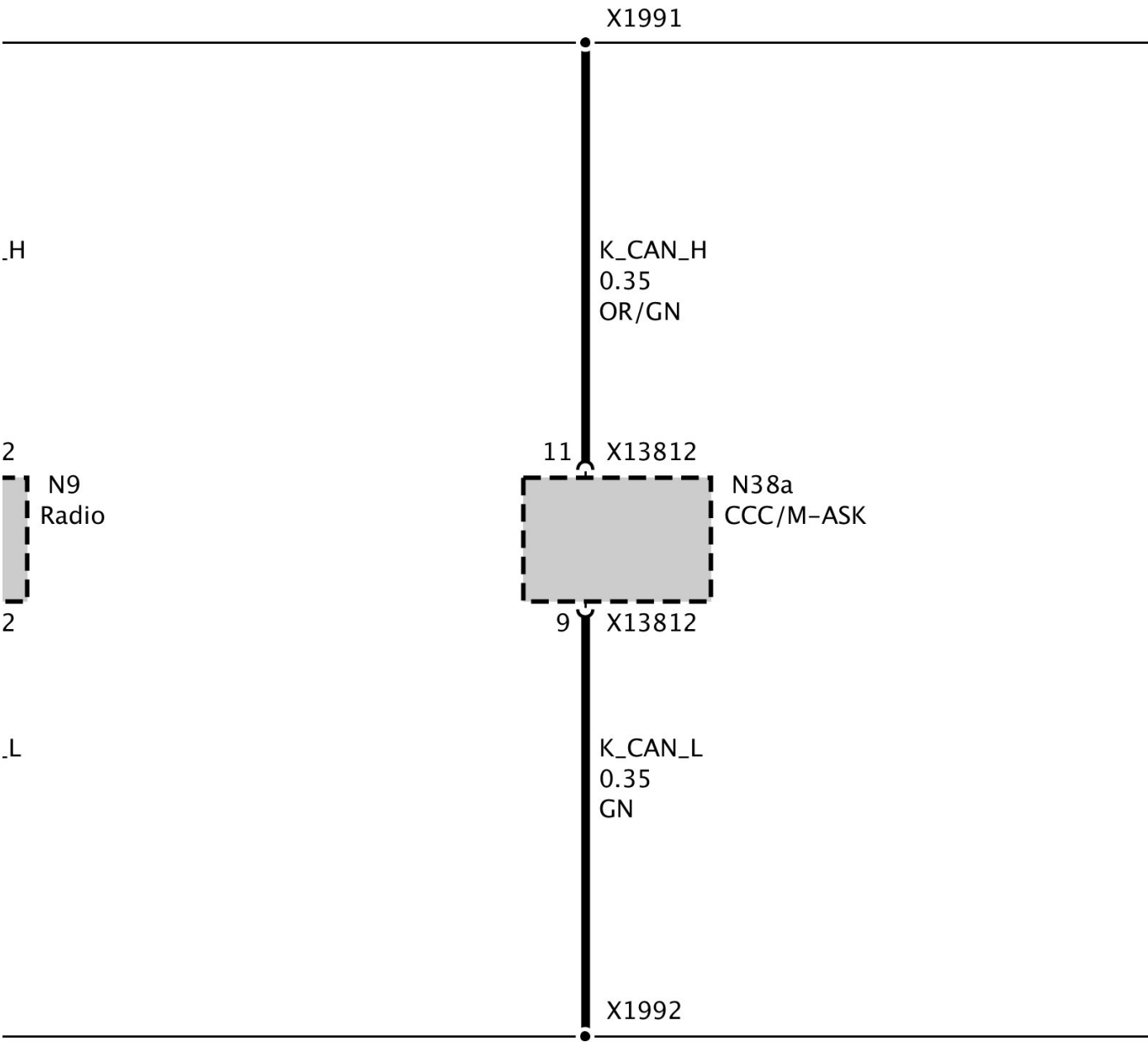
Part 1



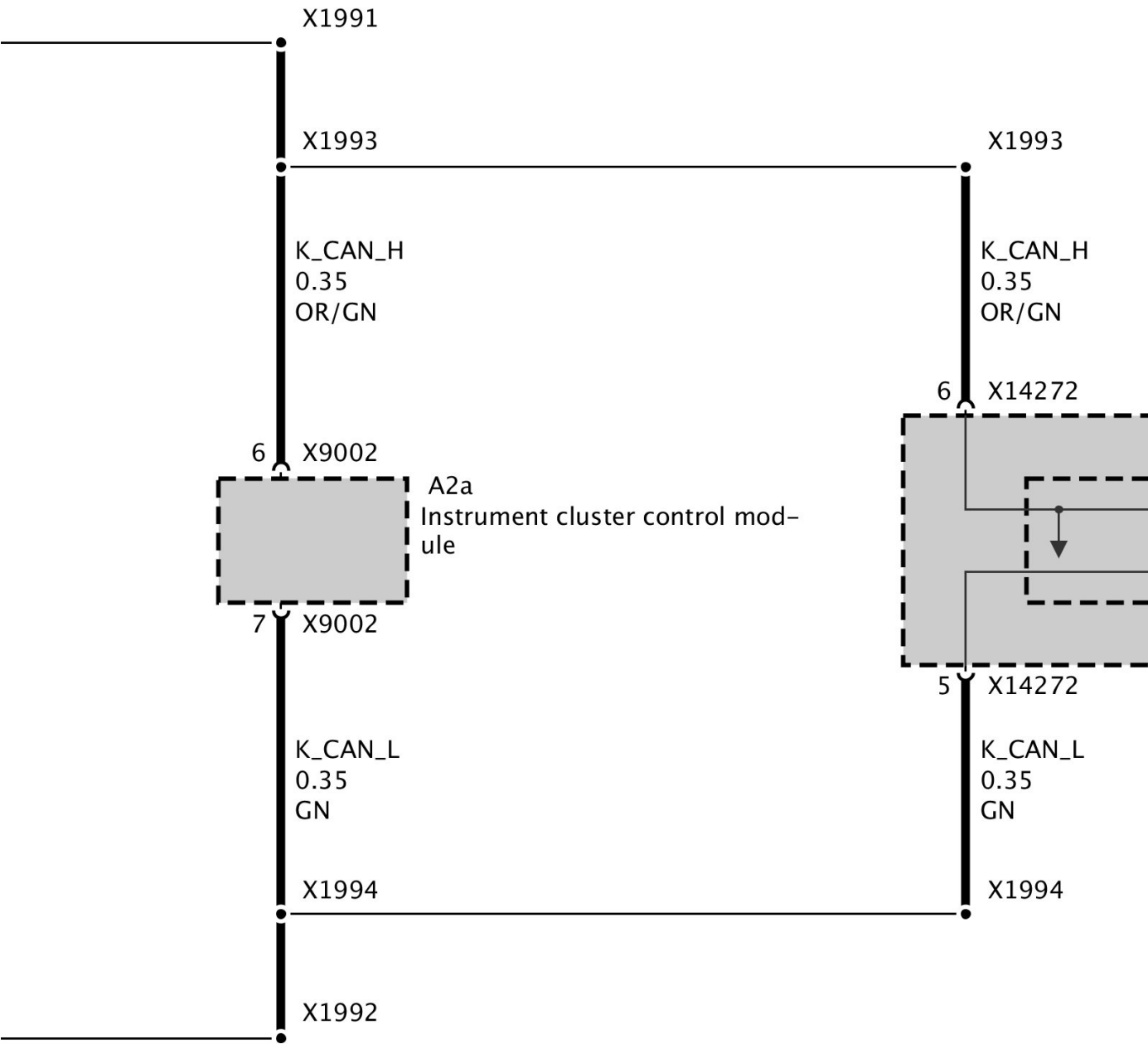
Part 2



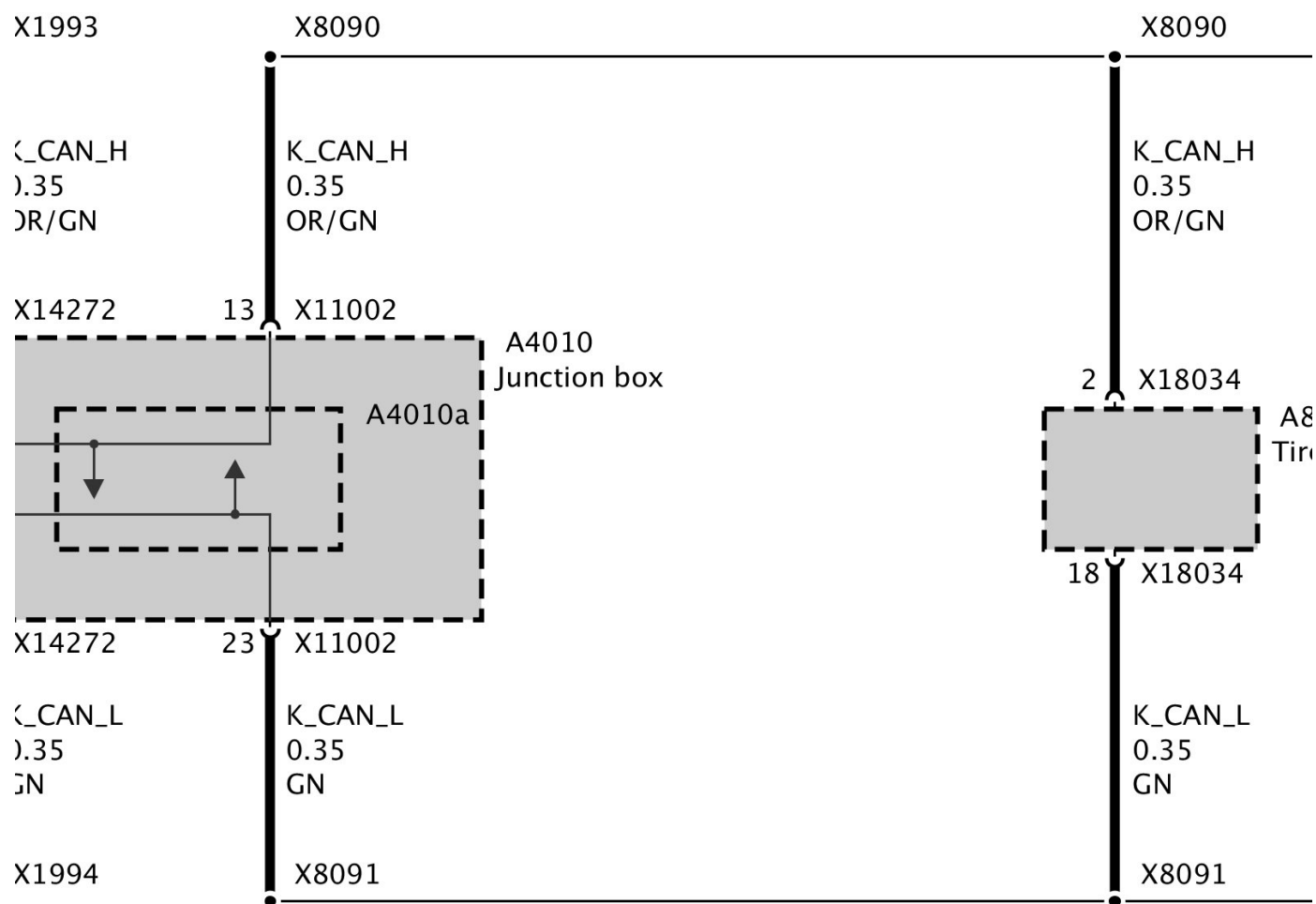
Part 3



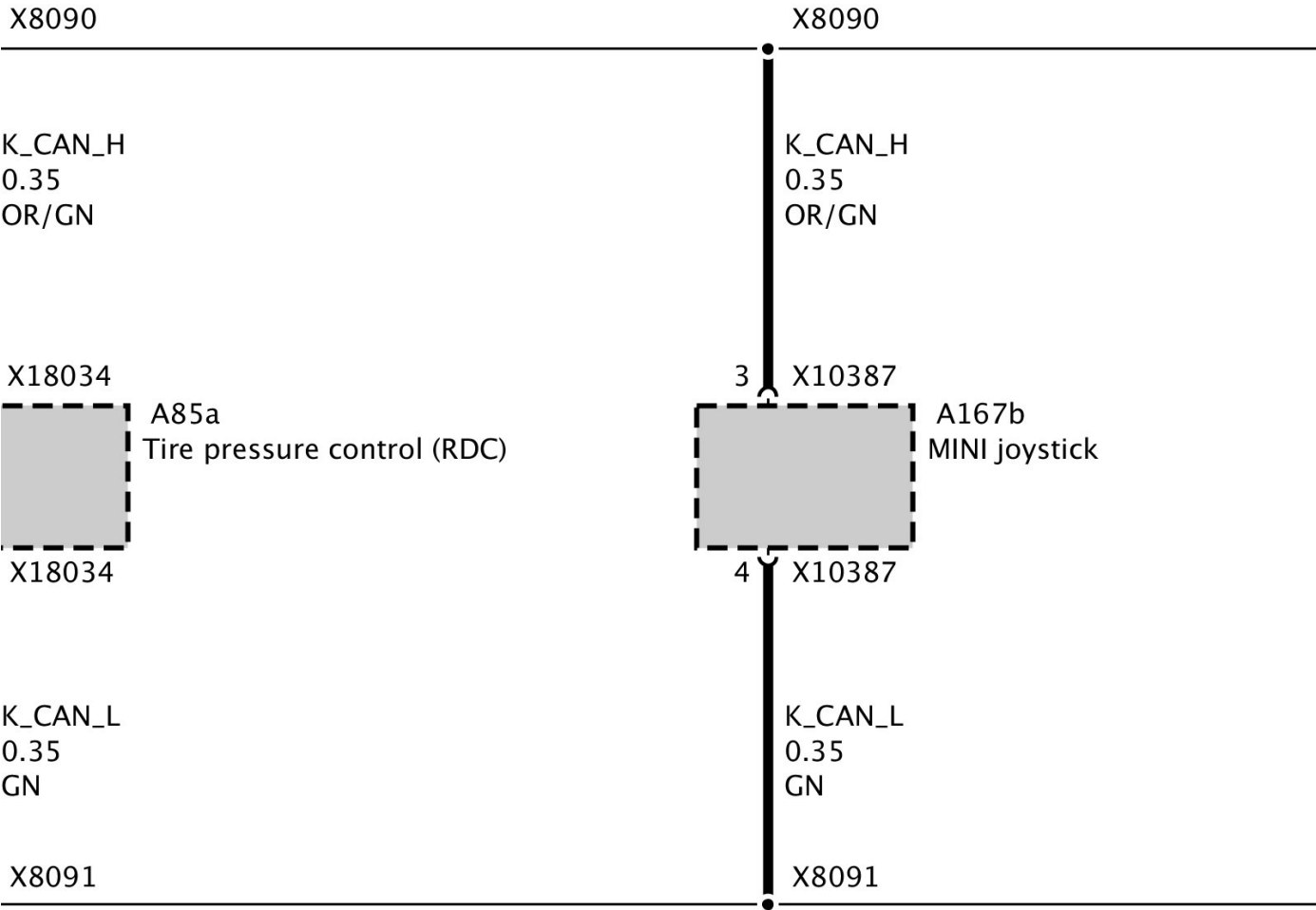
Part 4



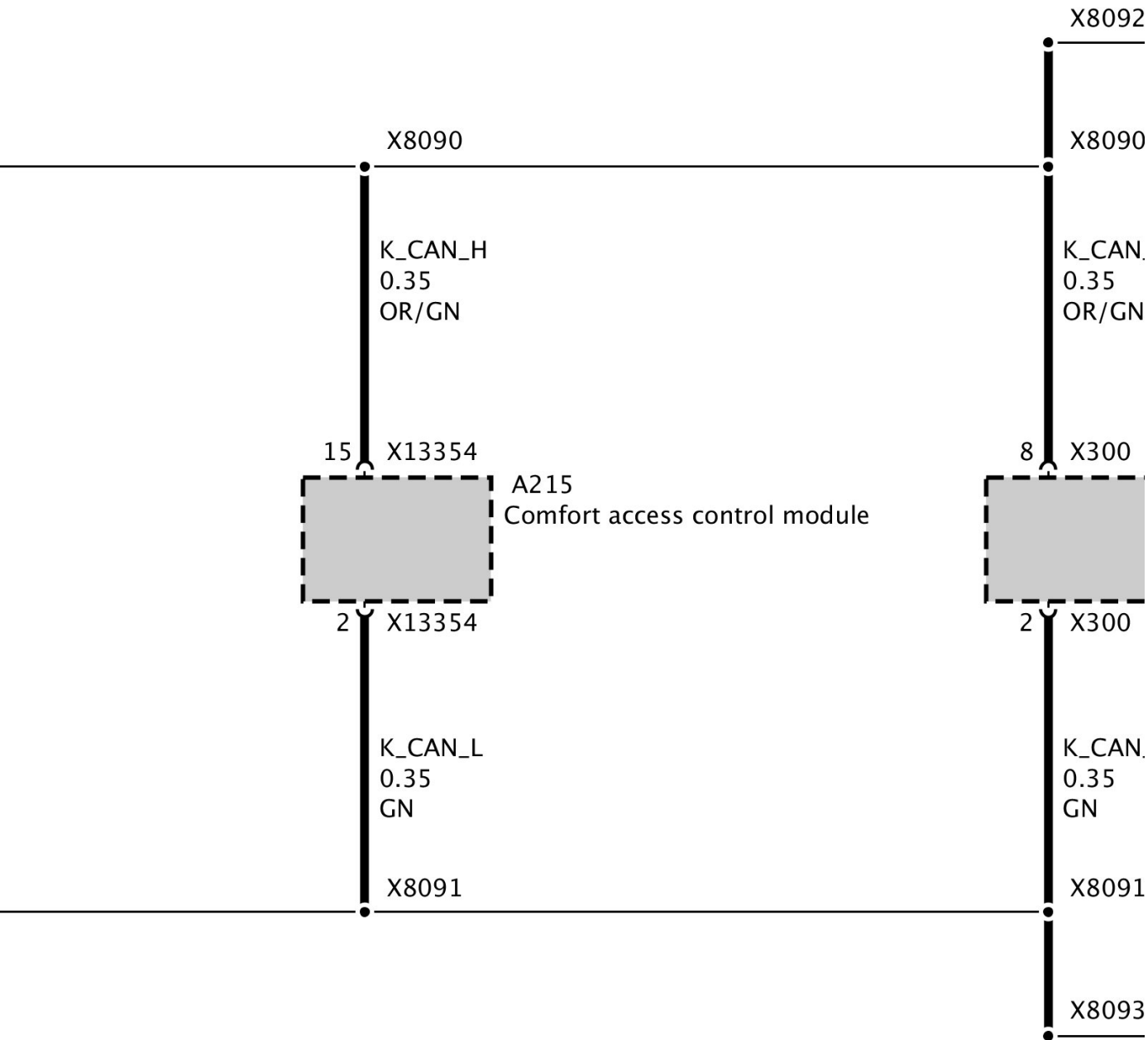
Part 5



Part 6

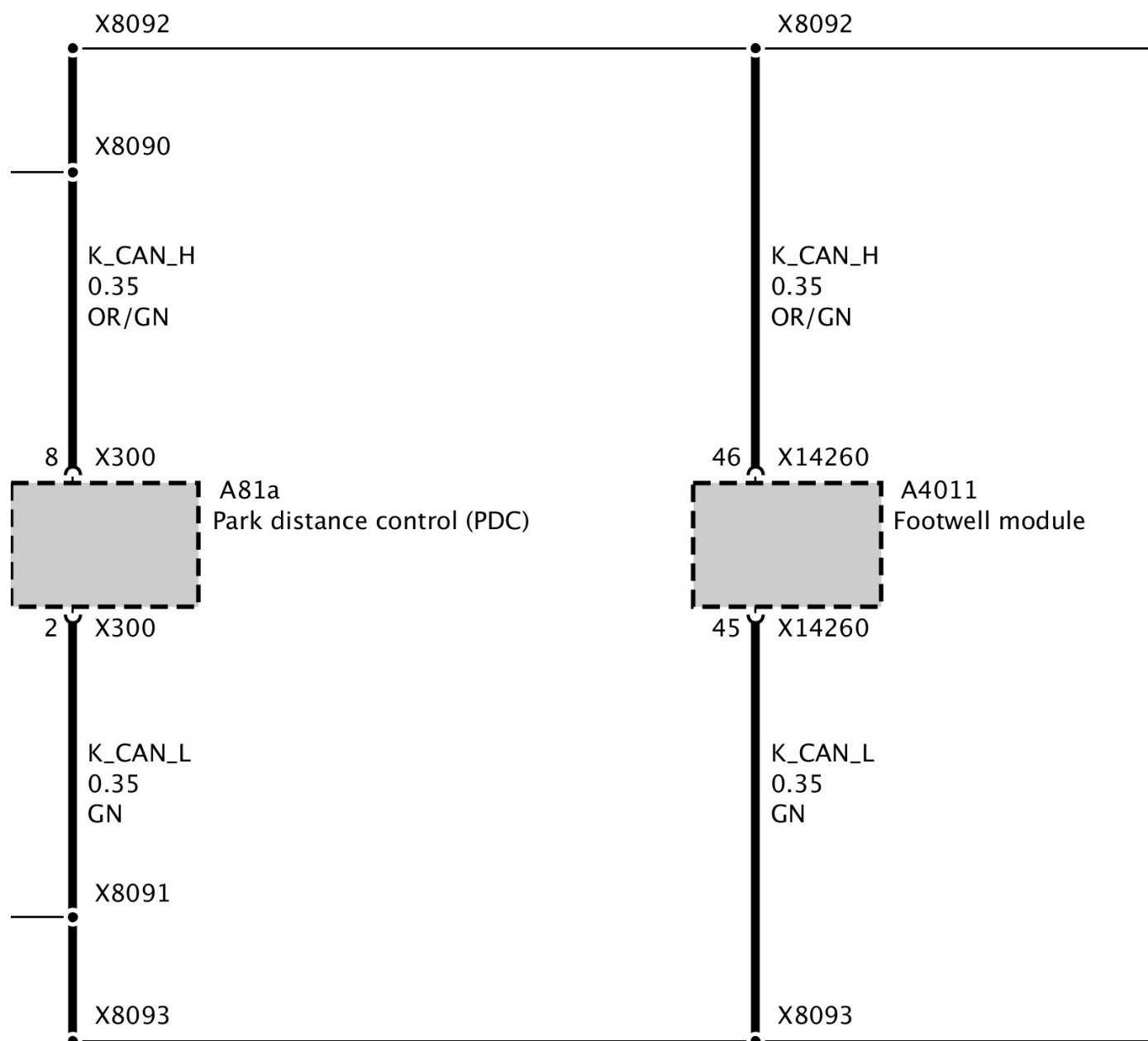


Part 7

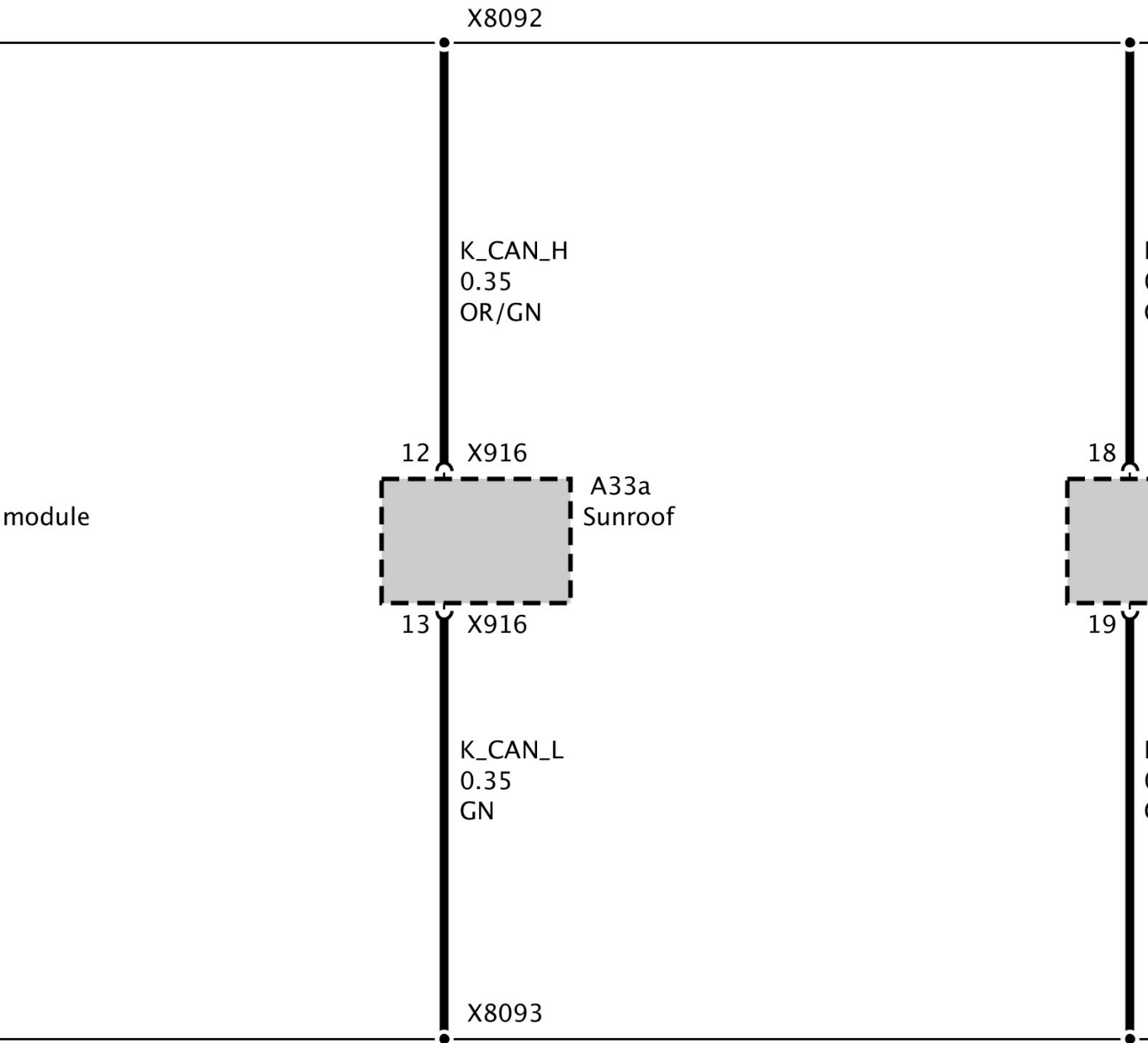


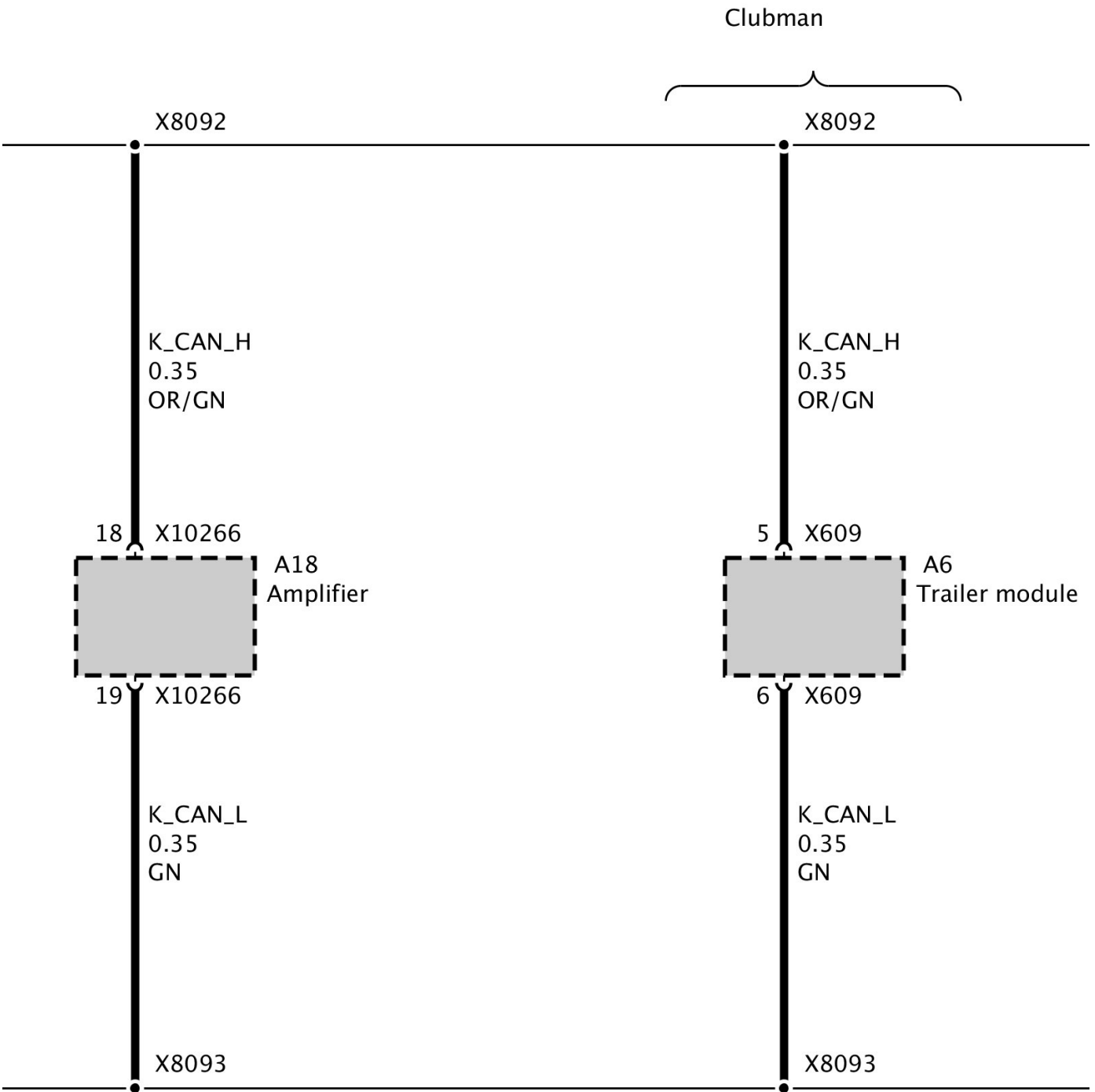
Part 8

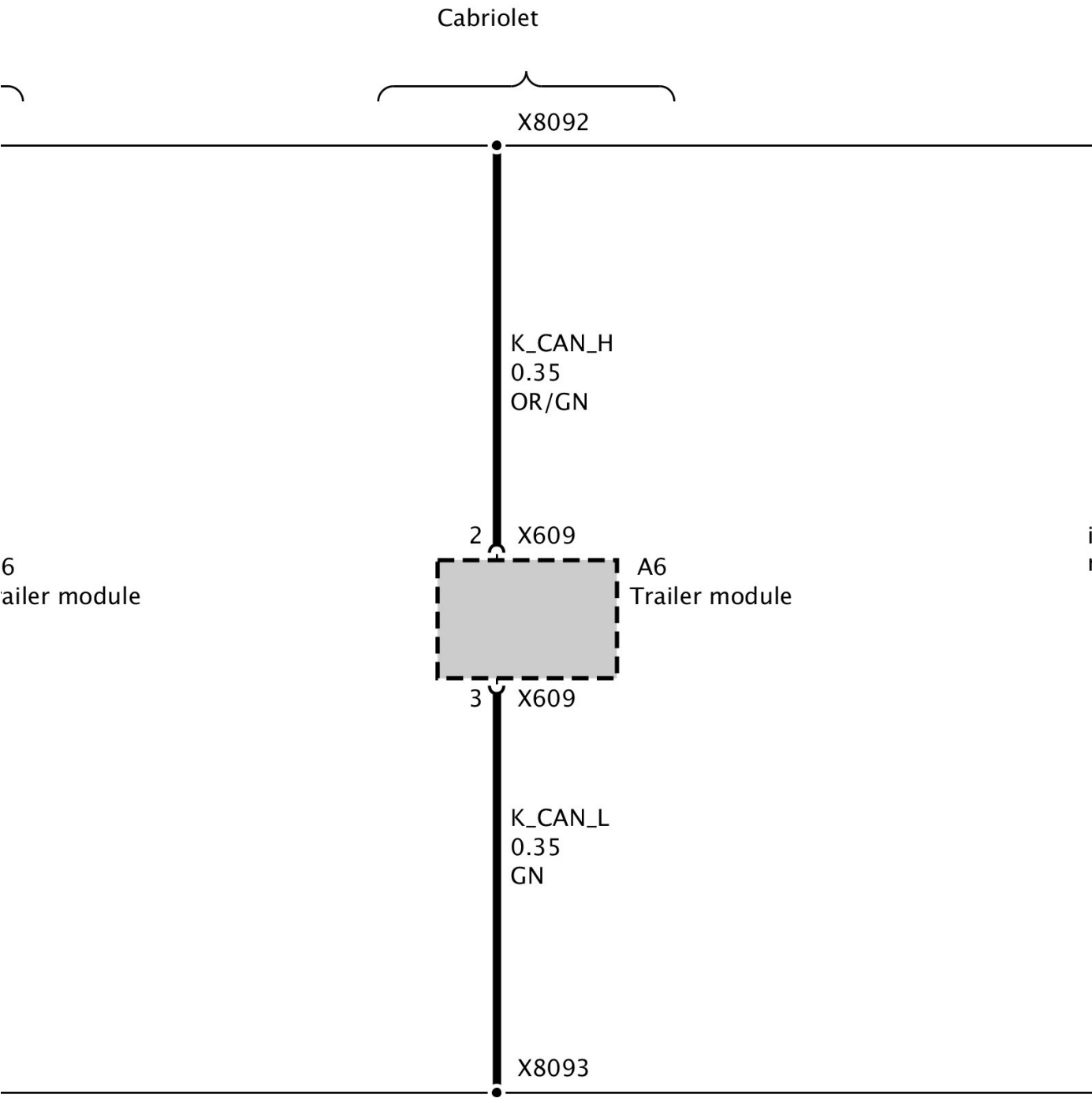


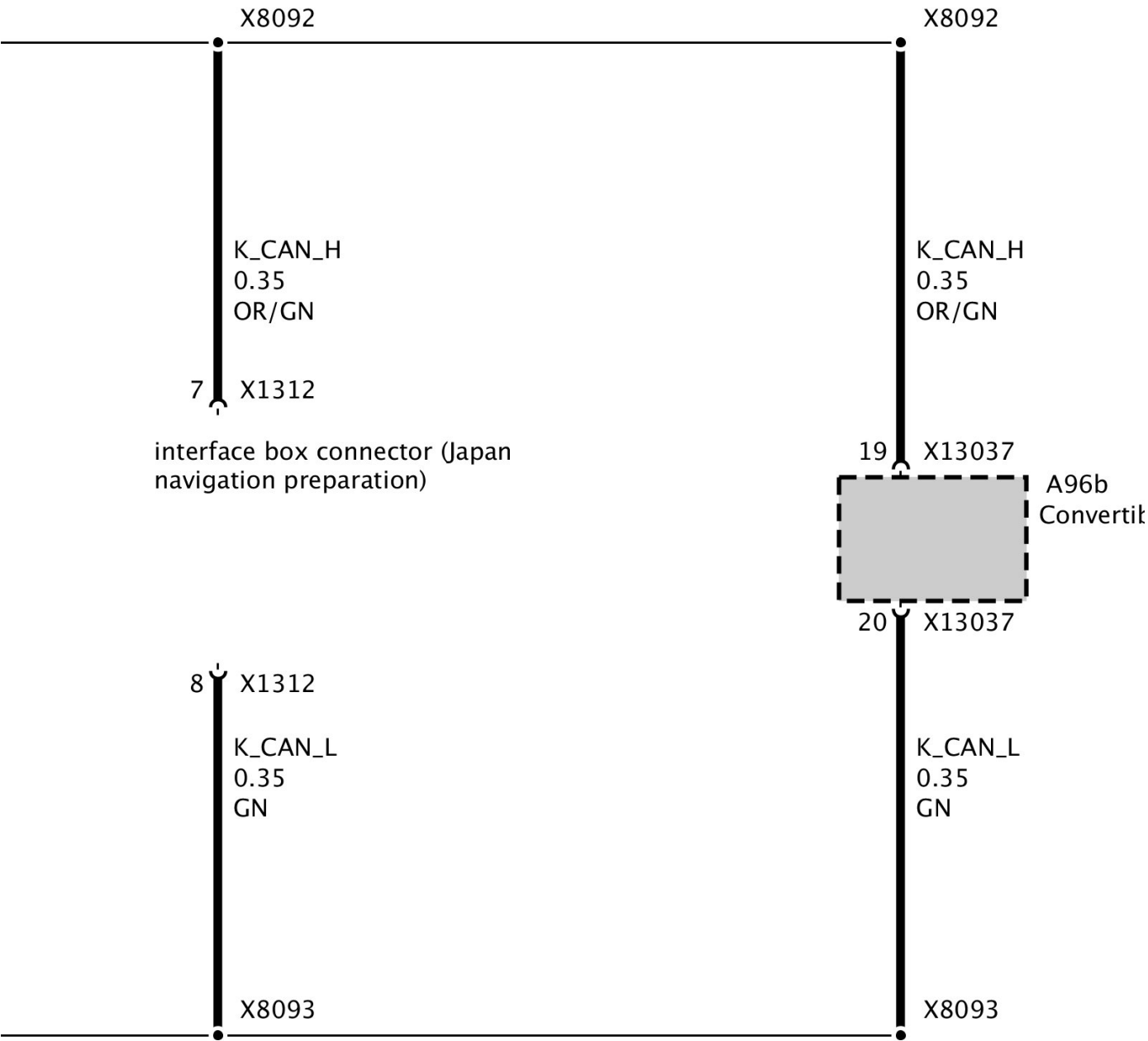


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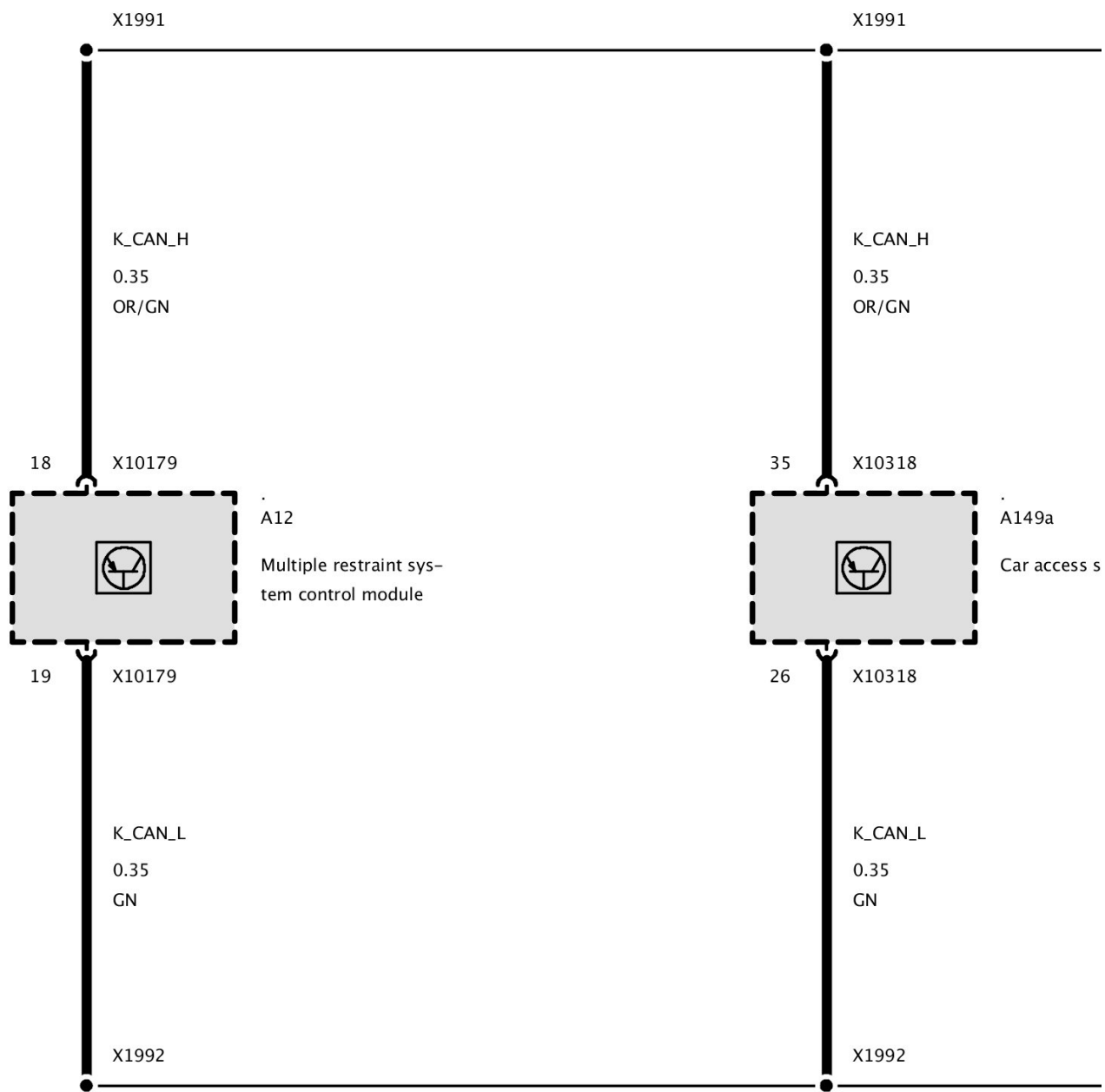
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#### Part 14

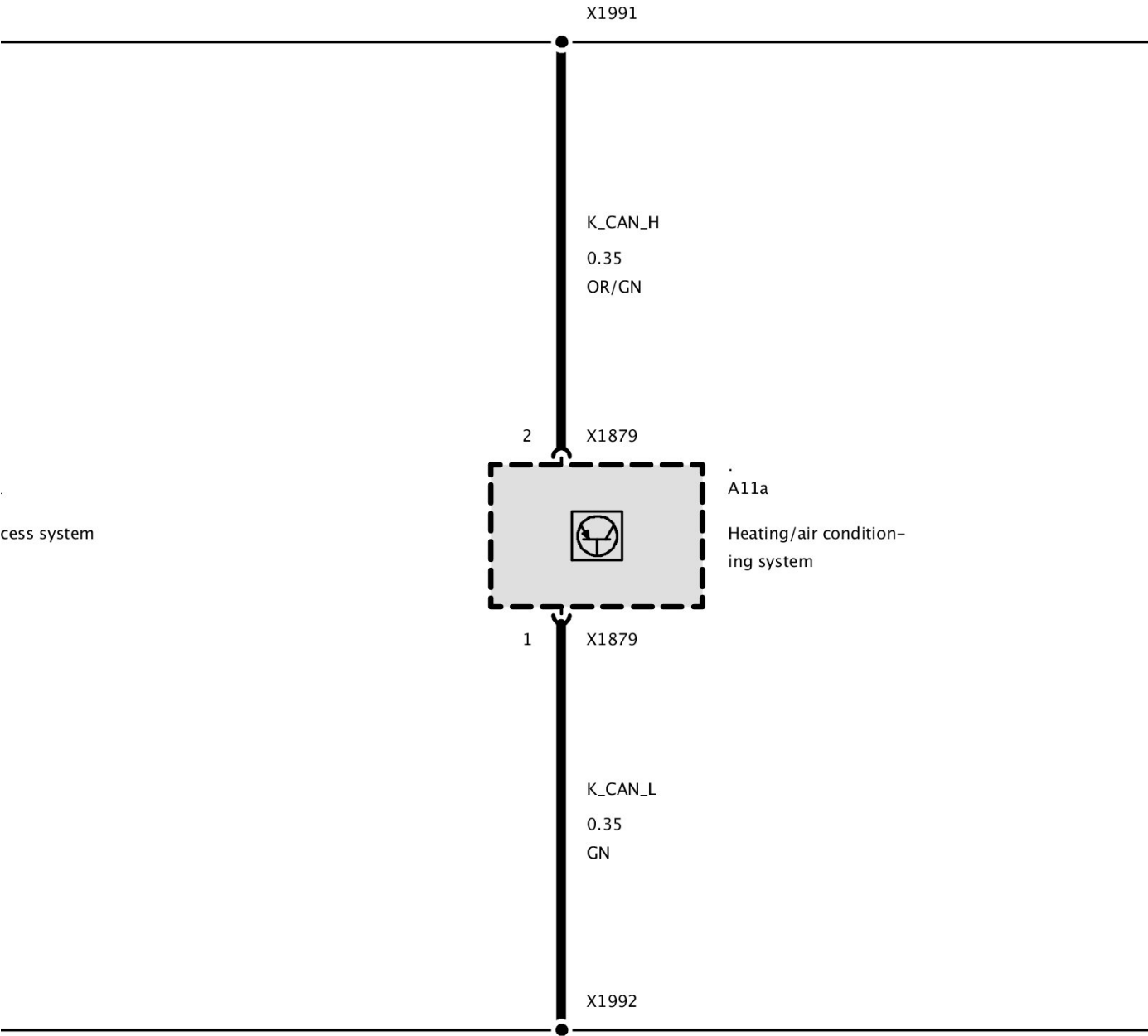
### Connector, CAN Bus (As of 08/07 Up to 12/08)

X1992 No Adapter

Connector, CAN Bus (As of 08/07 Up to 12/08)

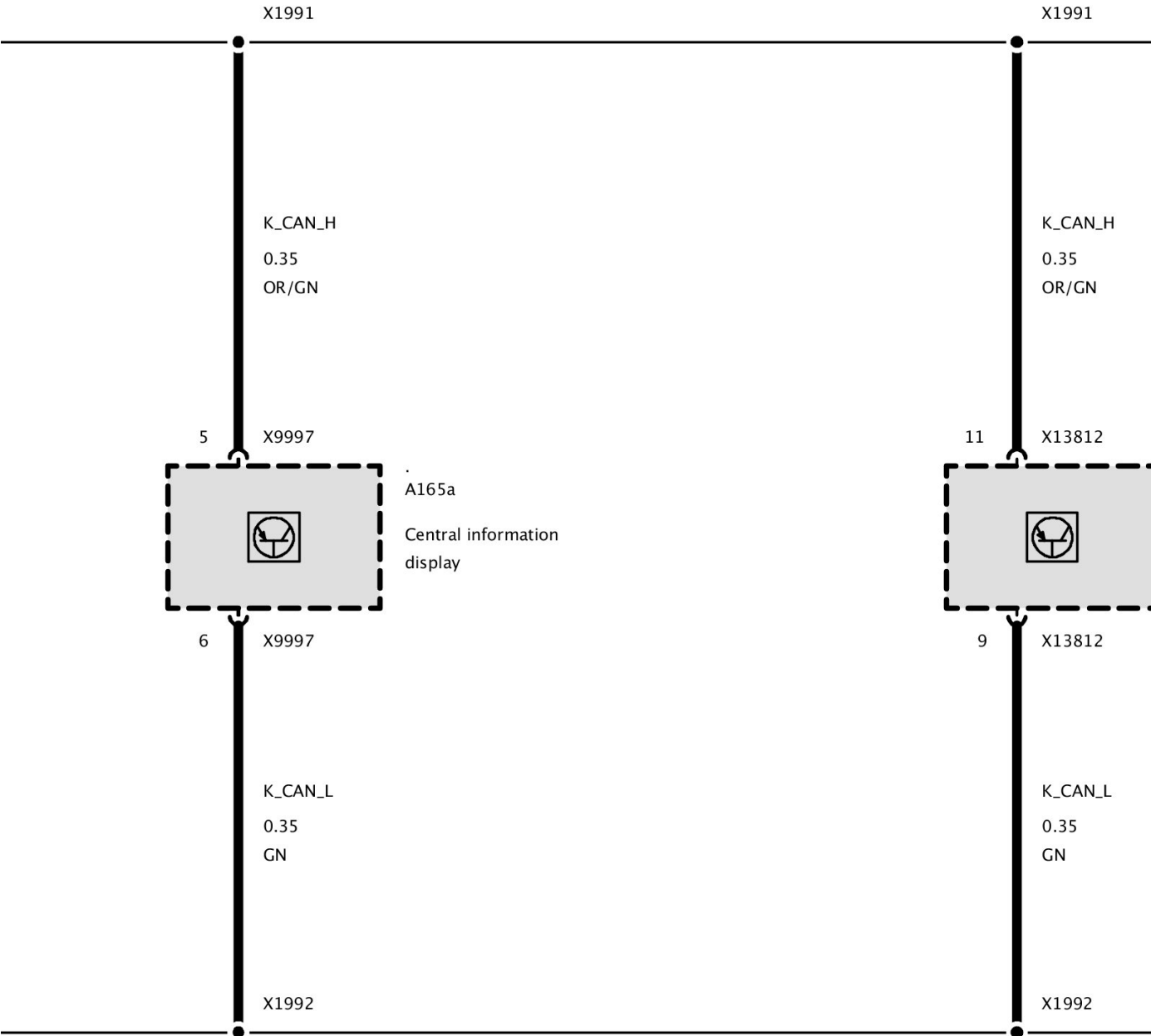


Part 1

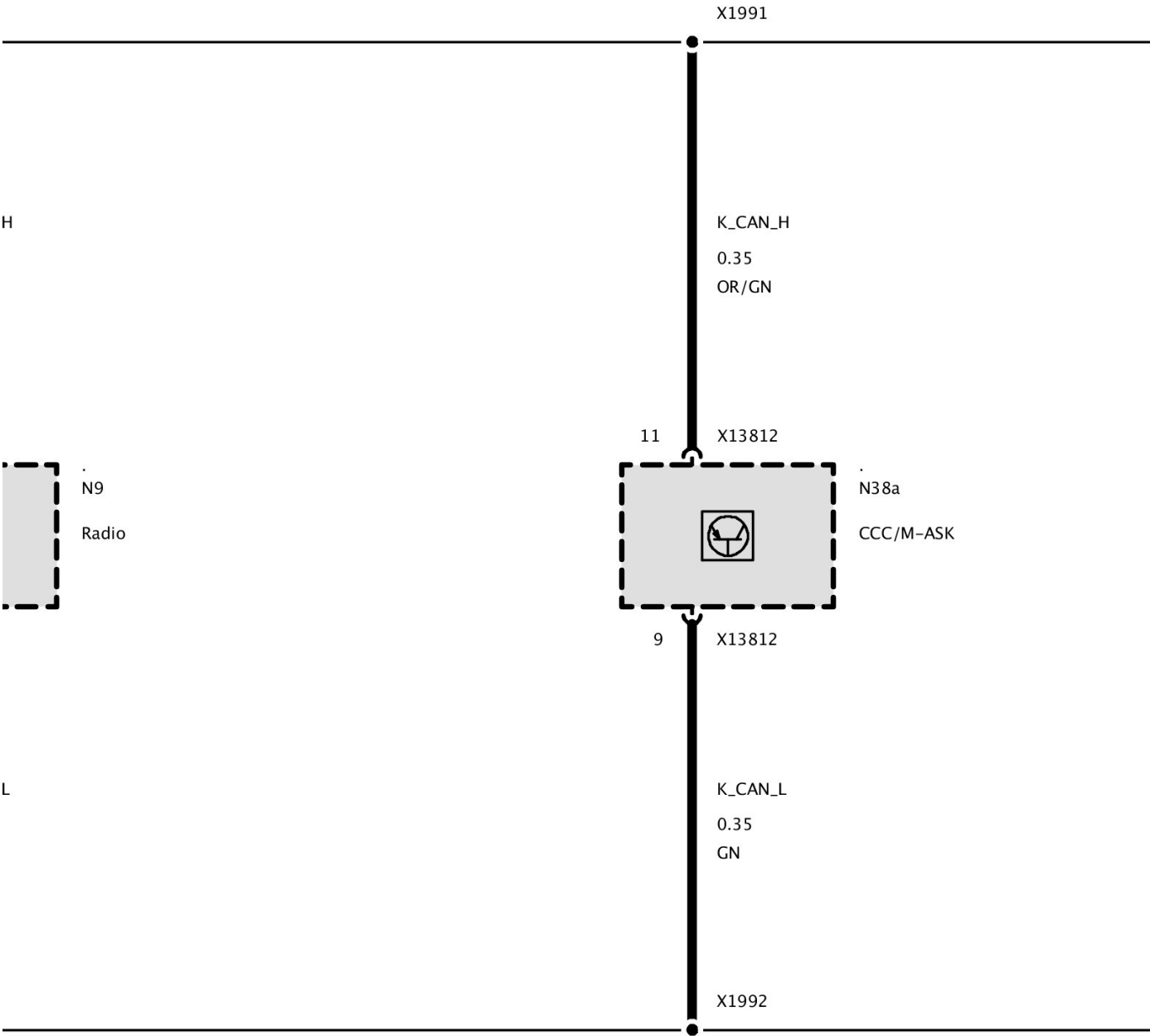


Part 2

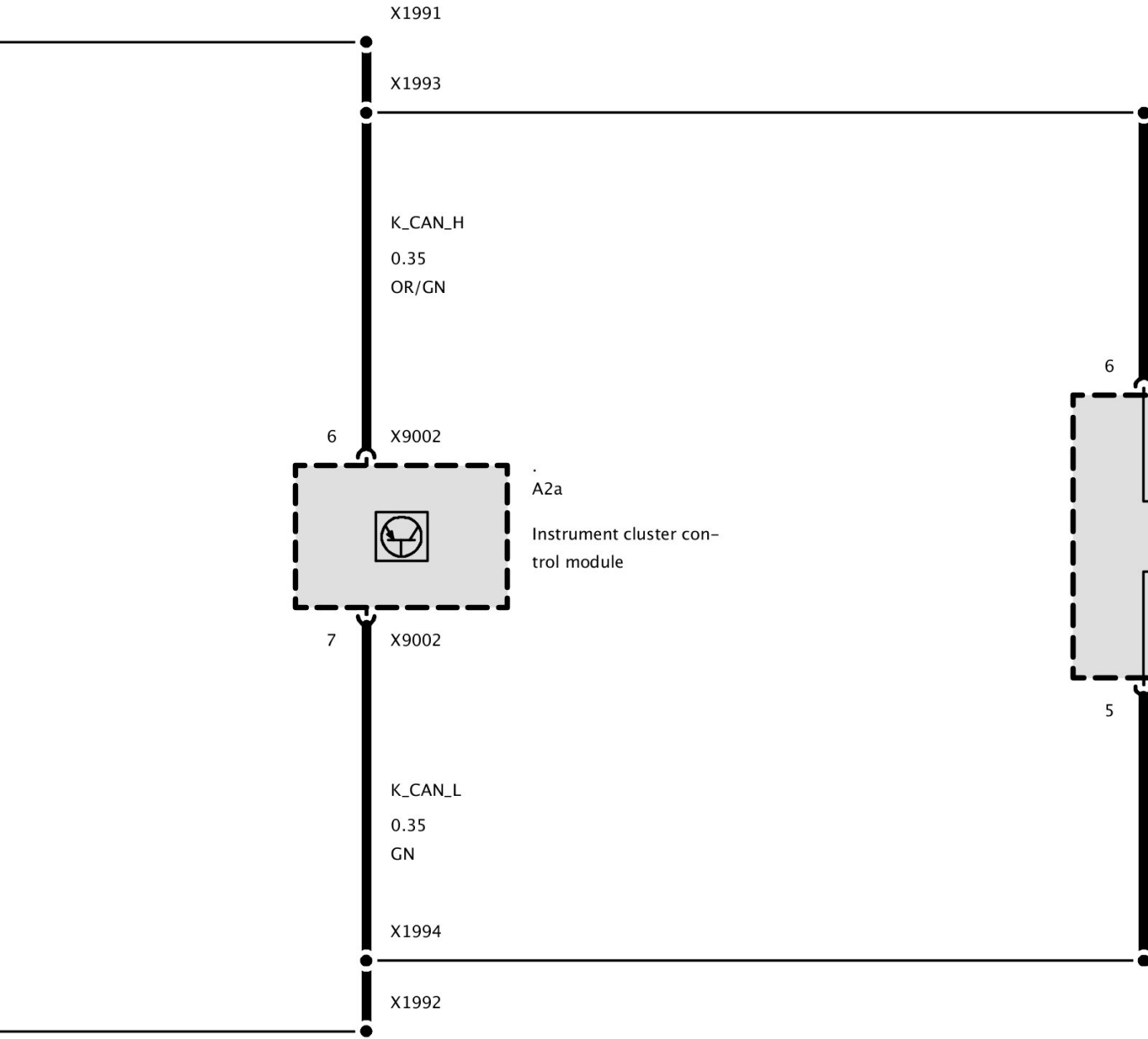




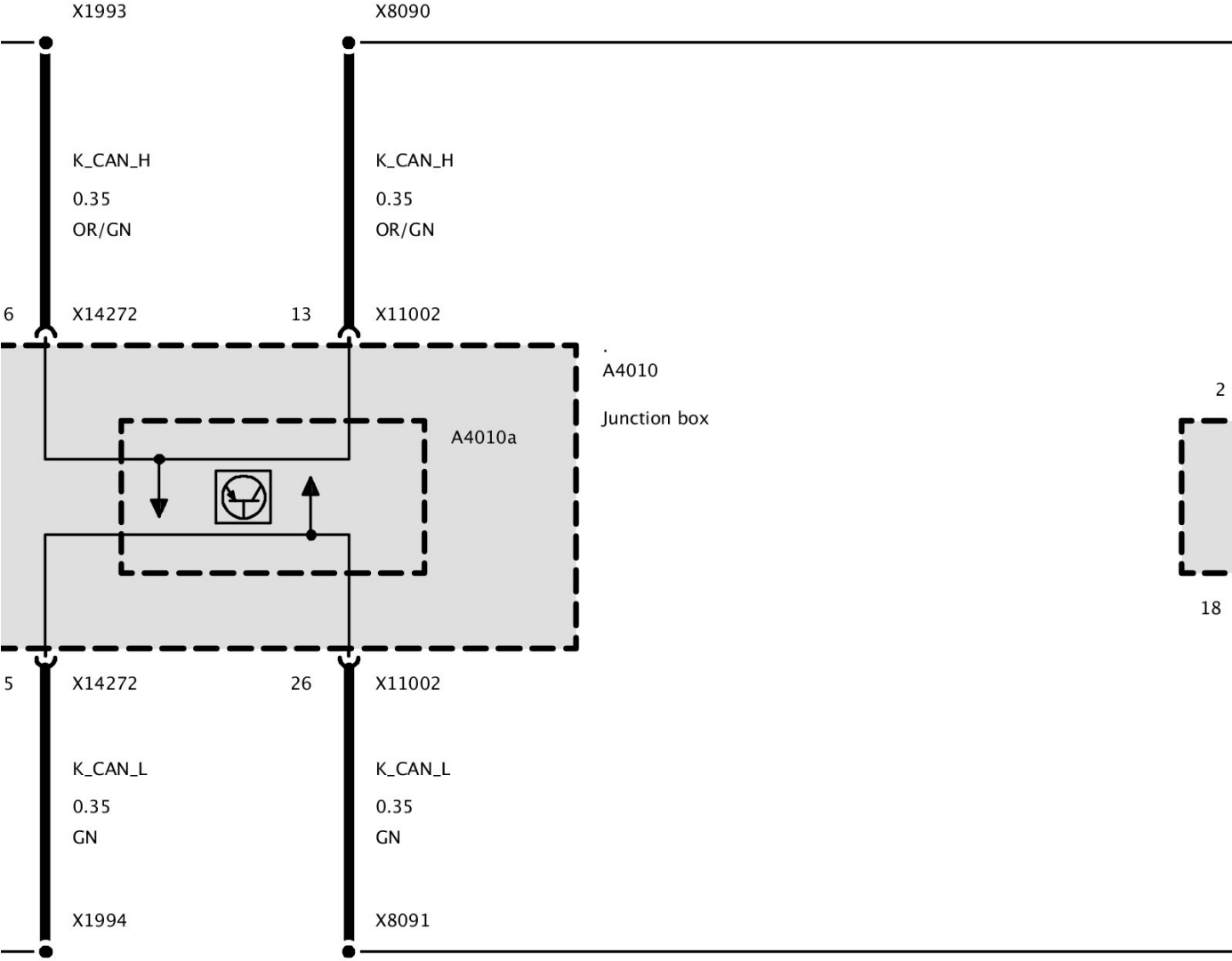
Part 3



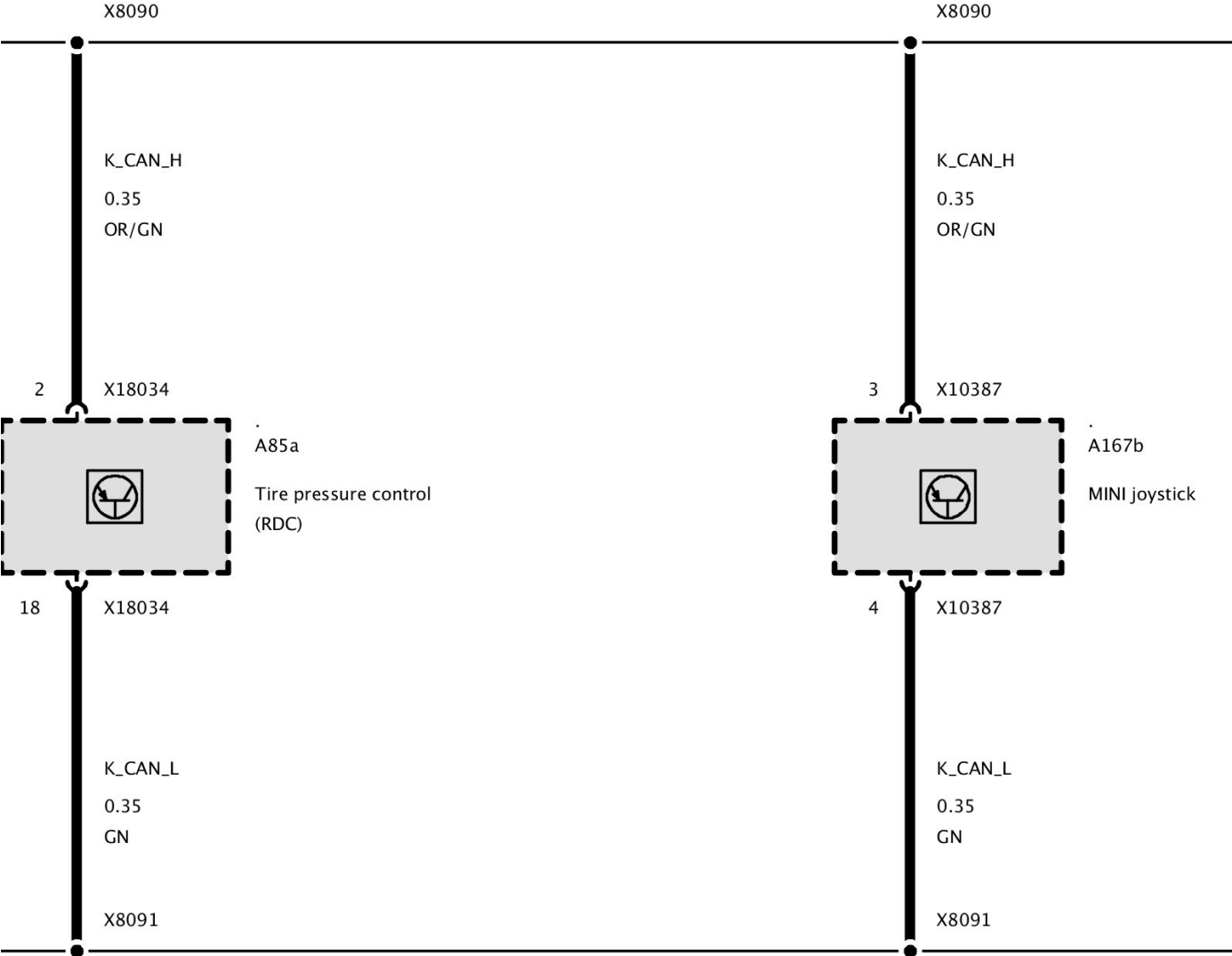
Part 4



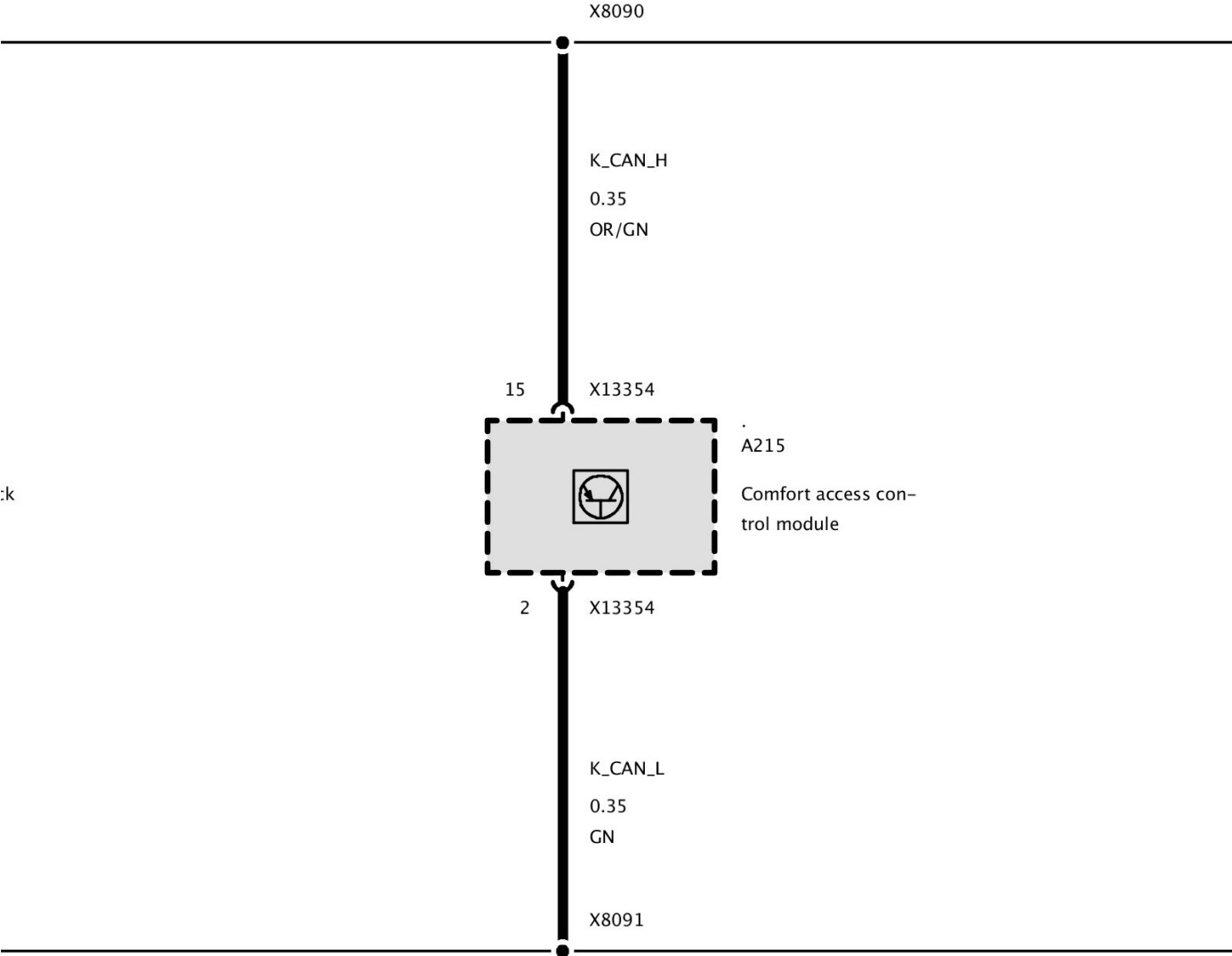
Part 5



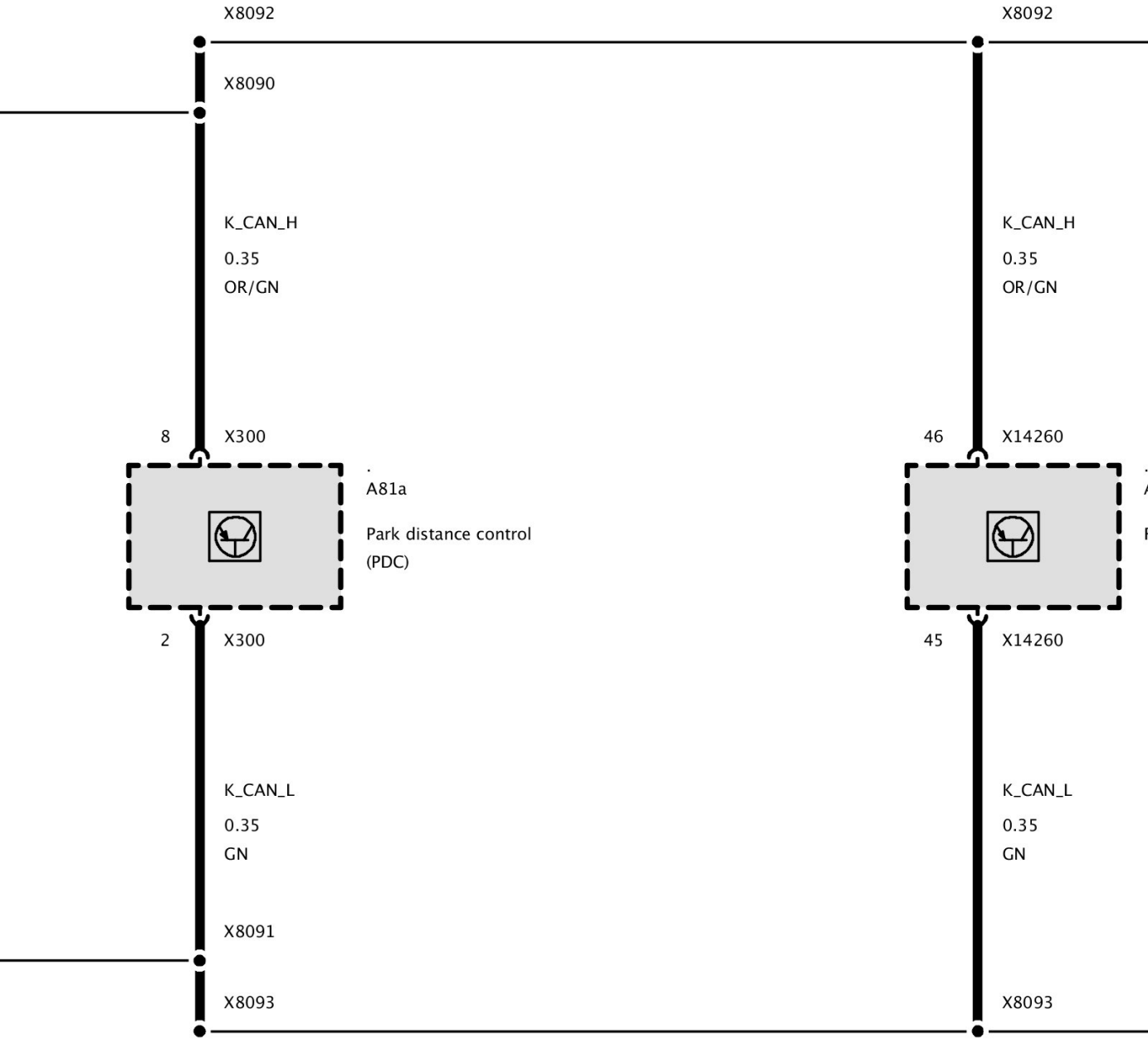
Part 6



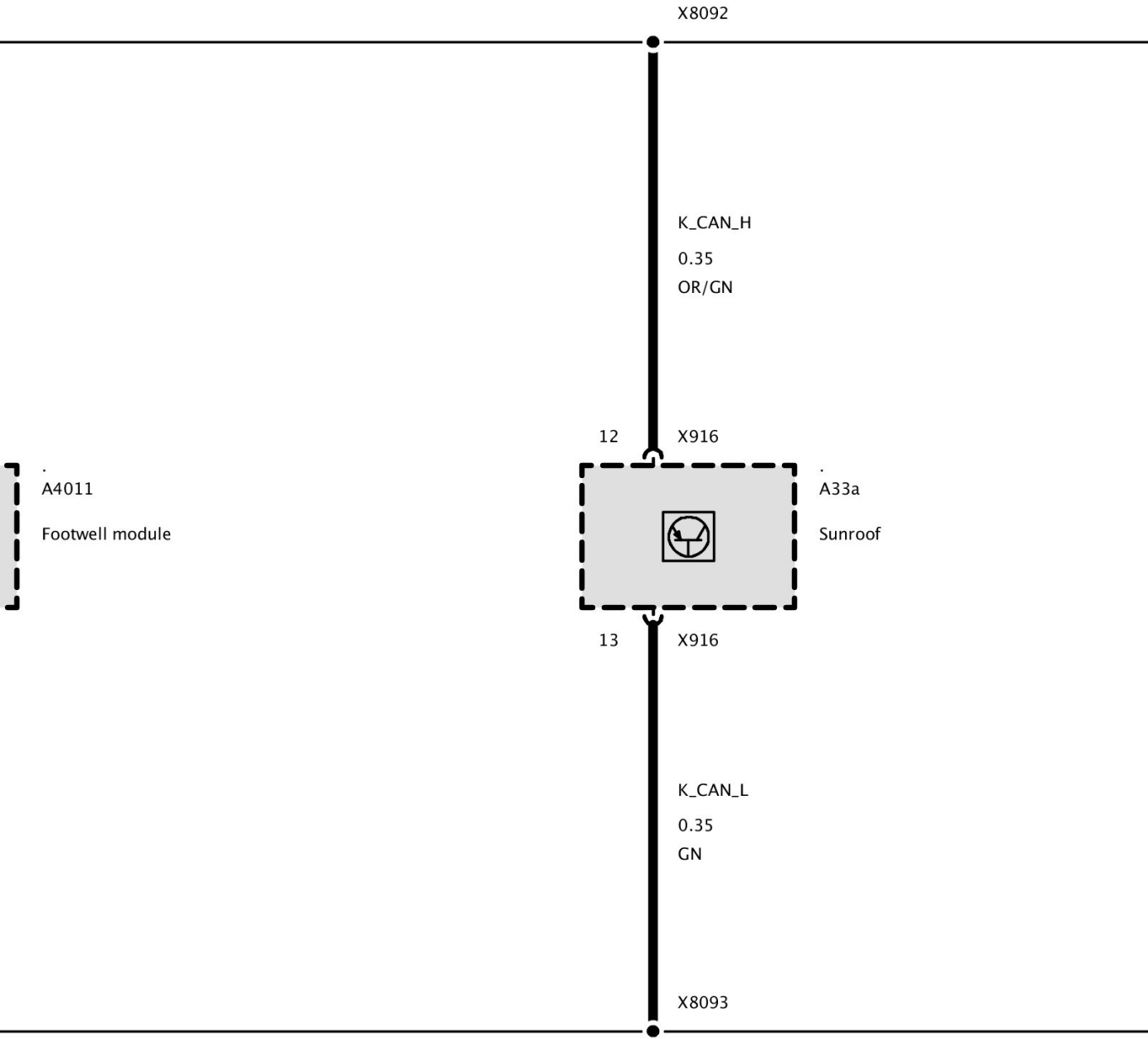
Part 7



Part 8

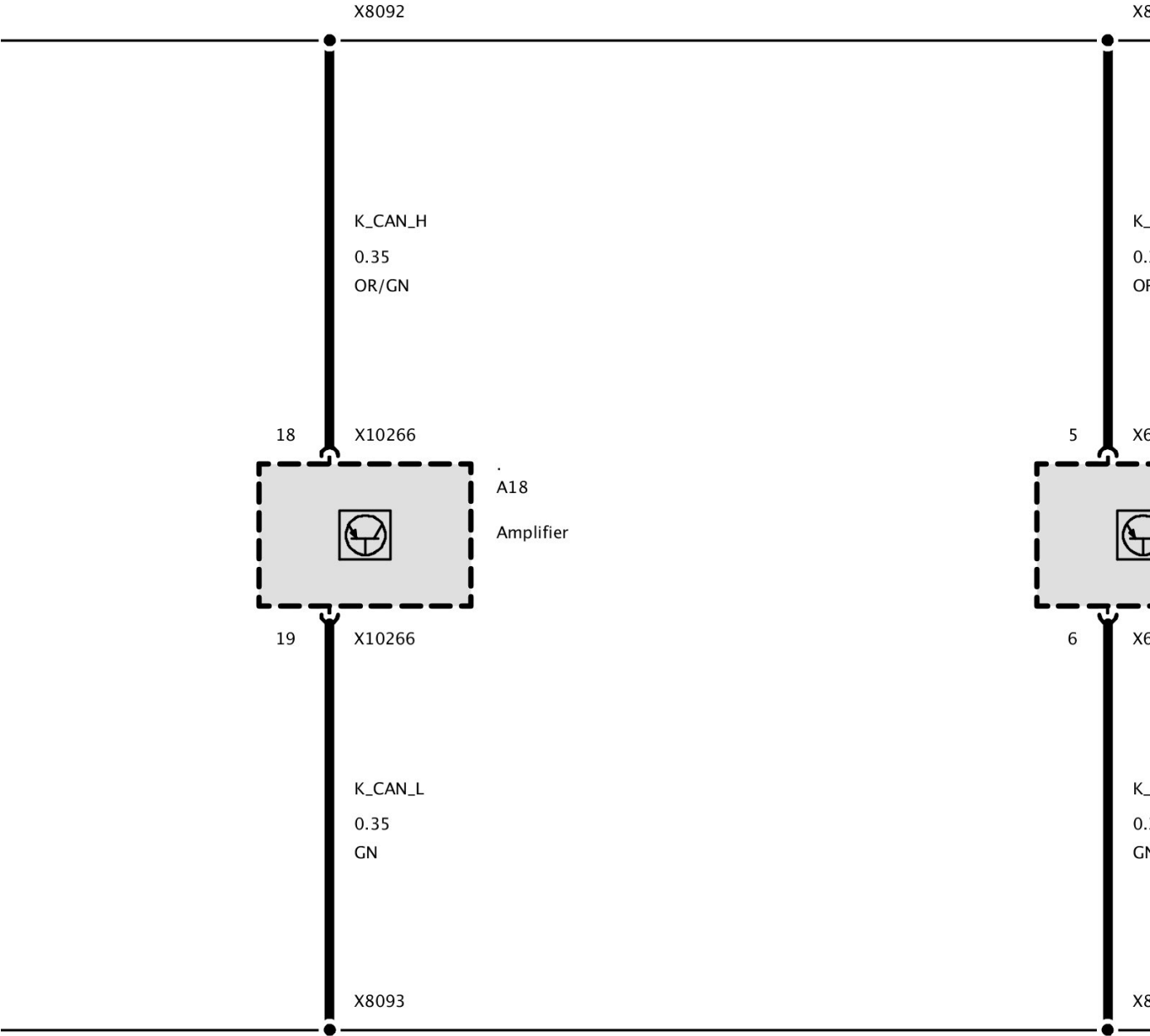


Part 9

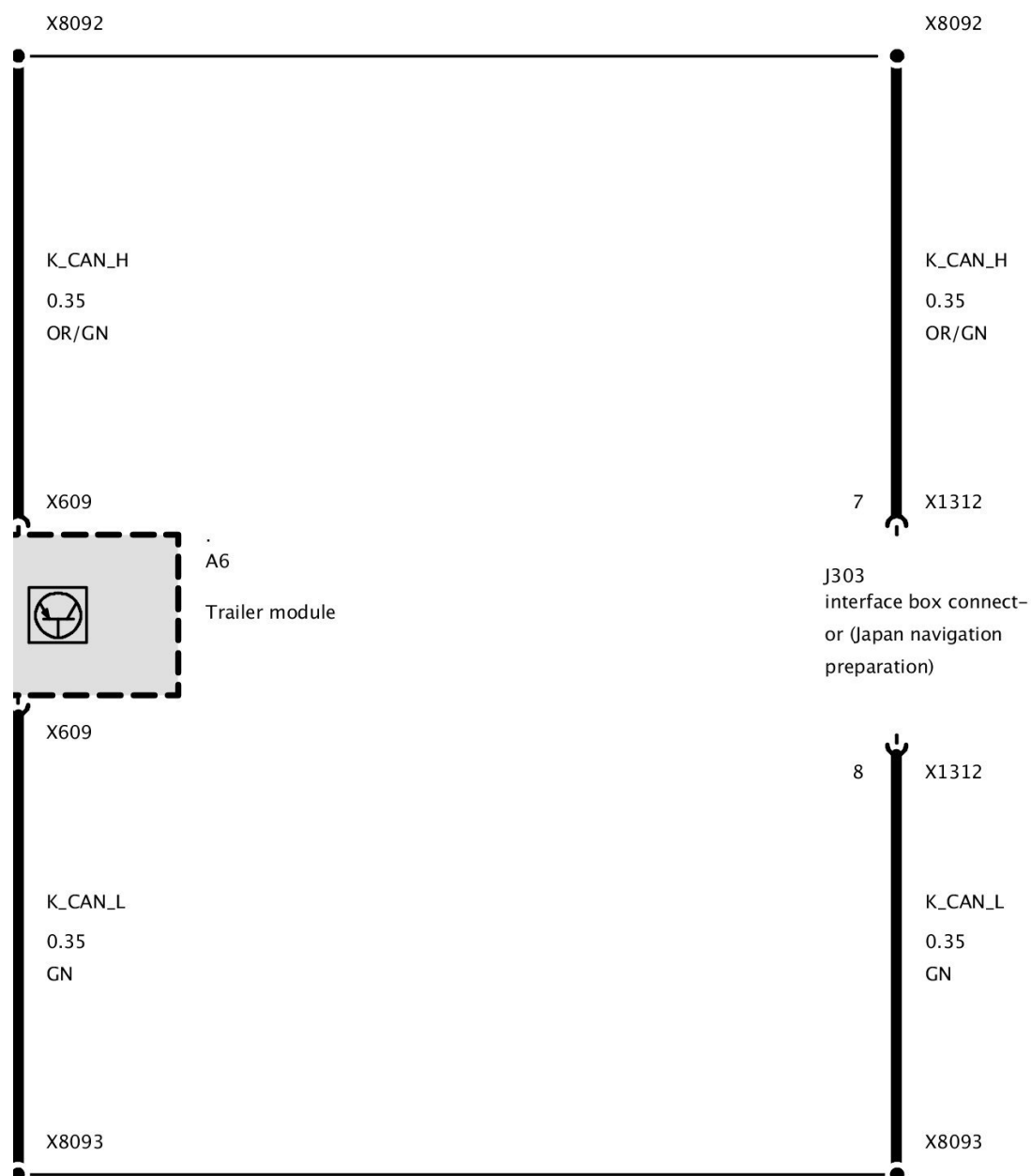


Part 10





Part 11

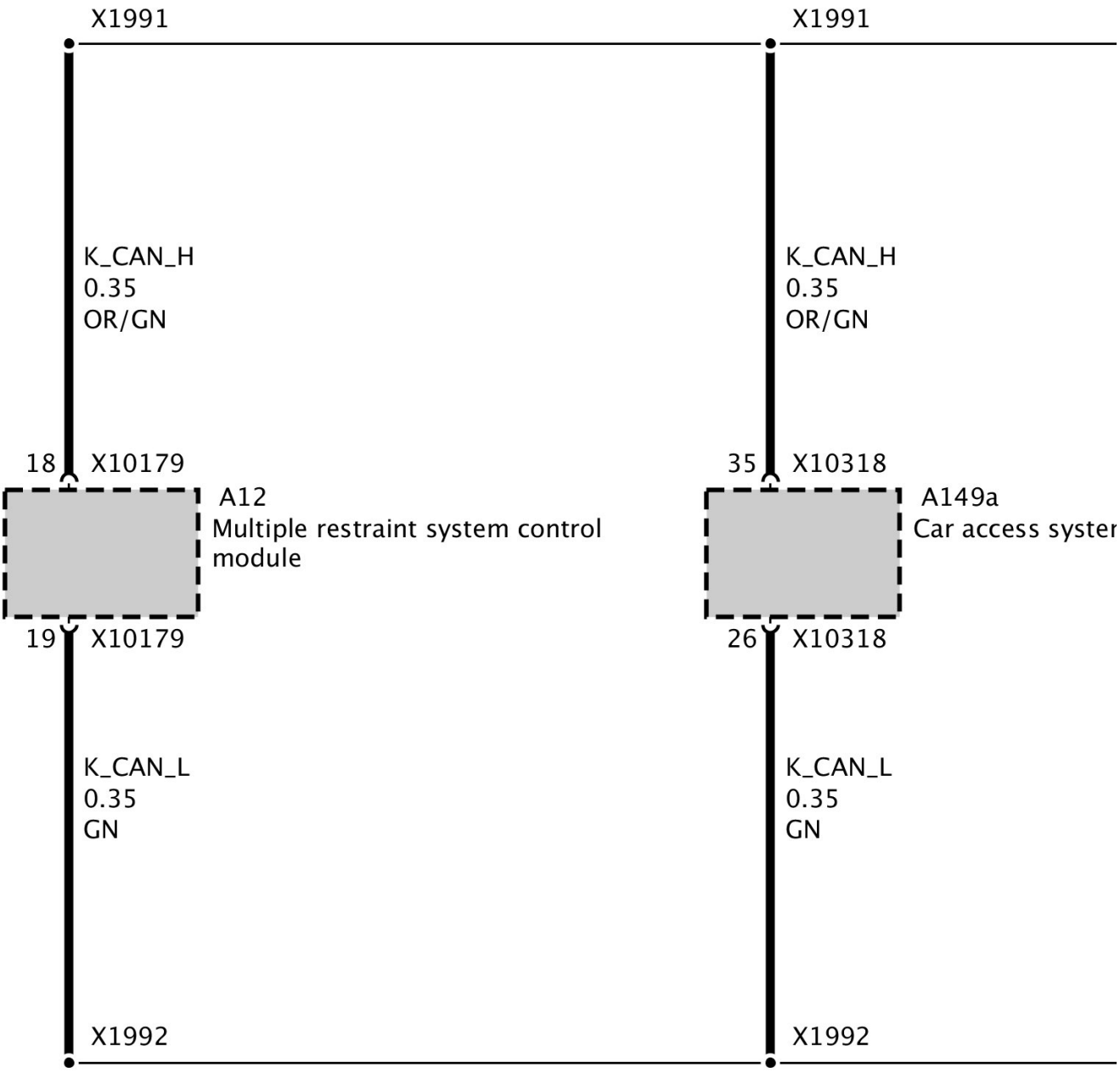


## Part 12

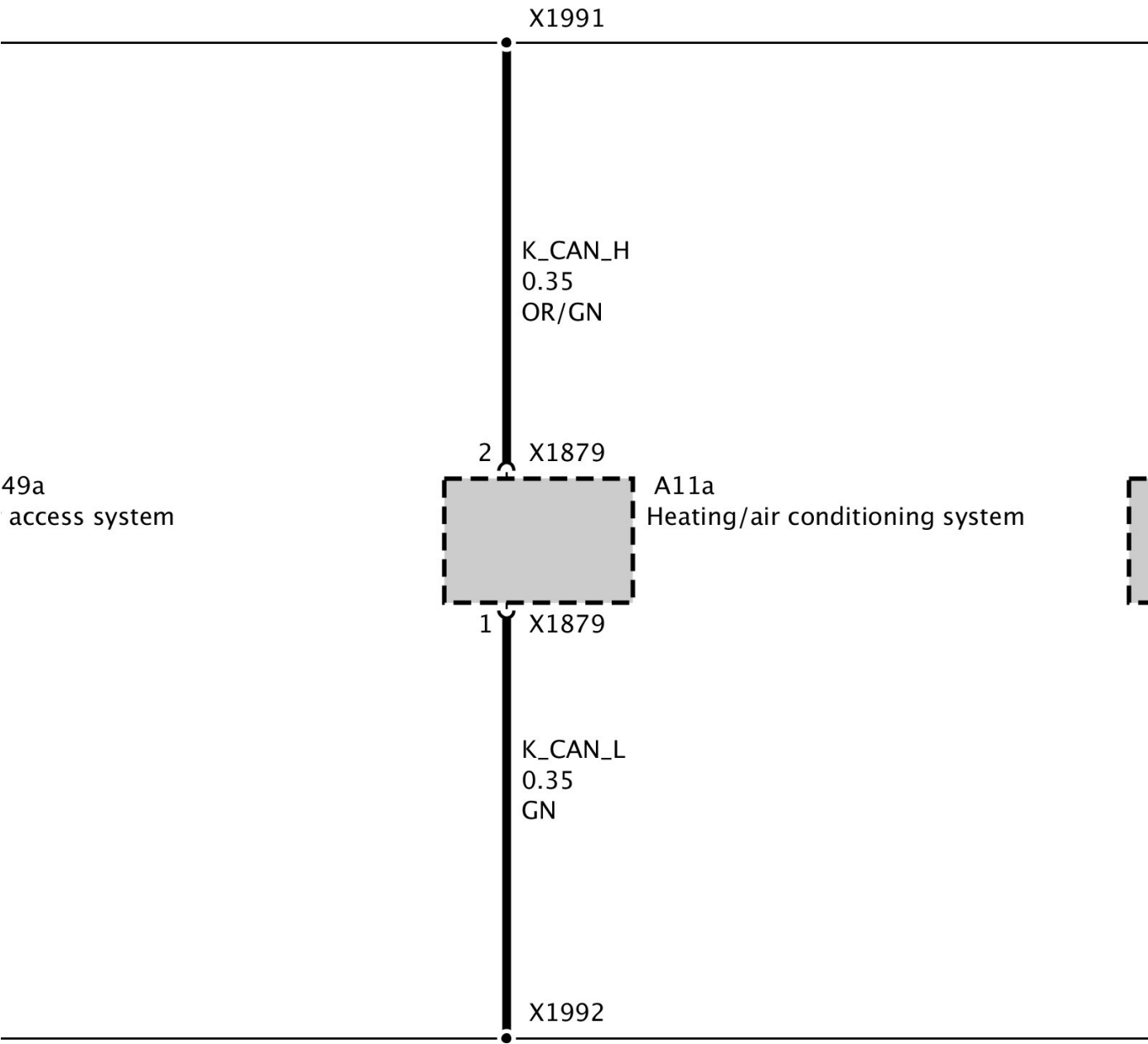
### Connector, CAN Bus (As of 12/08)

X1992 No Adapter

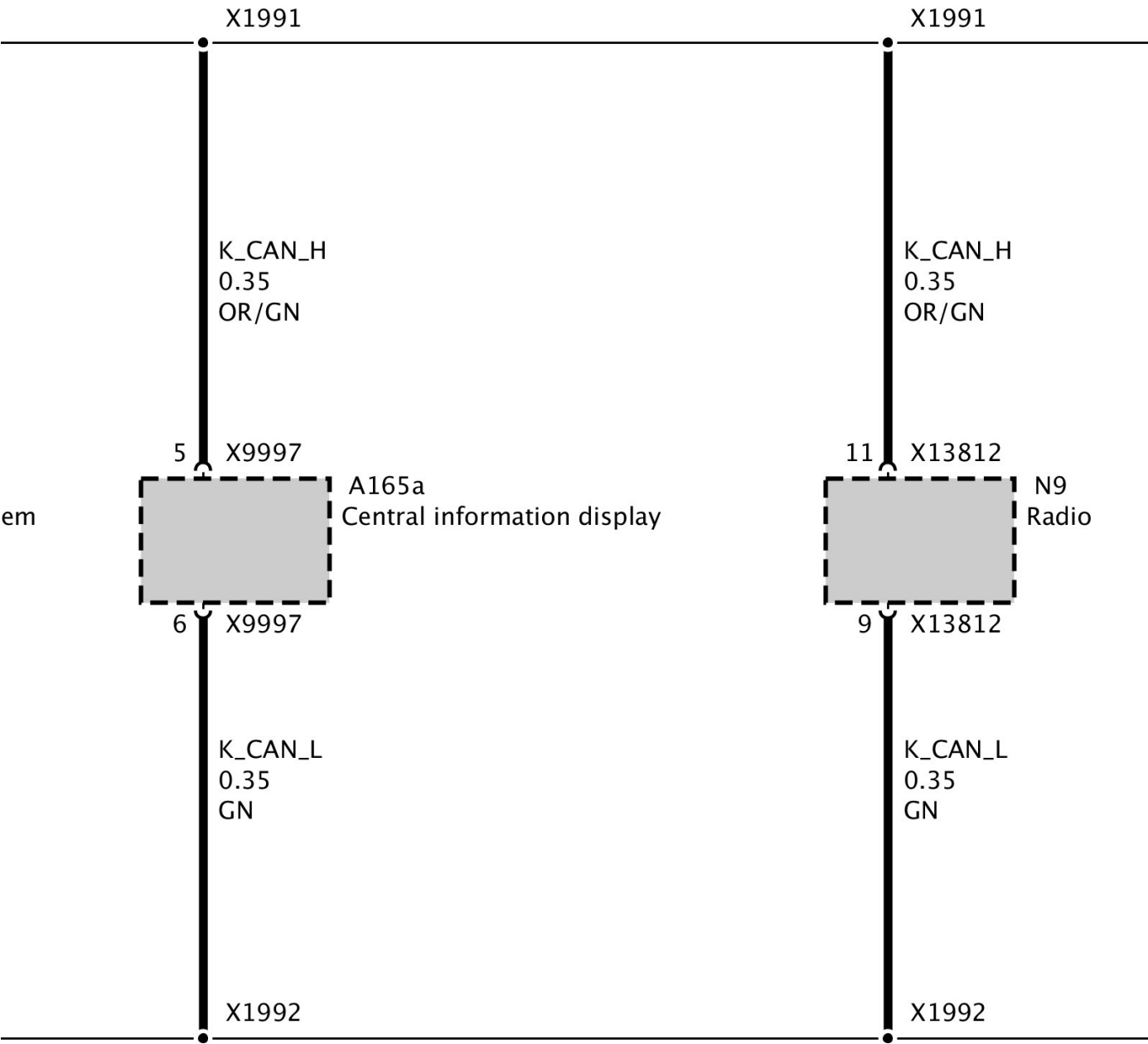
Connector, CAN Bus (As of 12/08)



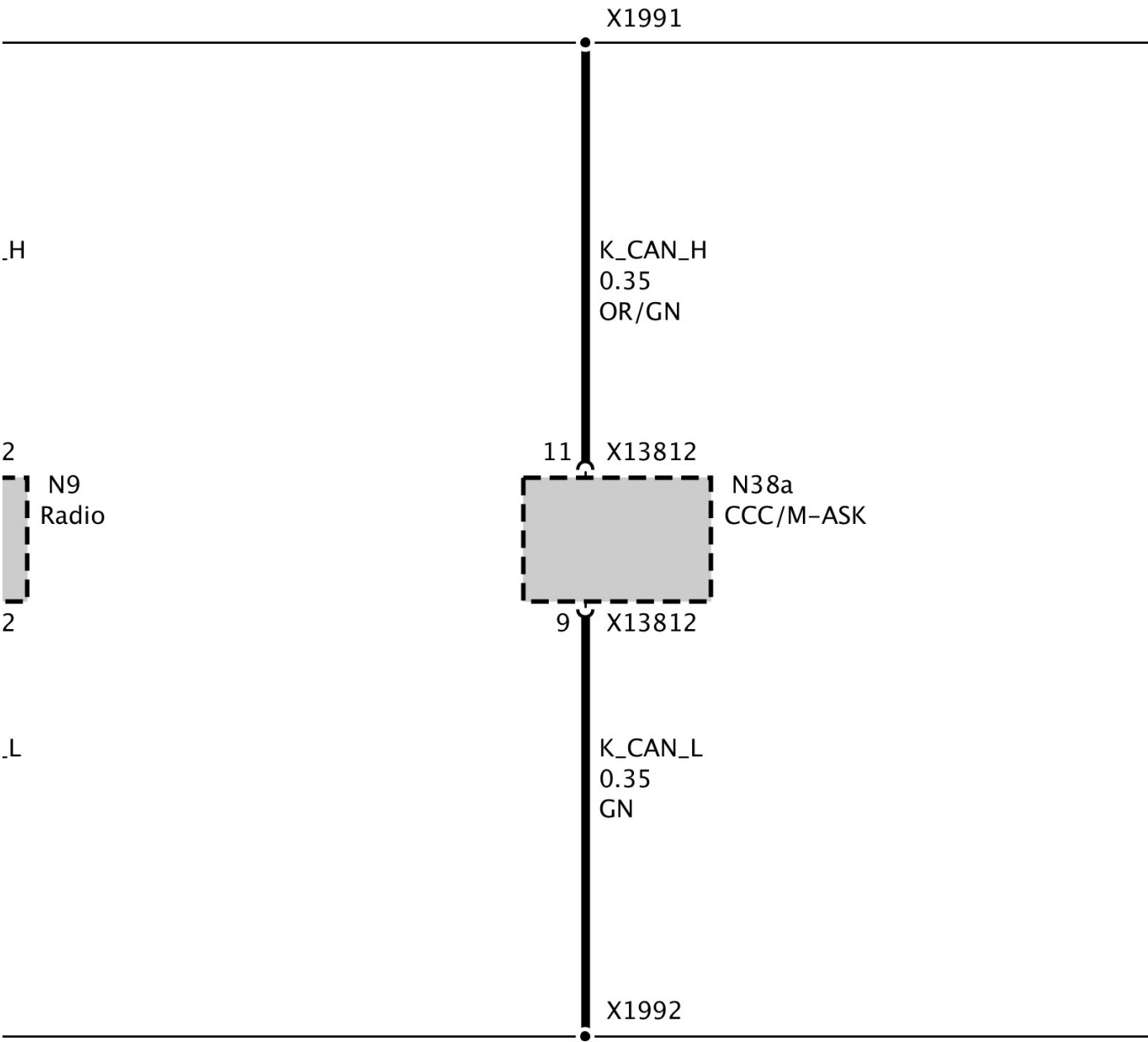
Part 1



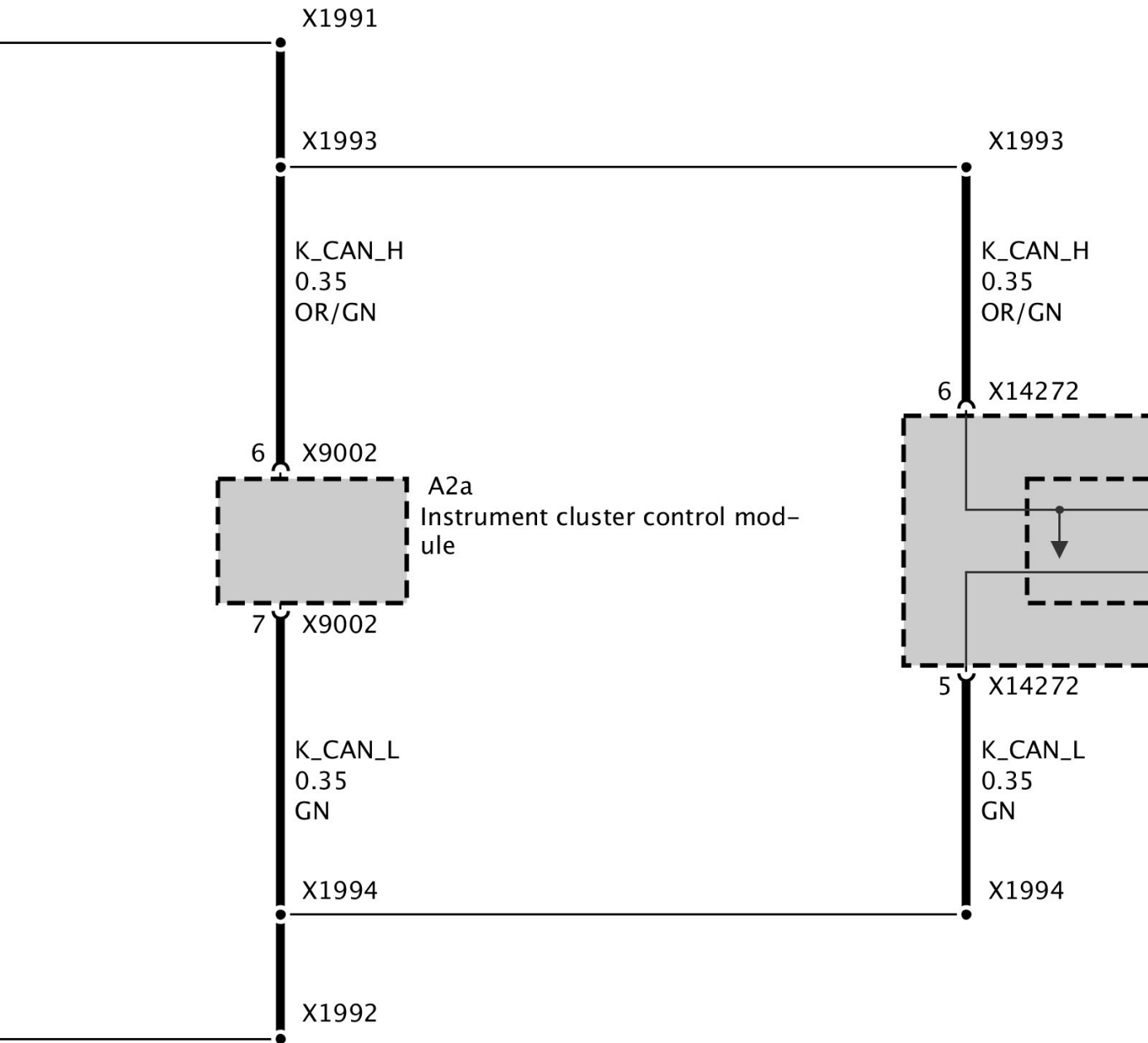
Part 2



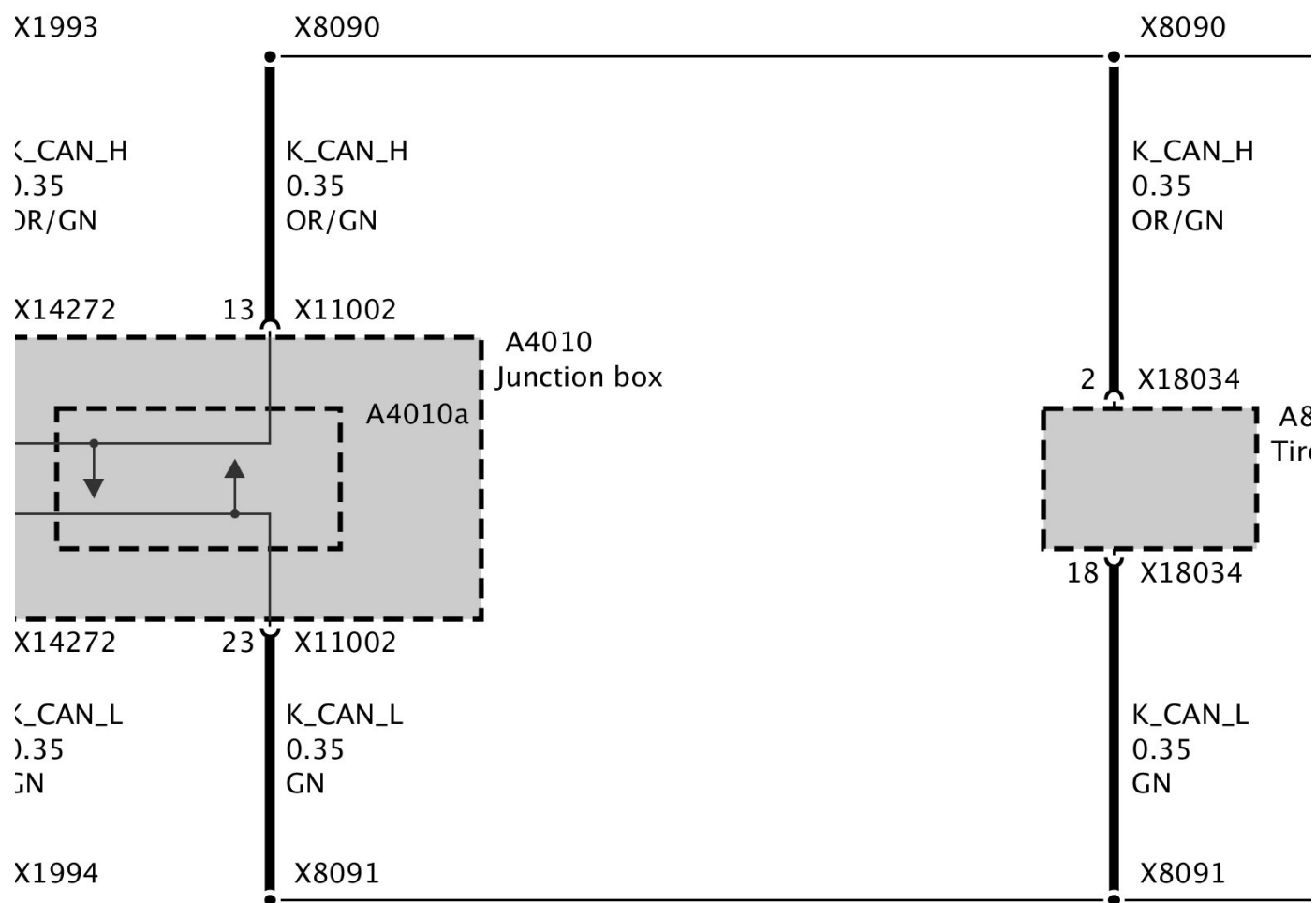
Part 3



Part 4

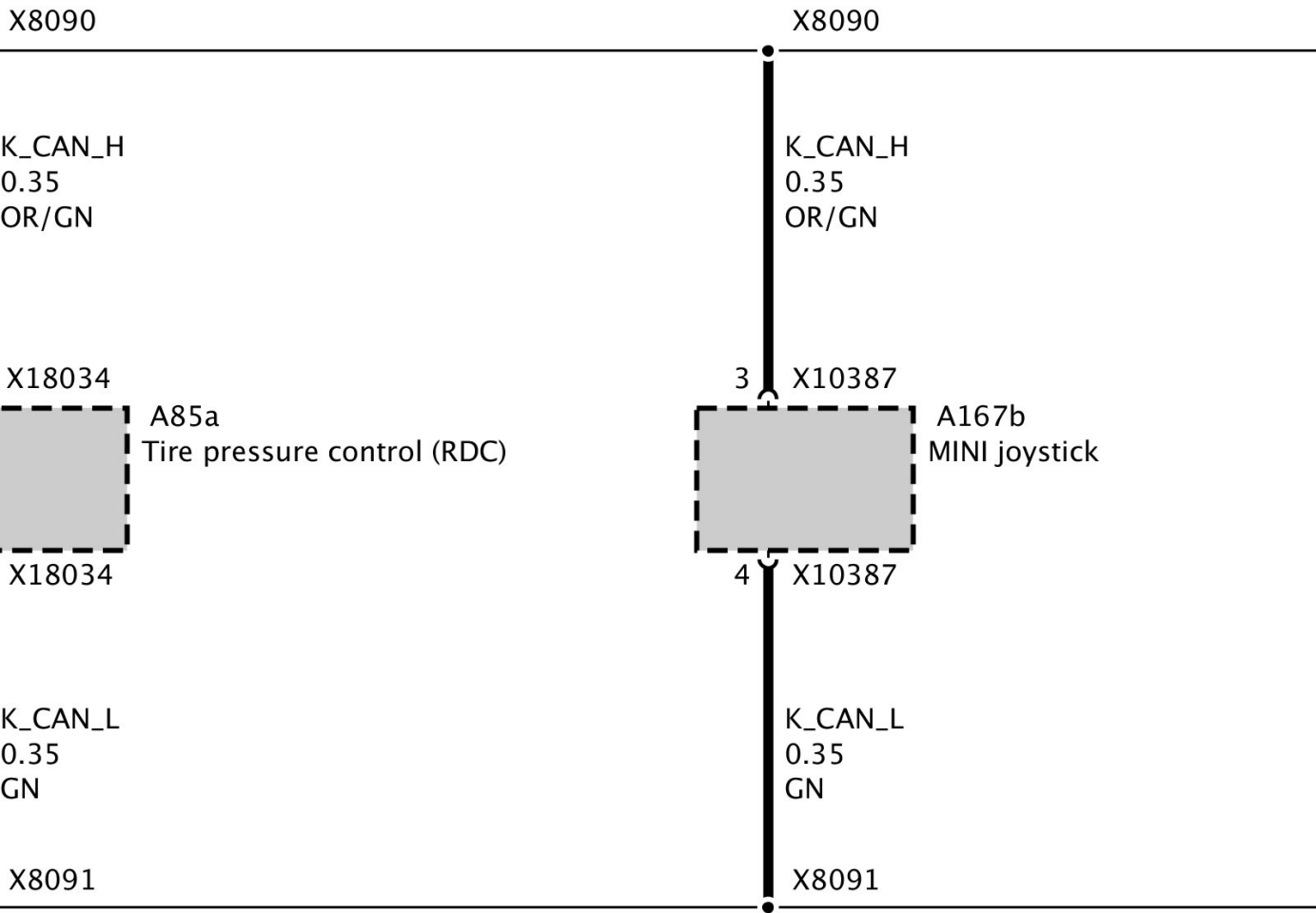


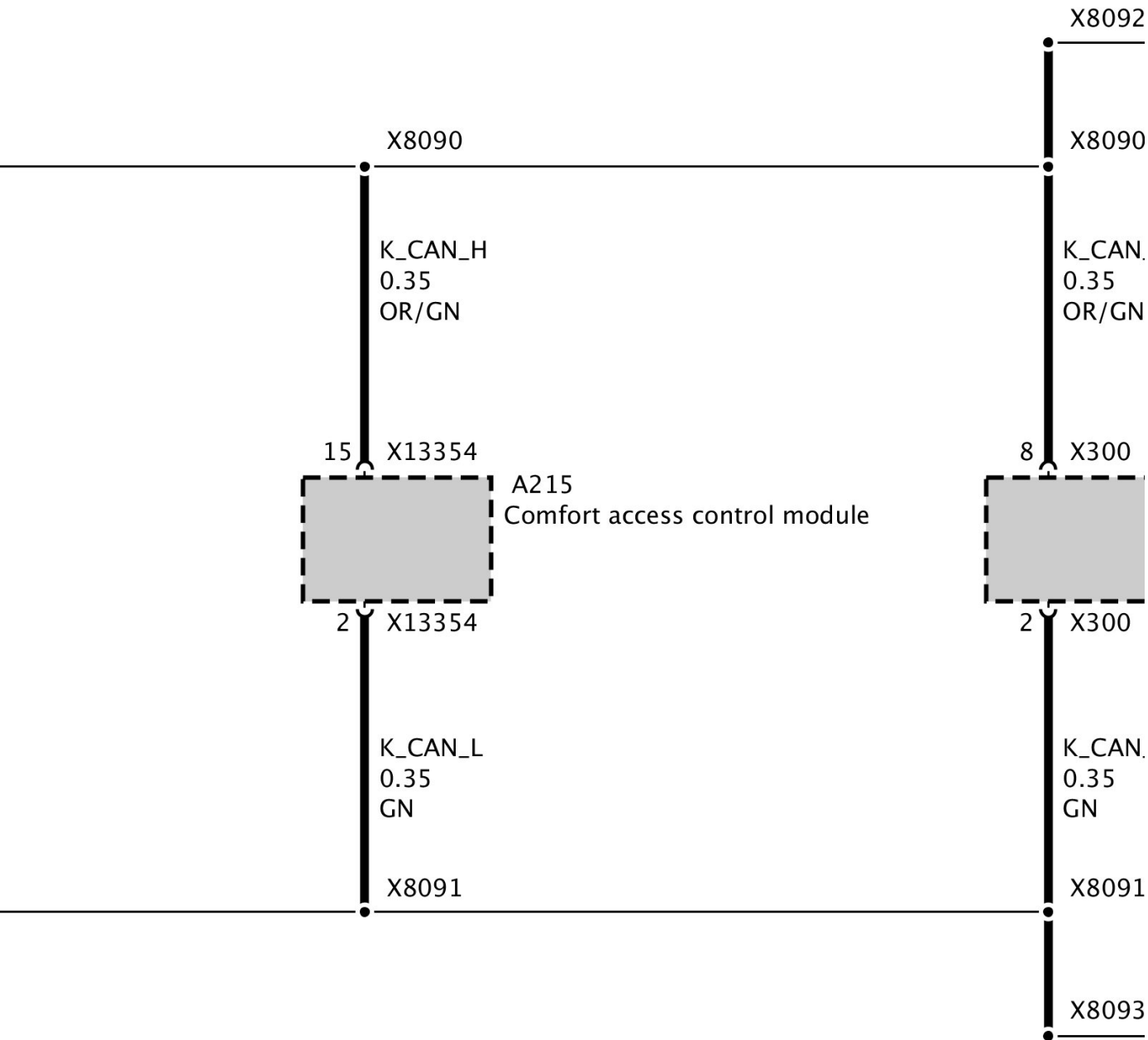
Part 5



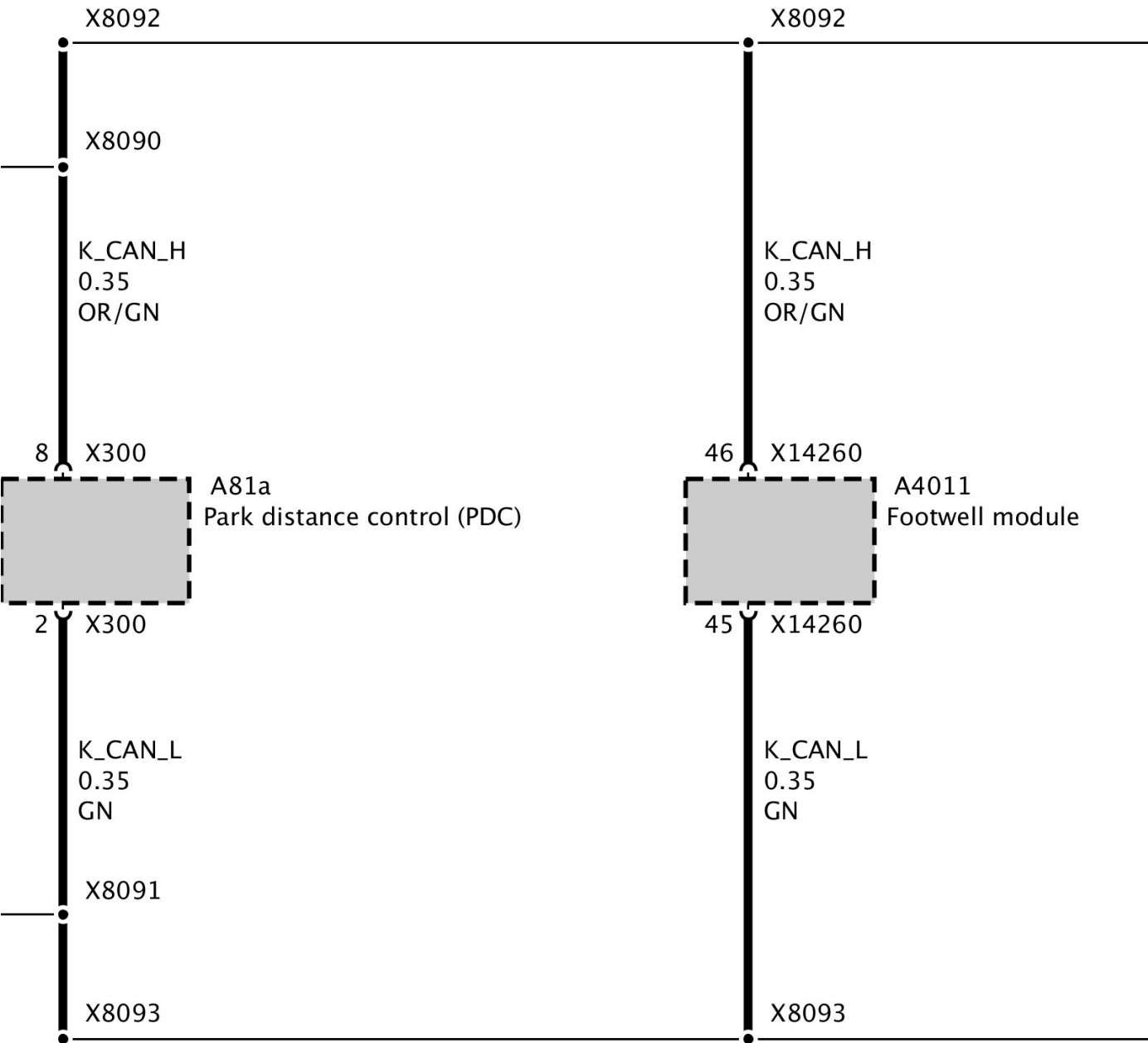
Part 6

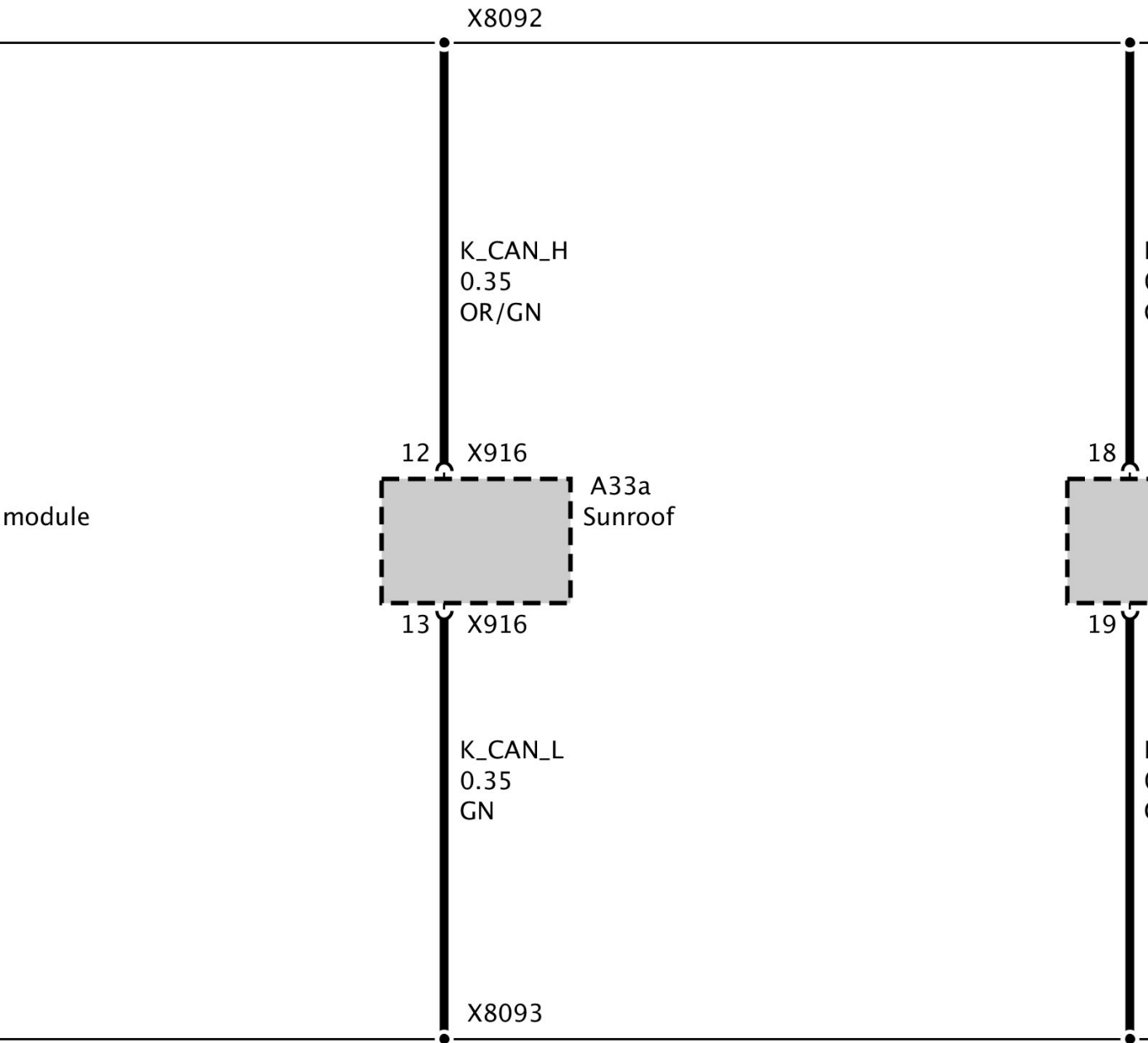


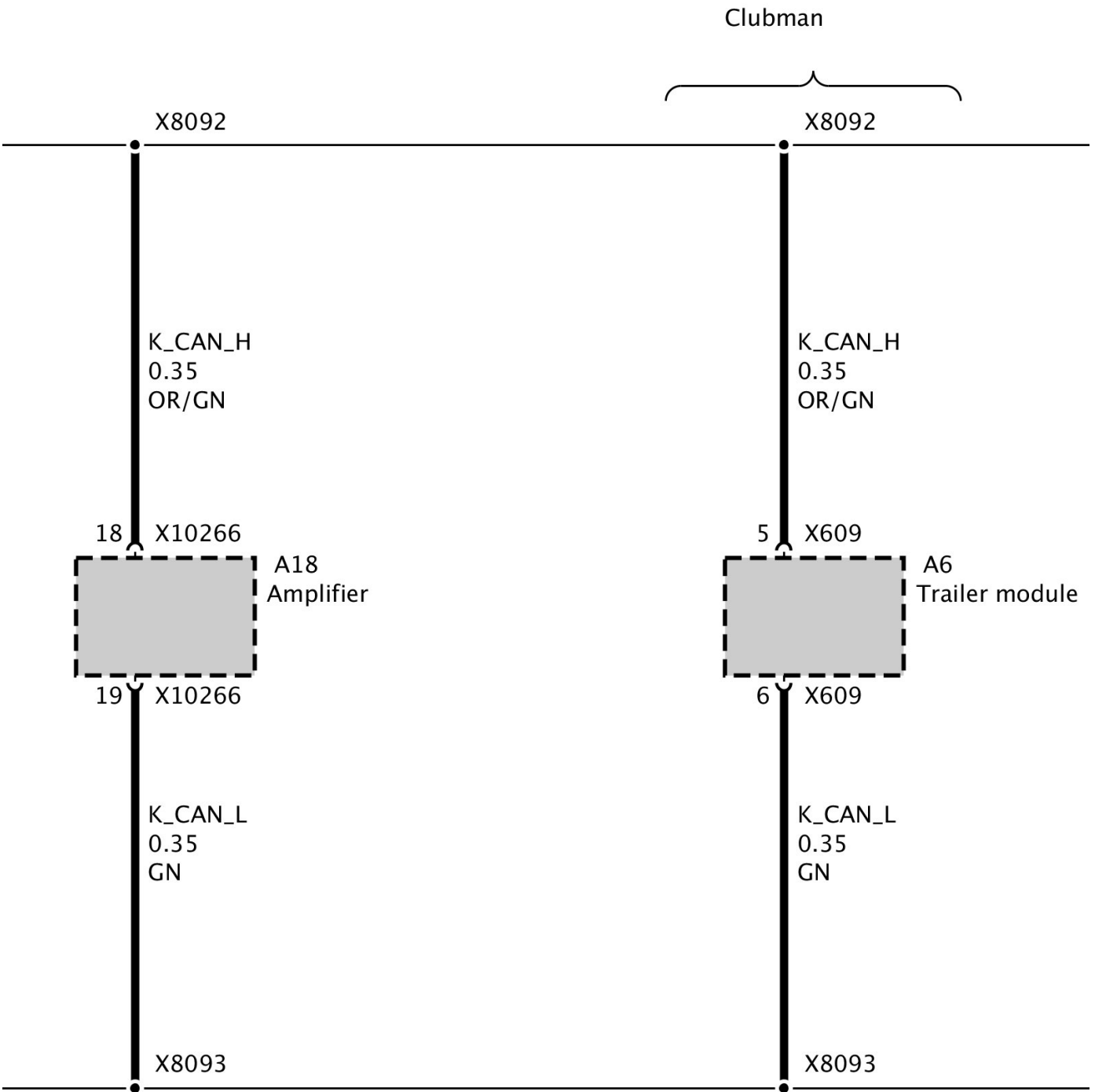


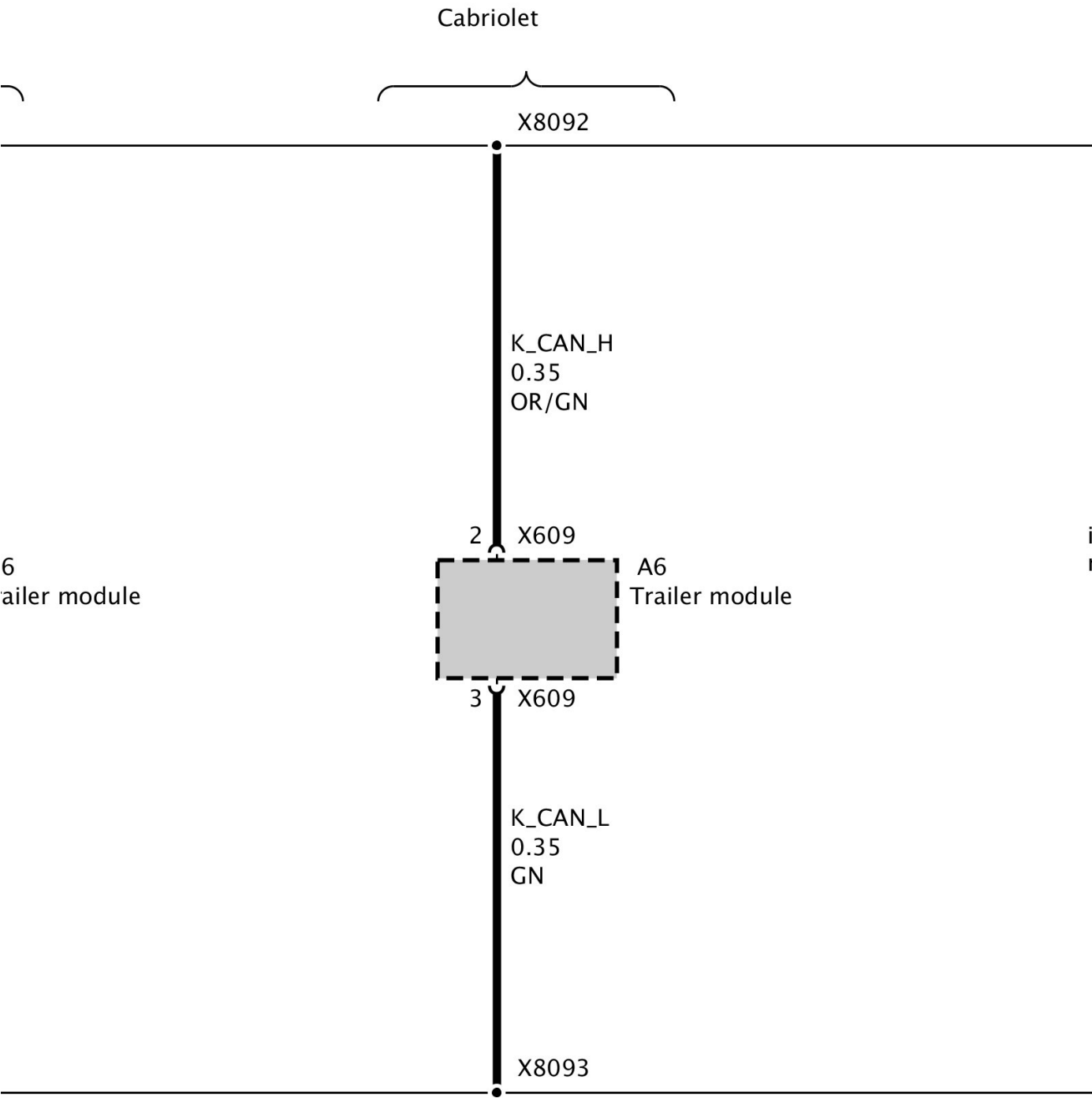


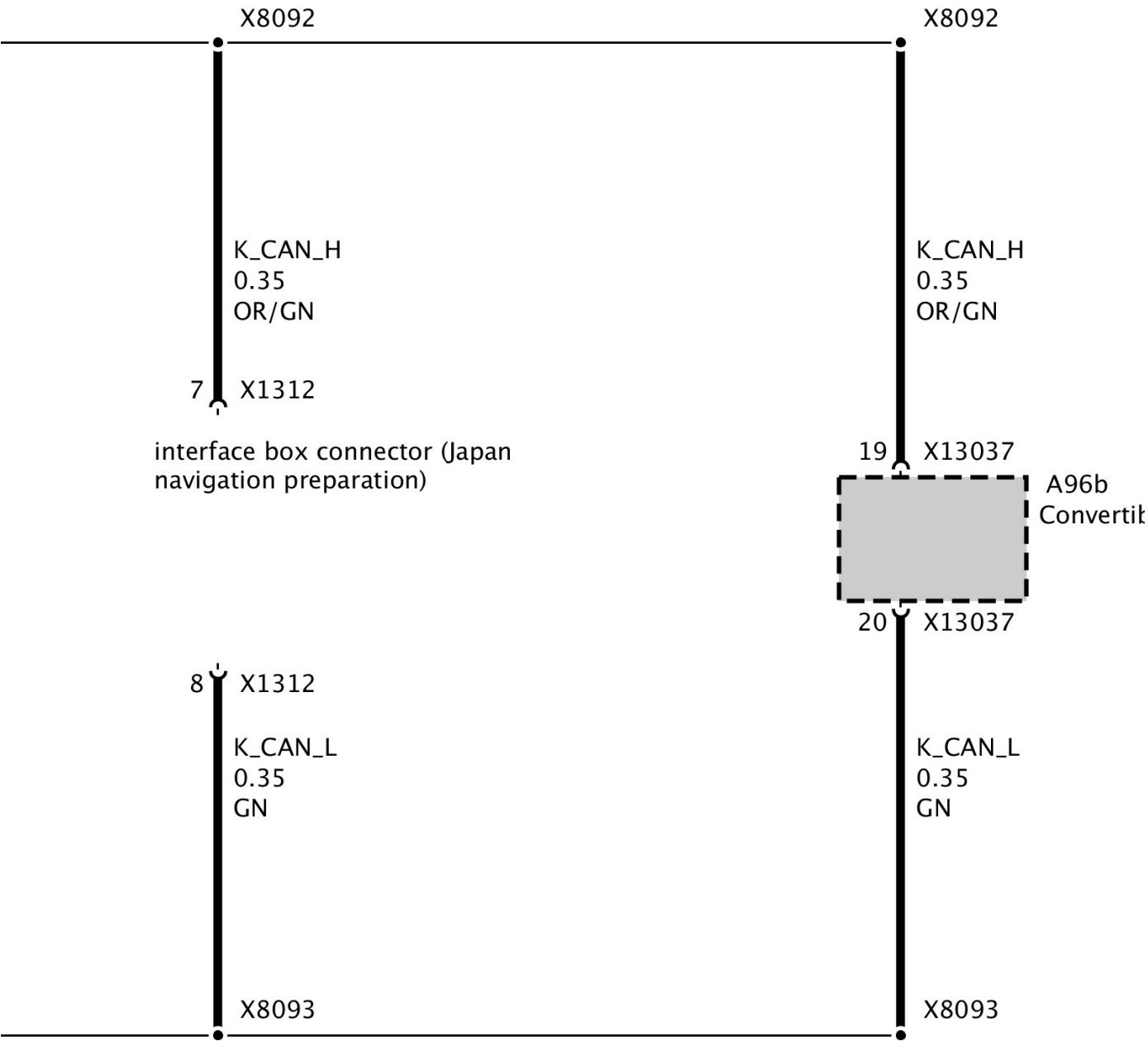
Part 8











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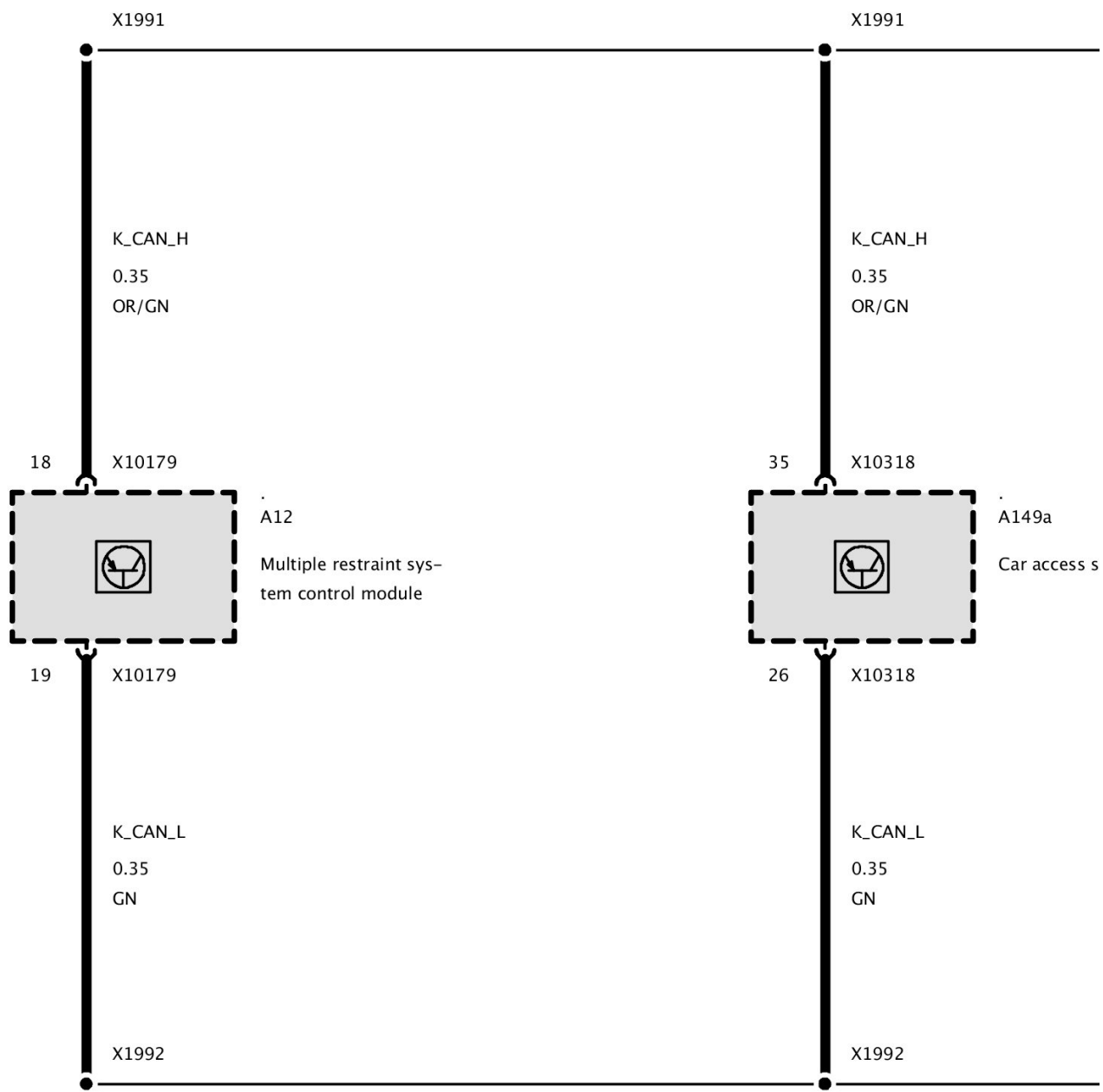
#### Part 14

### Connector, CAN Bus (As of 08/07 Up to 12/08)

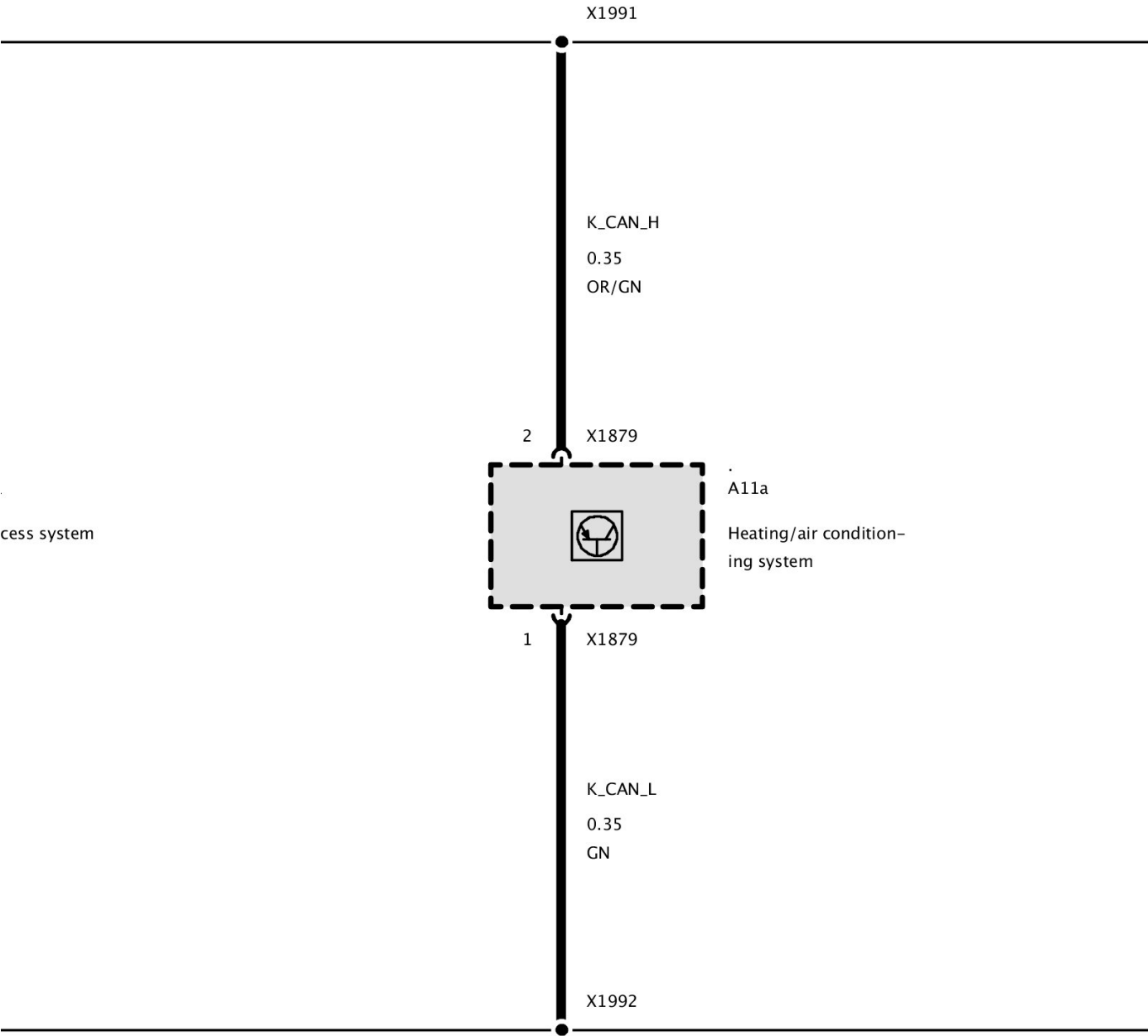
X1993 No Adapter

Connector, CAN Bus (As of 08/07 Up to 12/08)

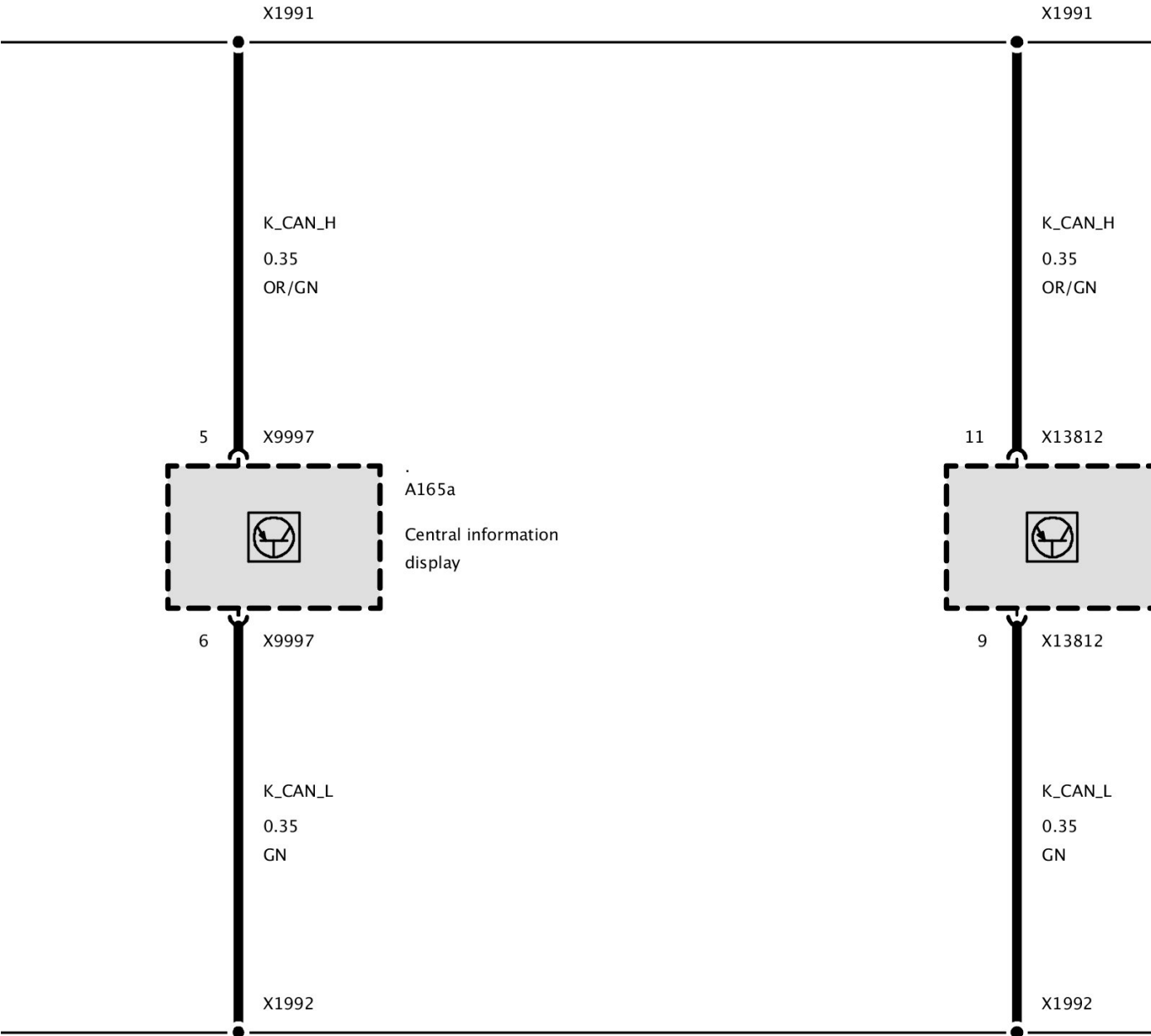




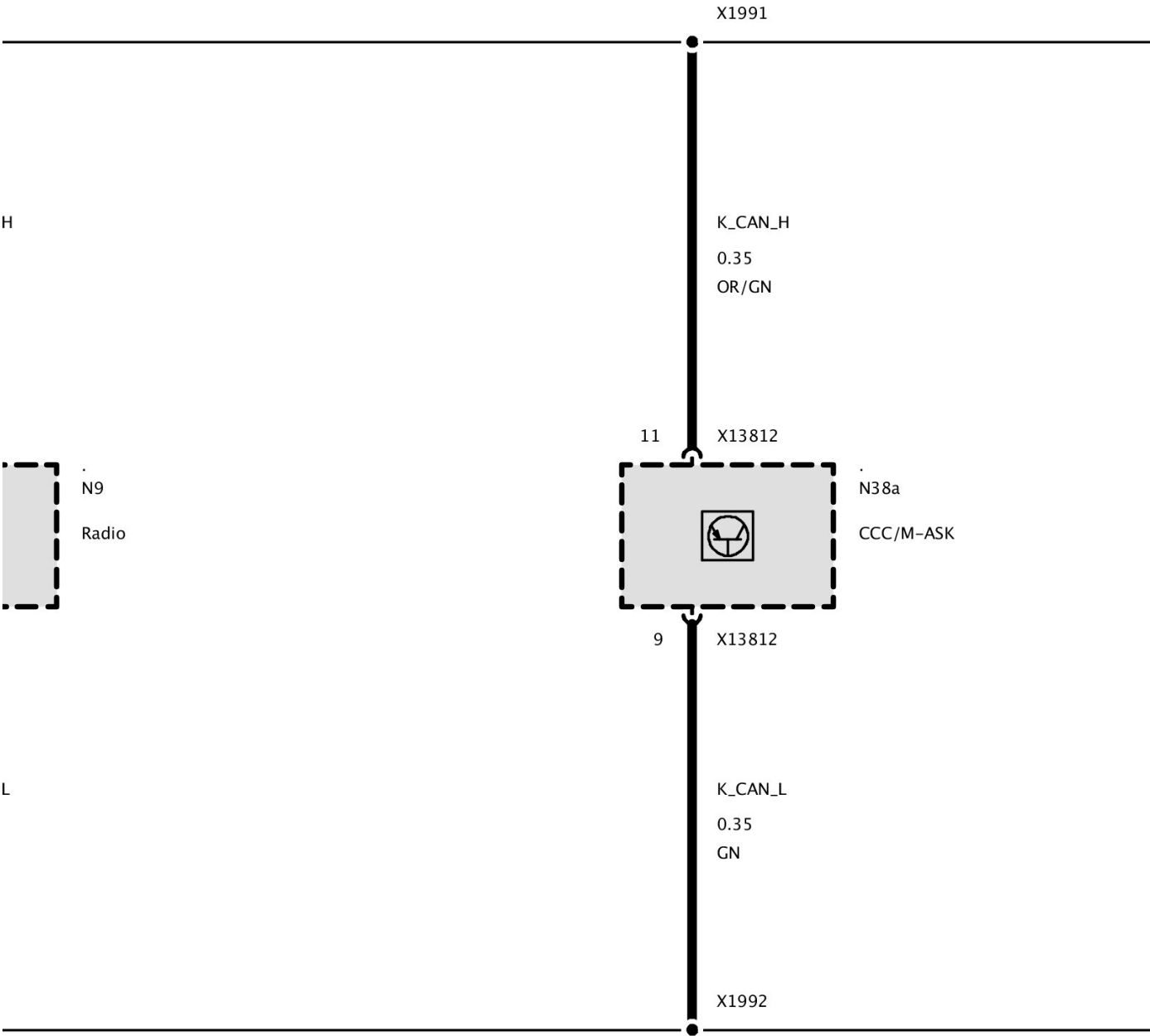
Part 1



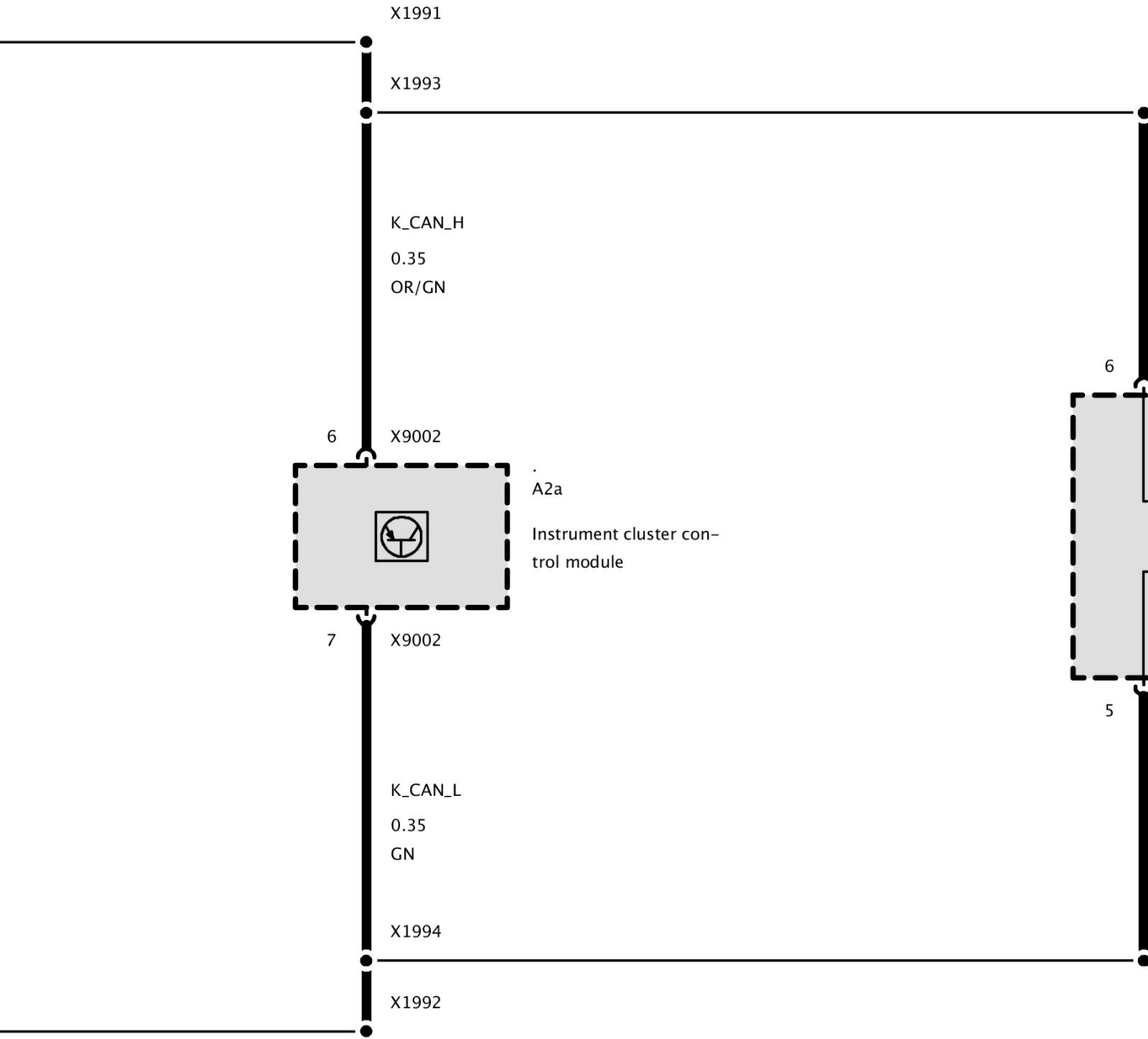
Part 2



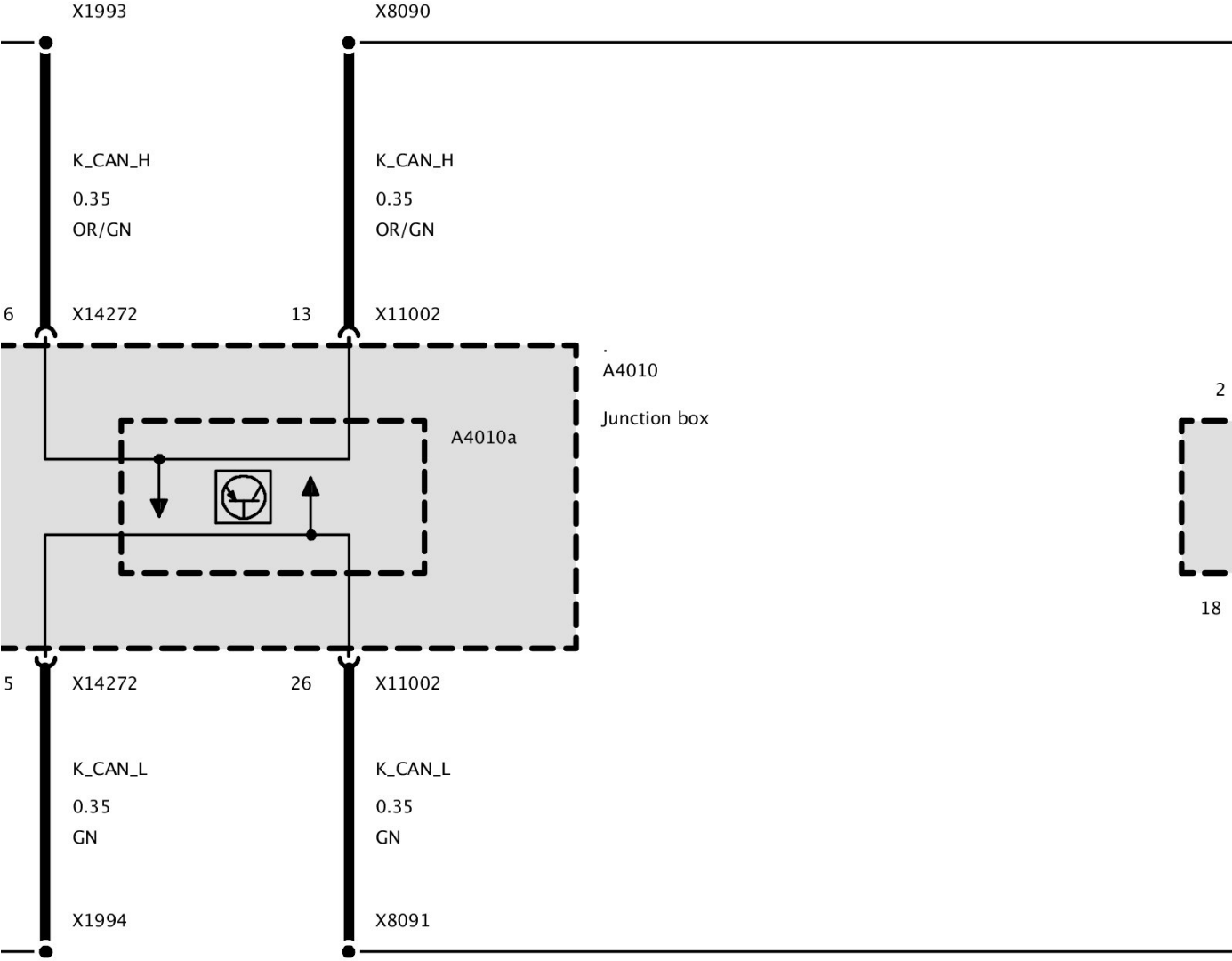
Part 3



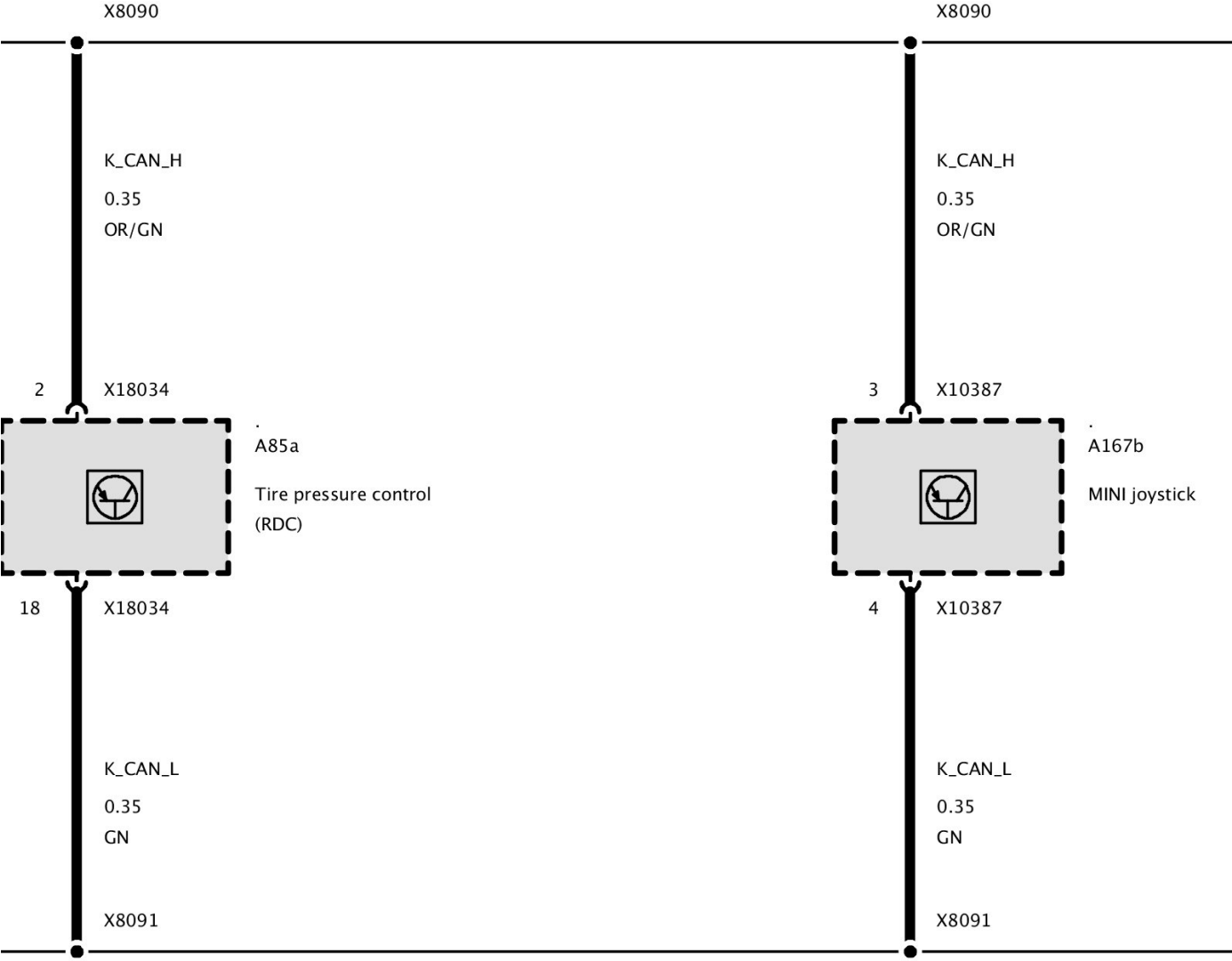
Part 4



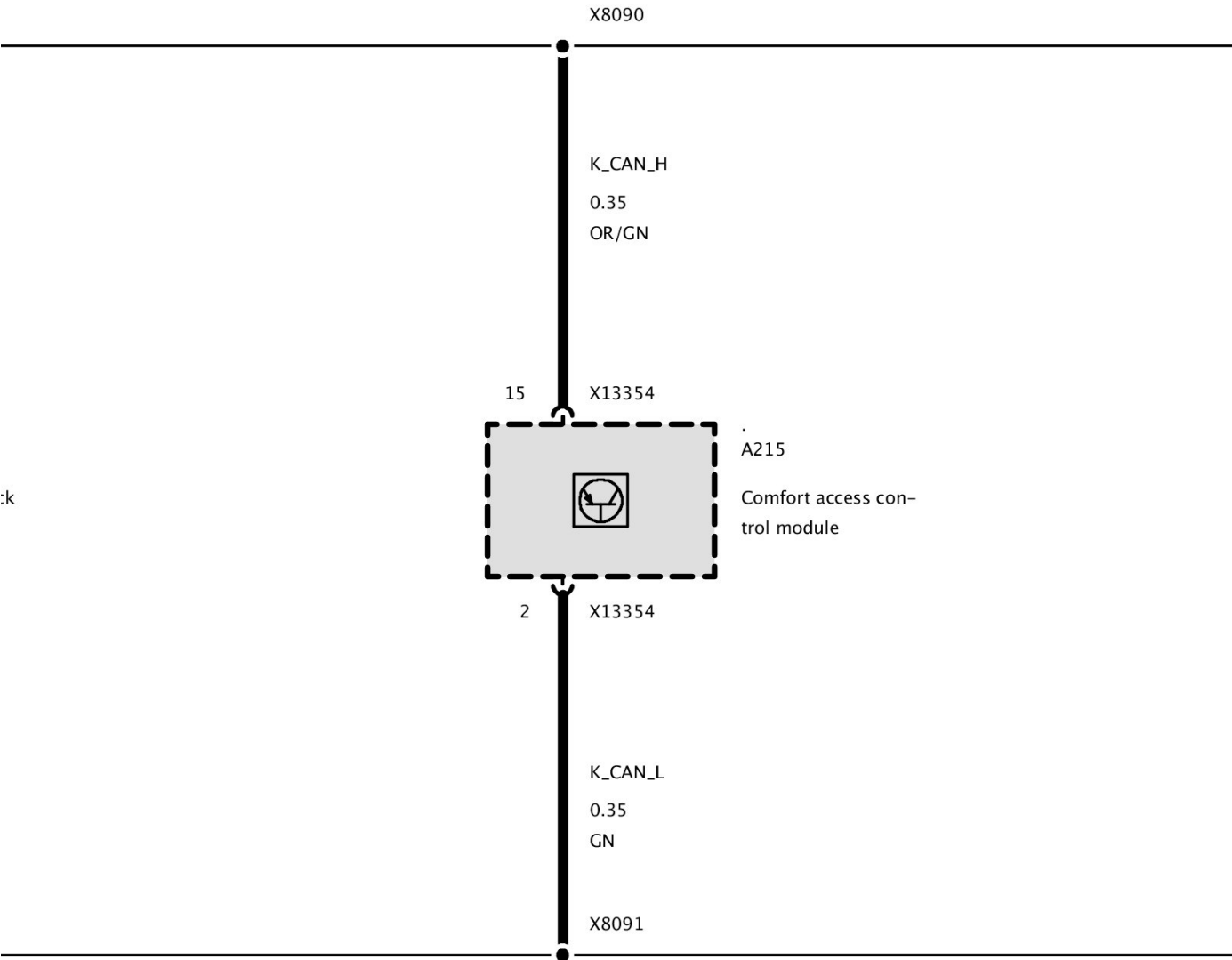
Part 5



Part 6

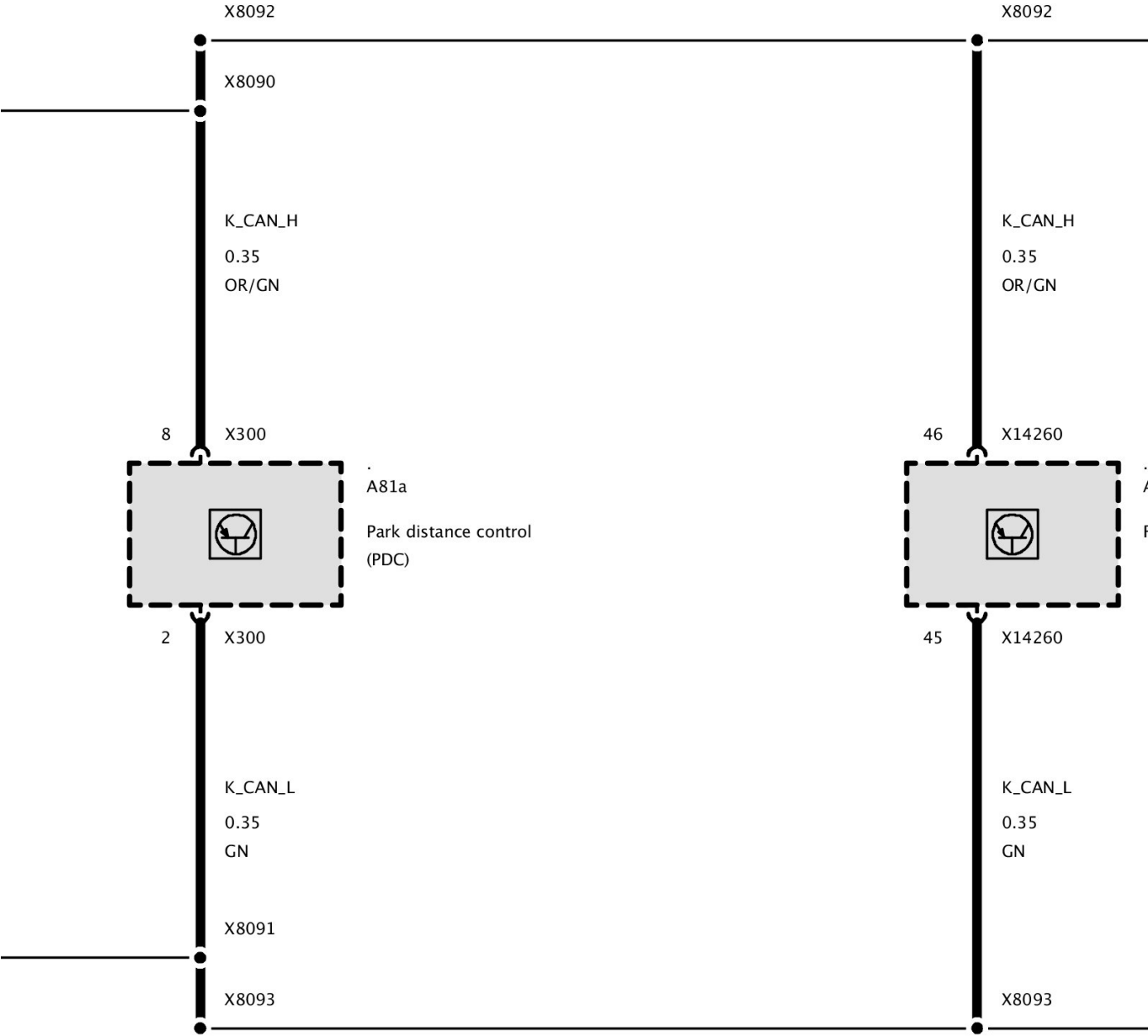


Part 7

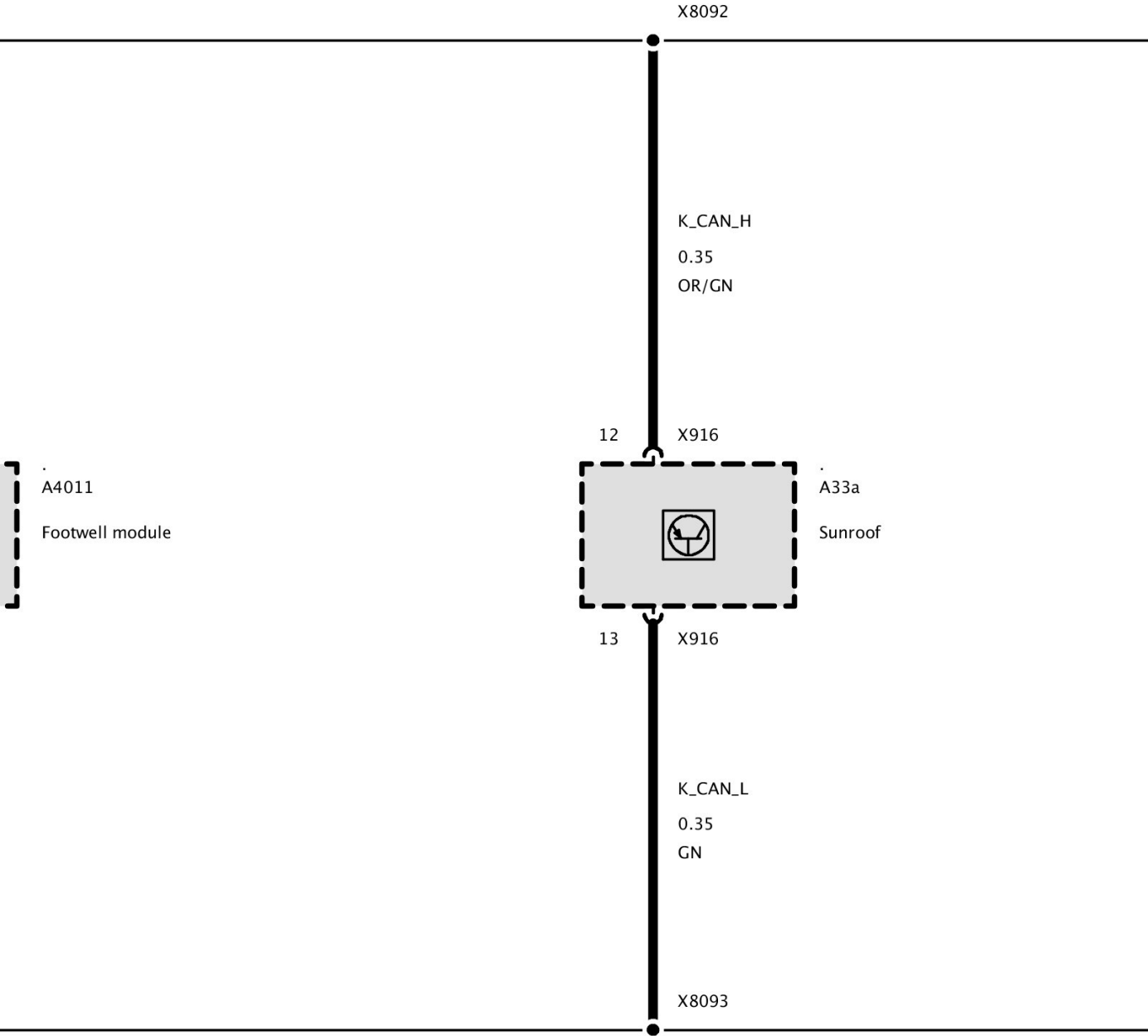


Part 8

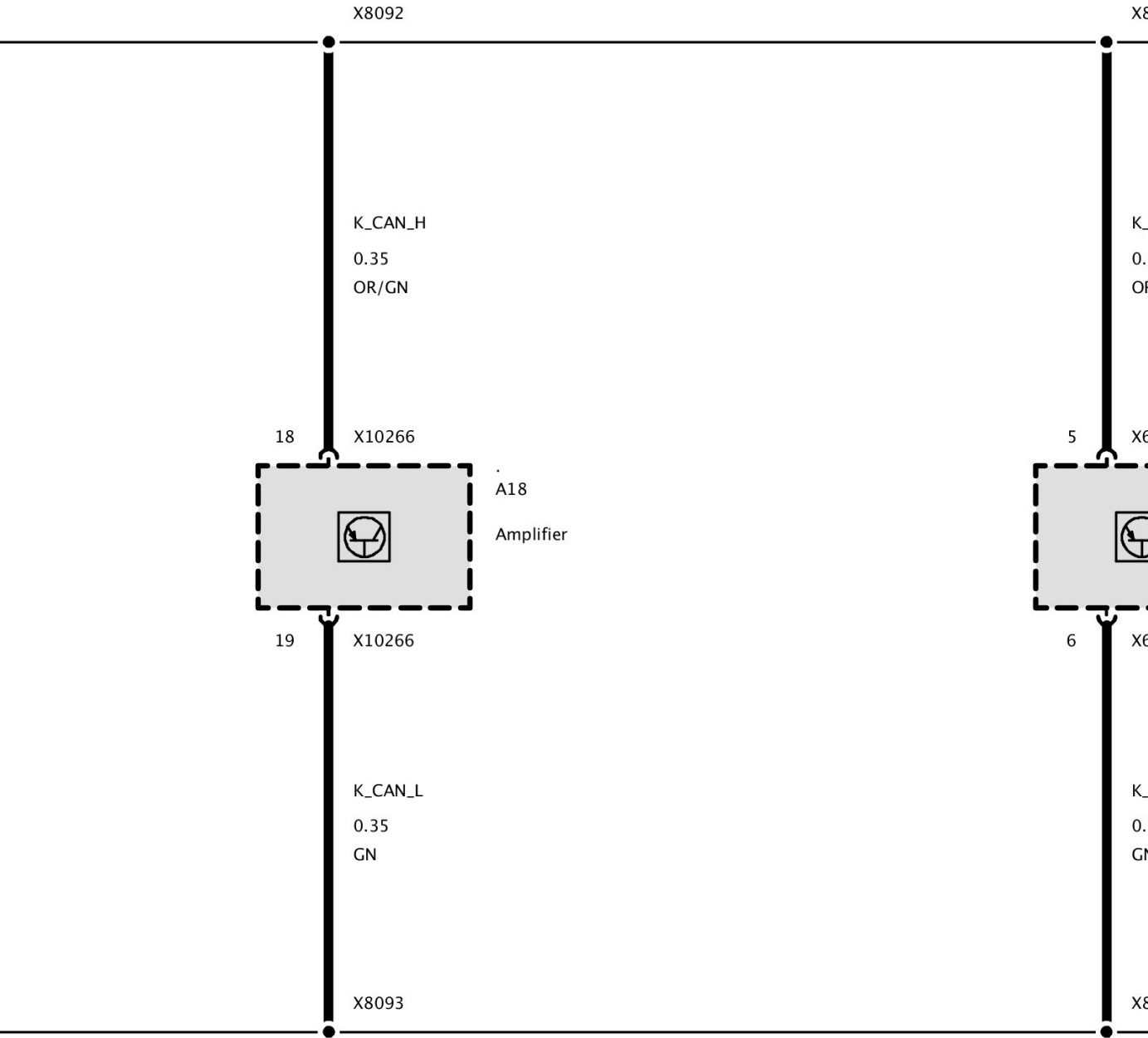




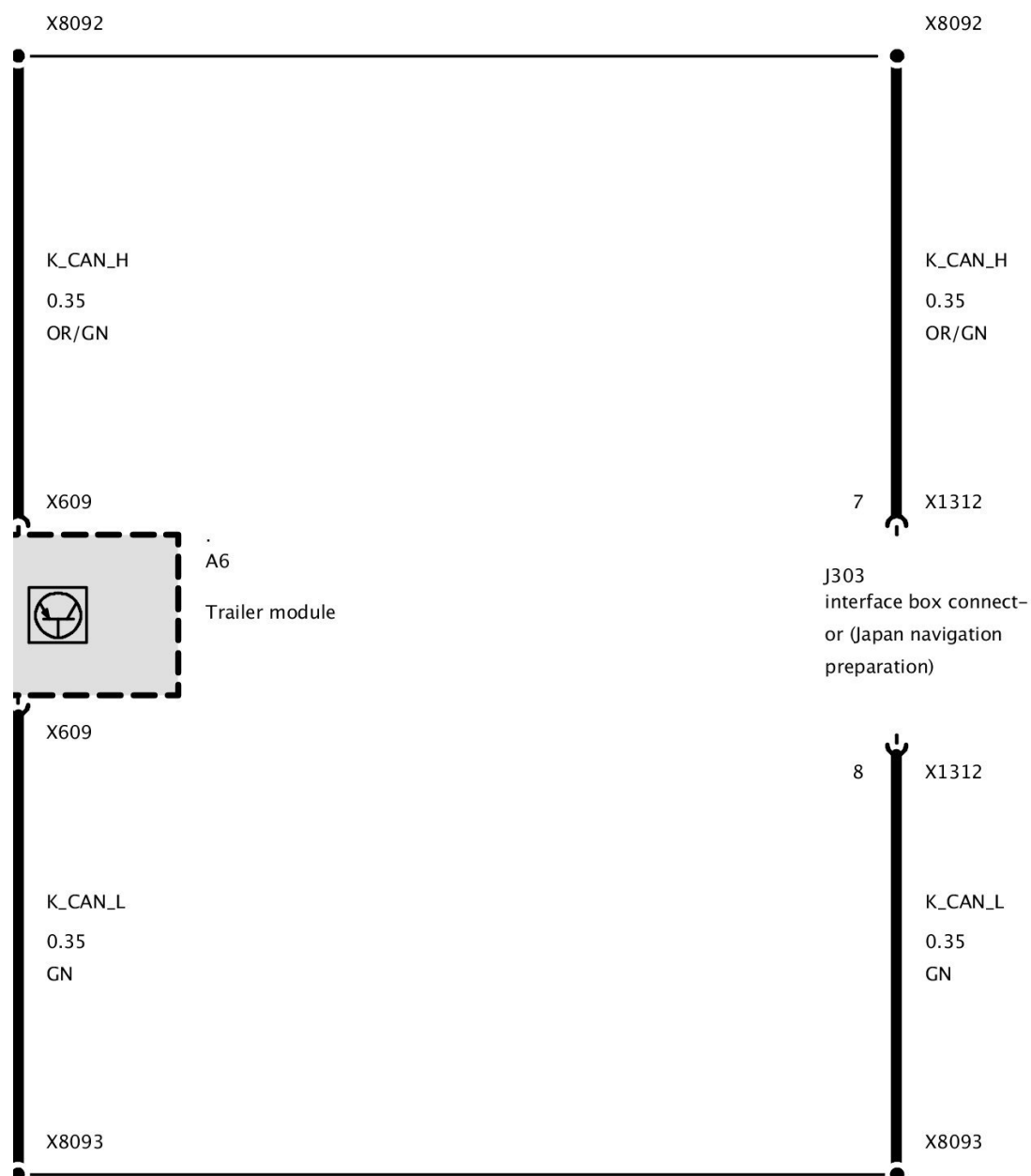
Part 9



Part 10



Part 11

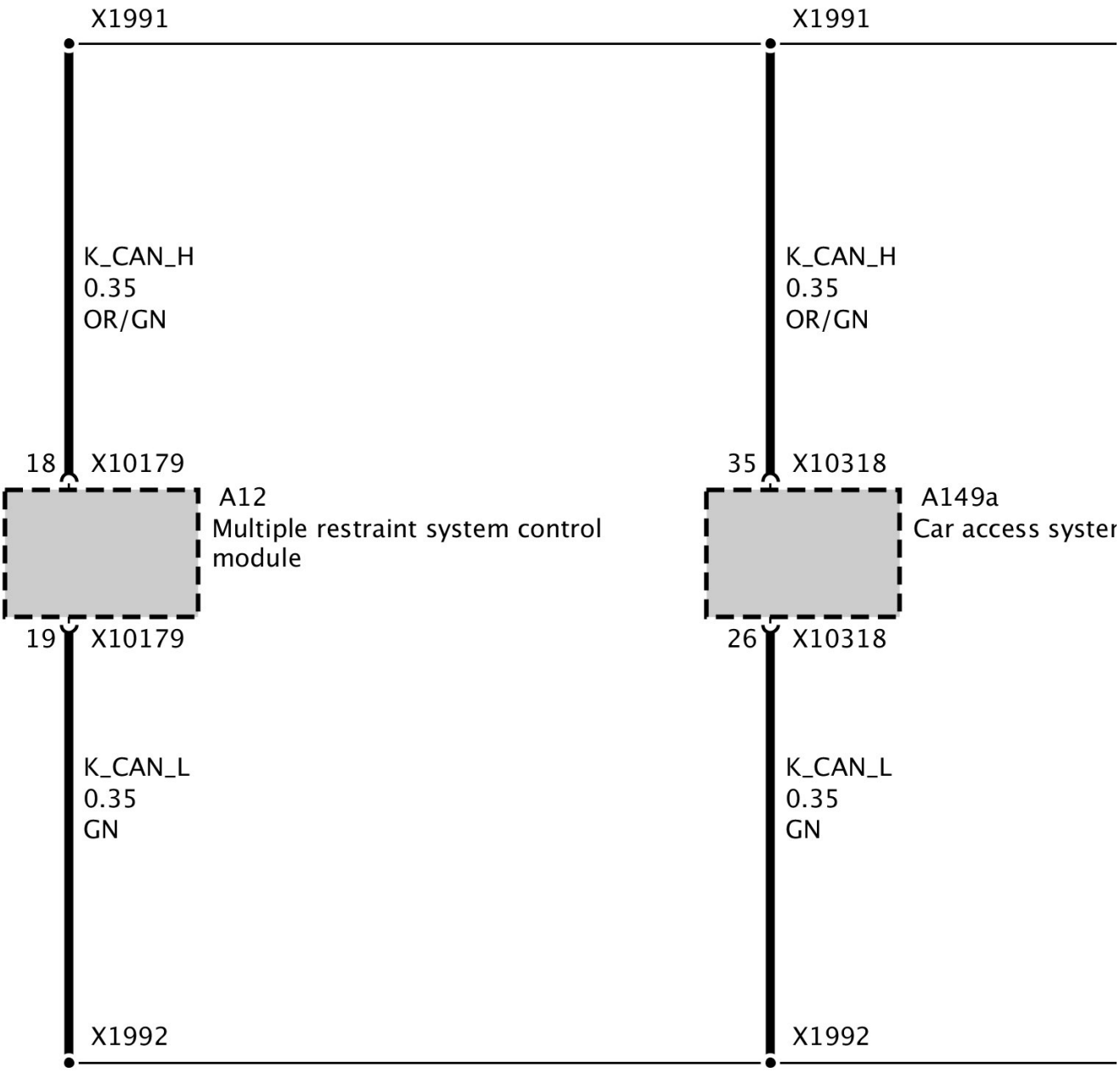


## Part 12

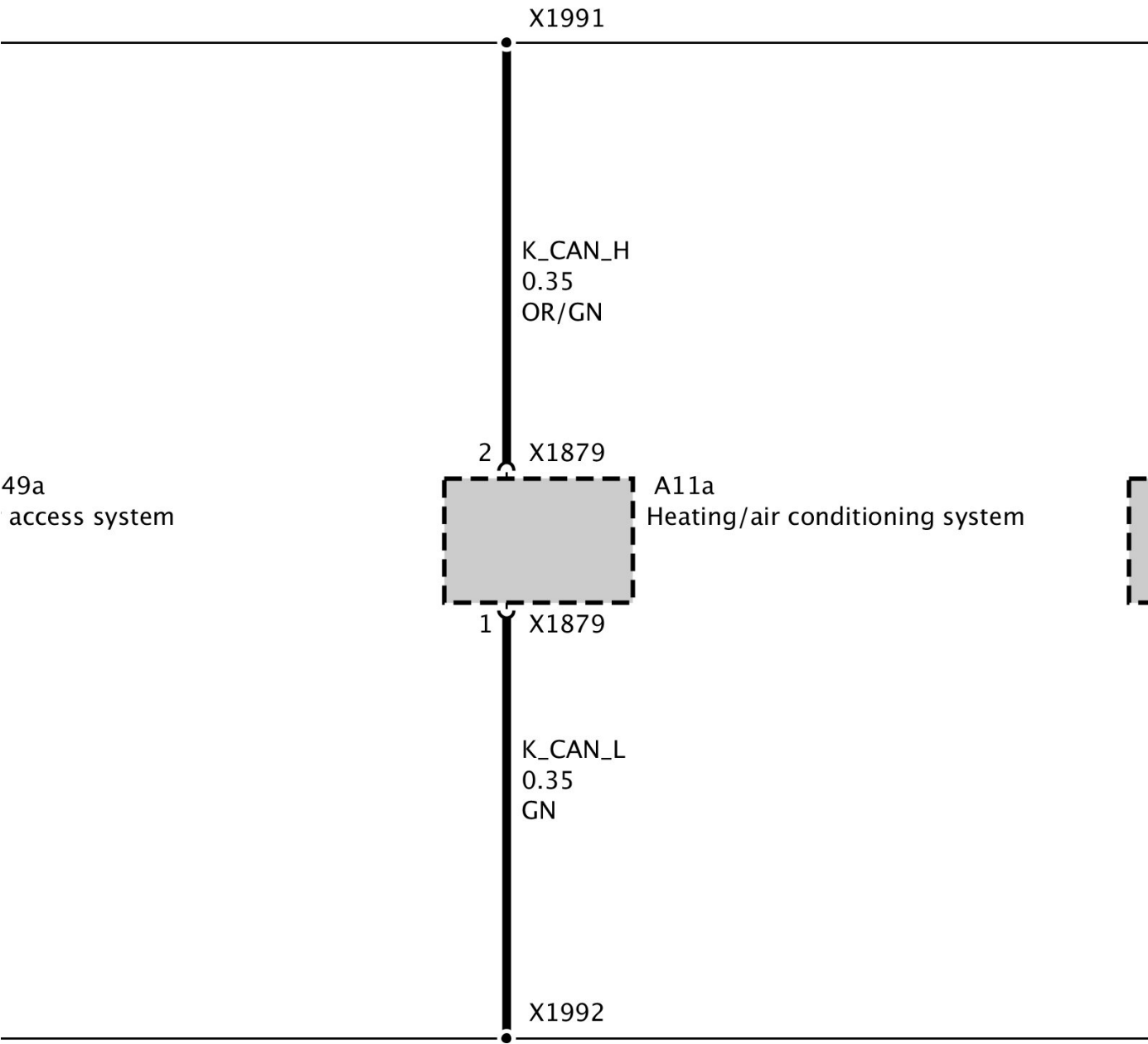
### Connector, CAN Bus (As of 12/08)

X1993 No Adapter

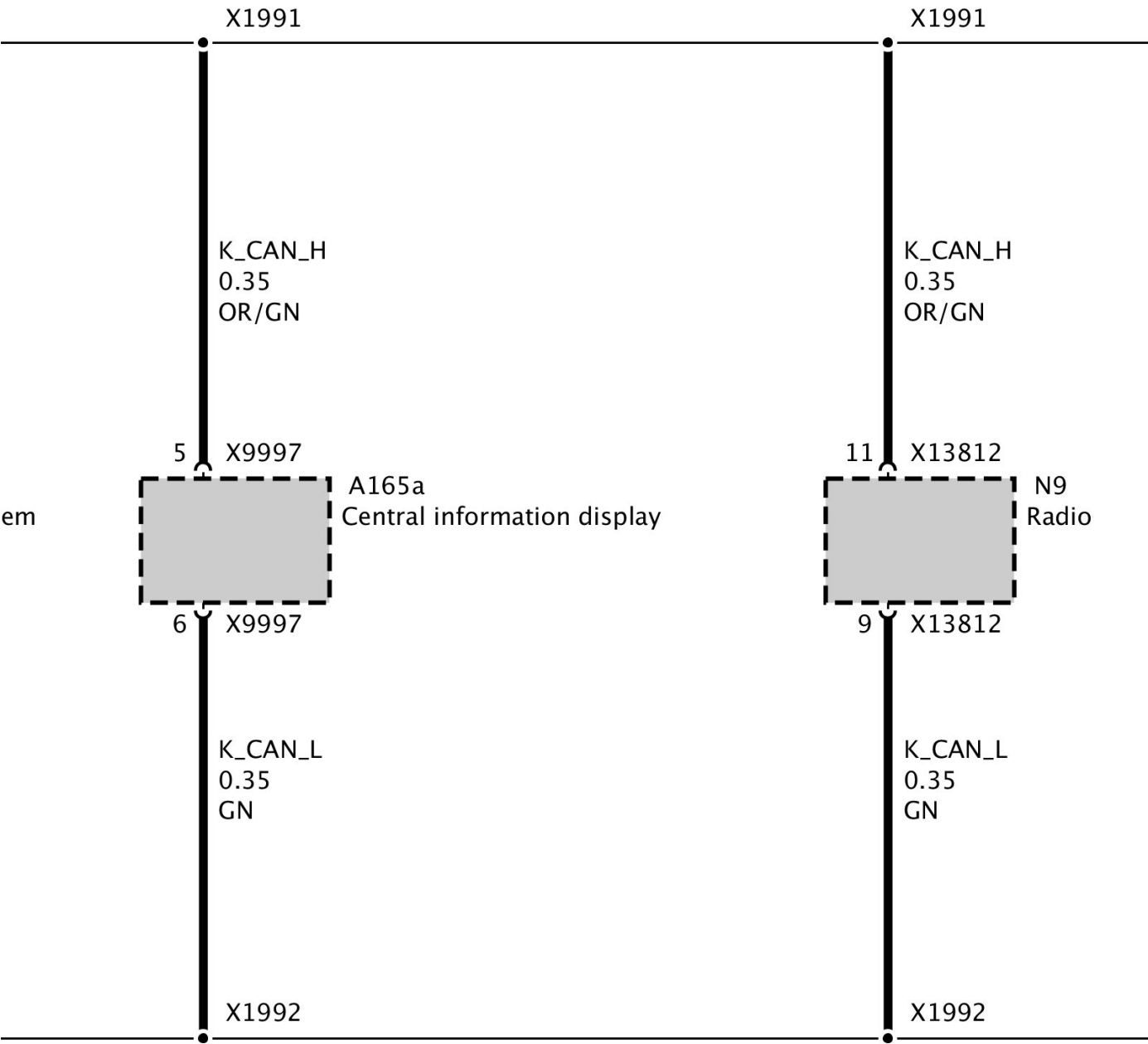
Connector, CAN Bus (As of 12/08)

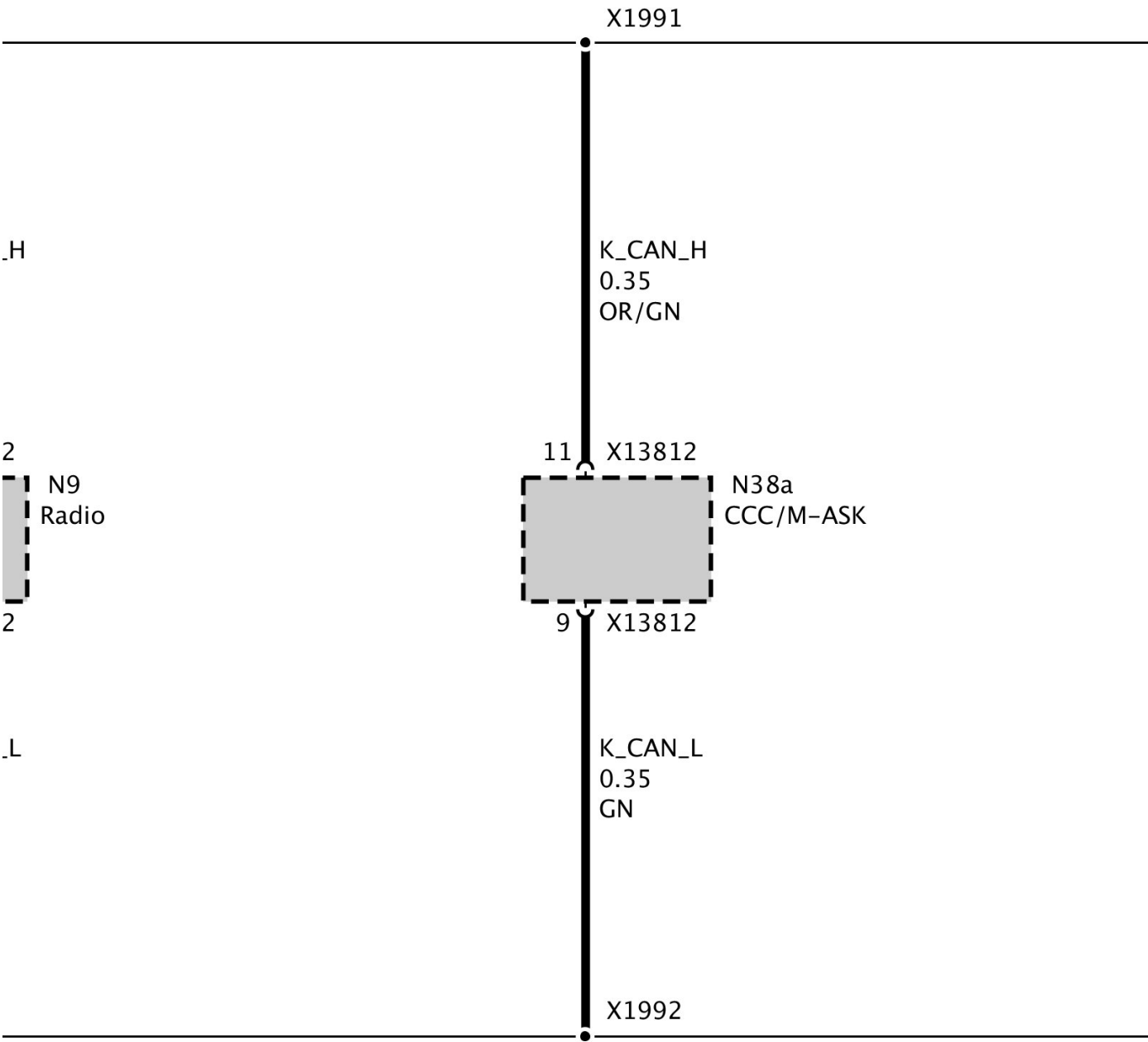


Part 1



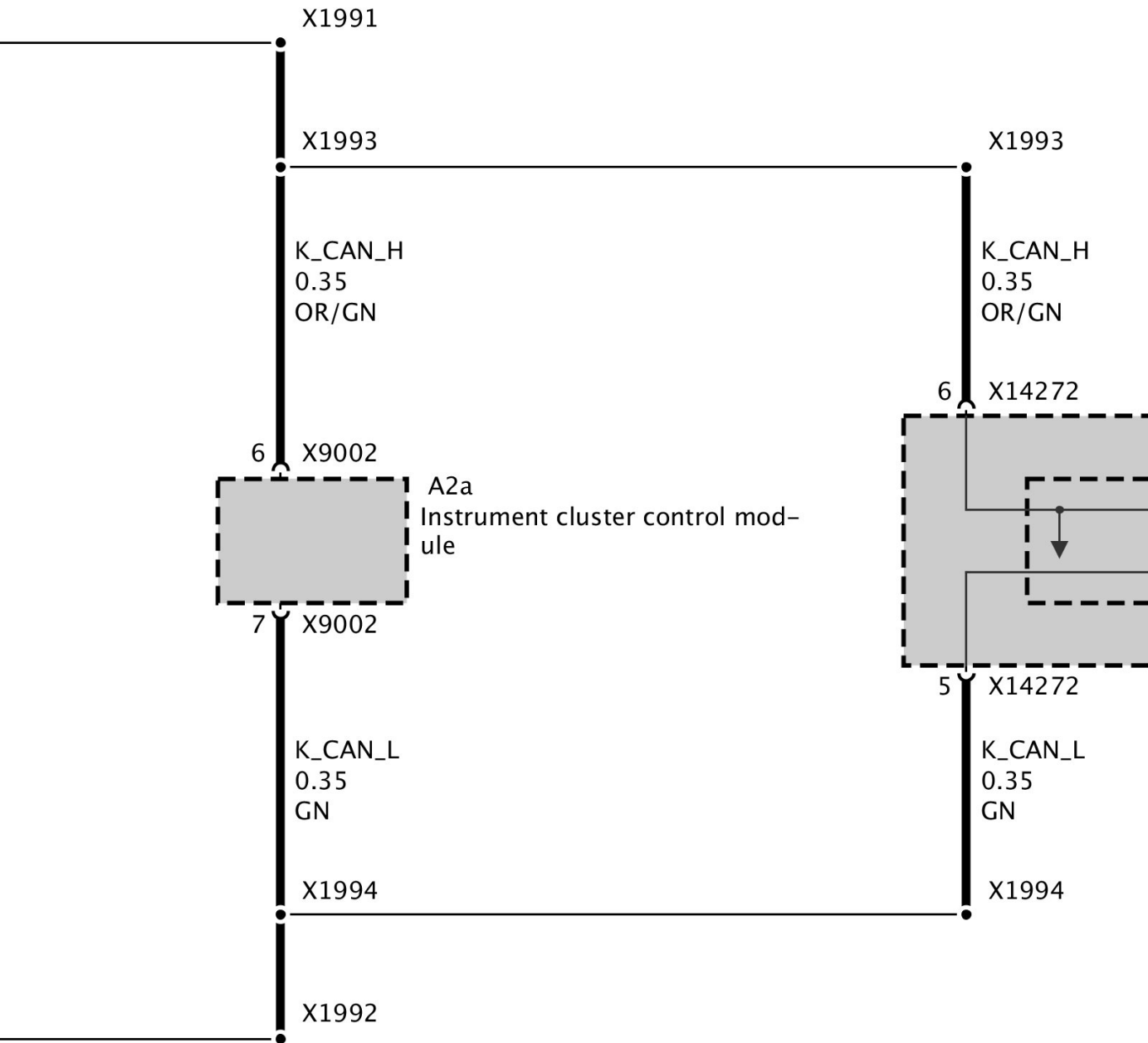
Part 2



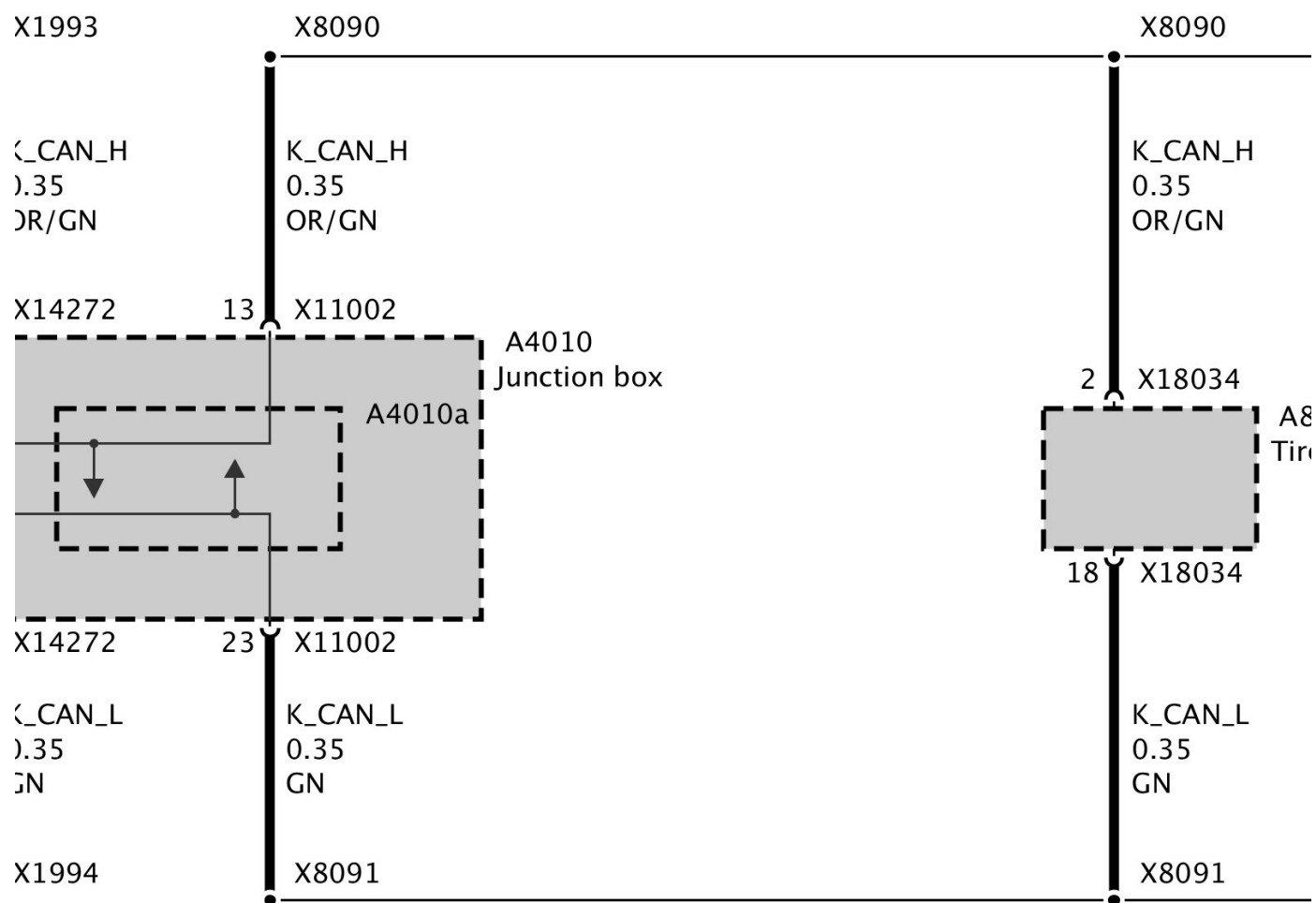


Part 4

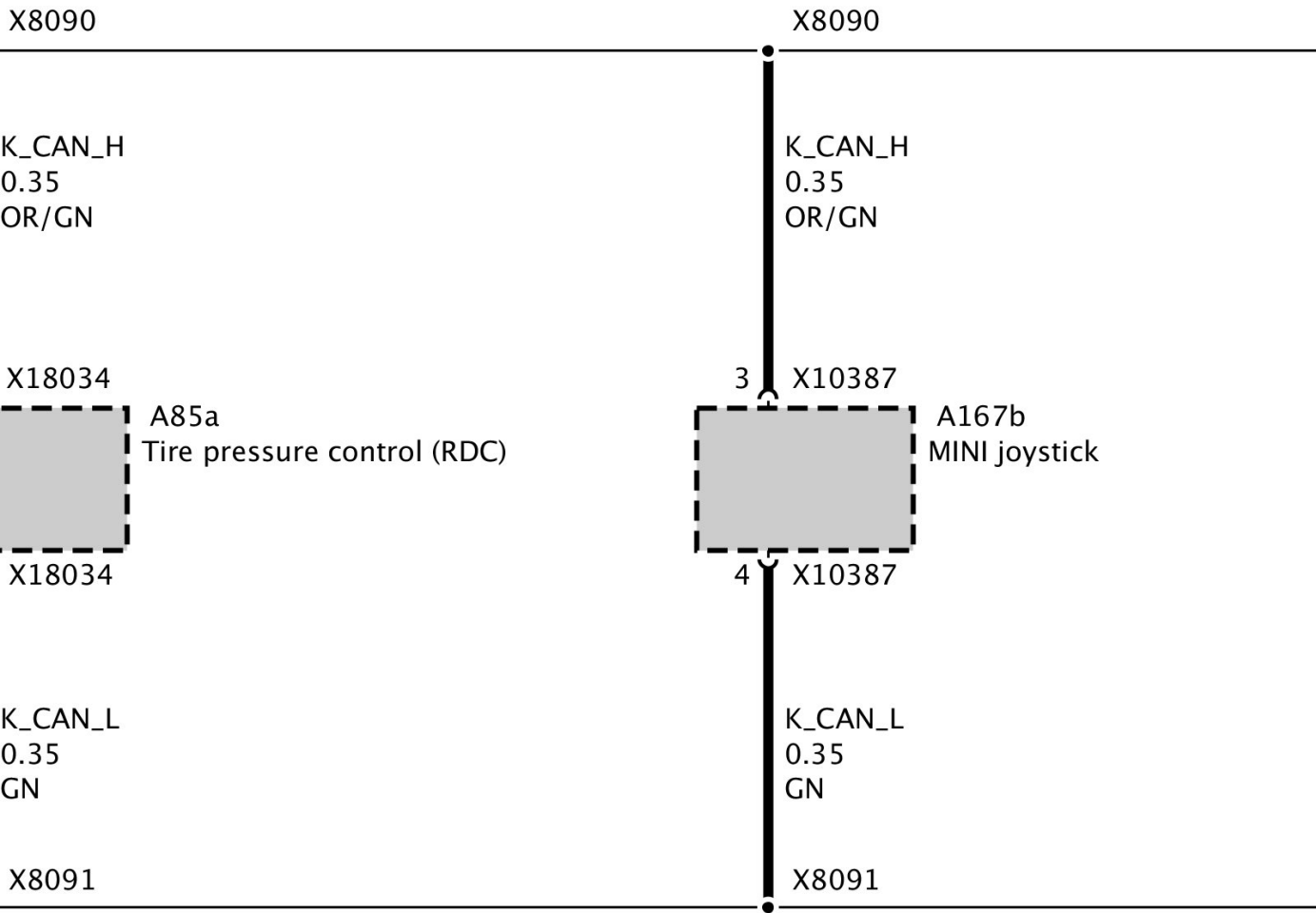


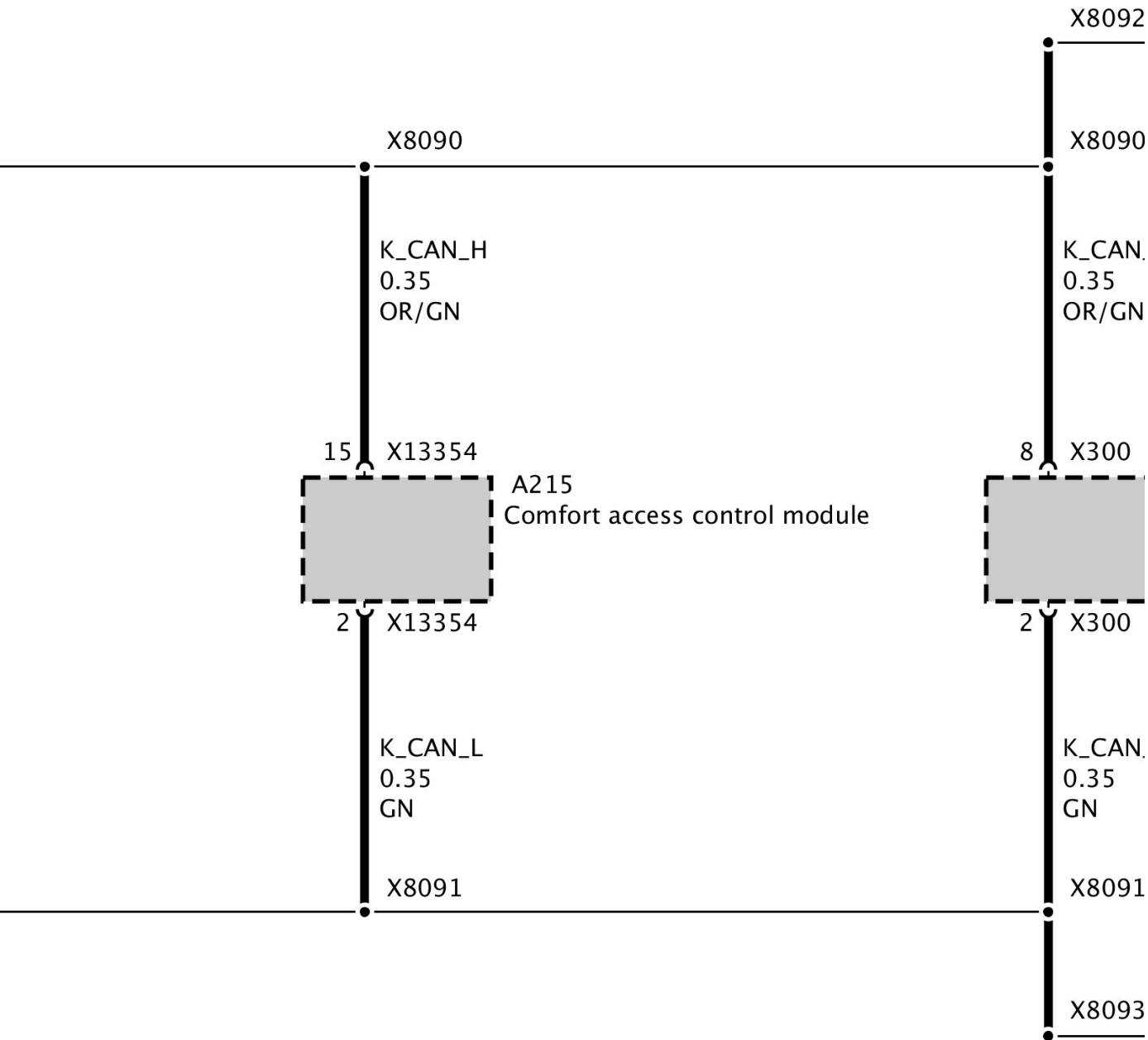


Part 5

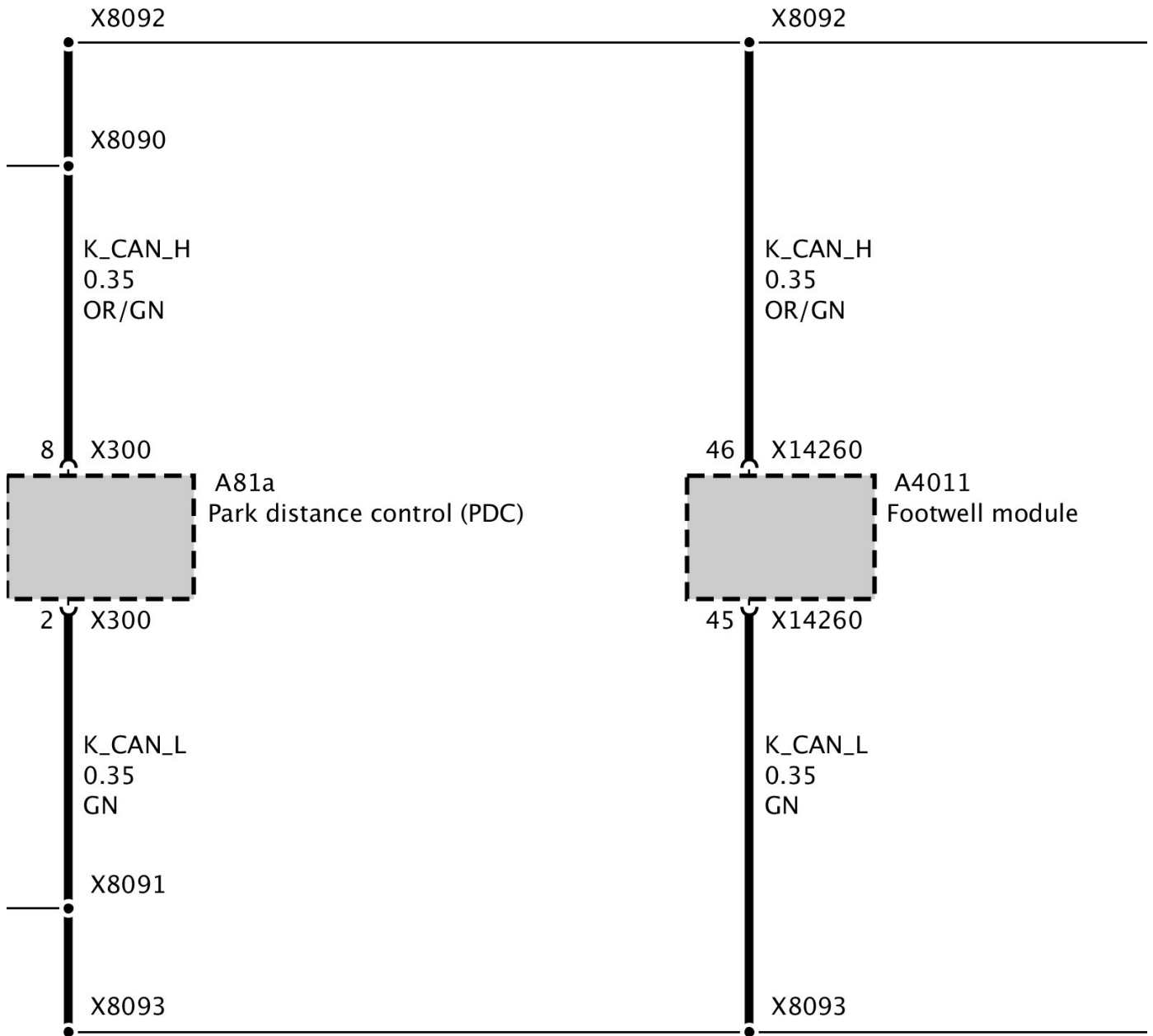


Part 6

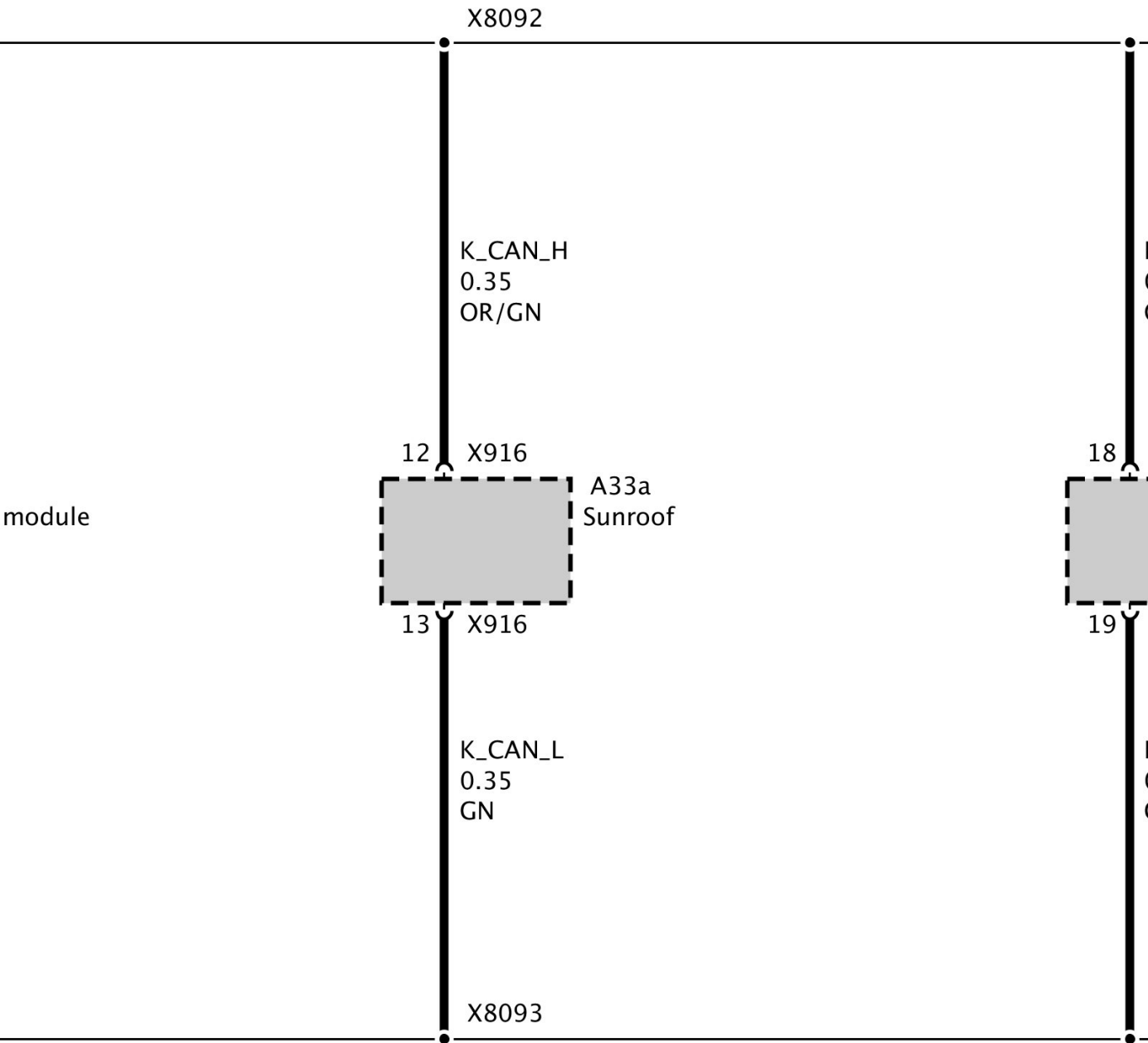


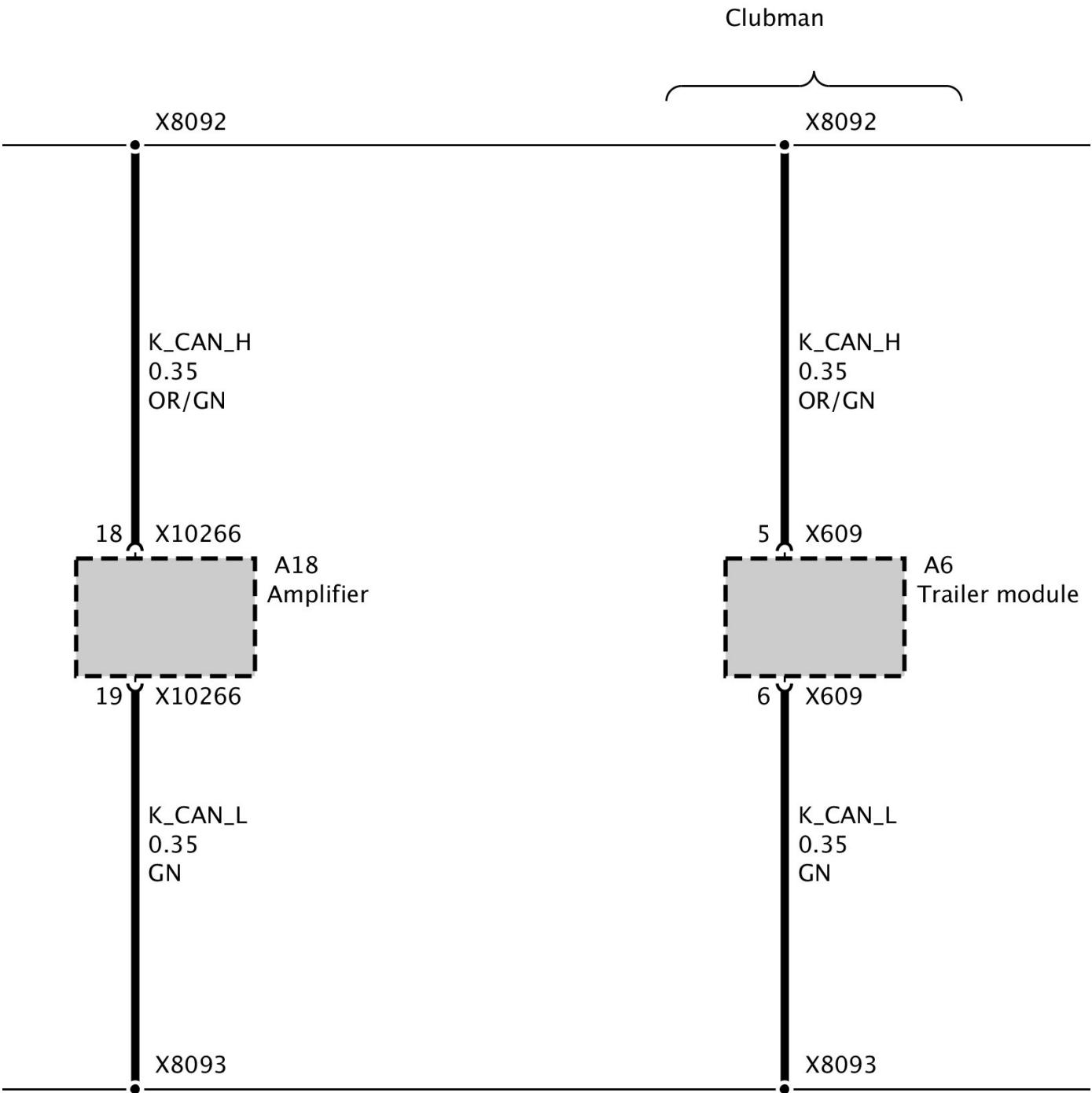


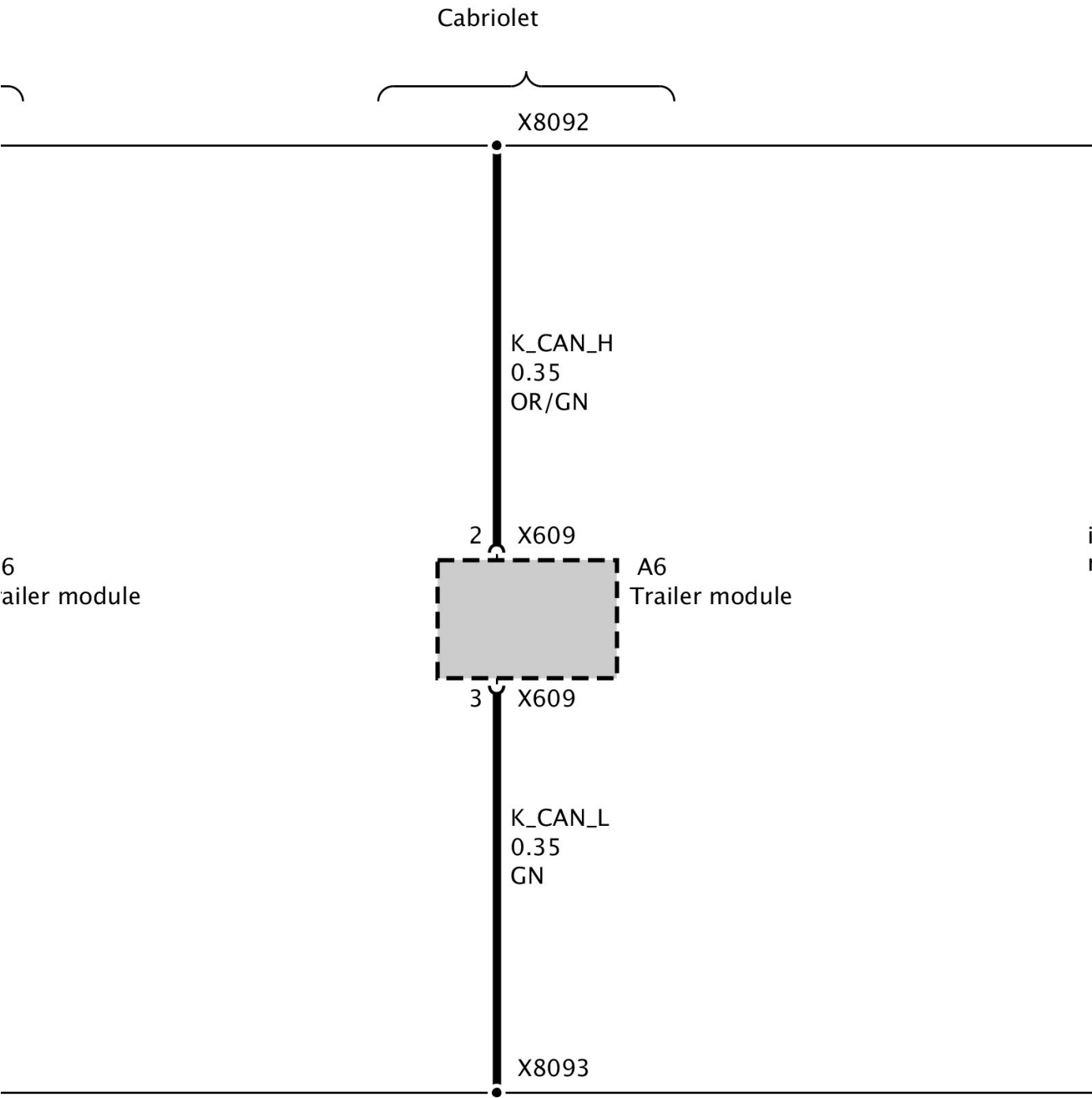
Part 8



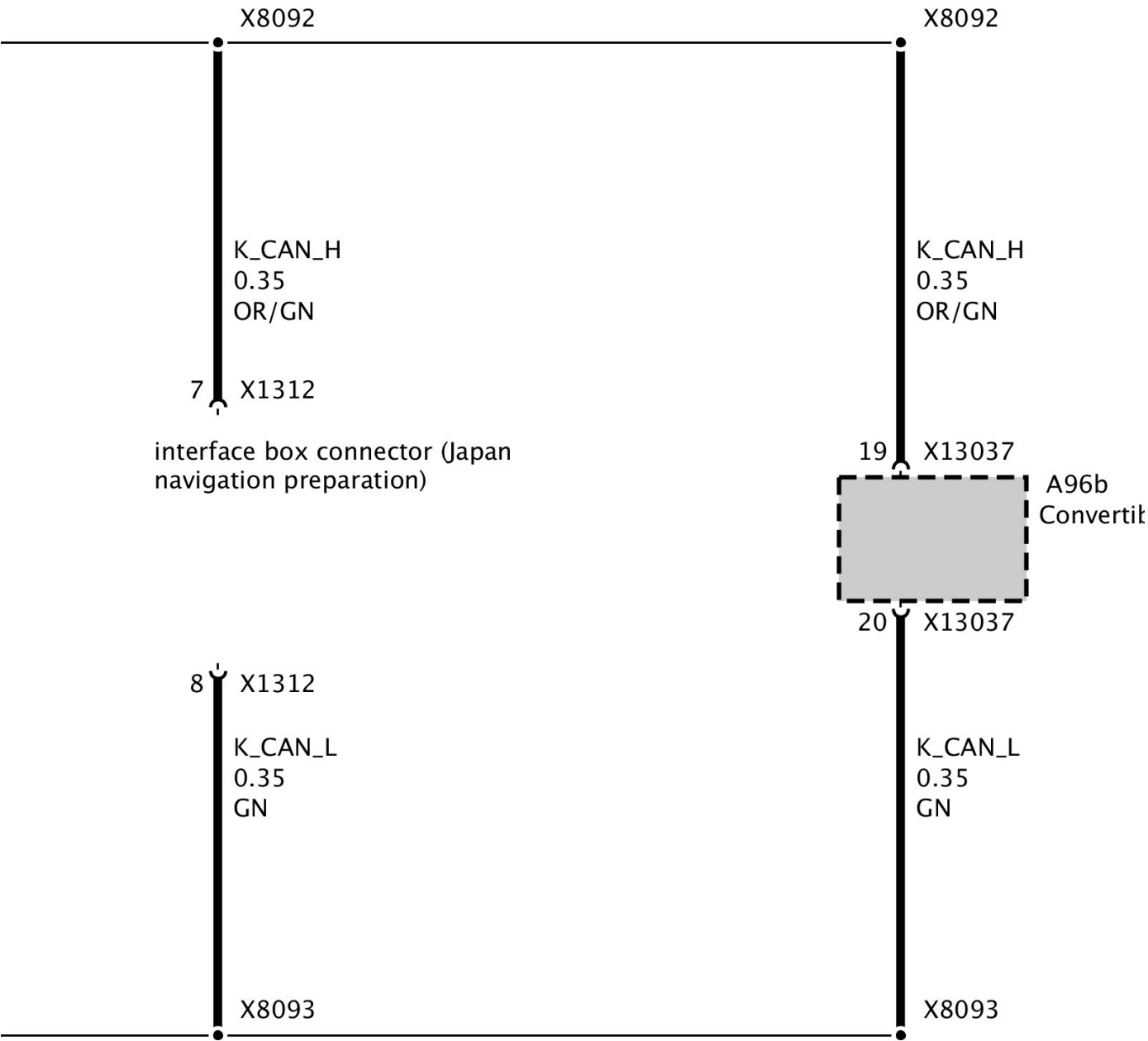
Part 9











Part 13

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Convertible top module

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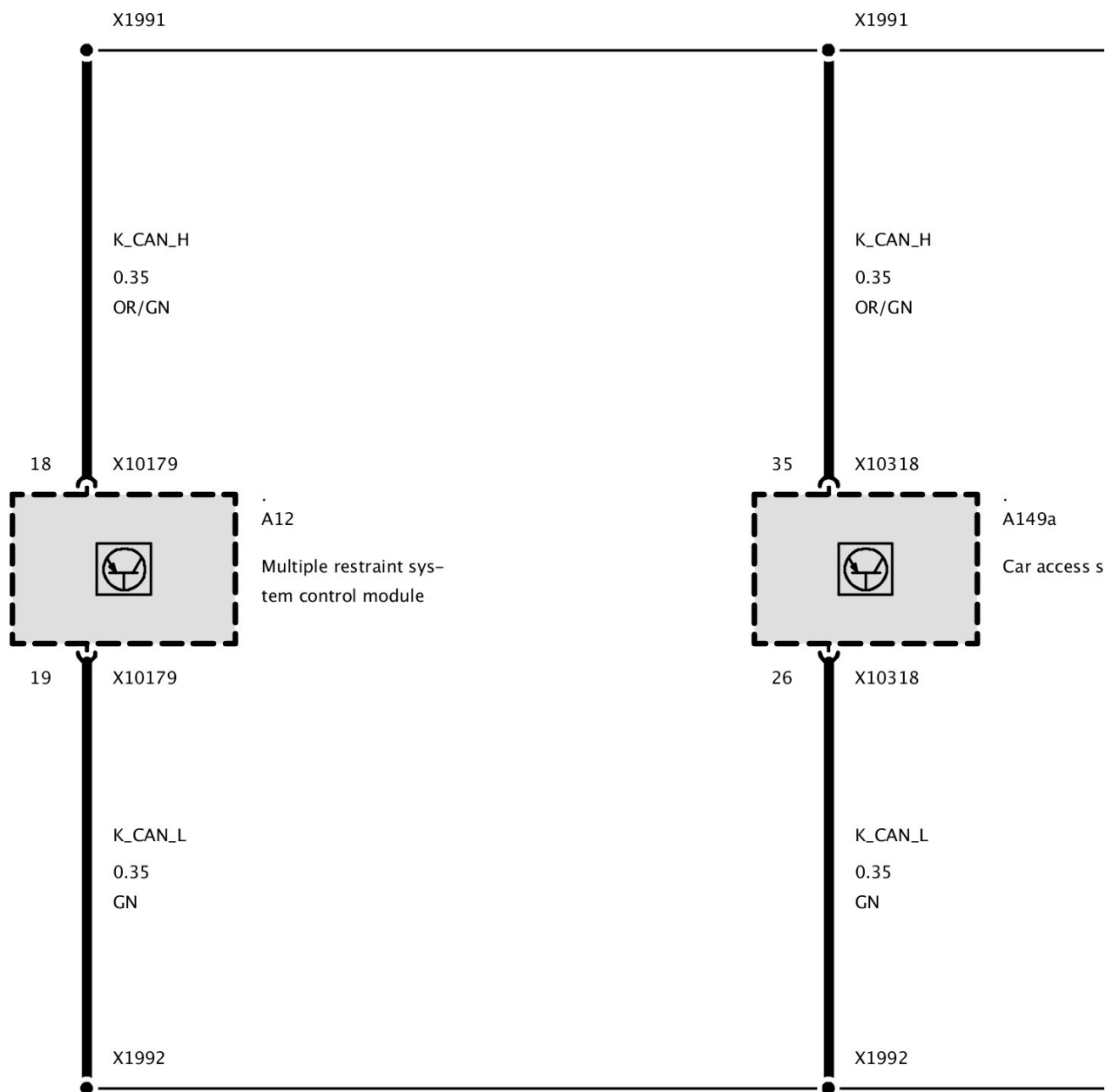
3

#### Part 14

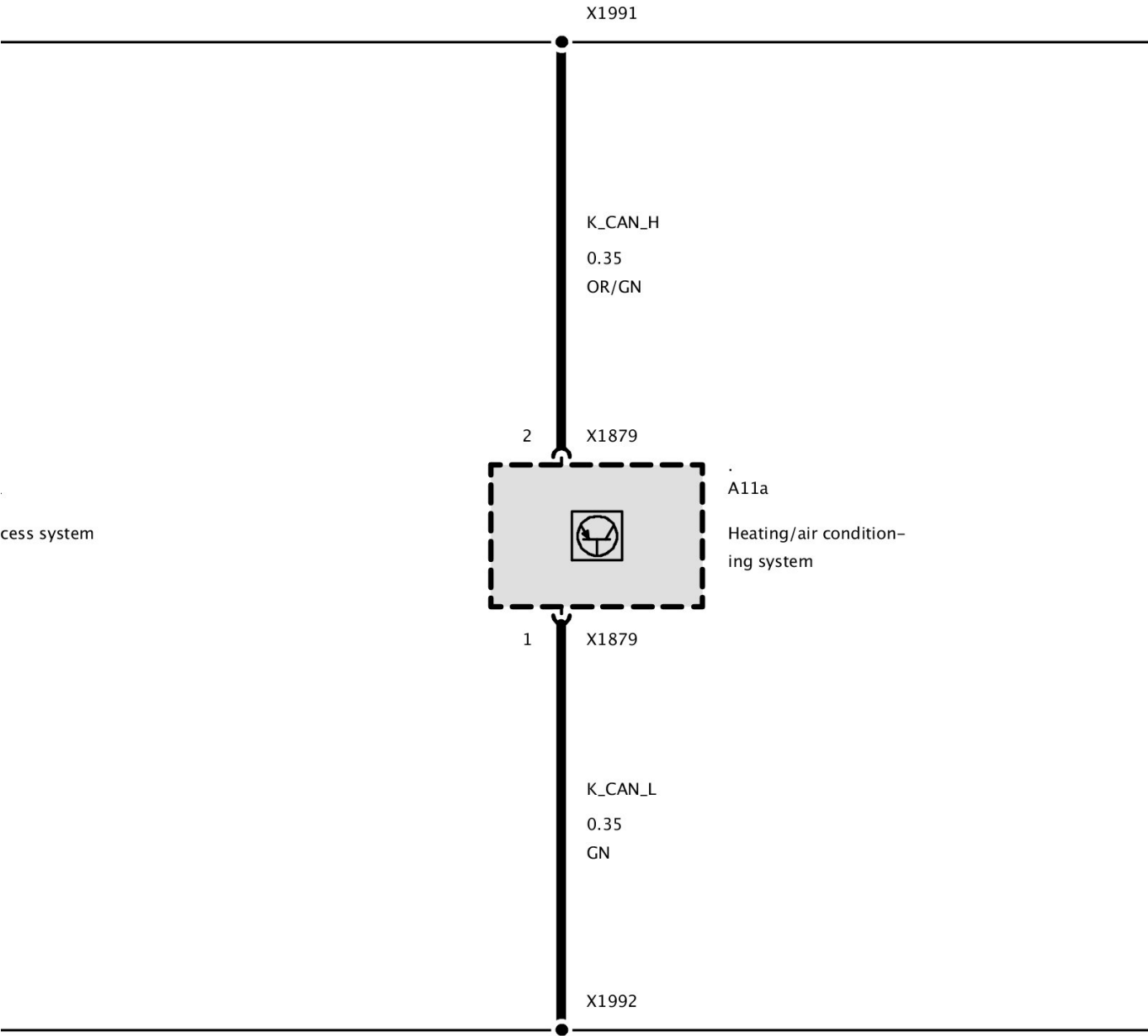
### Connector, CAN Bus (As of 08/07 Up to 12/08)

X1994 No Adapter

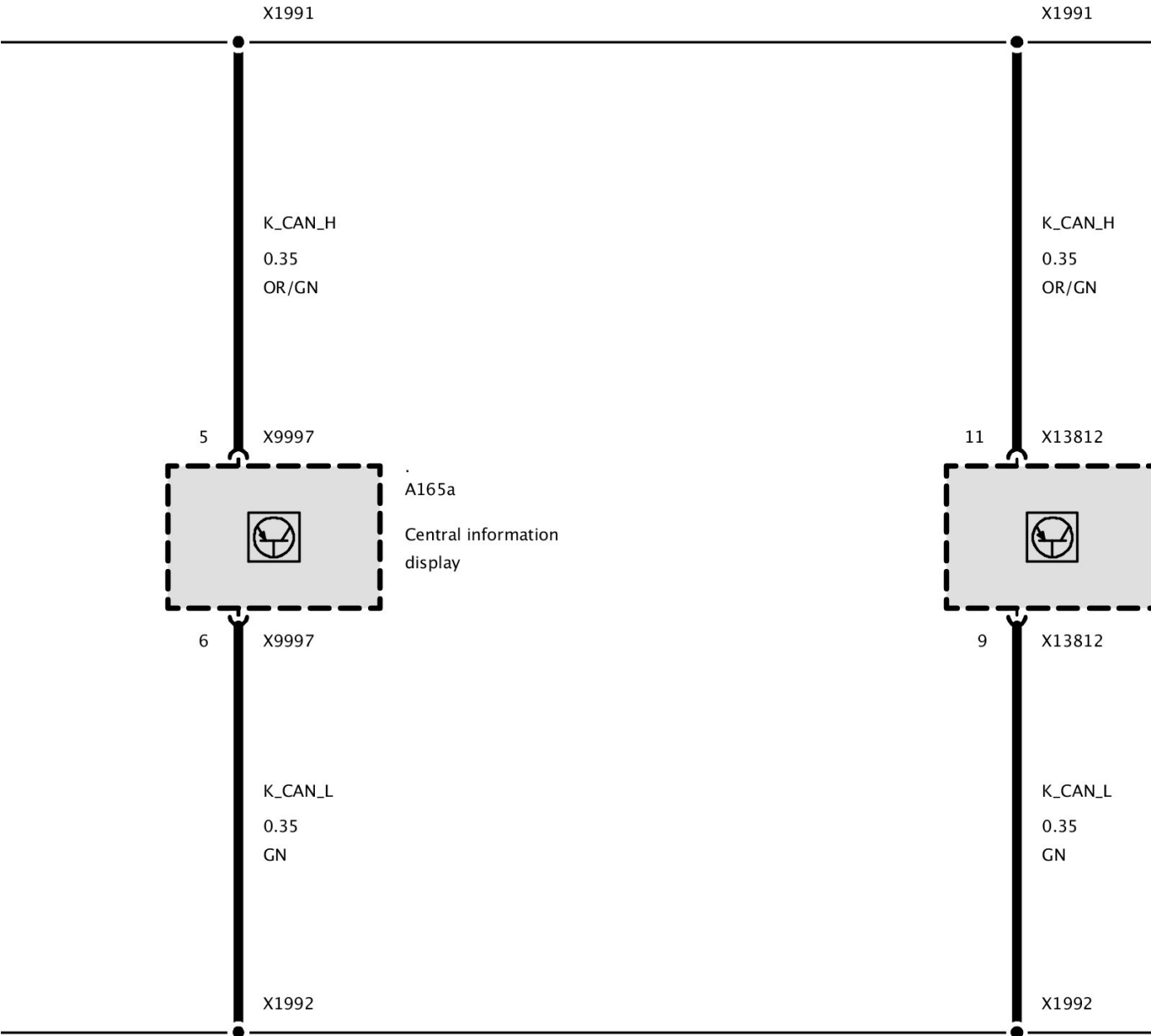
Connector, CAN Bus (As of 08/07 Up to 12/08)



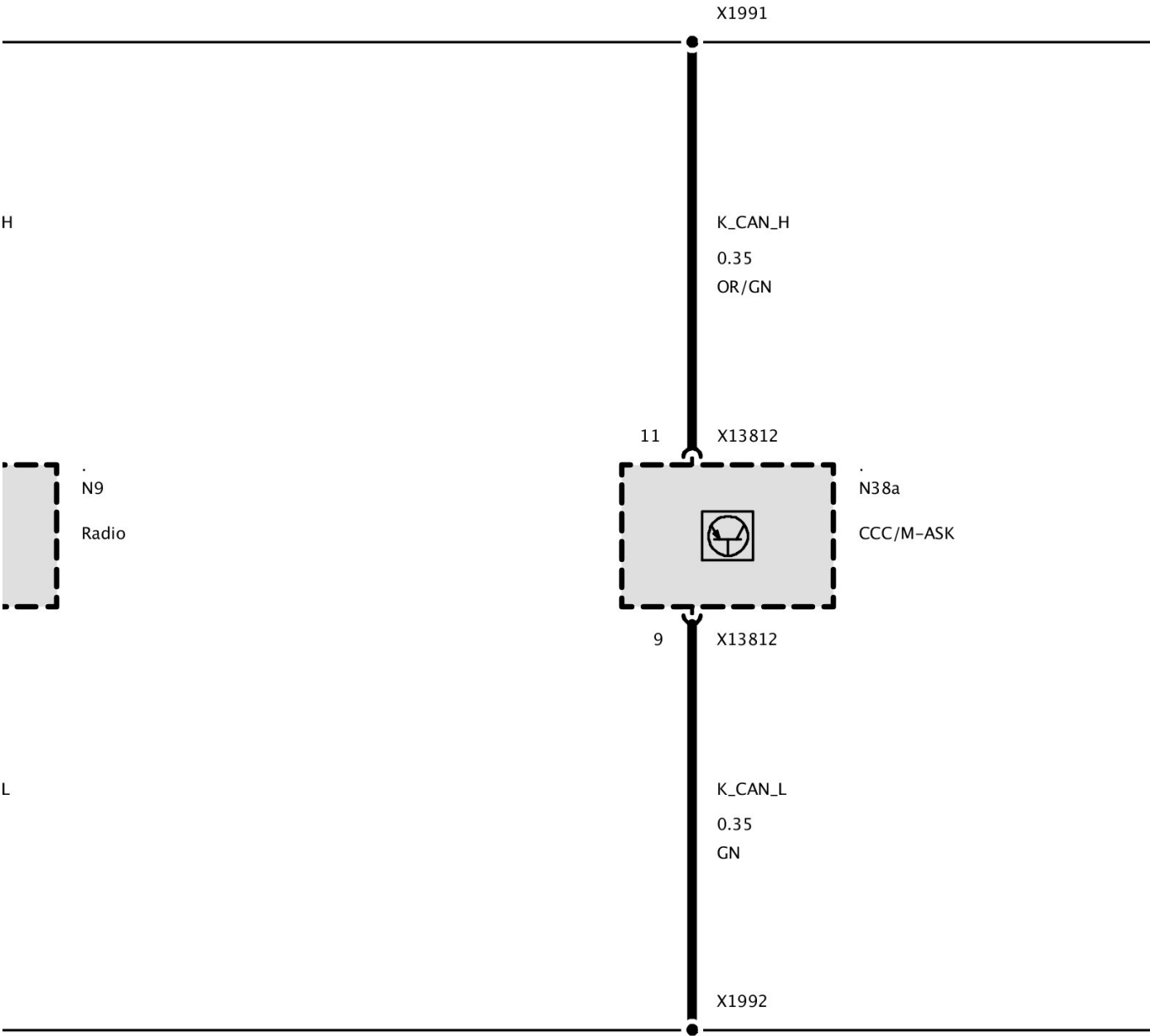
Part 1



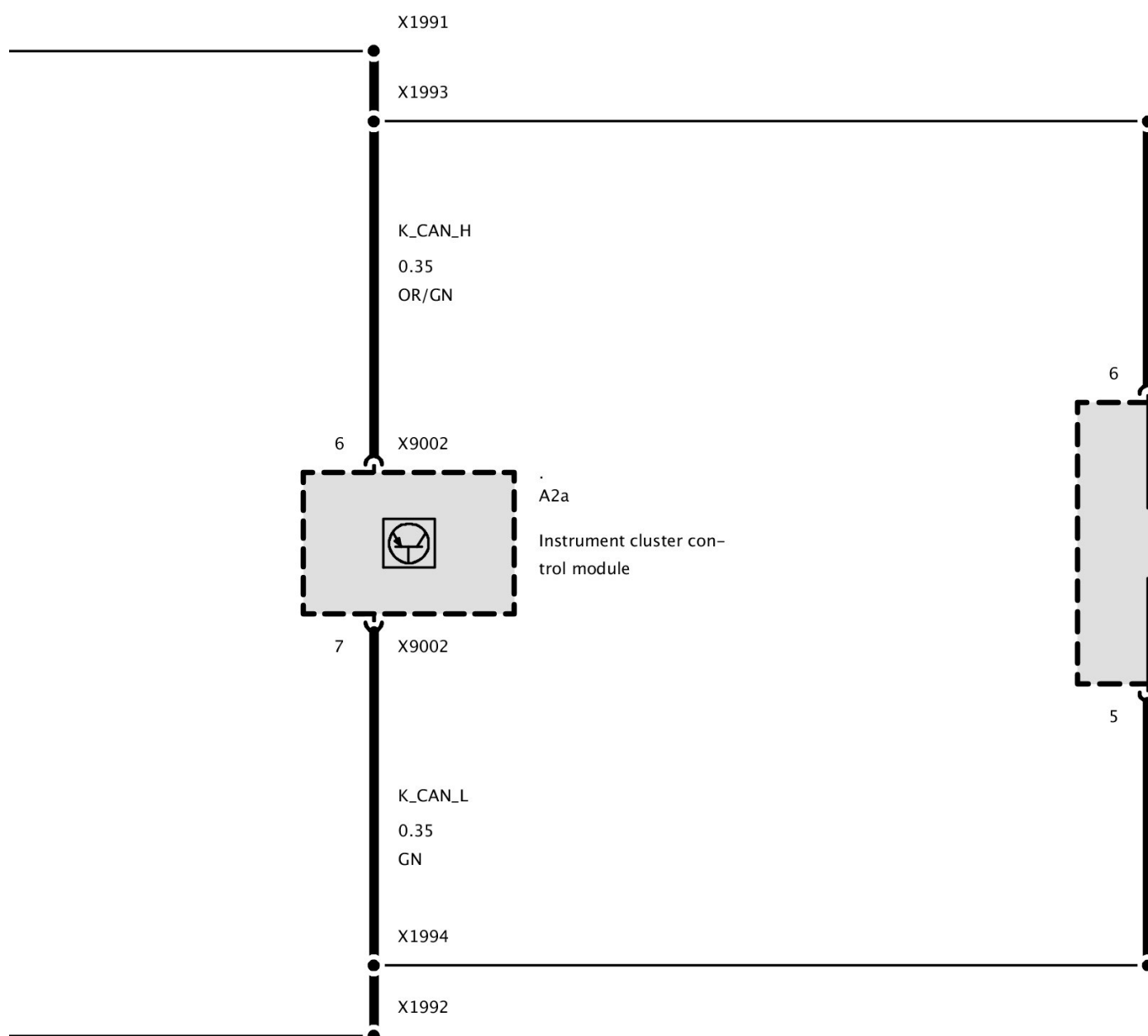
Part 2



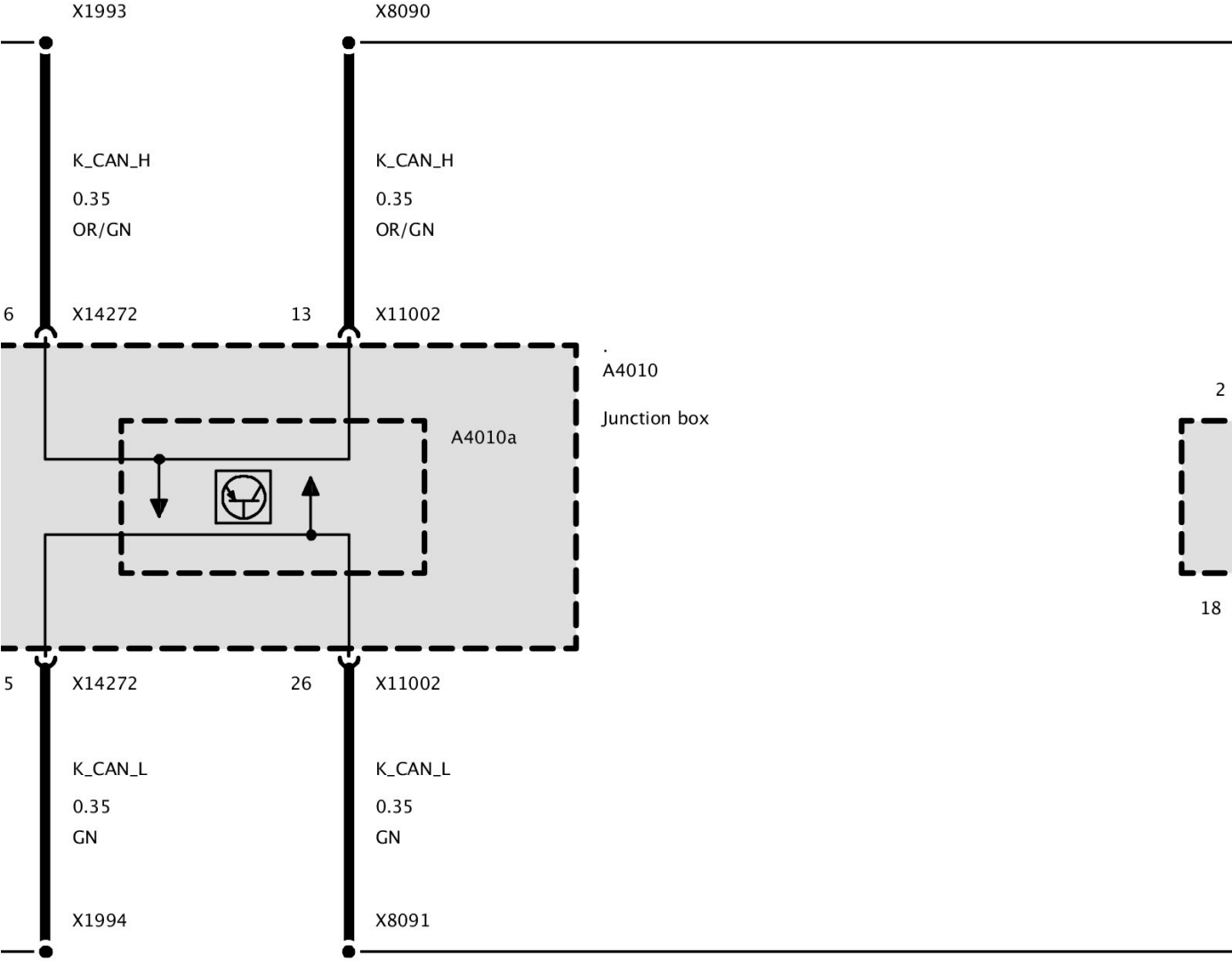
Part 3



Part 4

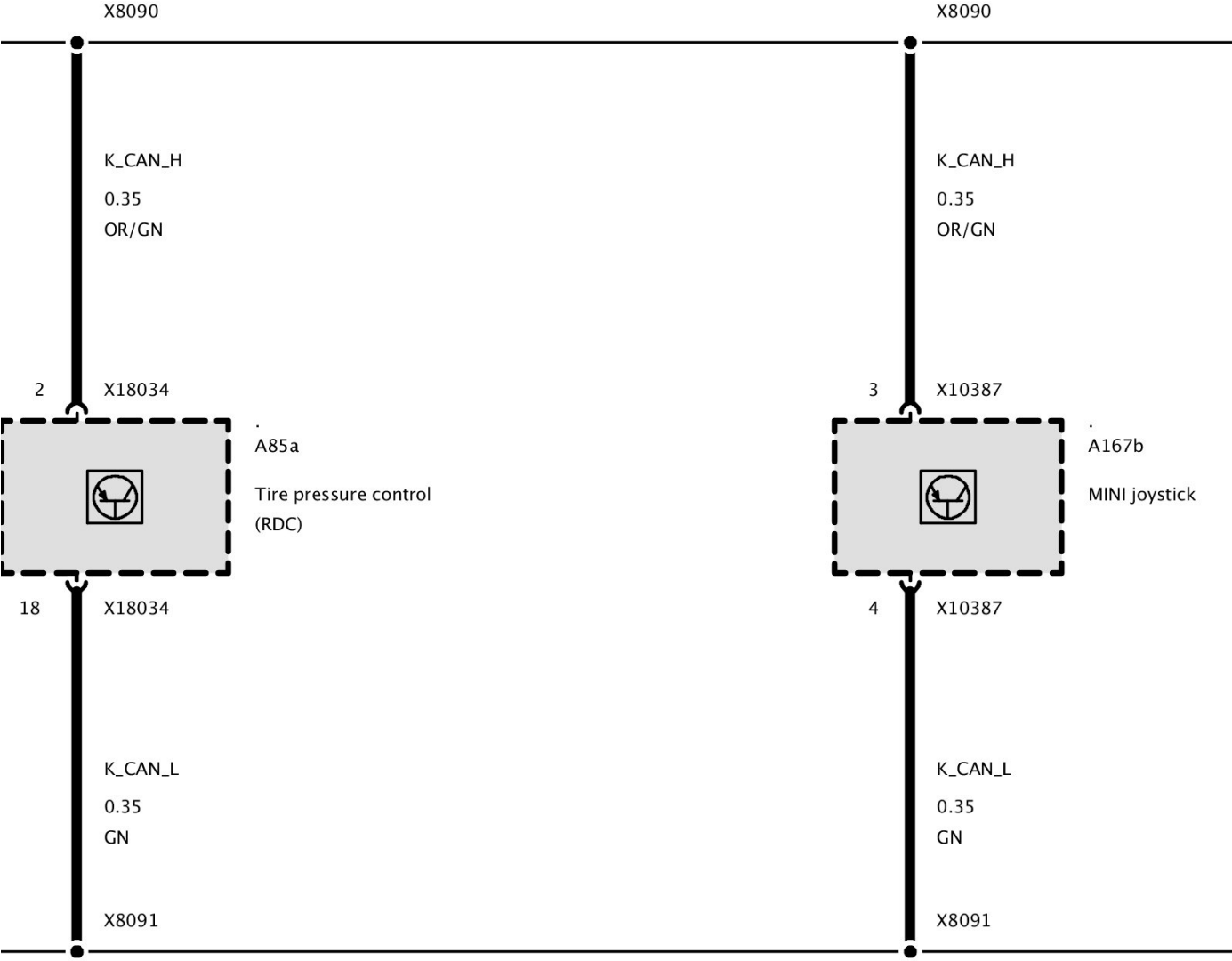


jmoraflores@hotmail.cl

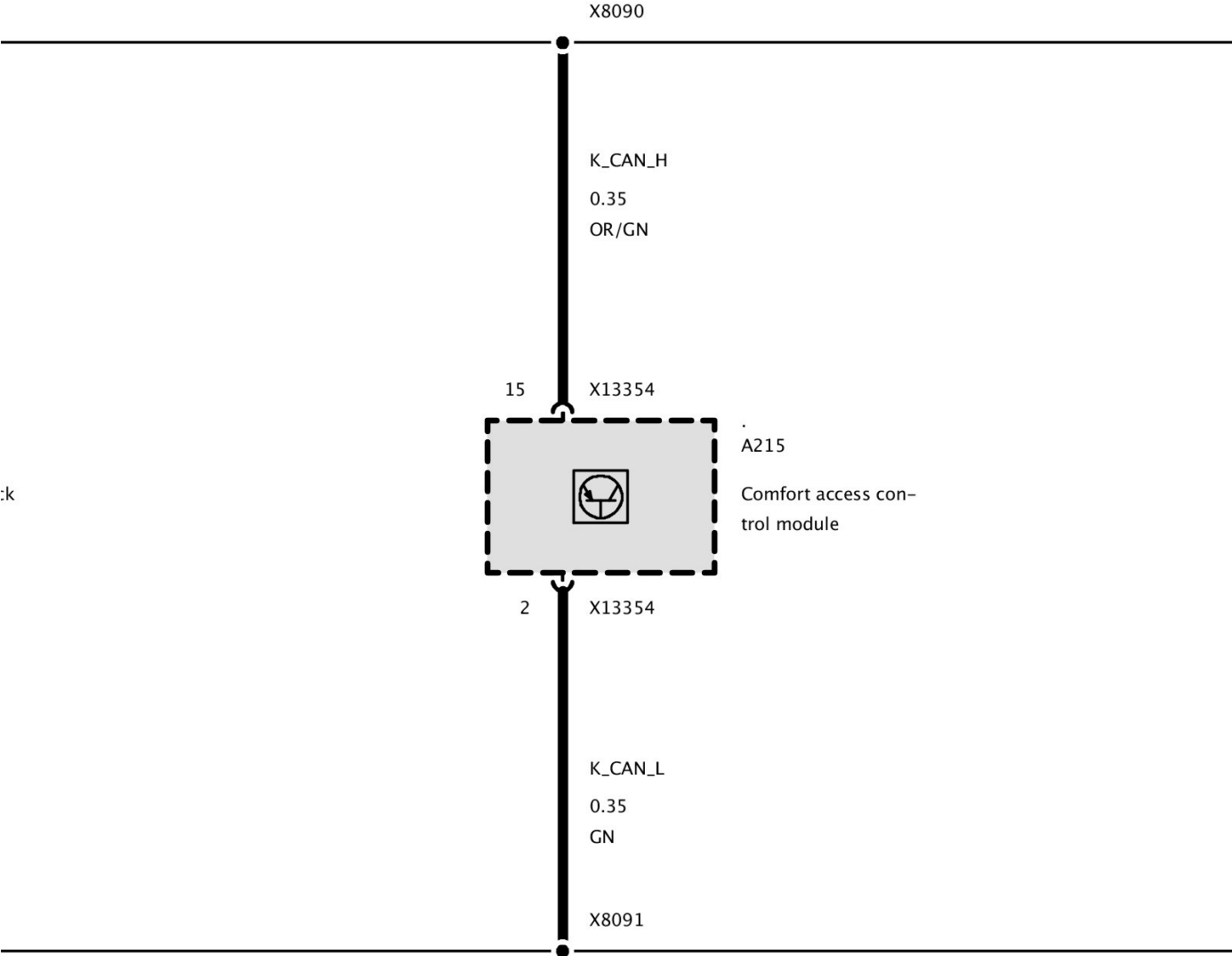


Part 6

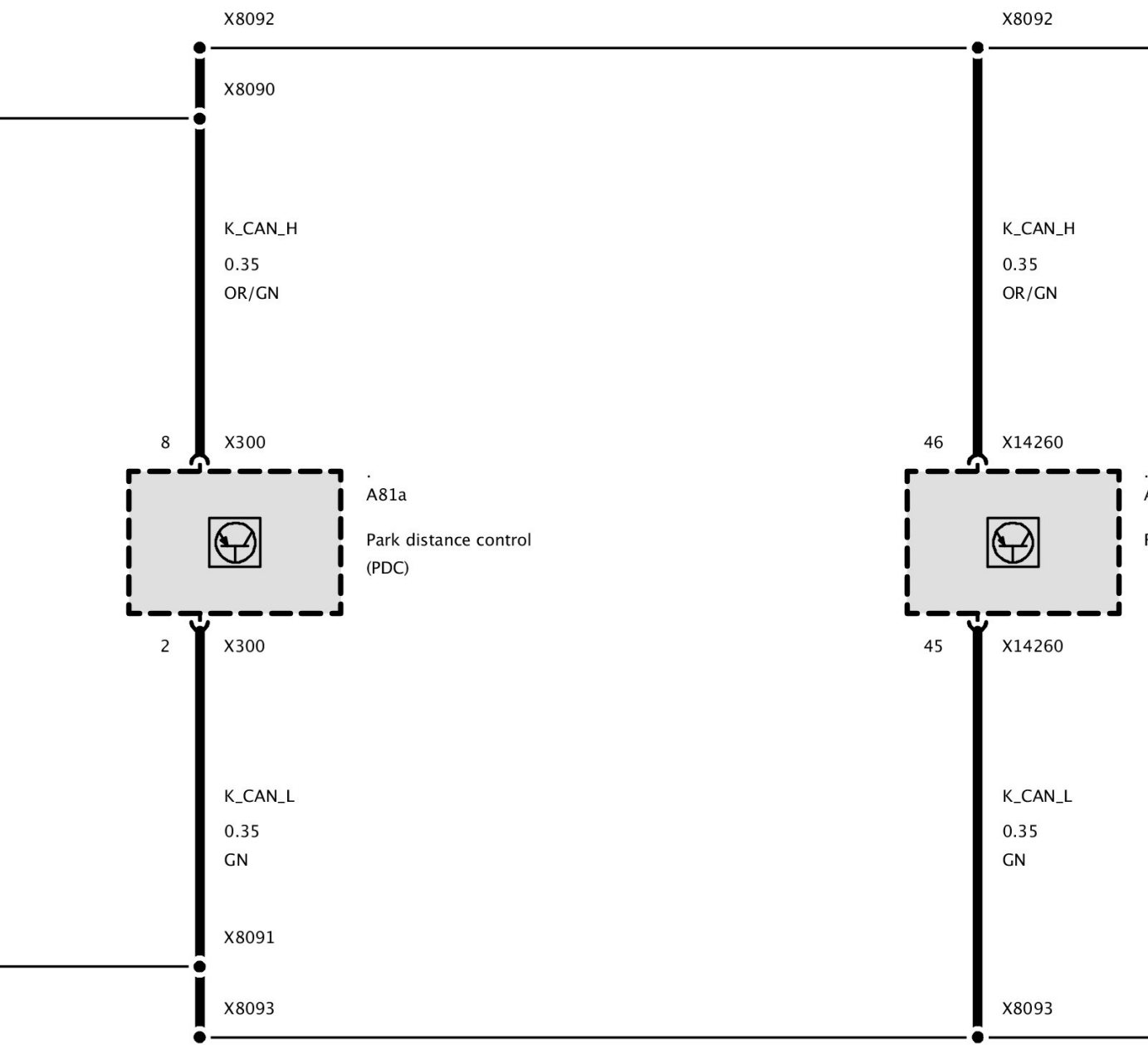


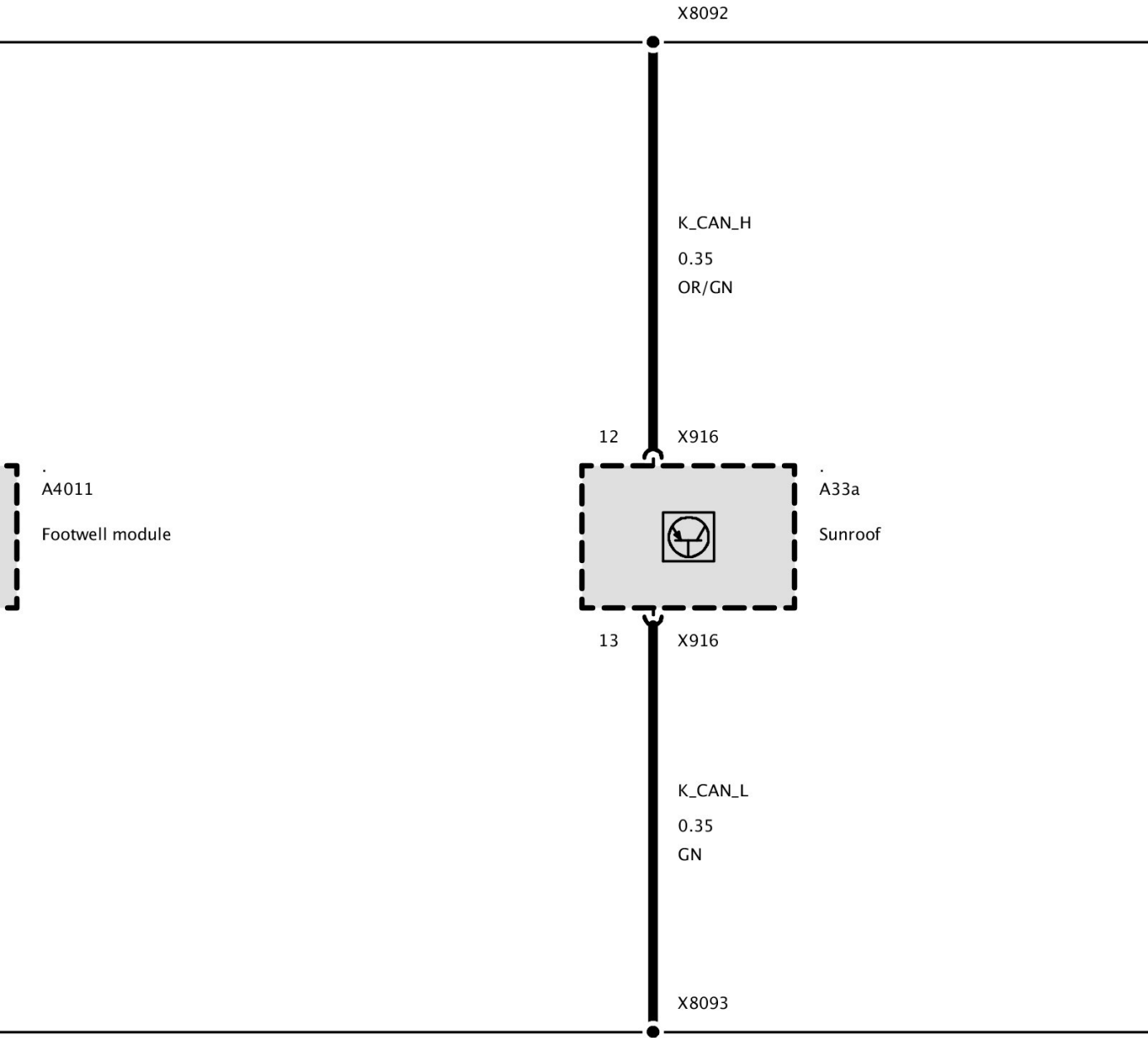


Part 7

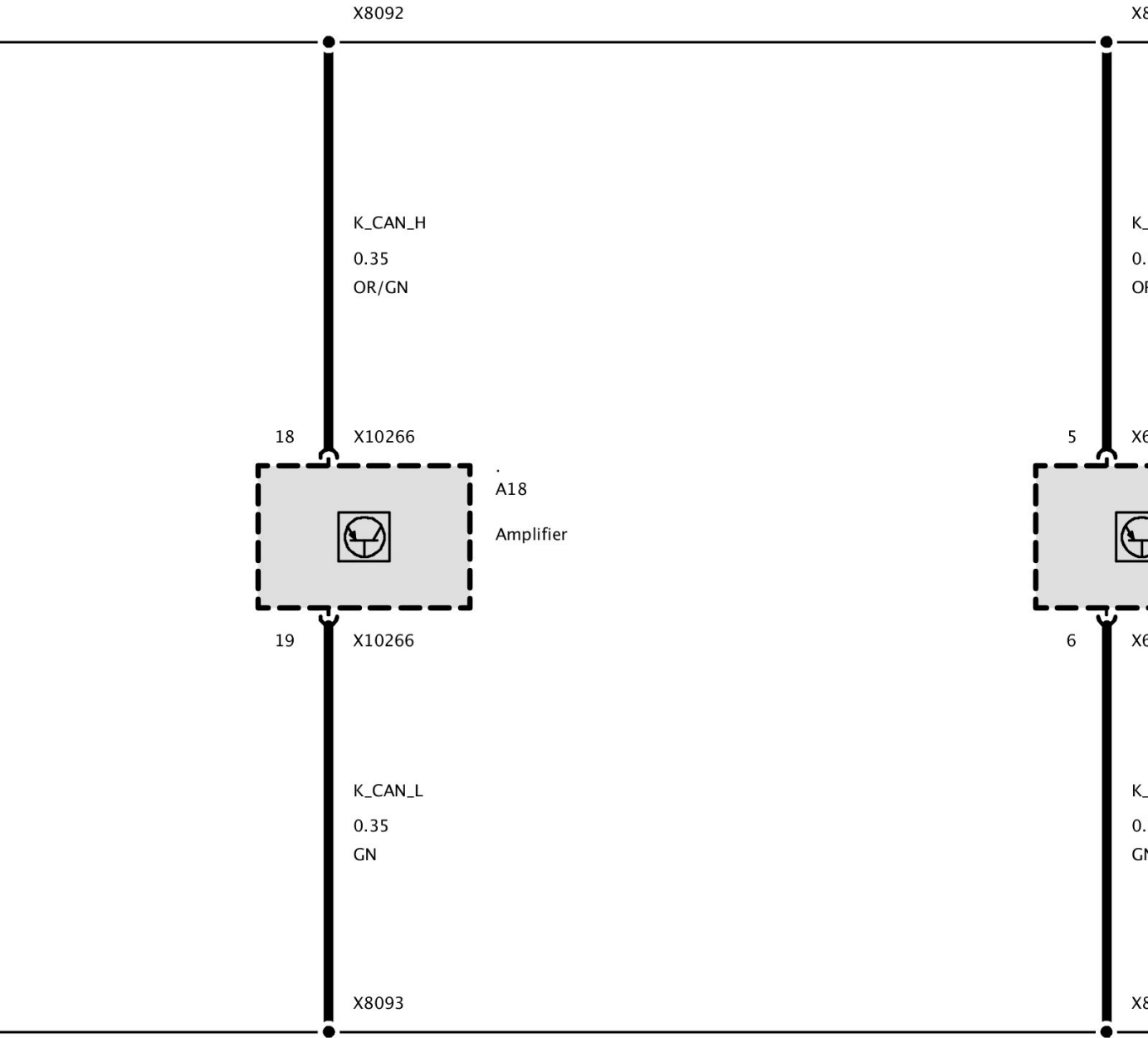


Part 8

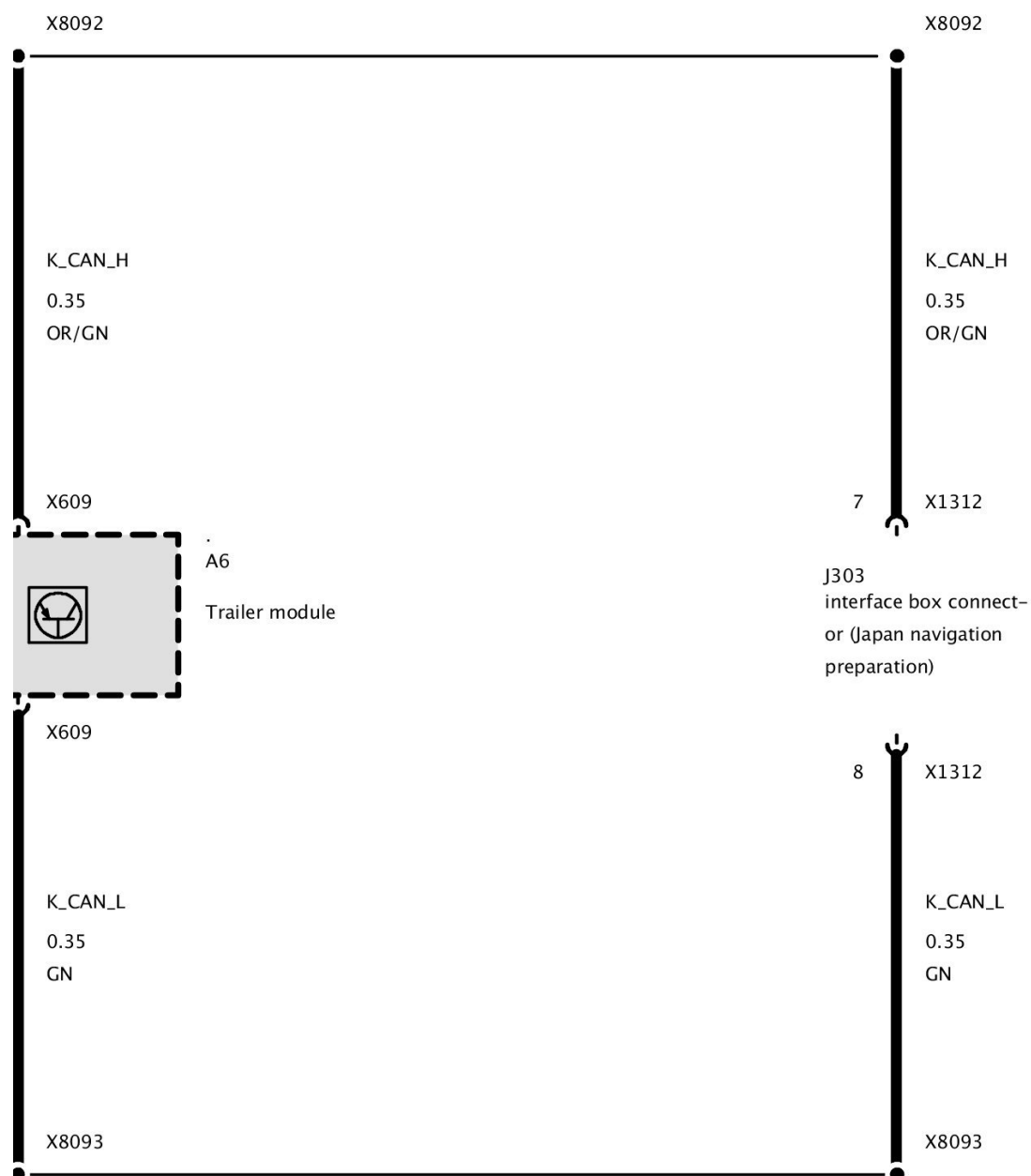




Part 10



Part 11

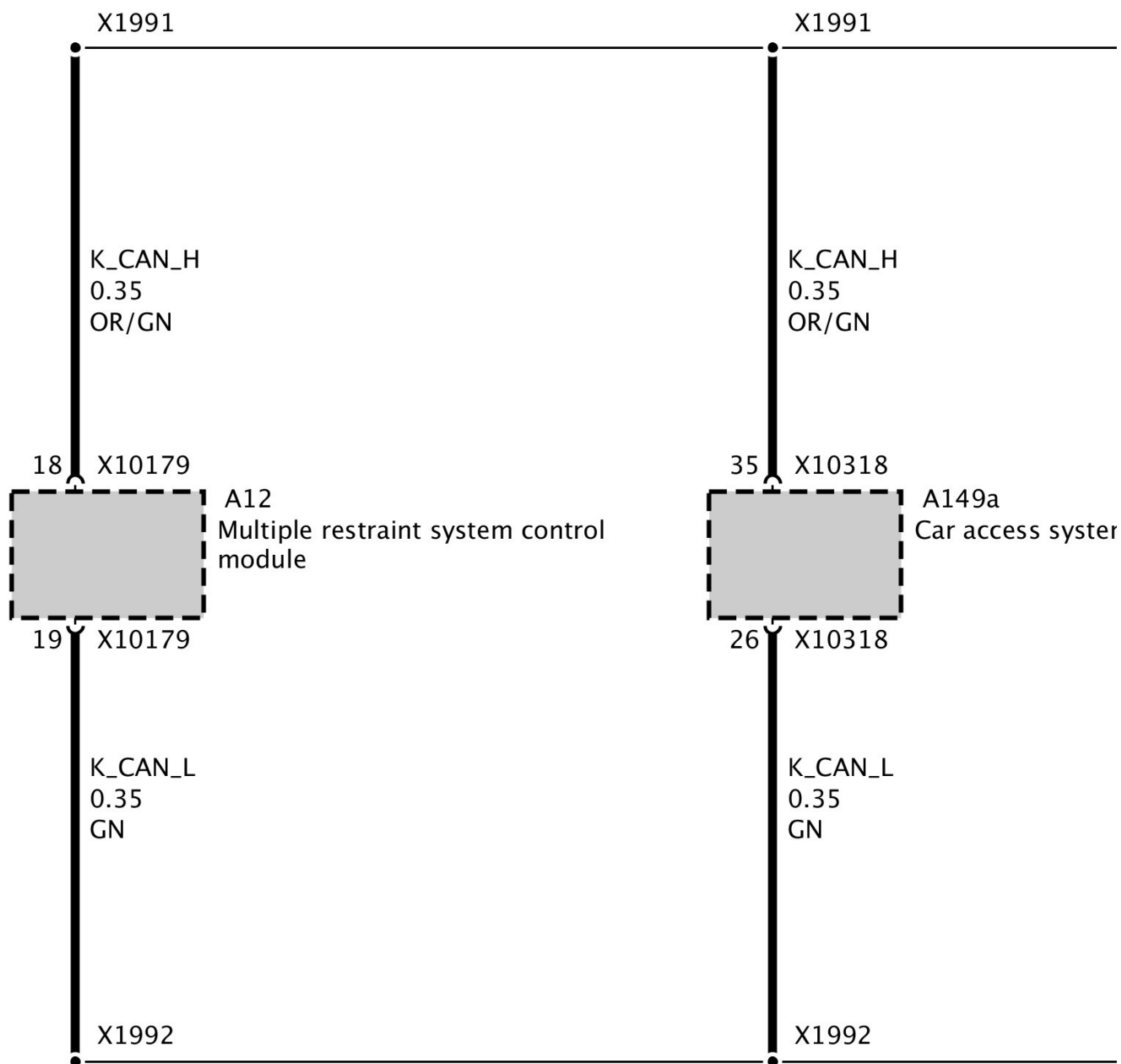


## Part 12

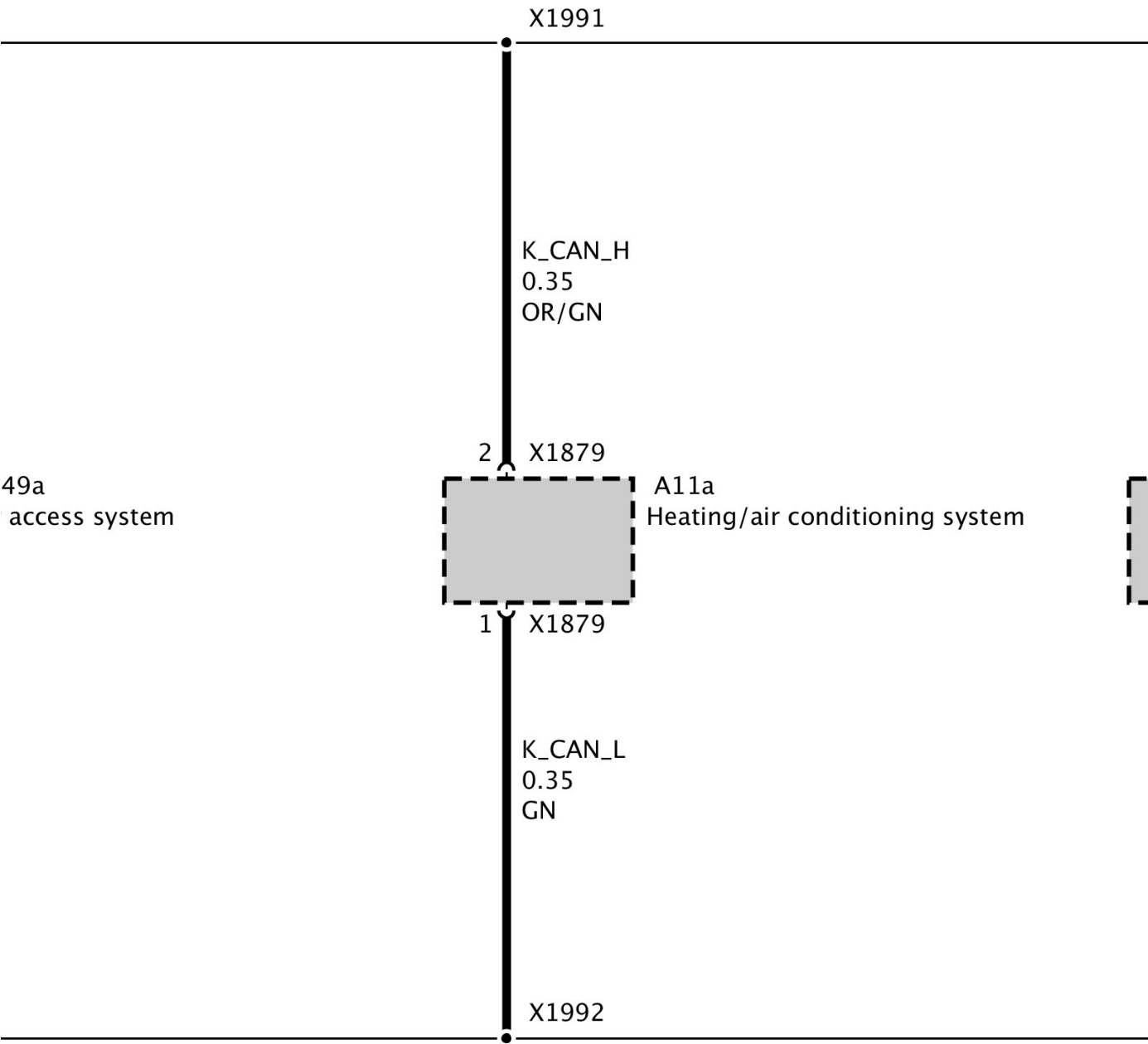
### Connector, CAN Bus (As of 12/08)

X1994 No Adapter

Connector, CAN Bus (As of 12/08)

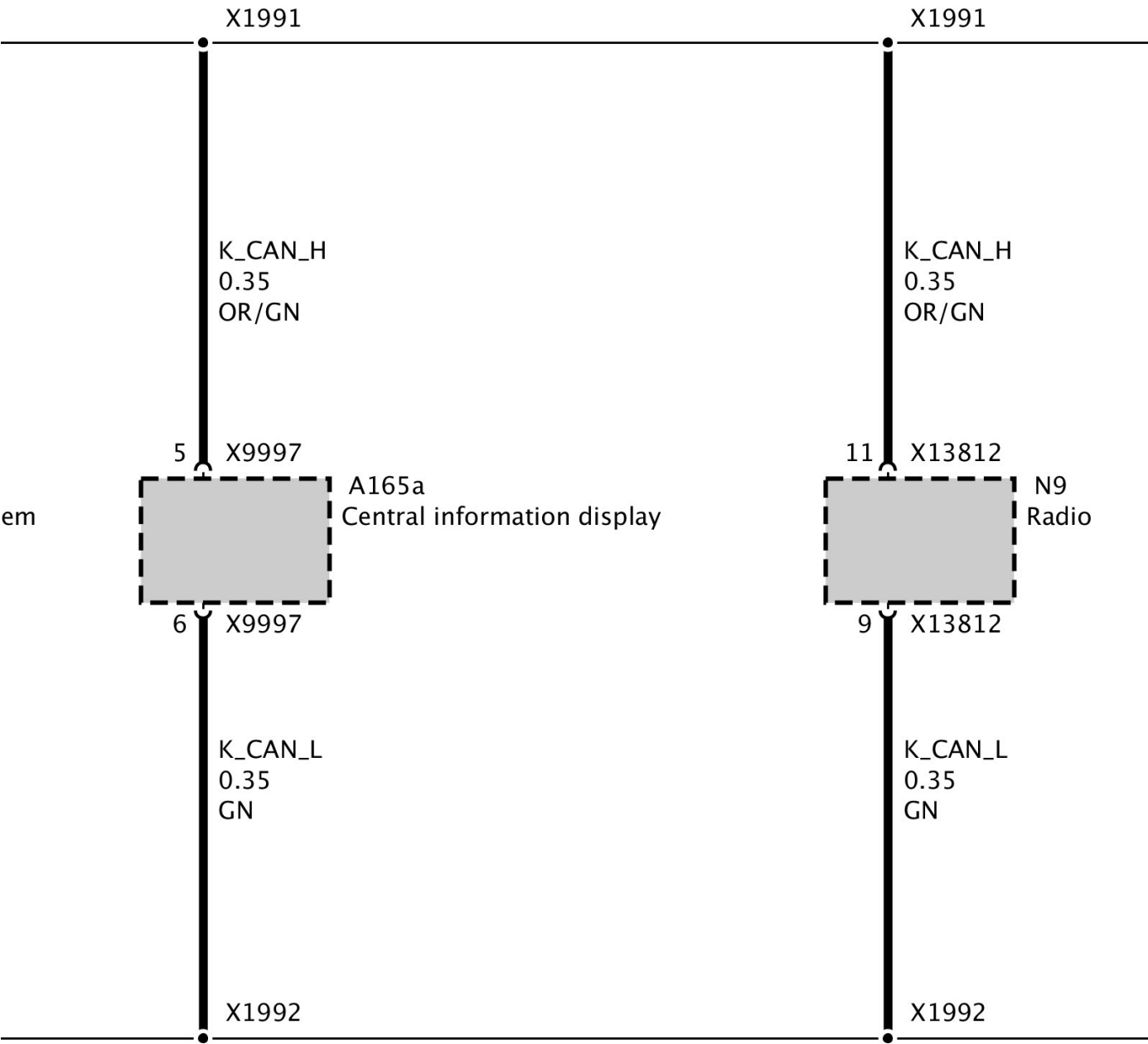


Part 1

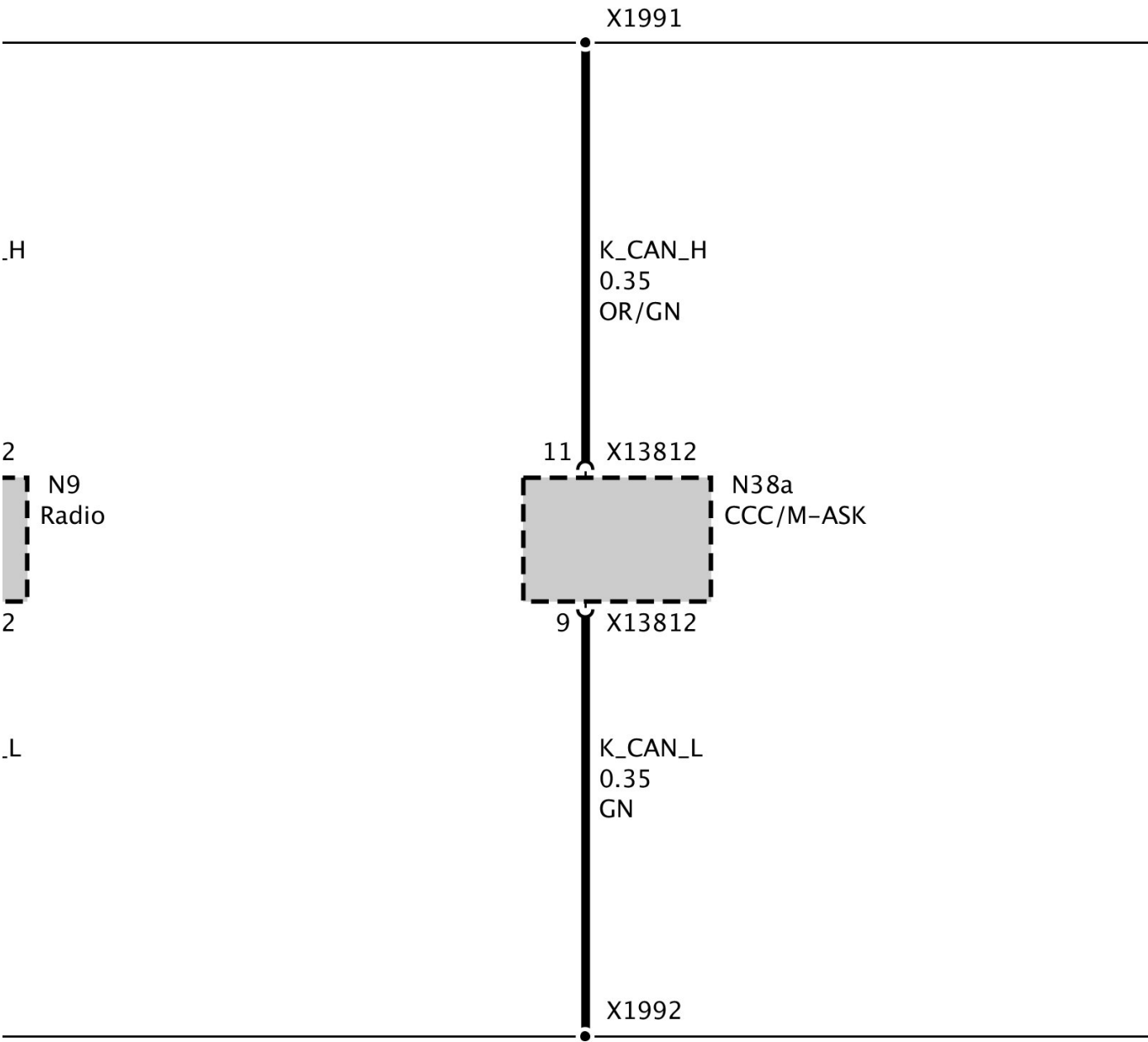


Part 2

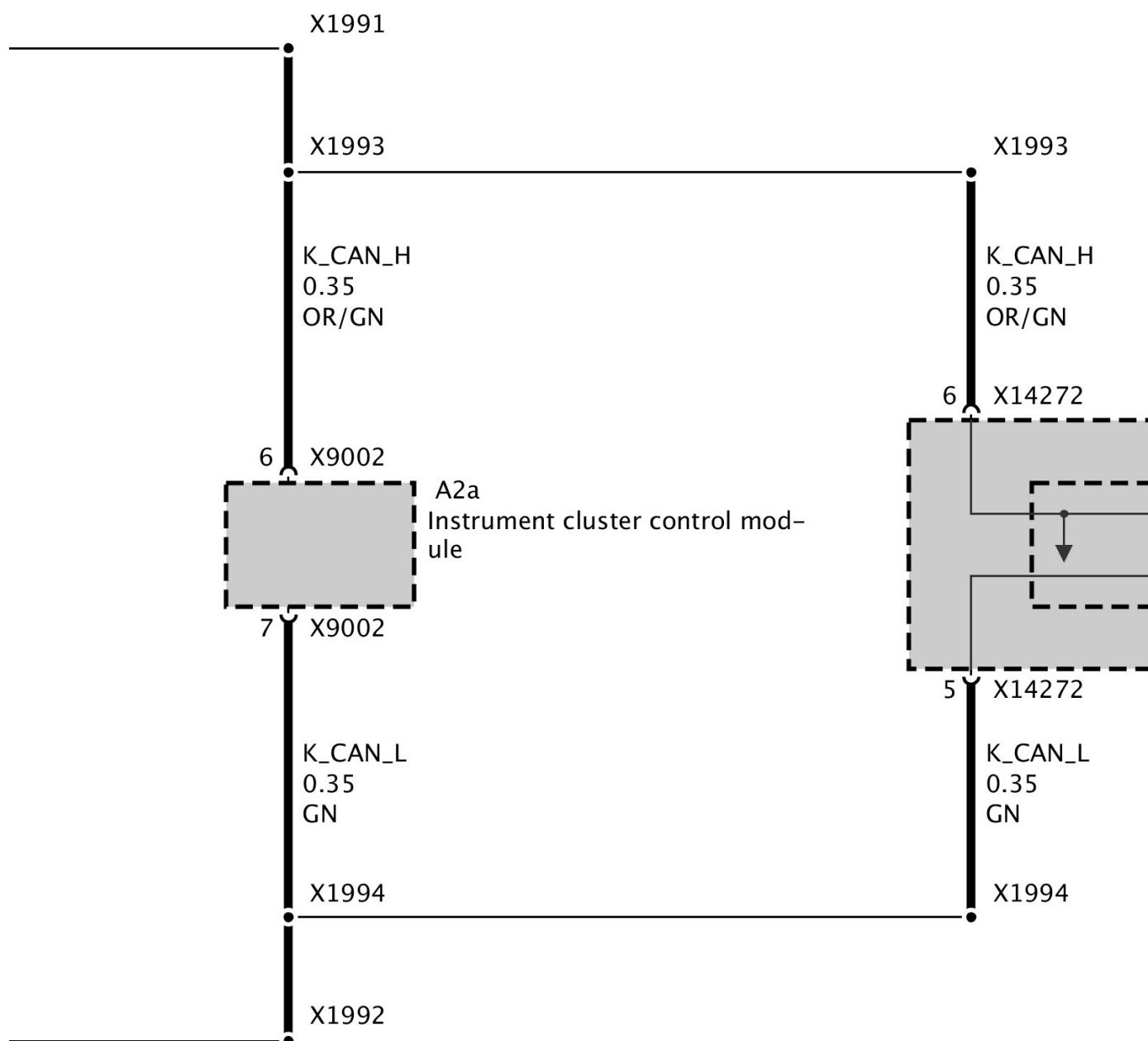




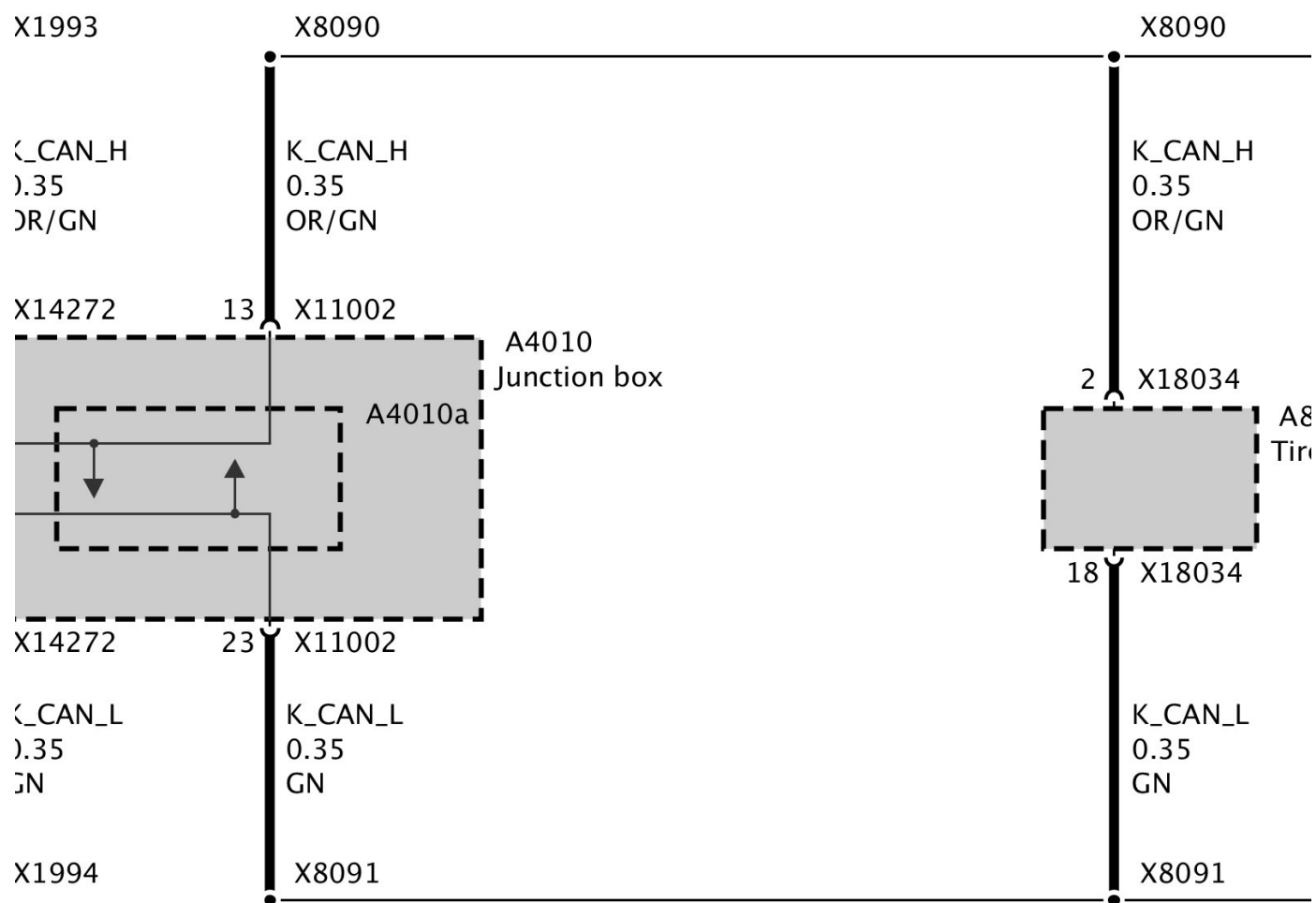
Part 3



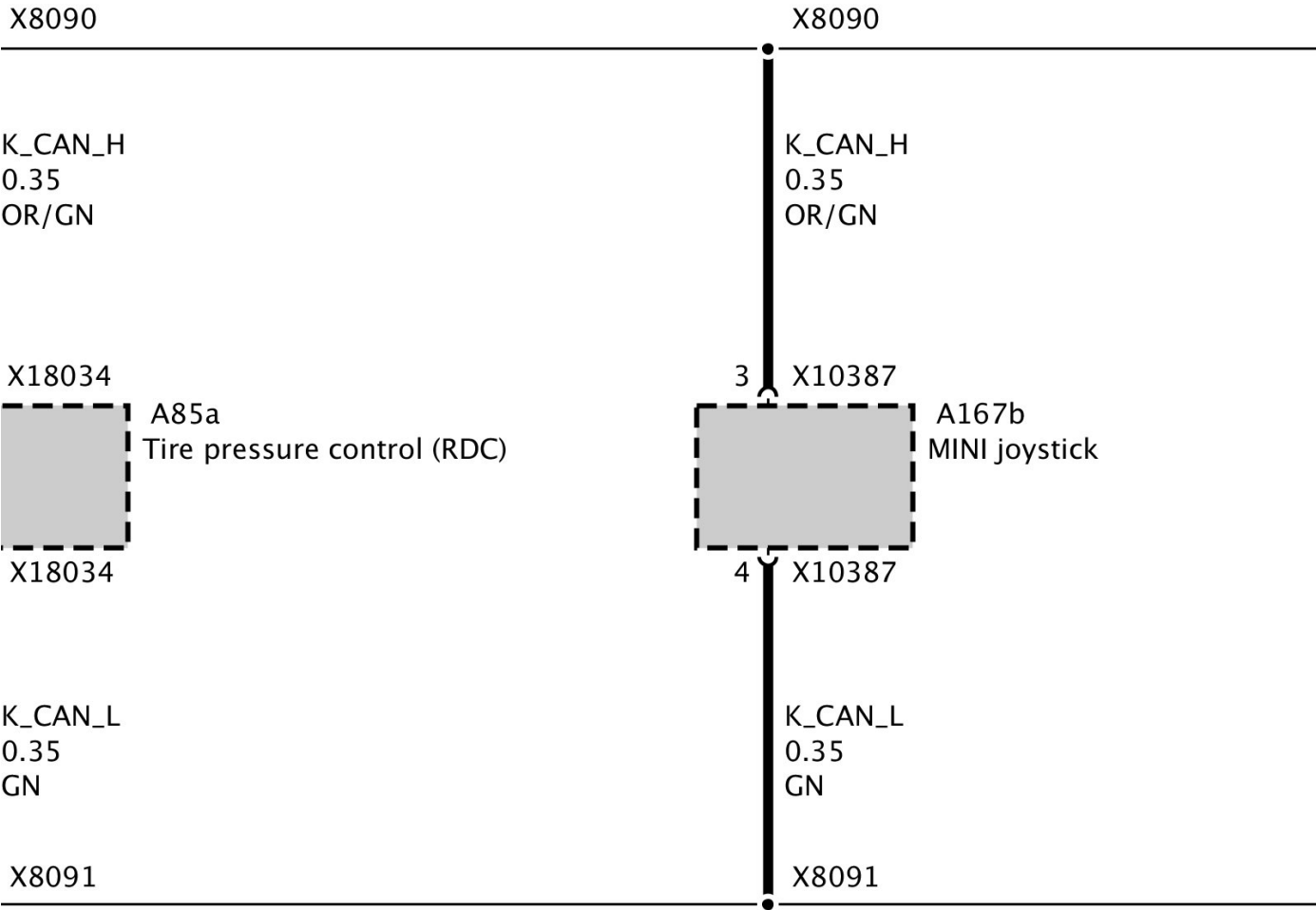
Part 4



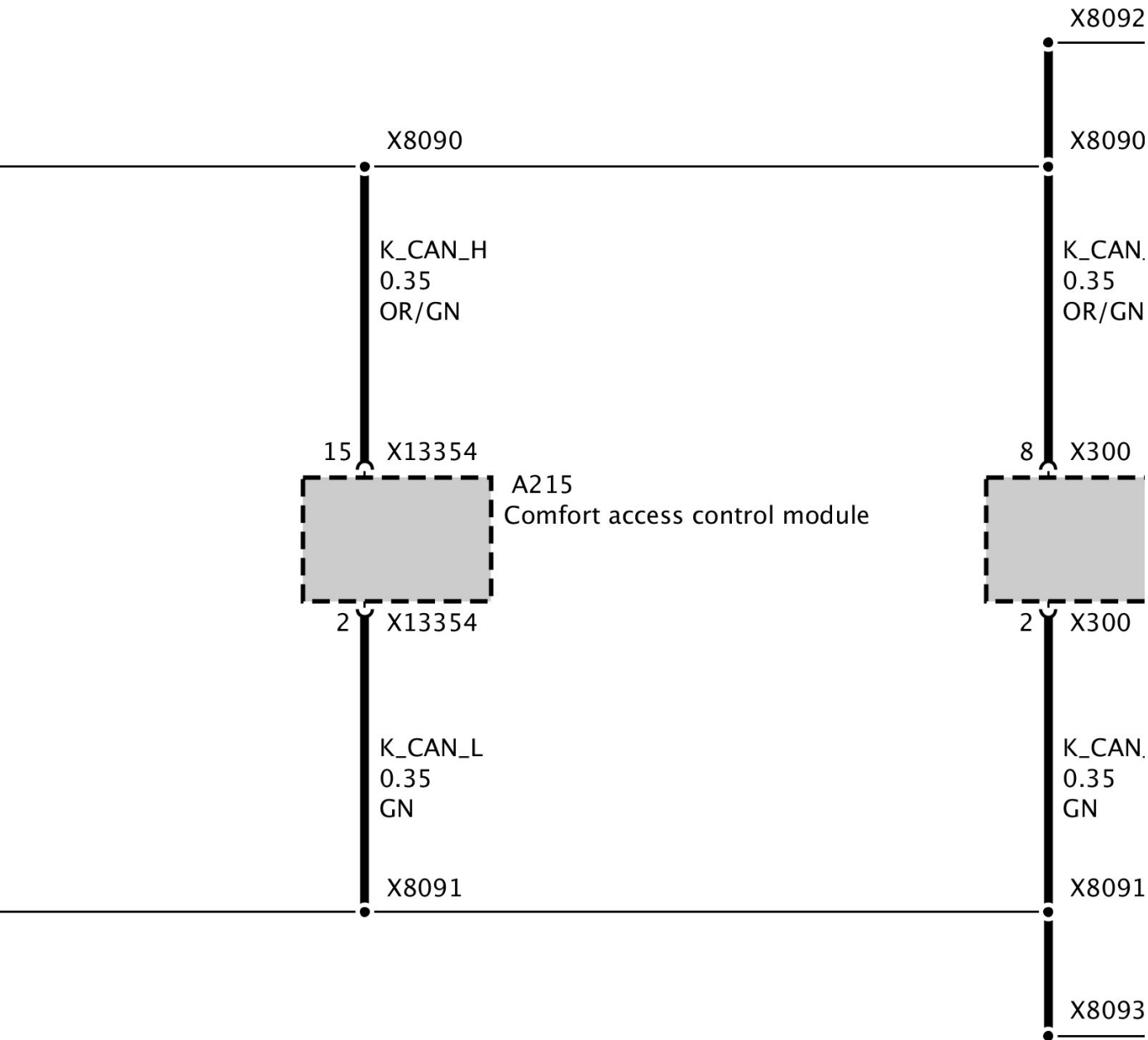
jmoraflores@hotmail.cl



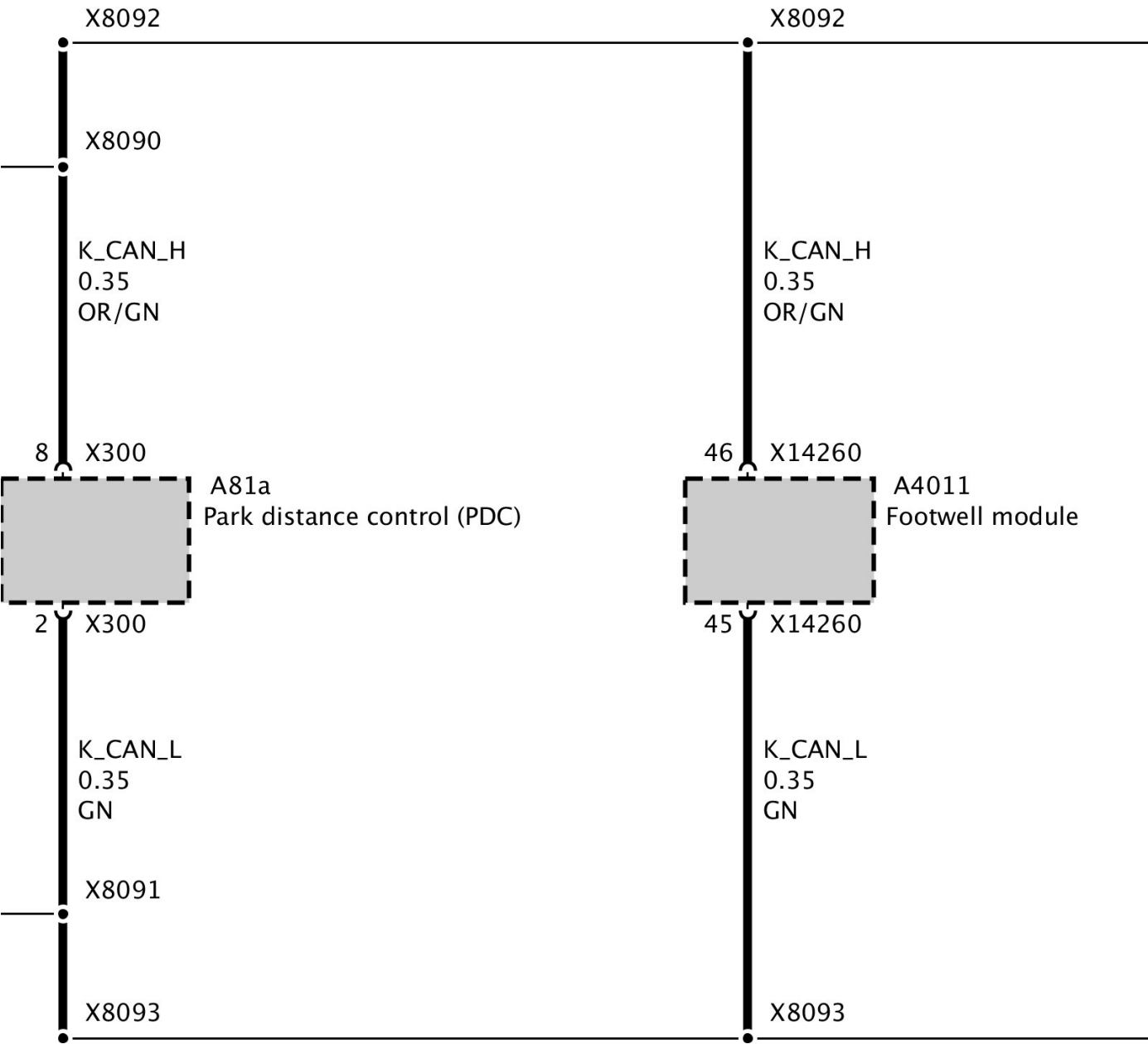
Part 6

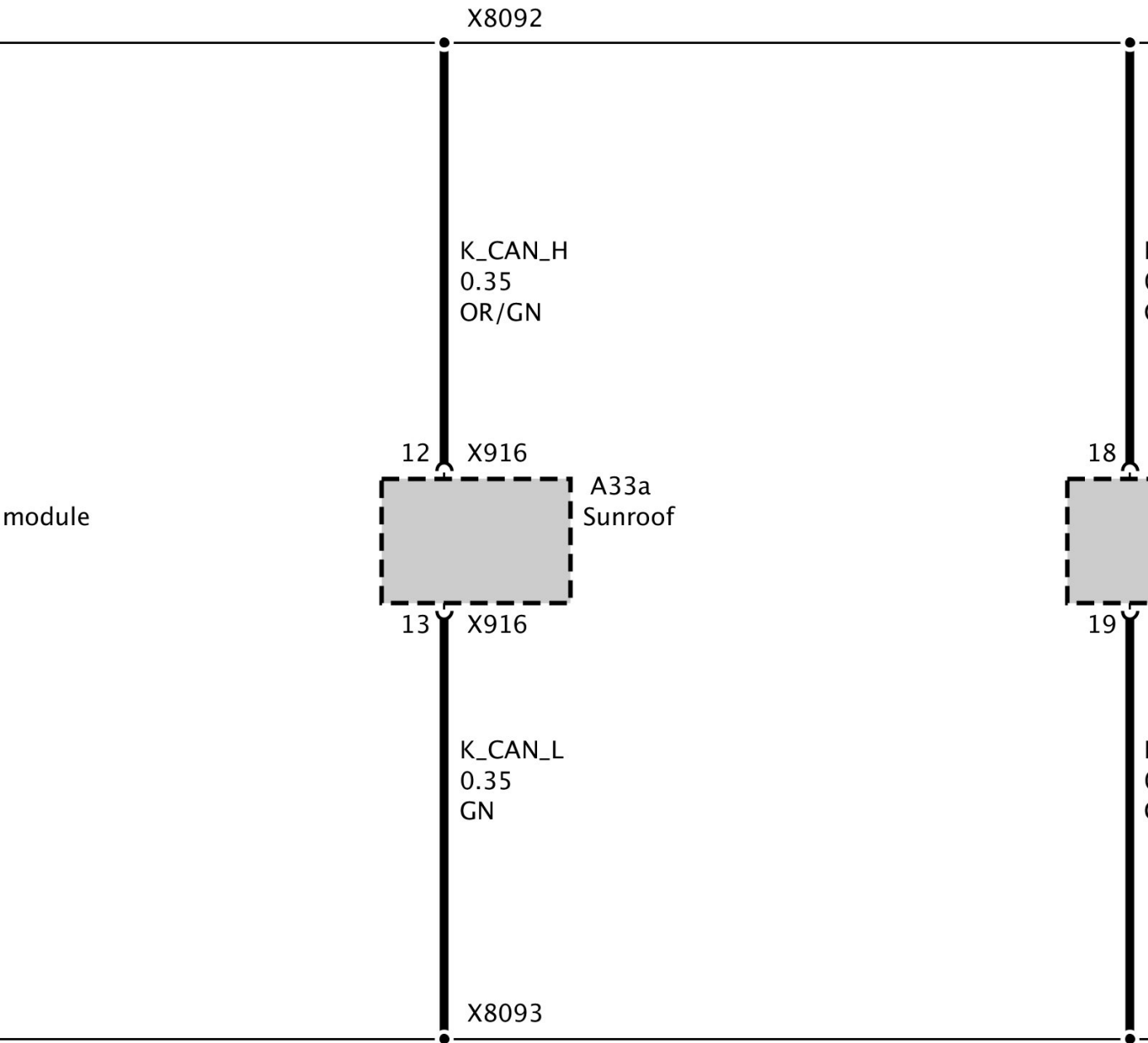


Part 7

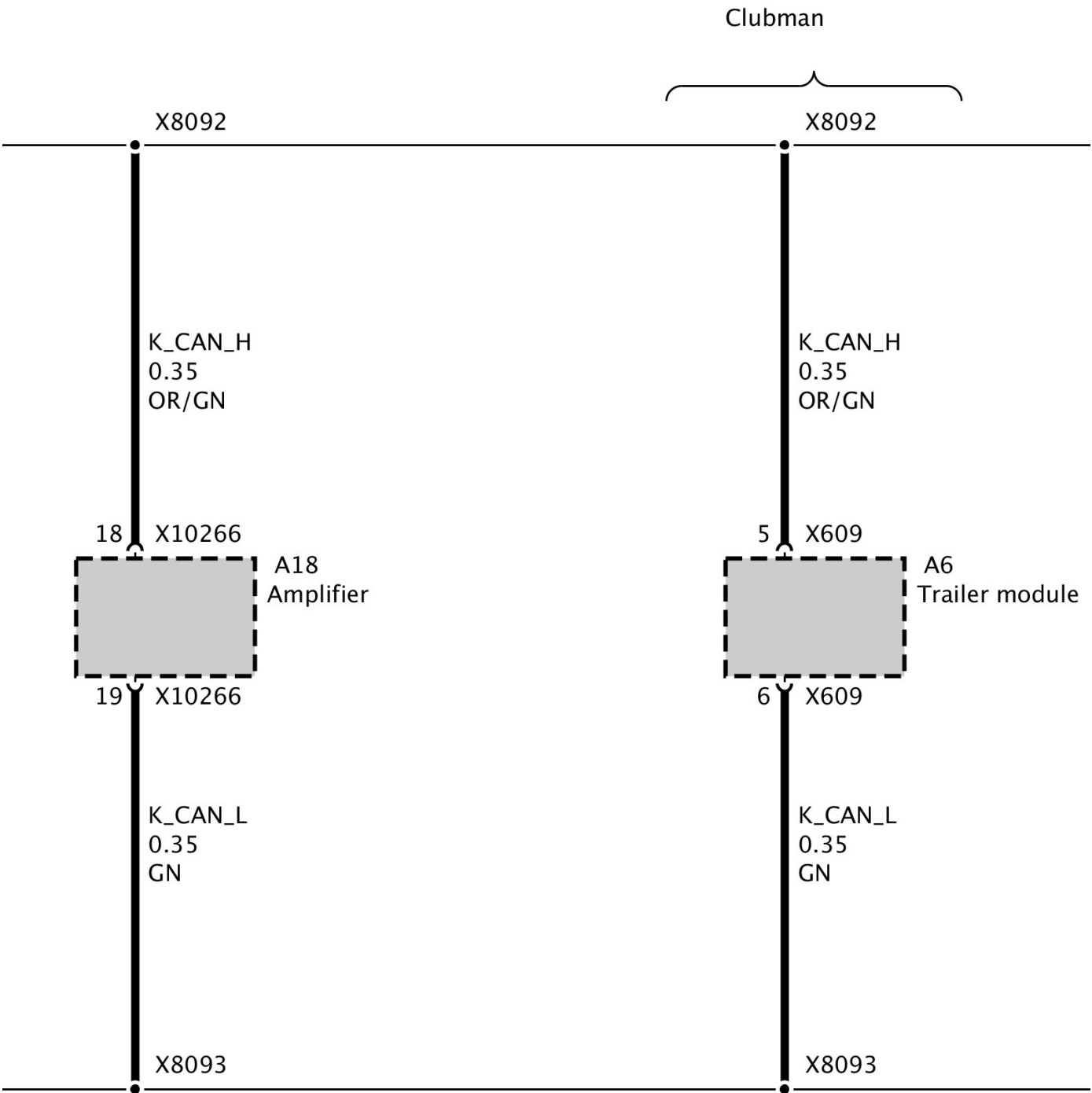


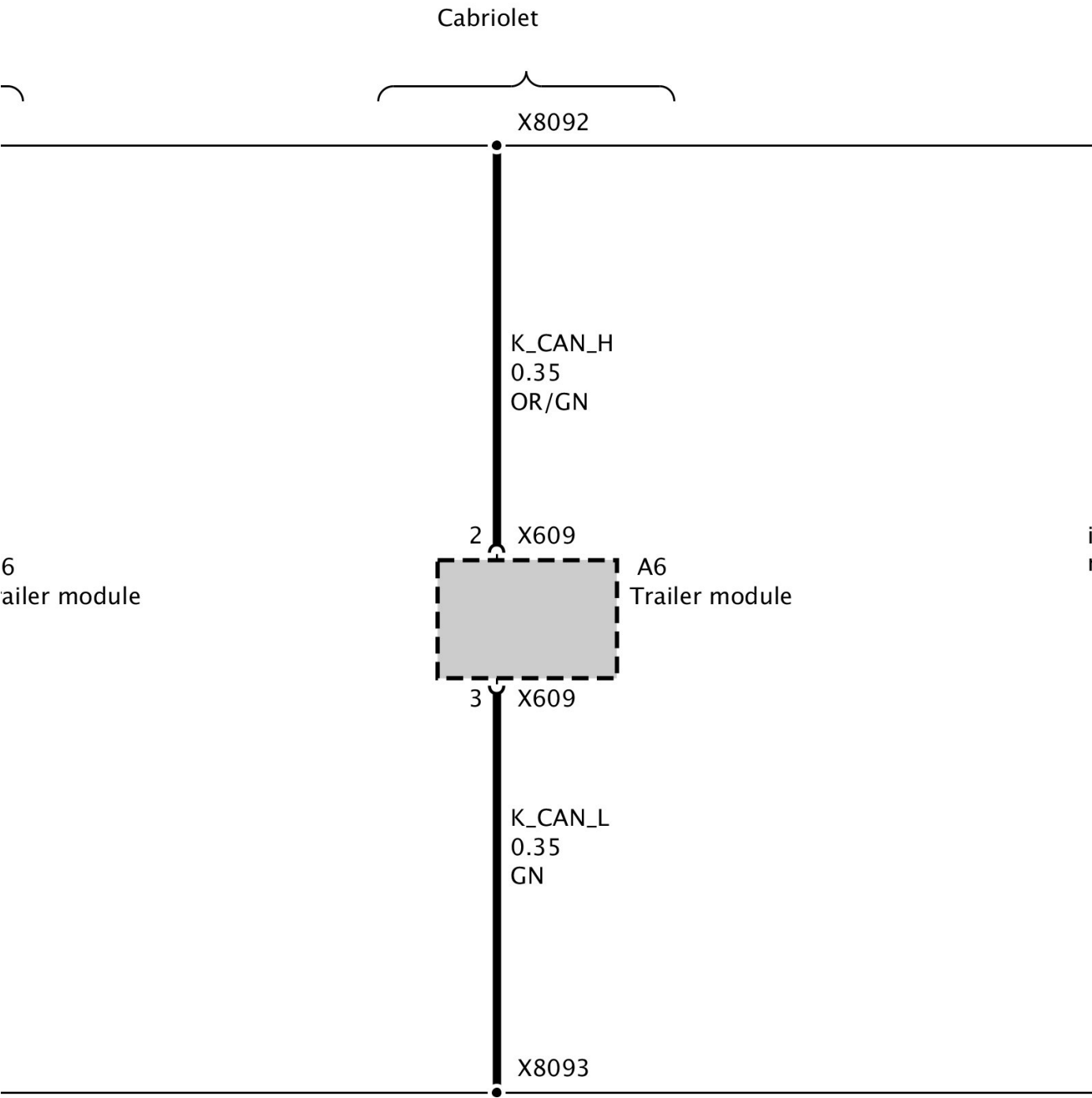
Part 8

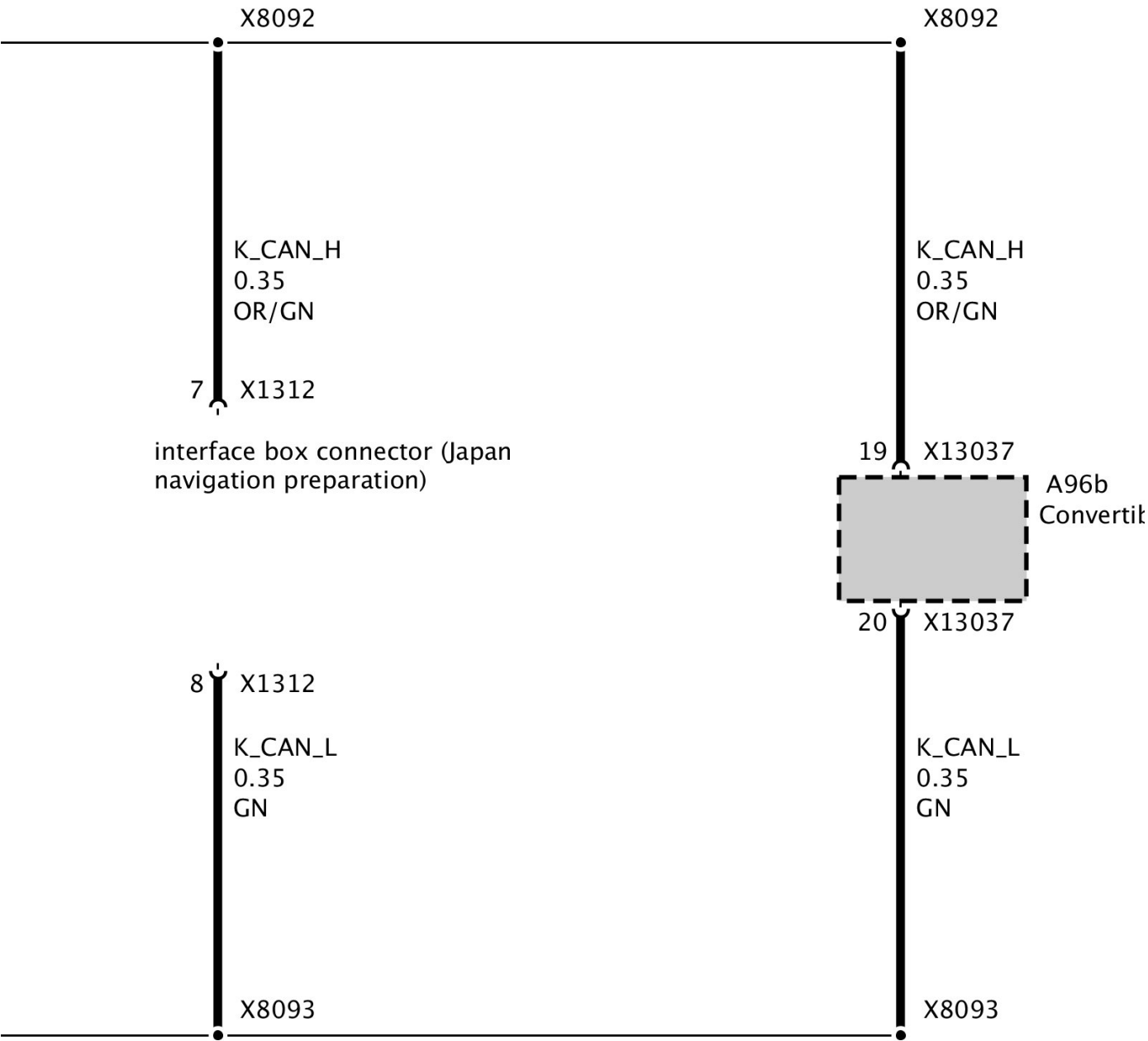












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Convertible top module

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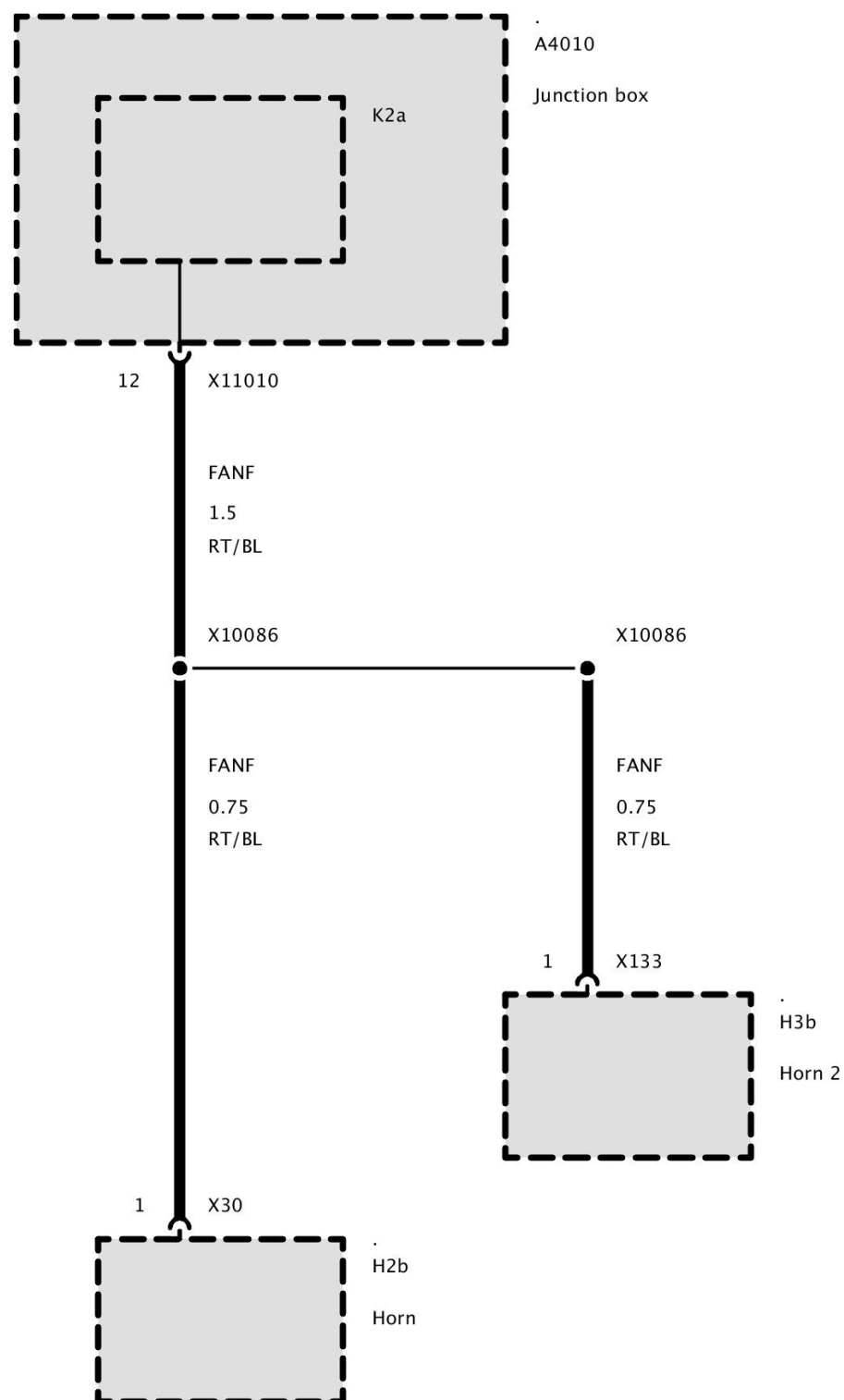
3

#### Part 14

### X10086 No Adapter

X10086 No Adapter

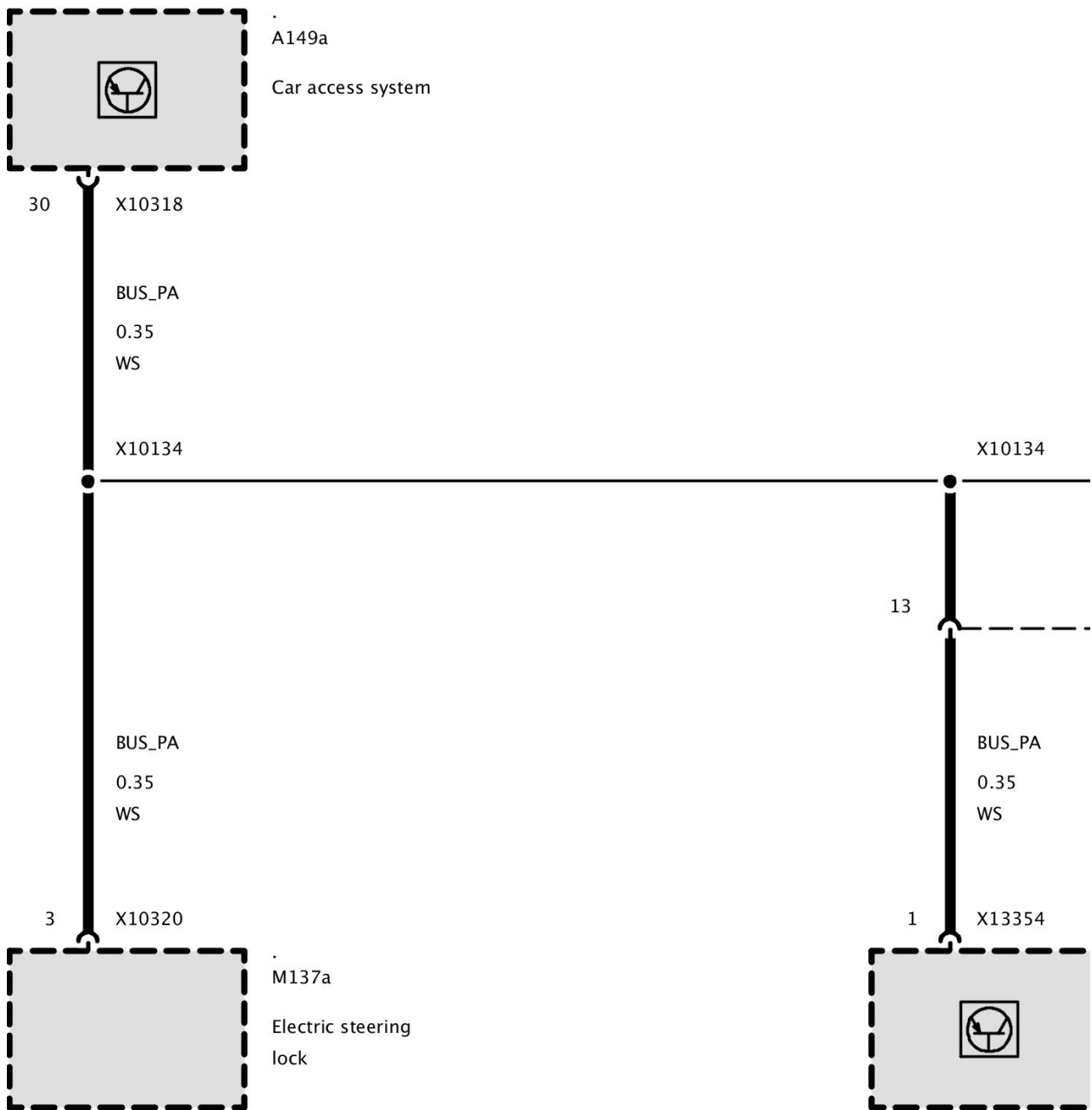
Connector X10086



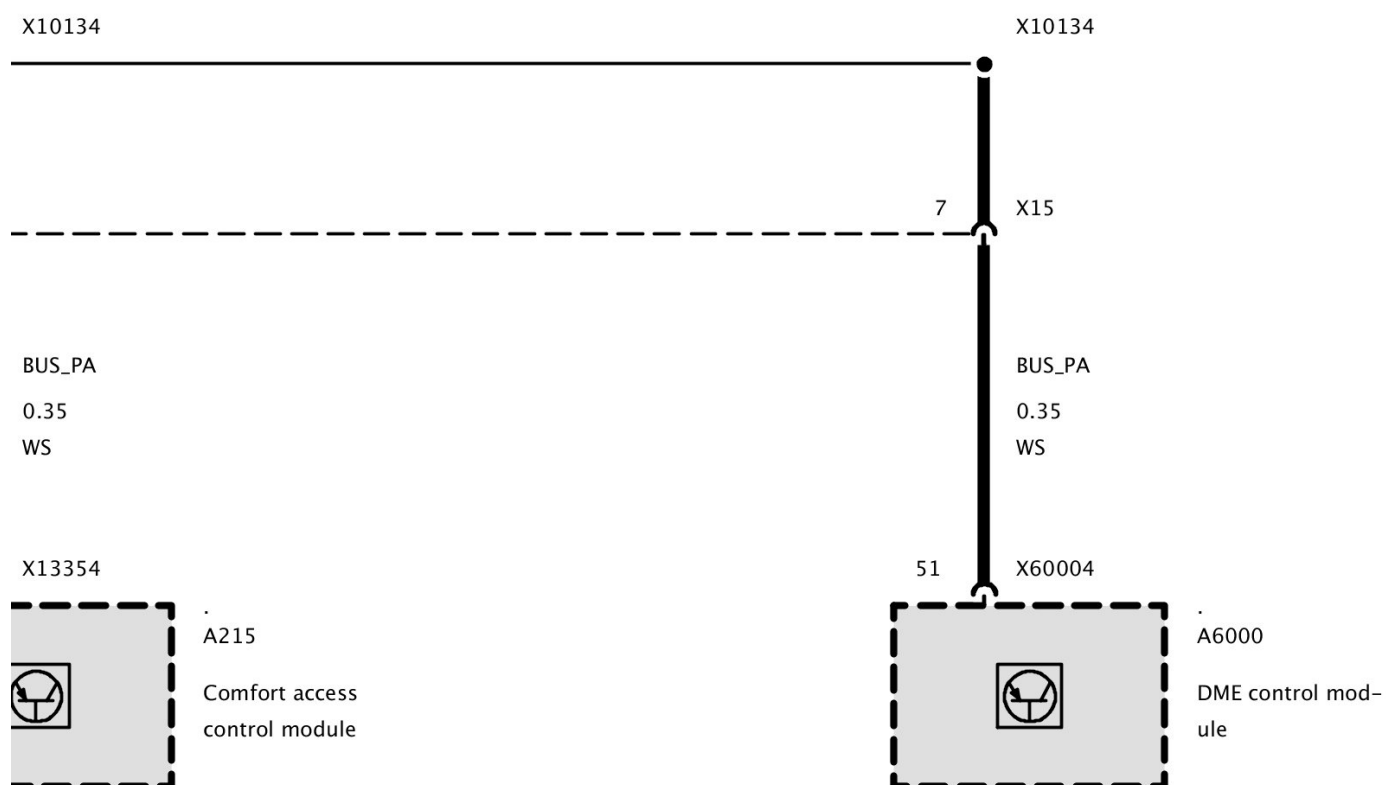
**X10134 No Adapter**

**X10134 No Adapter**

**Connector X10134**



Part 1

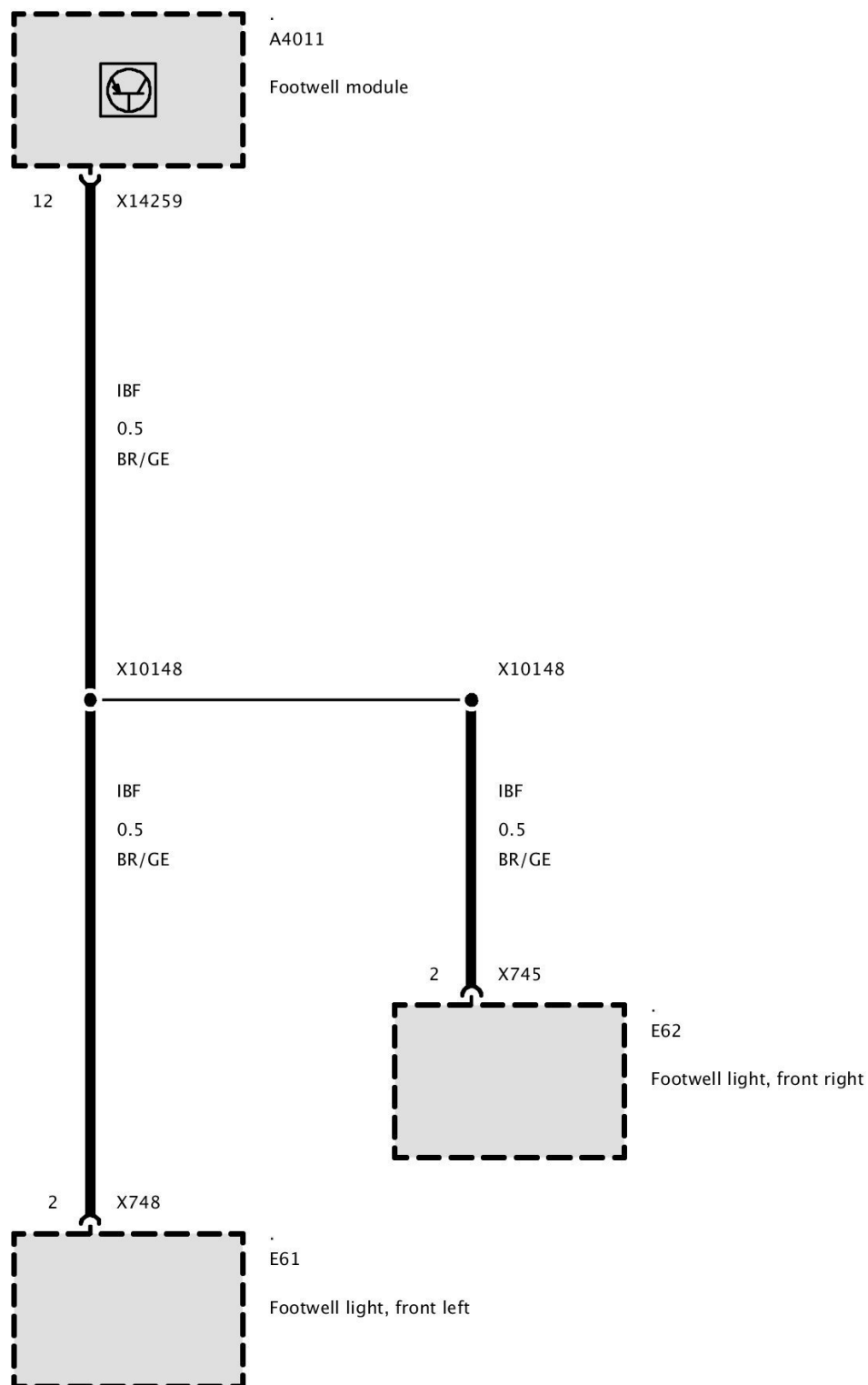


## Part 2

### X10148 No Adapter

#### X10148 No Adapter

#### Connector X10148

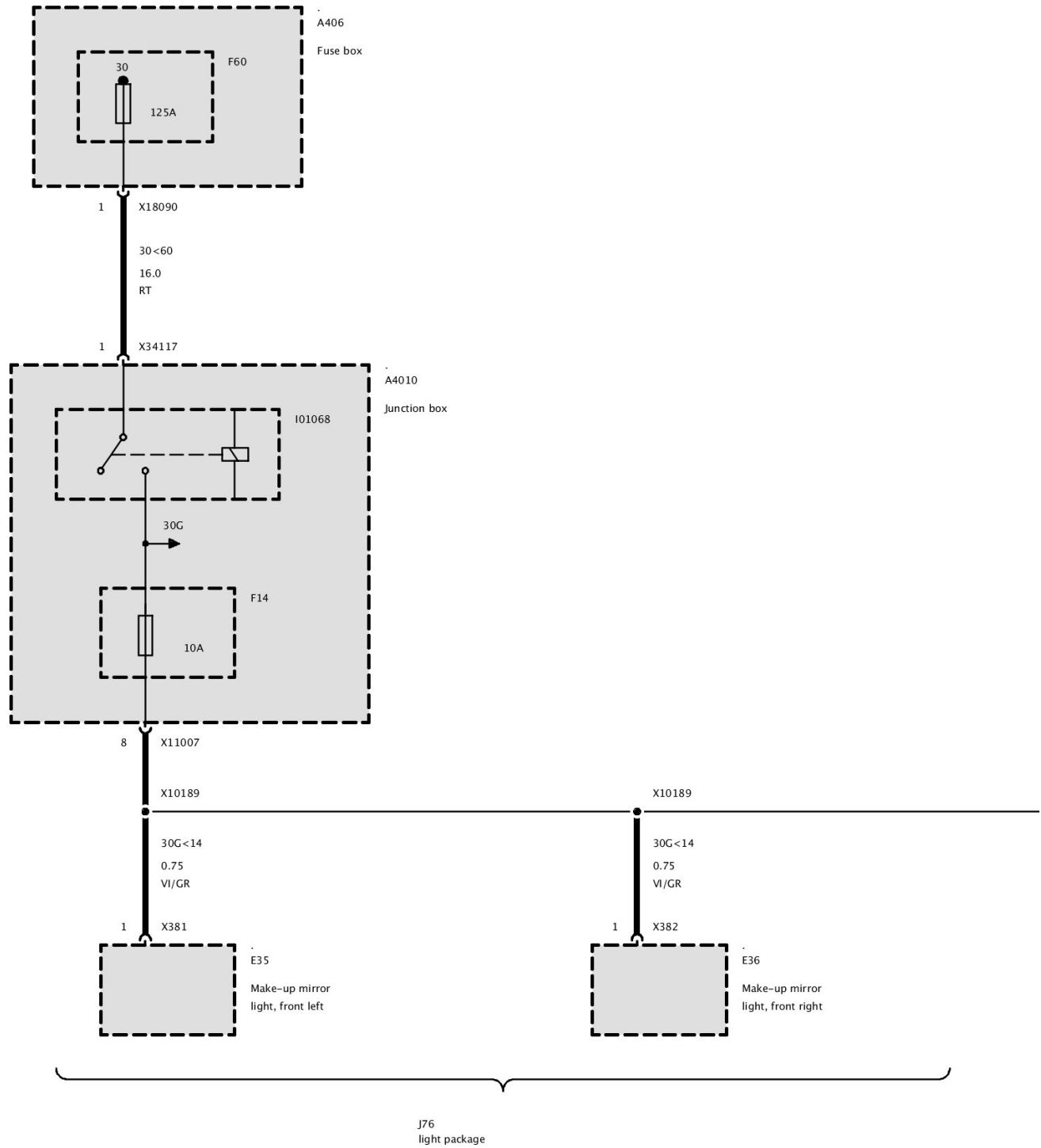


**X10189 No Adapter**

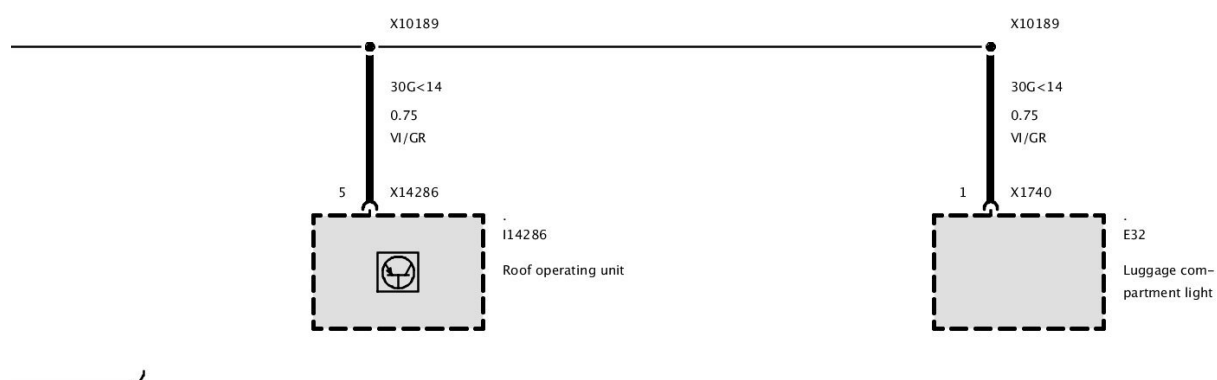
**X10189 No Adapter**

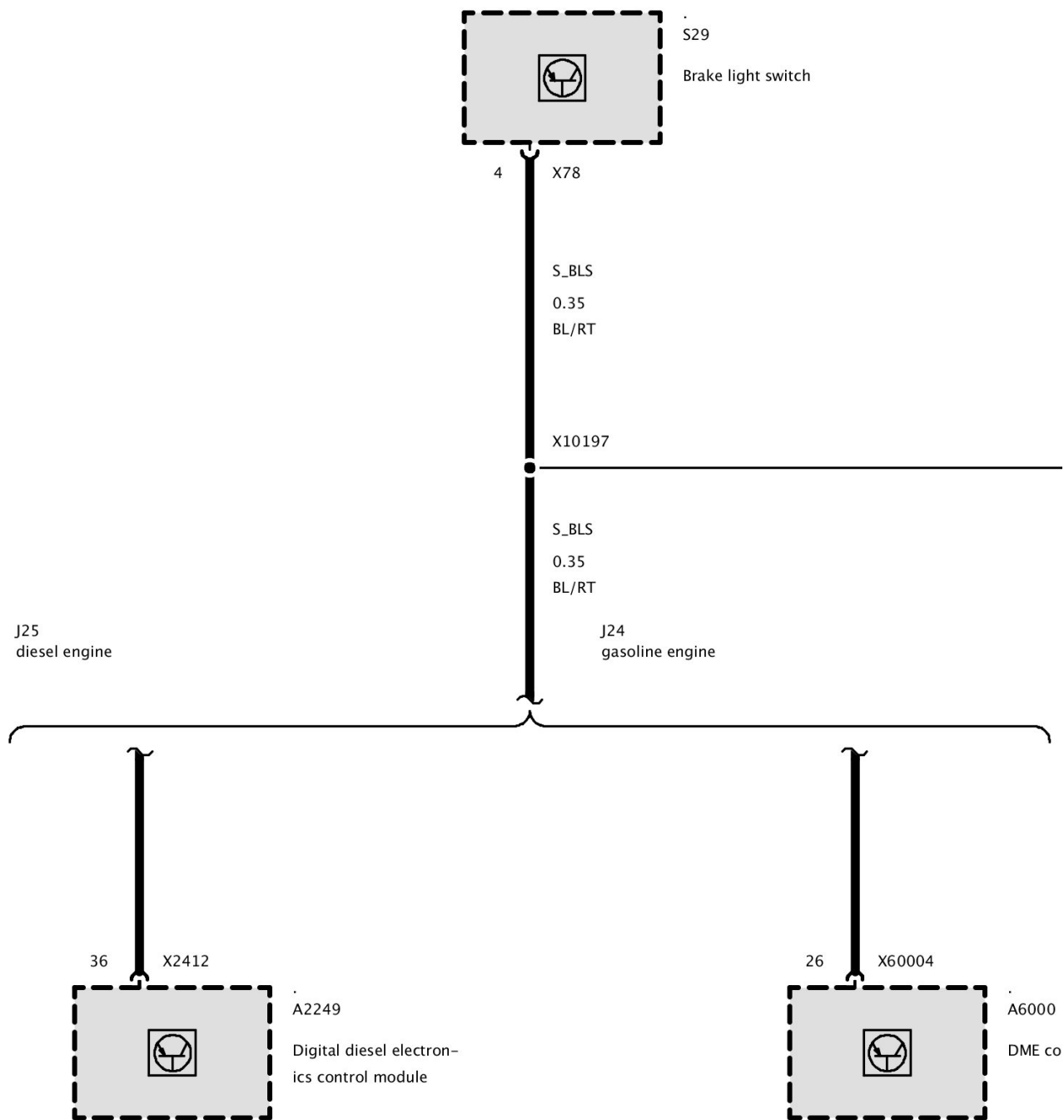
**Fuse F14**



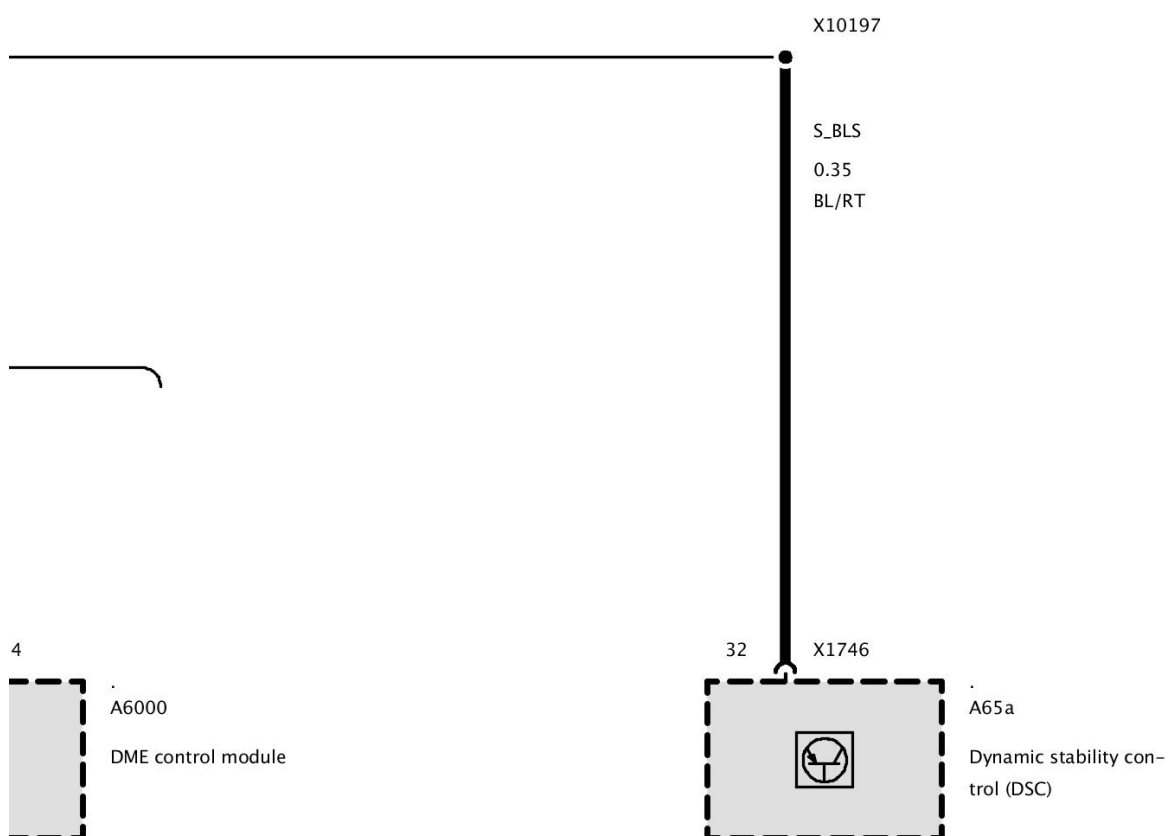


Part 1

**Part 2****X10197 No Adapter****X10197 No Adapter****Connector X10197**



Part 1

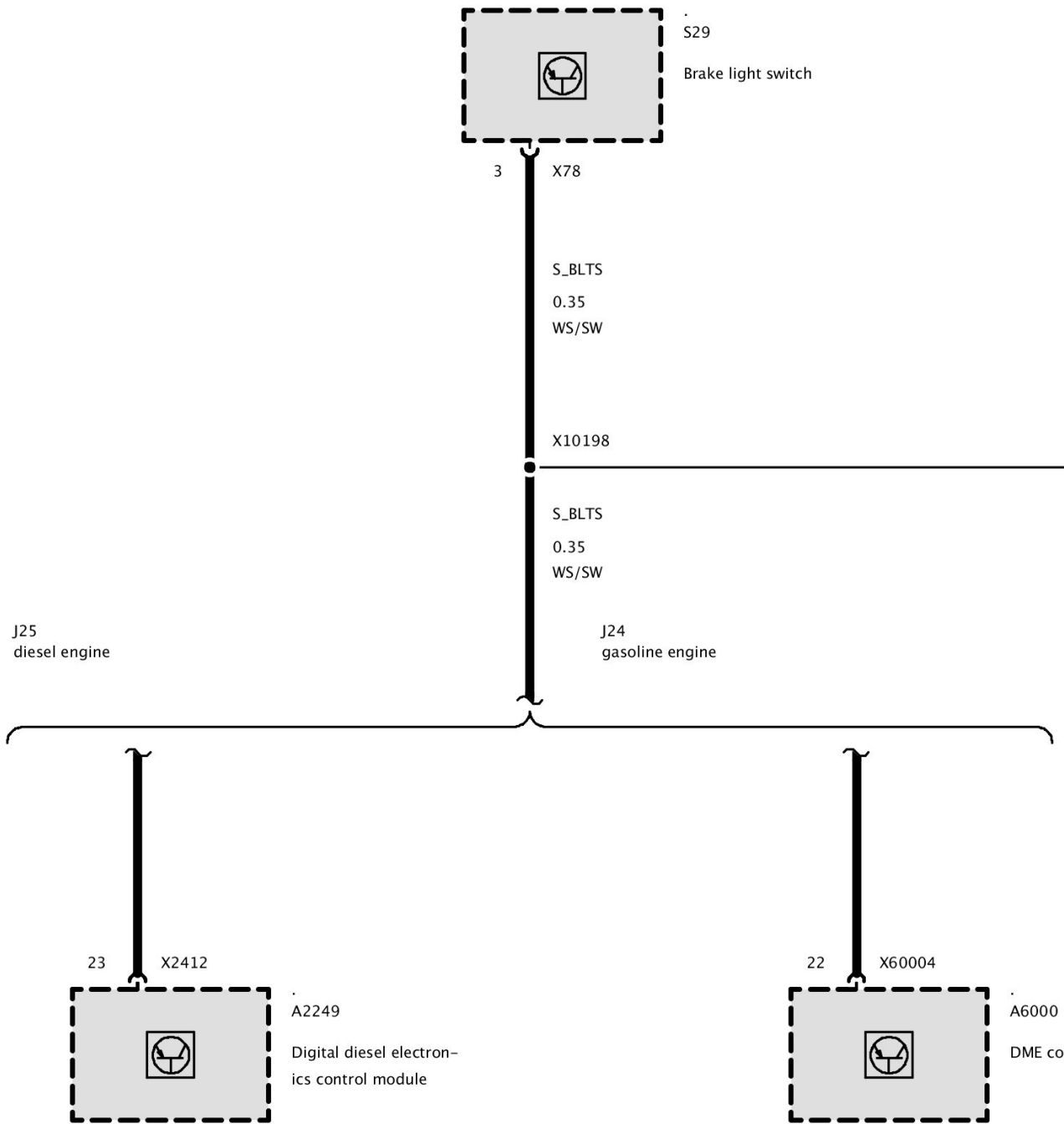


## Part 2

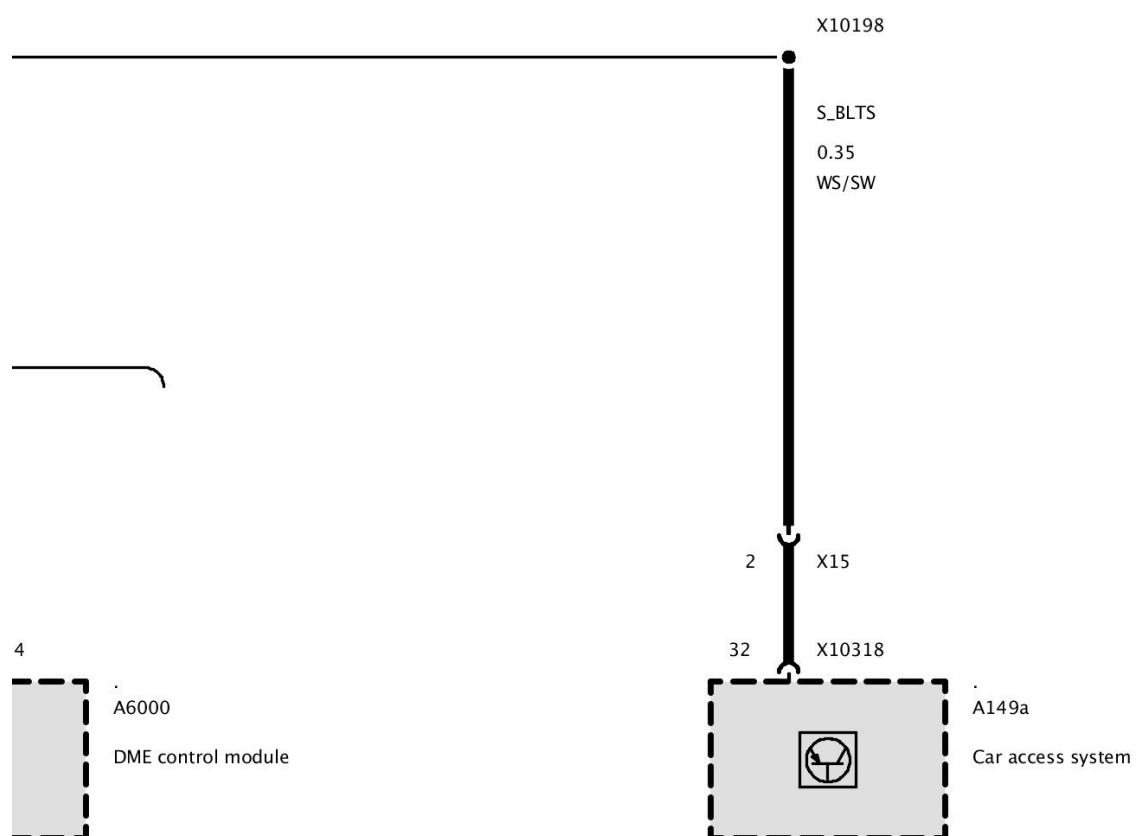
### X10198 No Adapter

#### X10198 No Adapter

#### Connector X10198



Part 1

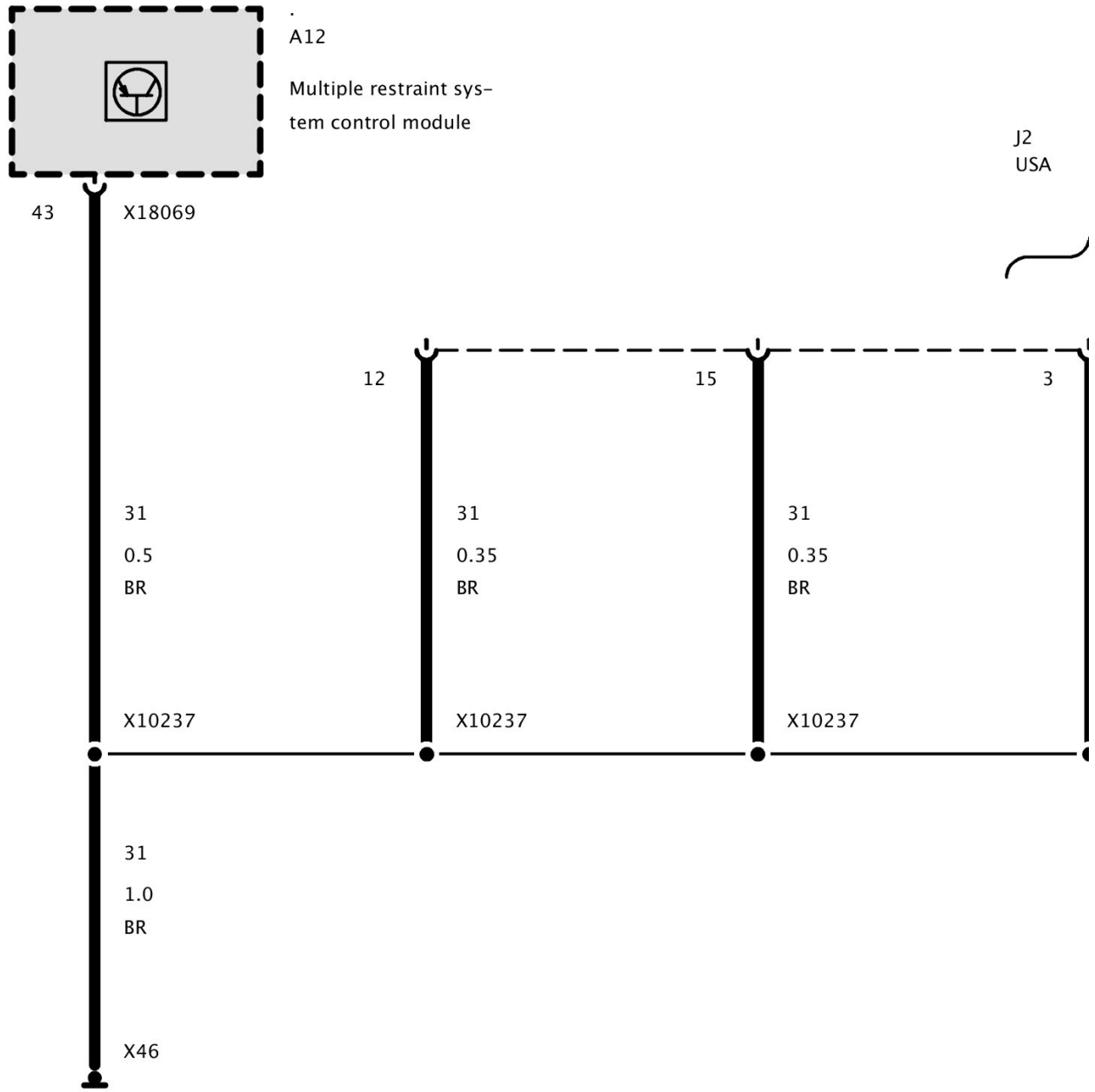


## Part 2

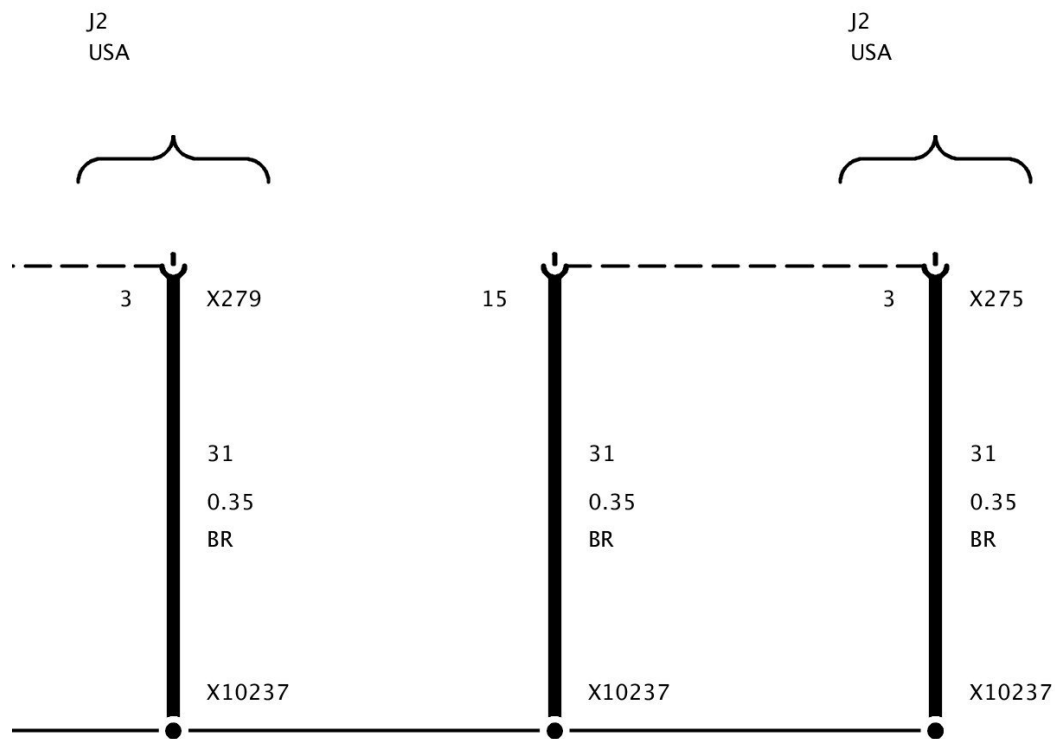
### X10237 No Adapter

#### X10237 No Adapter

Ground Connection X46, Connector X10237



Part 1



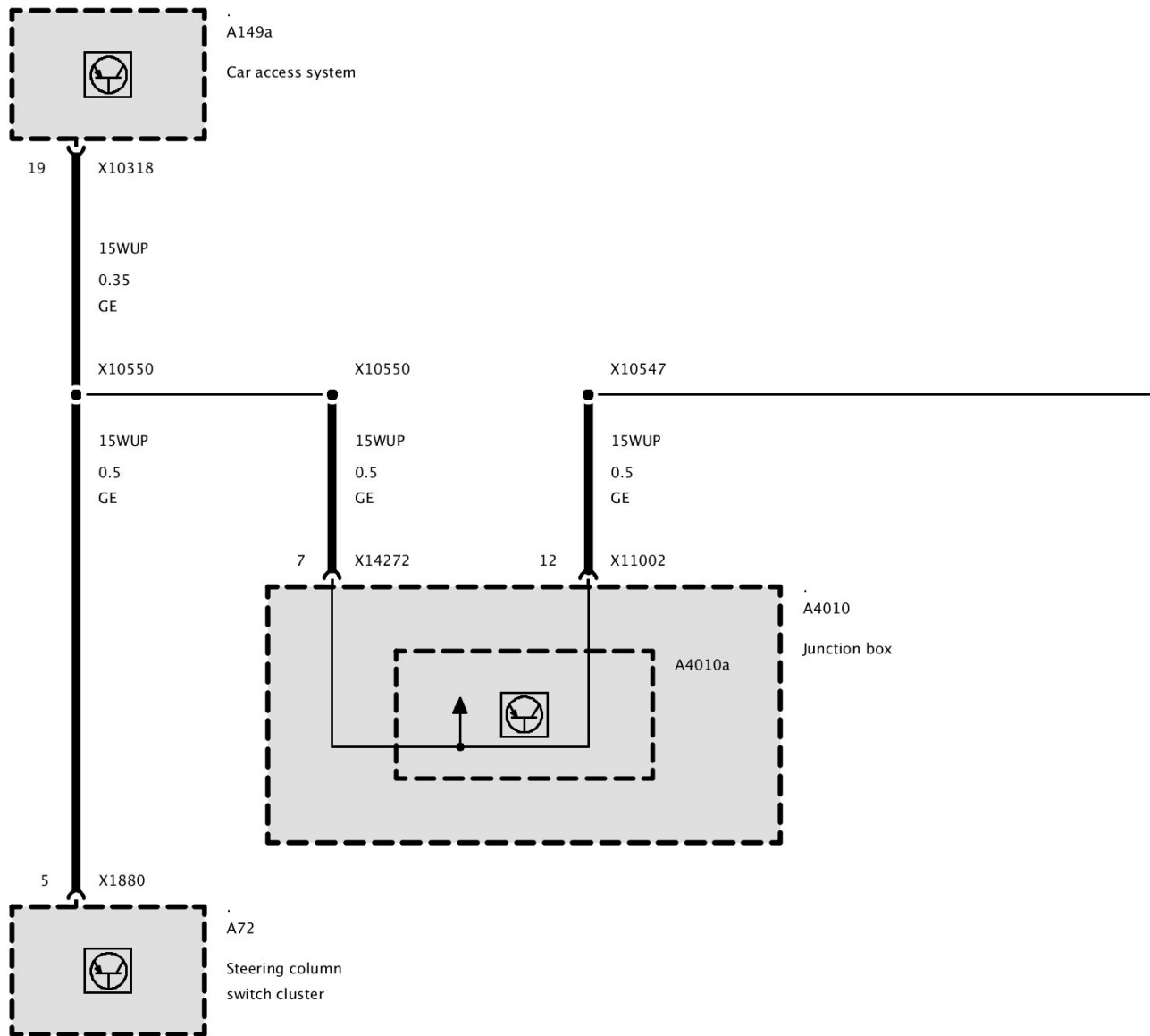
Part 2

**X10547 No Adapter**

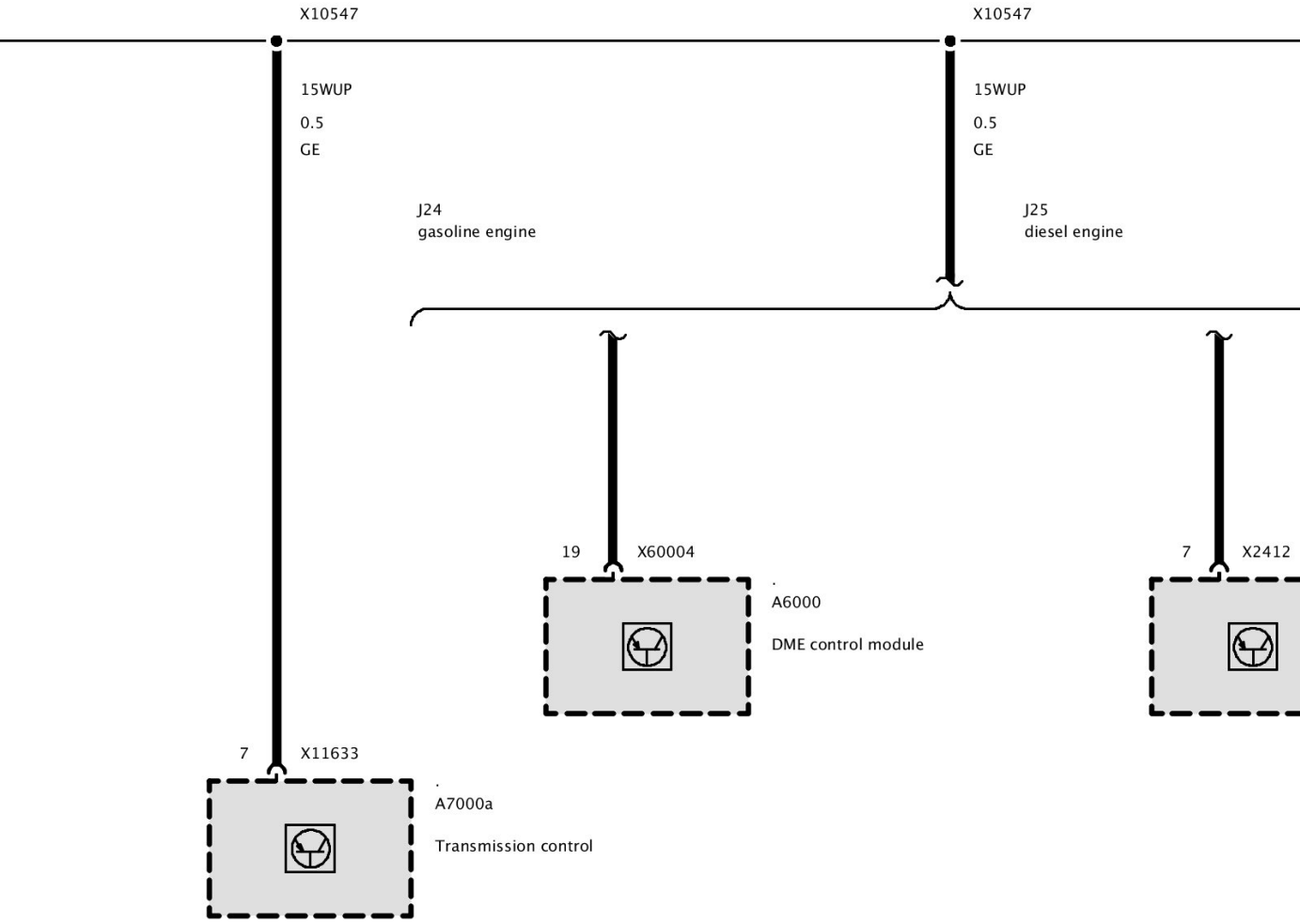
**X10547 No Adapter**

**Connector, Terminal 15 Wake-Up**

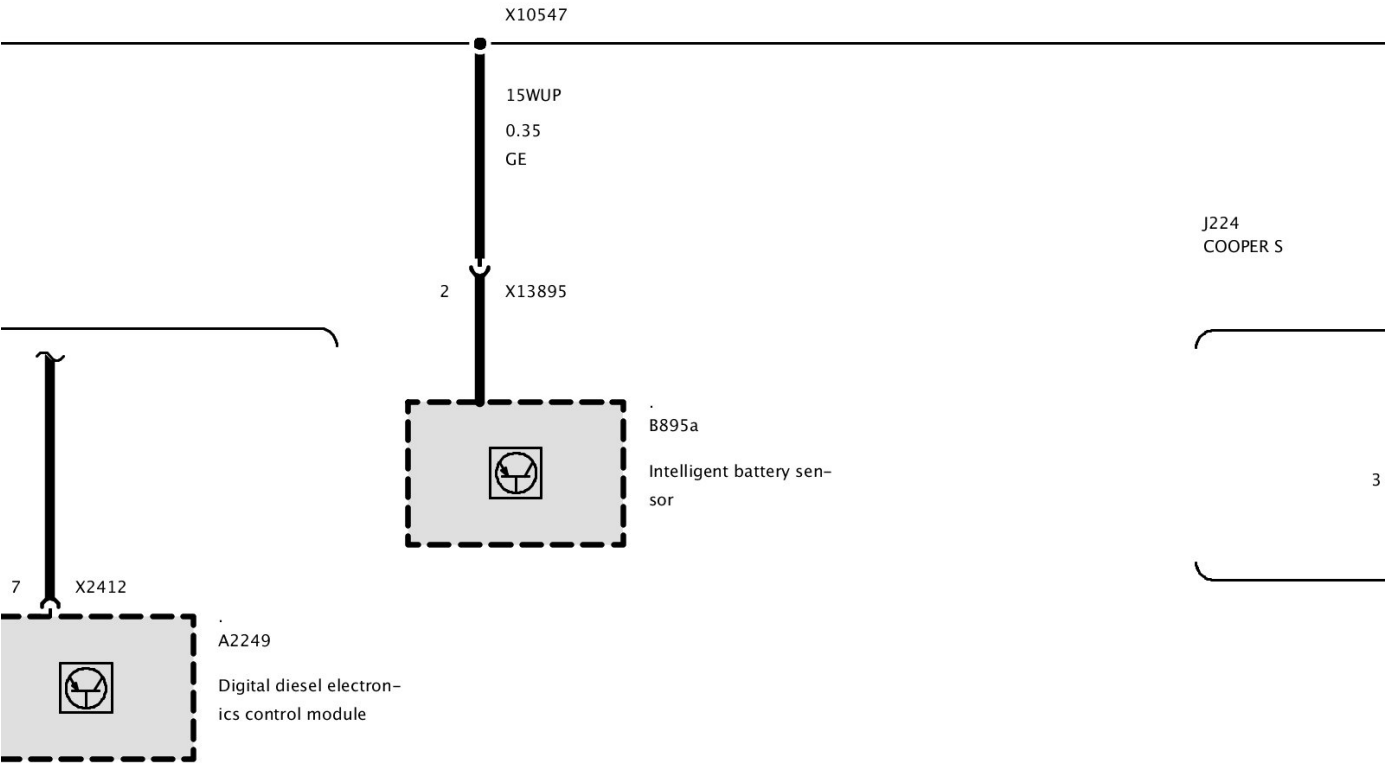




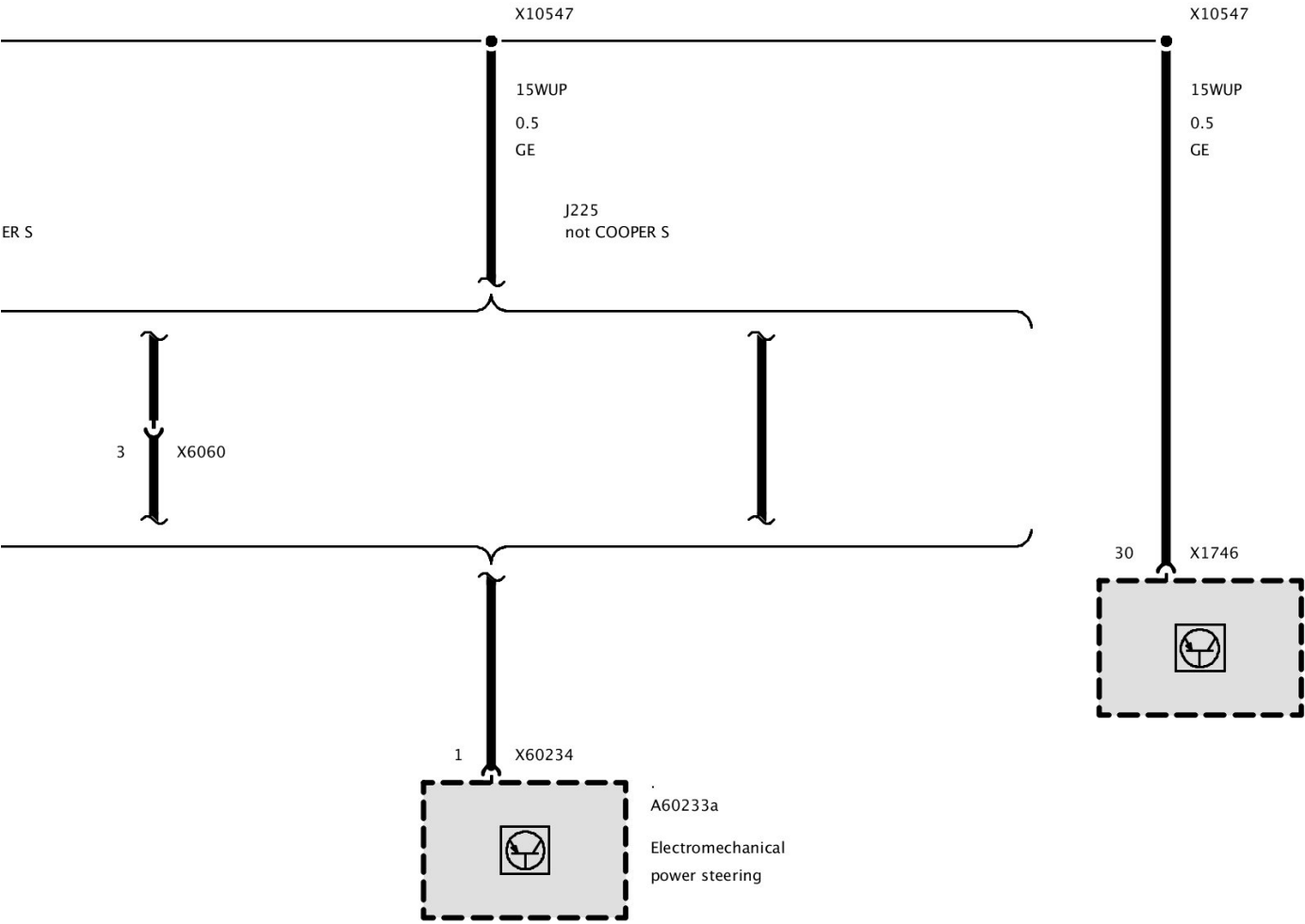
Part 1



Part 2



Part 3



Part 4

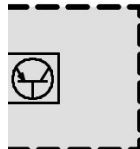
X10547

15WUP

0.5

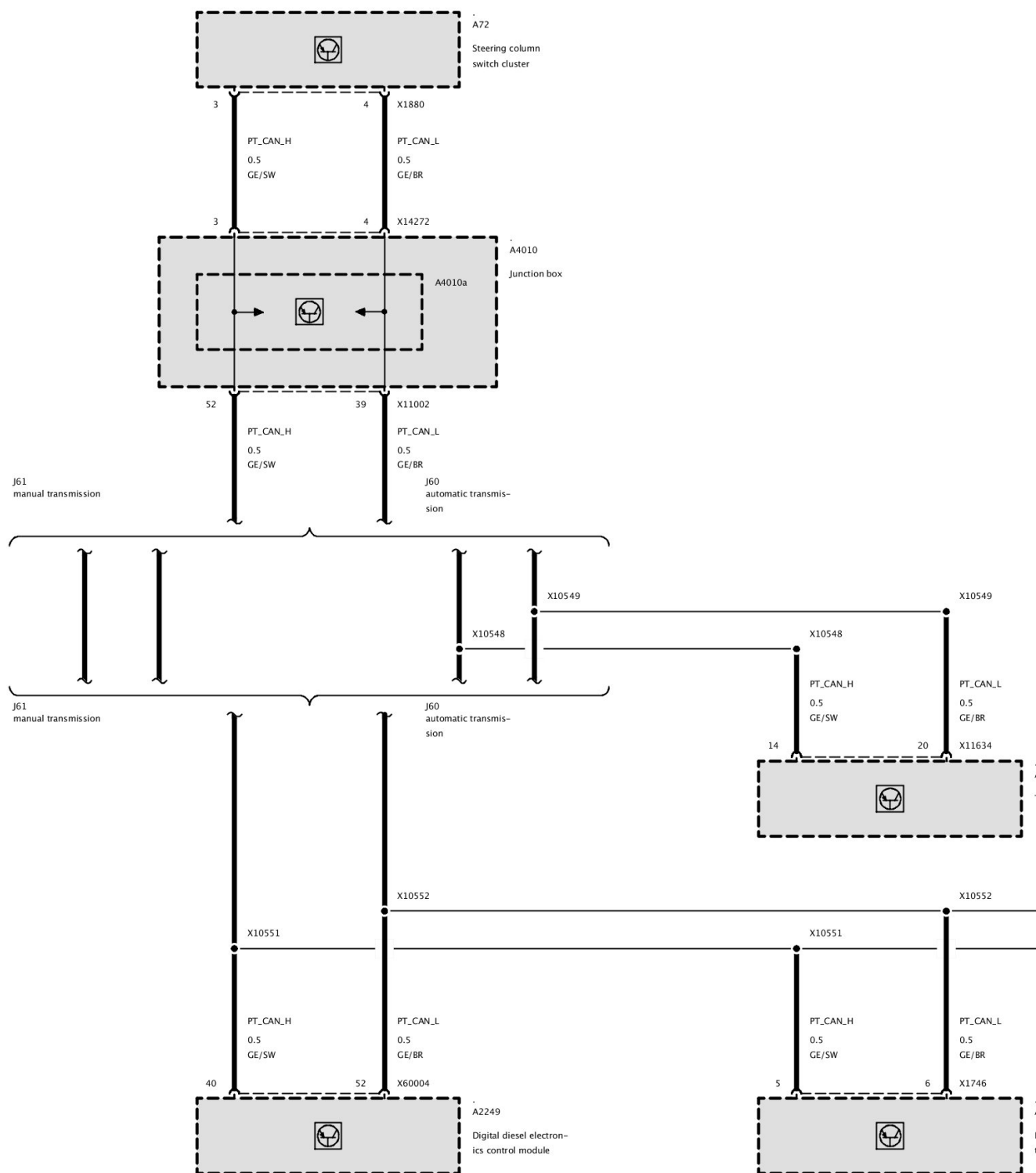
GE

X1746

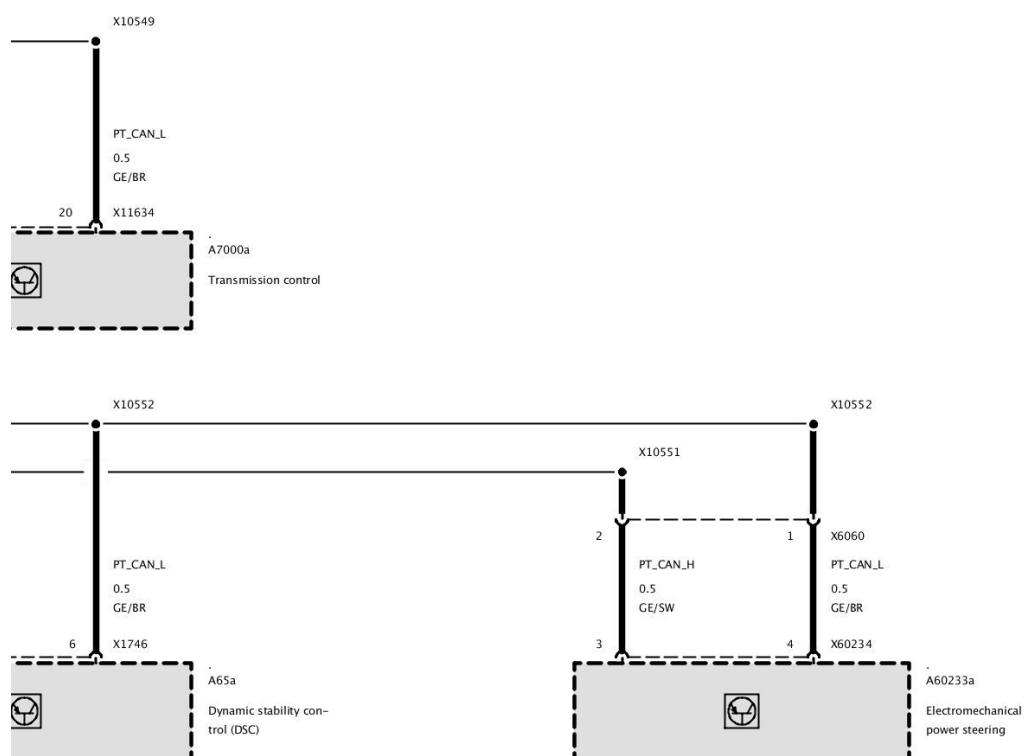


A65a

Dynamic stability con-  
trol (DSC)**Part 5****X10548 No Adapter****X10548 No Adapter****Power Train CAN-Bus**



## Part 1

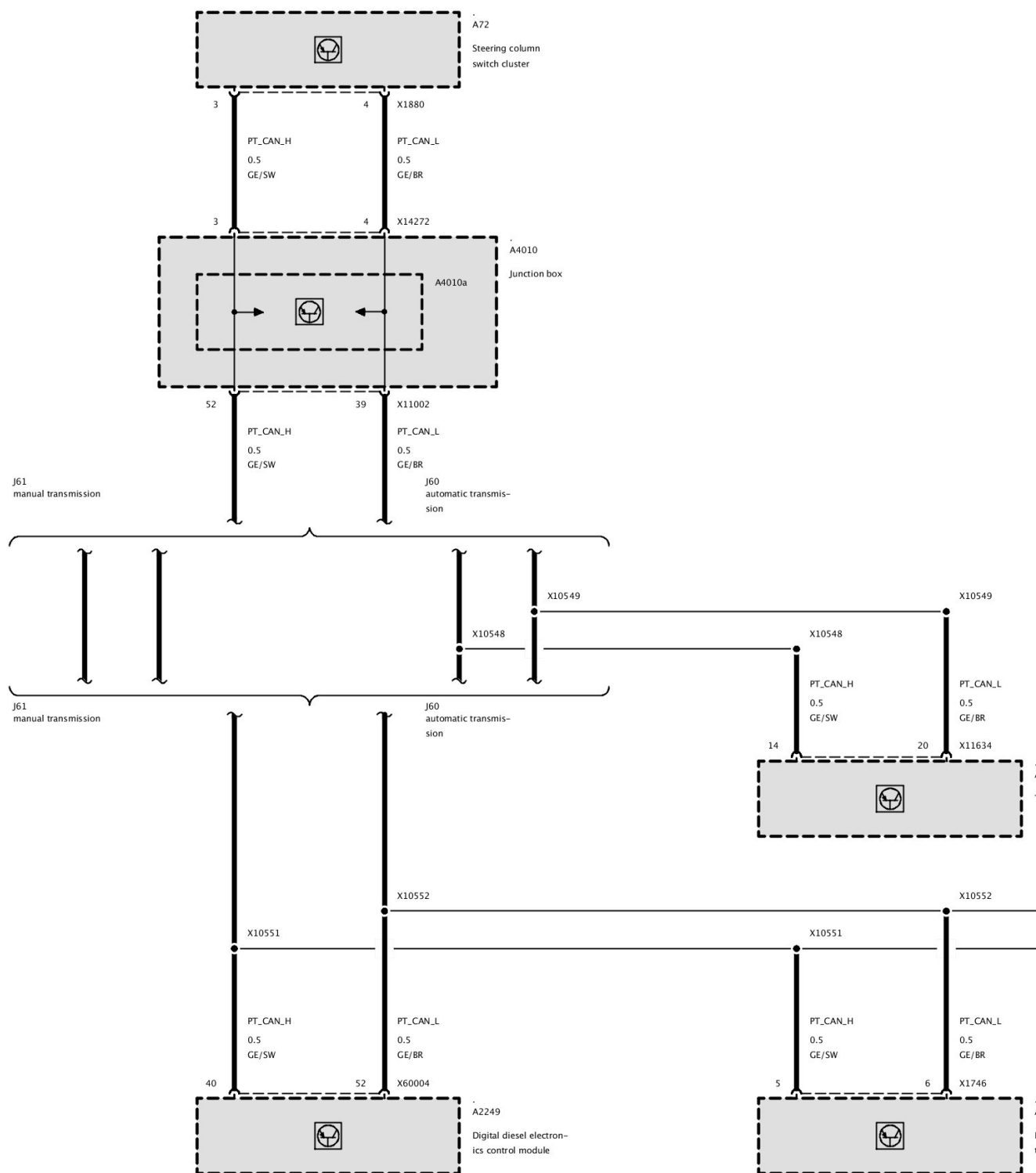


## Part 2

### X10549 No Adapter

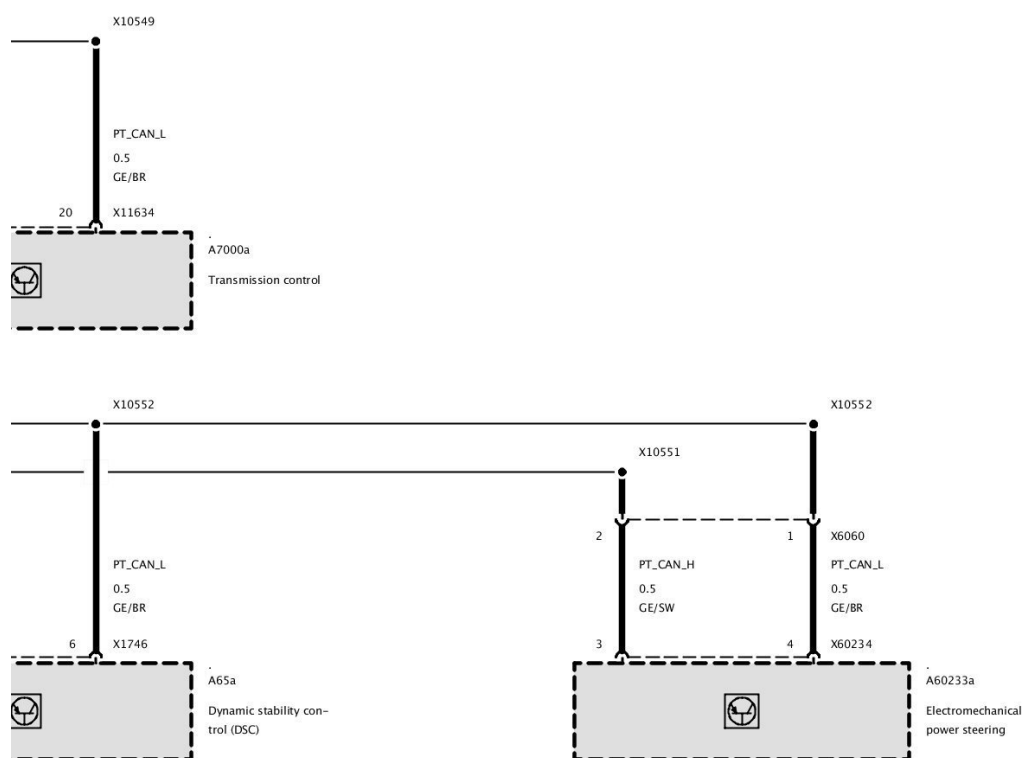
### X10549 No Adapter

### Power Train CAN-Bus



## Part 1



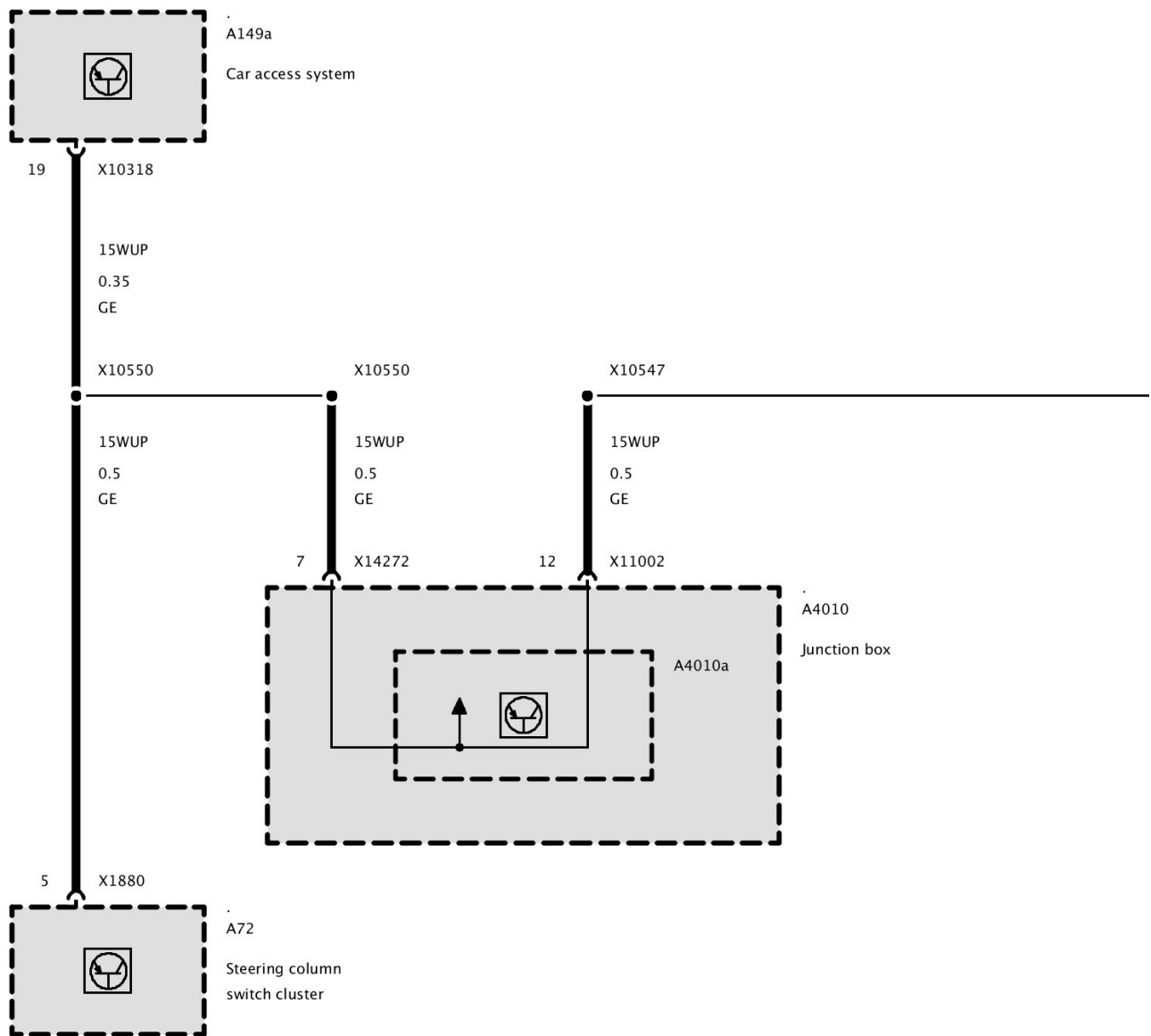


## Part 2

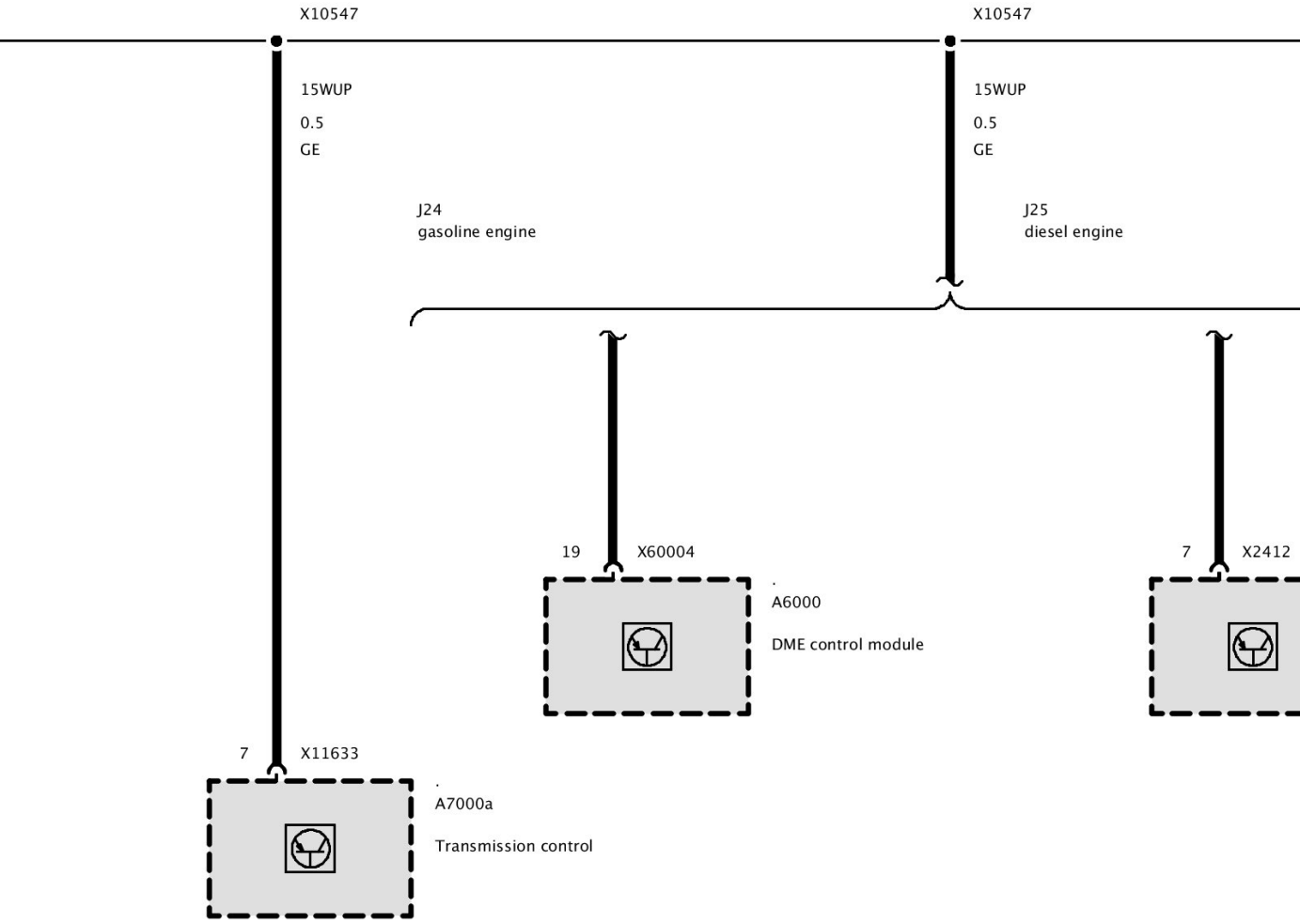
### X10550 No Adapter

#### X10550 No Adapter

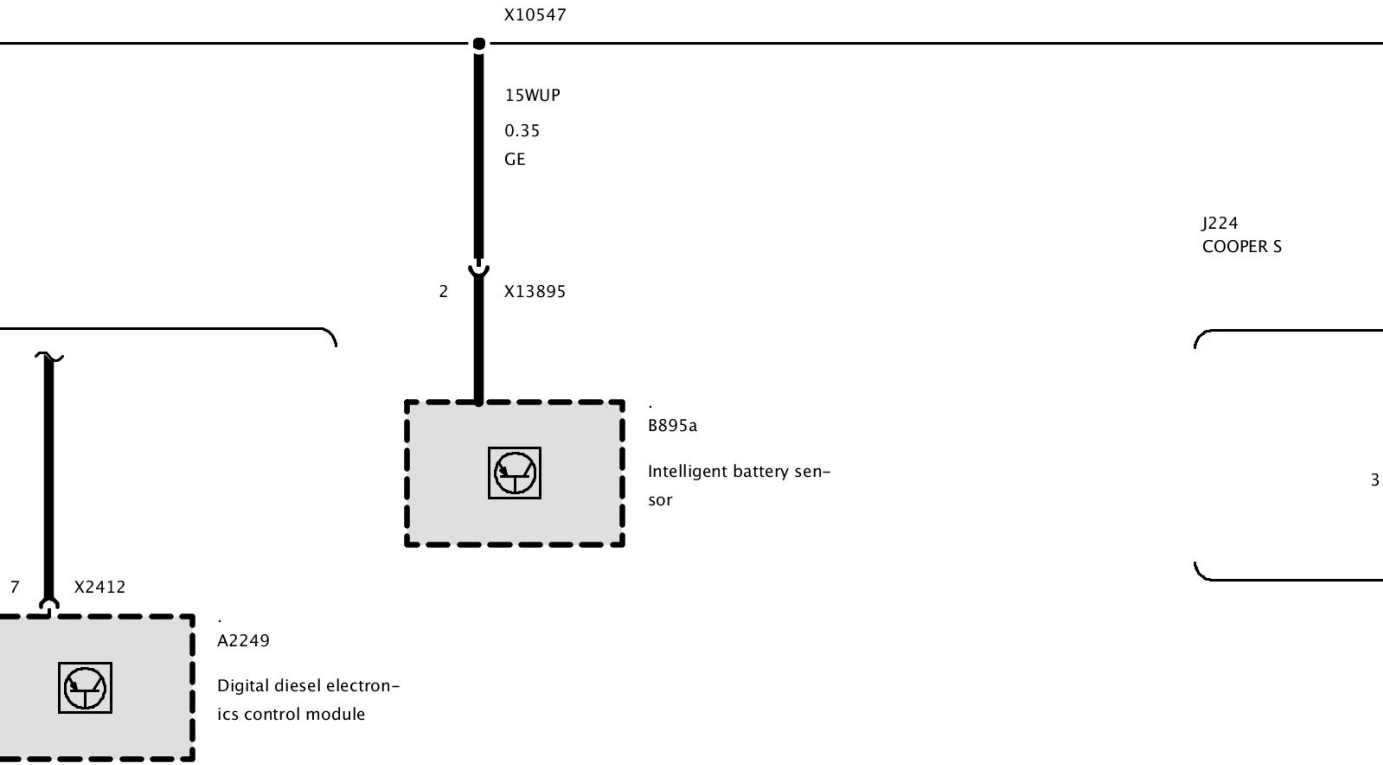
#### Connector, Terminal 15 Wake-Up



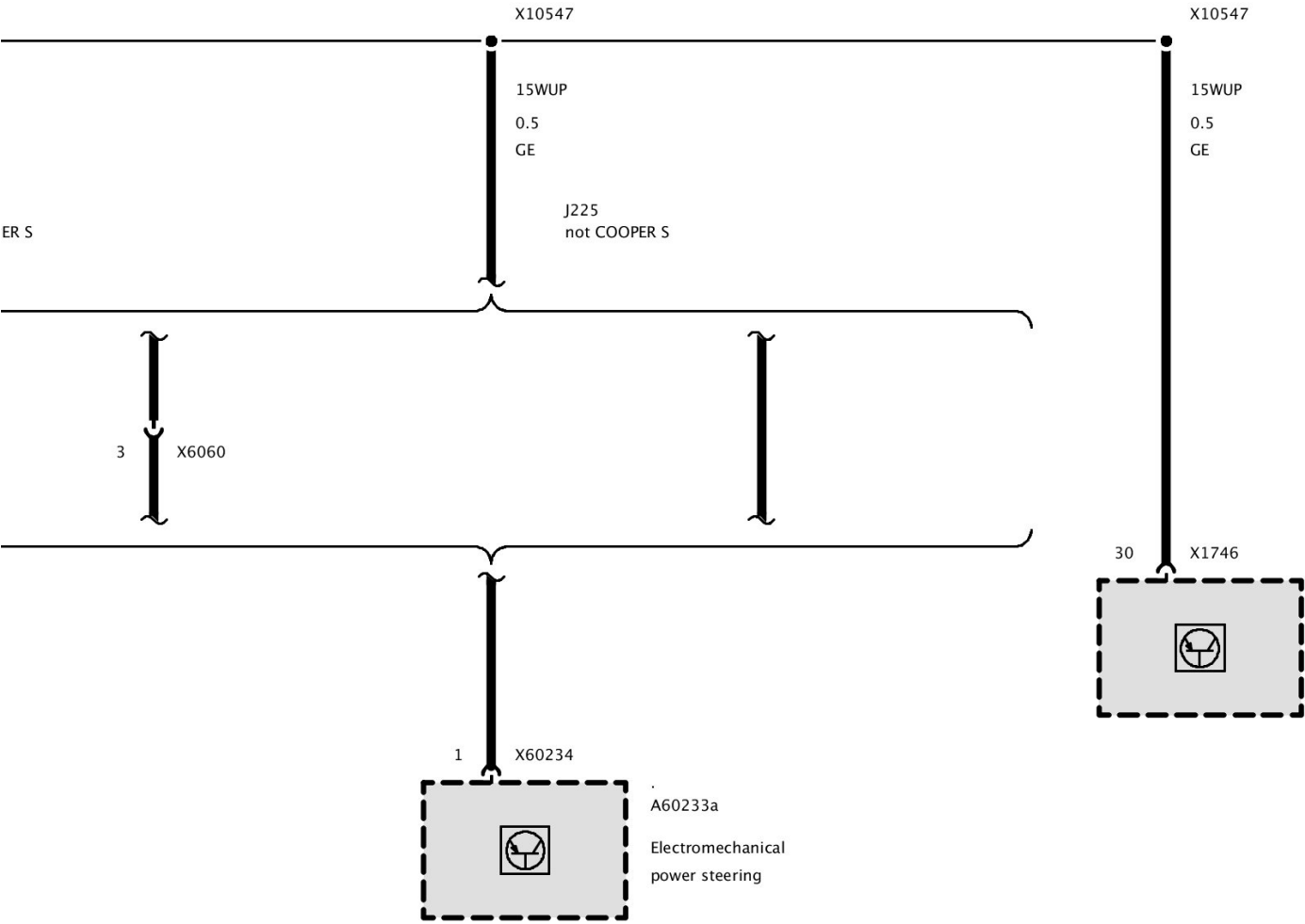
Part 1



Part 2



Part 3



Part 4

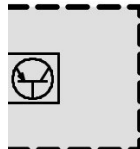
X10547

15WUP

0.5

GE

X1746



A65a

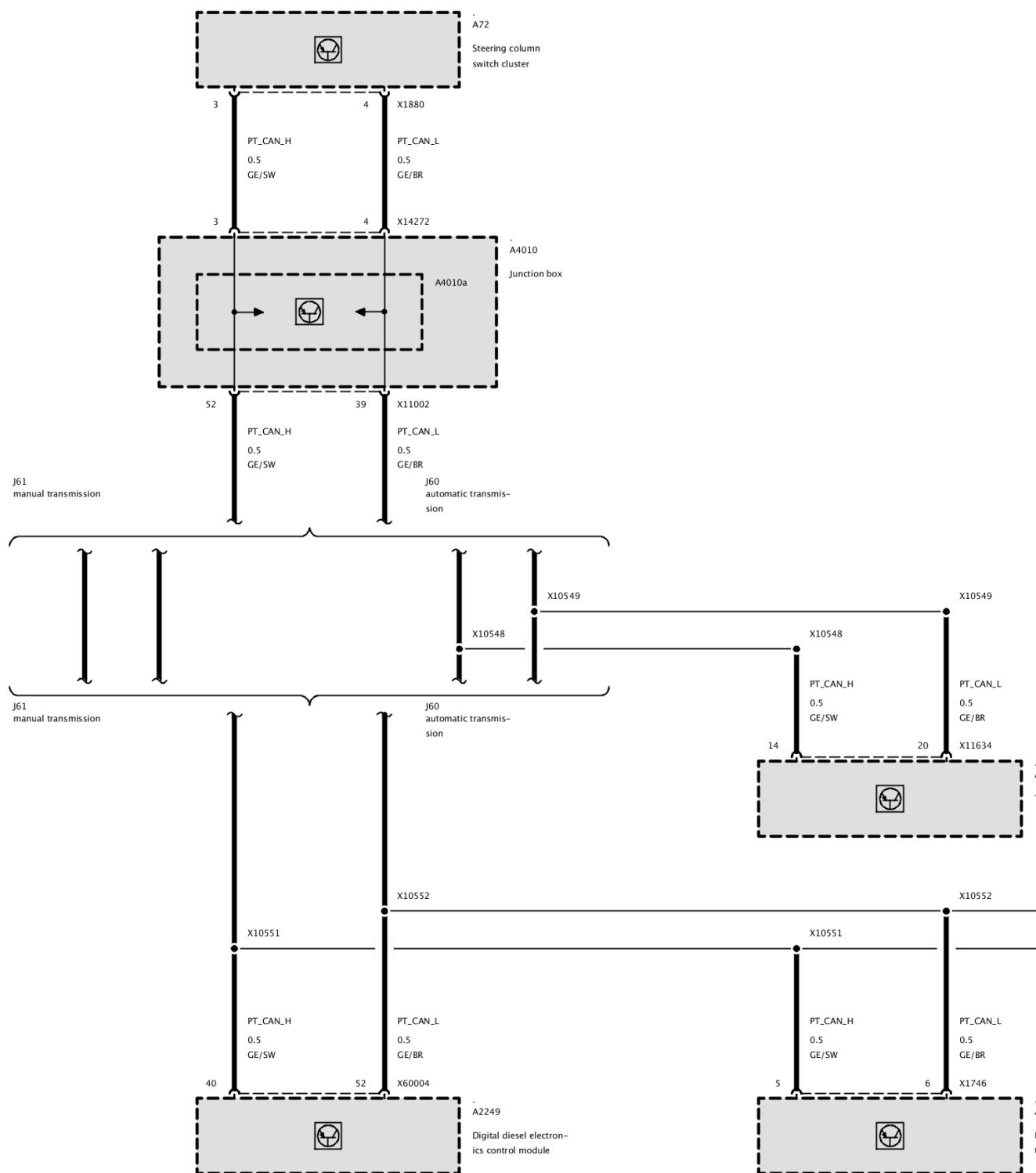
Dynamic stability control (DSC)

## Part 5

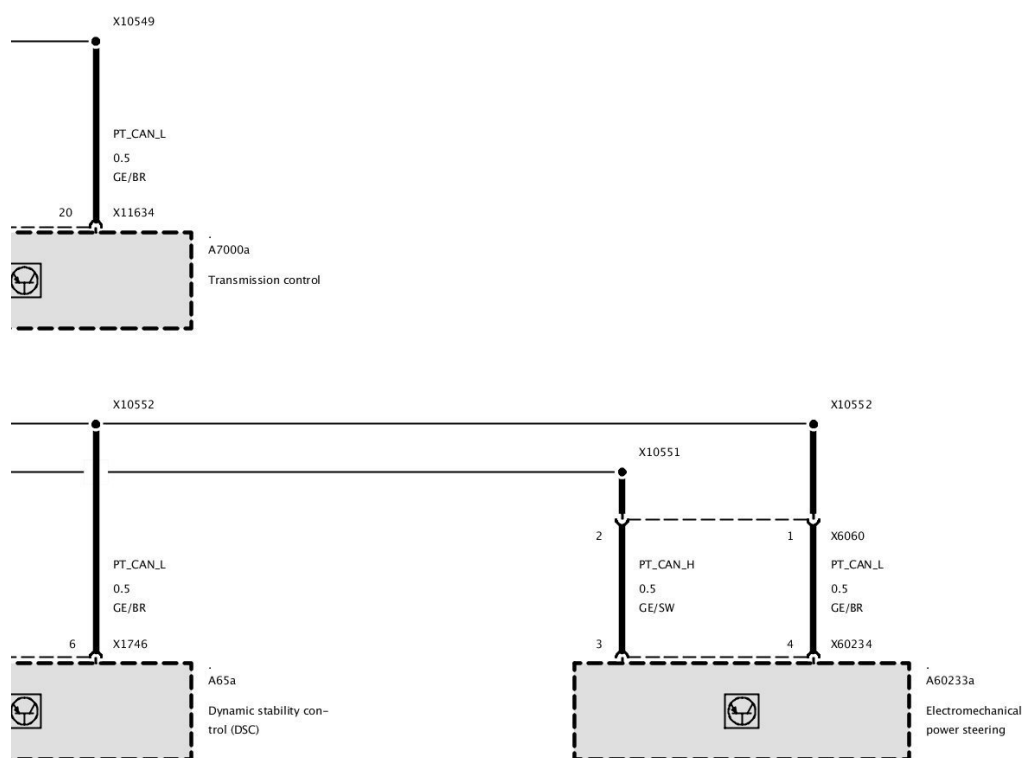
### X10551 No Adapter

X10551 No Adapter

Power Train CAN-Bus



## Part 1



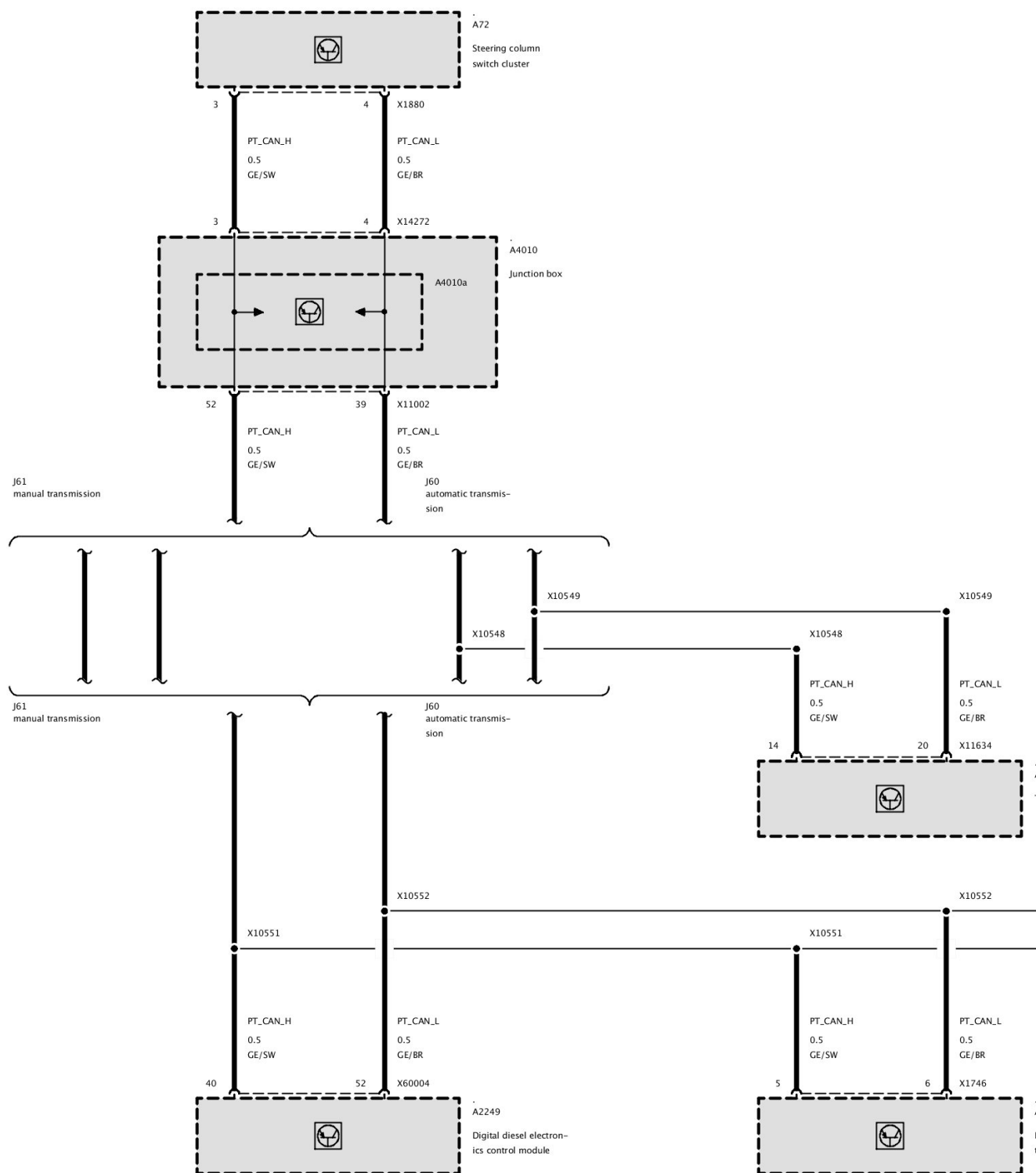
## Part 2

### X10552 No Adapter

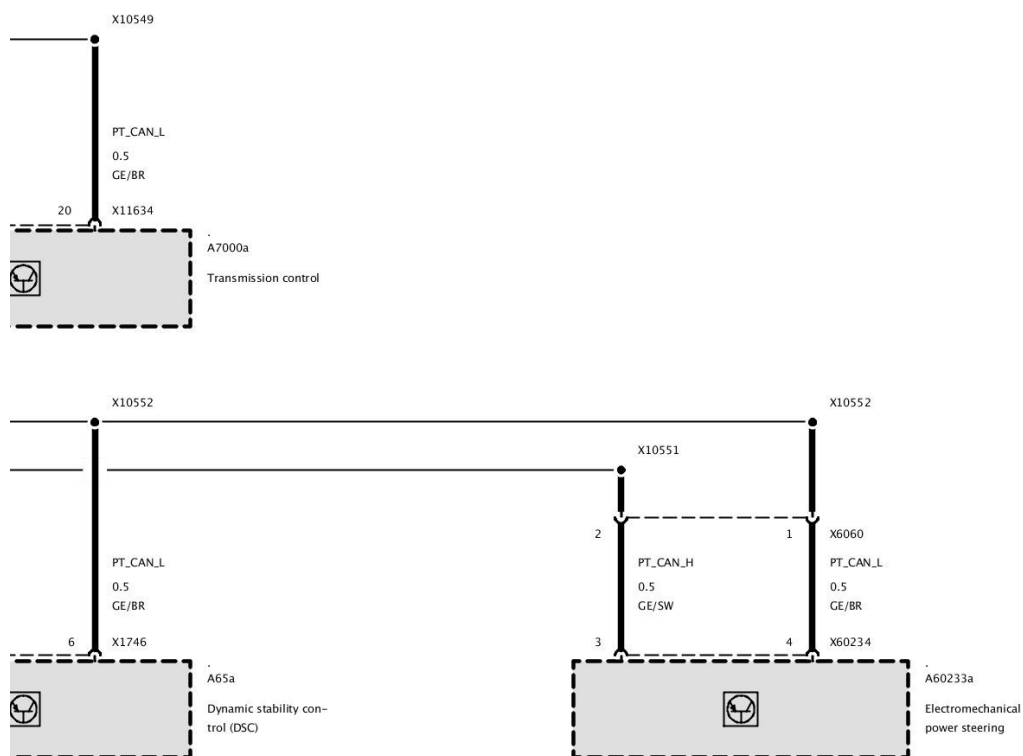
### X10552 No Adapter

### Power Train CAN-Bus





## Part 1

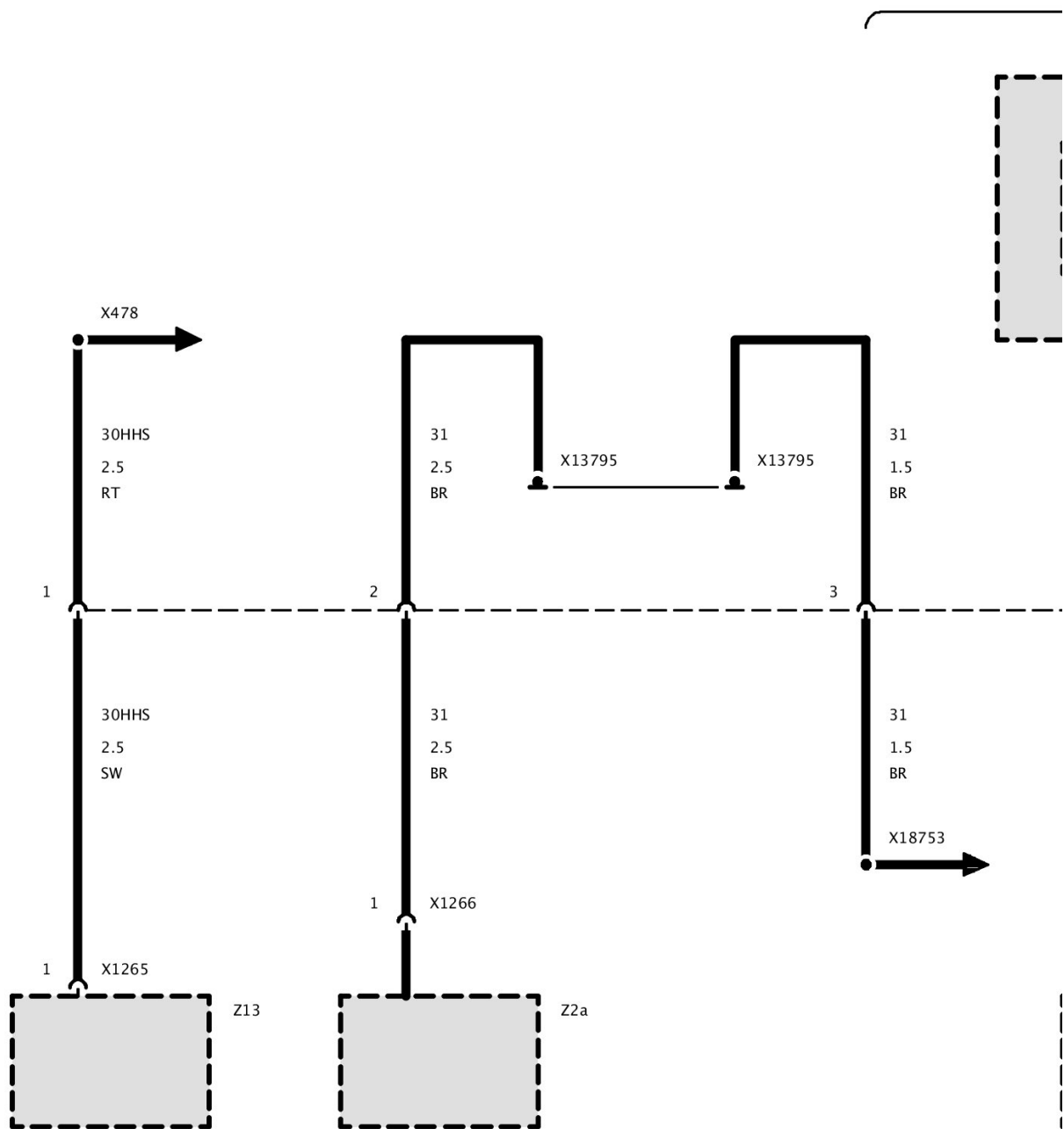


## Part 2

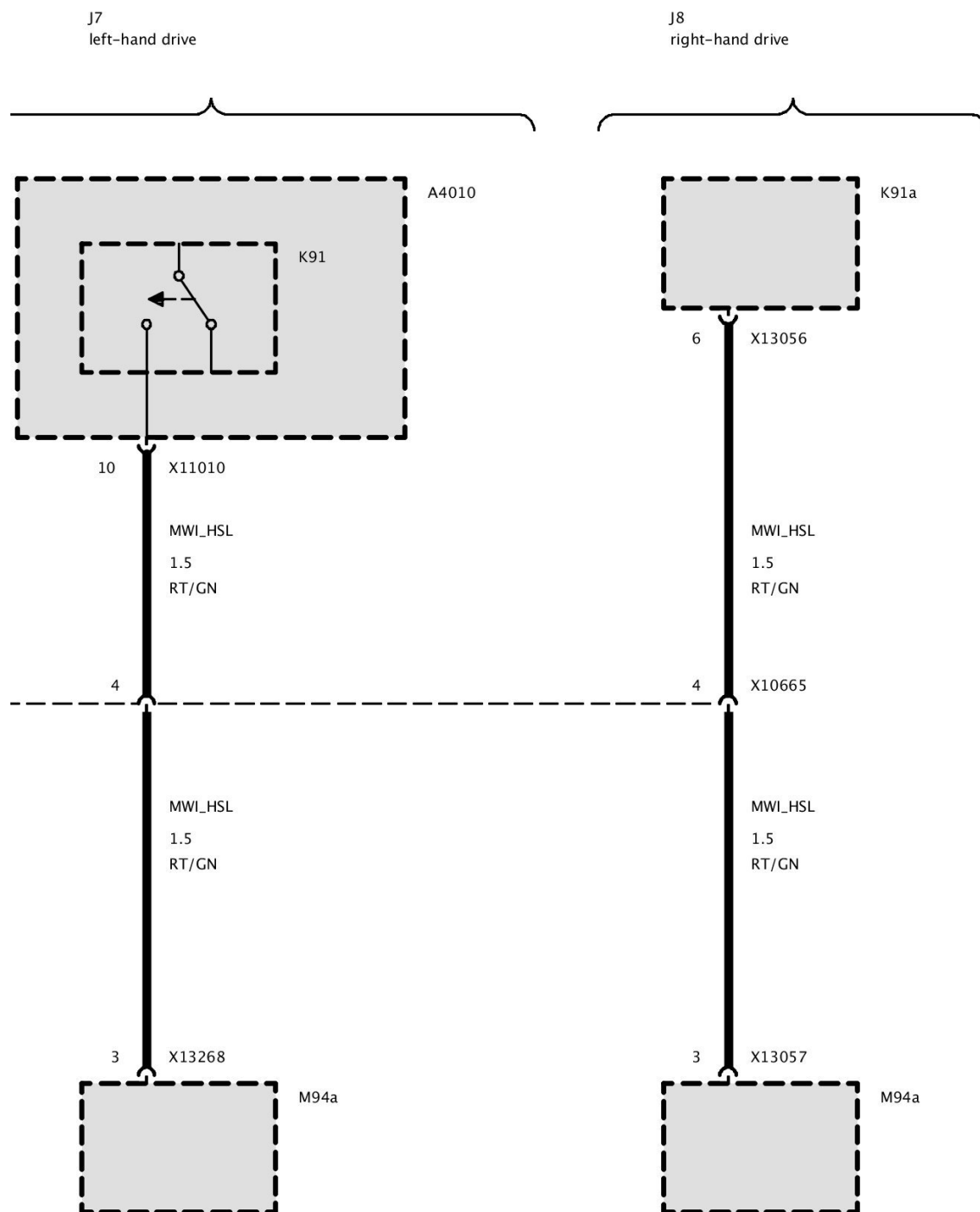
### X10665 Adapter 616023, Storage Location D103

X10665 Adapter 616023, Storage Location D103

Connector X10665 (As of 03/08)



Part 1

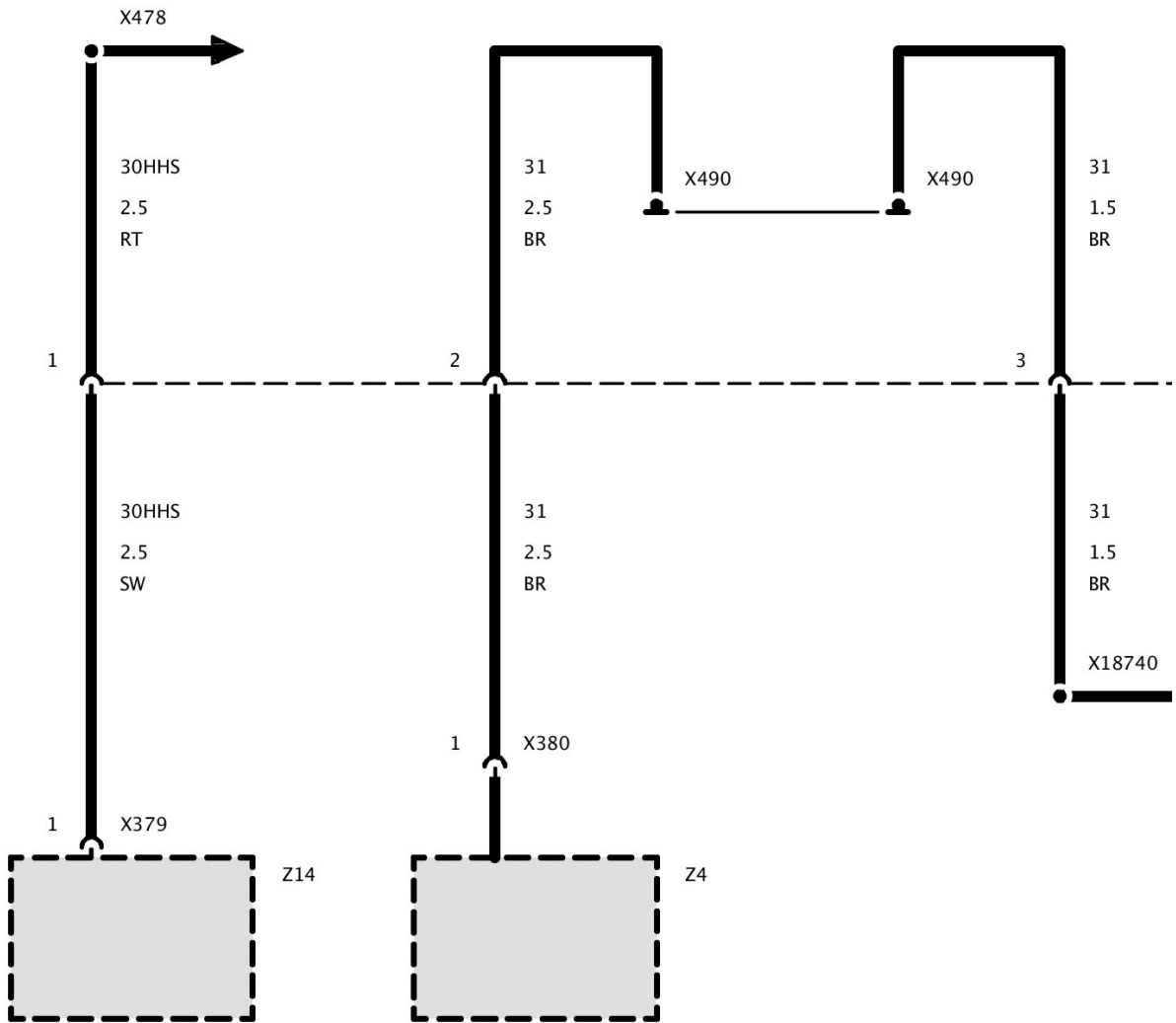


## Part 2

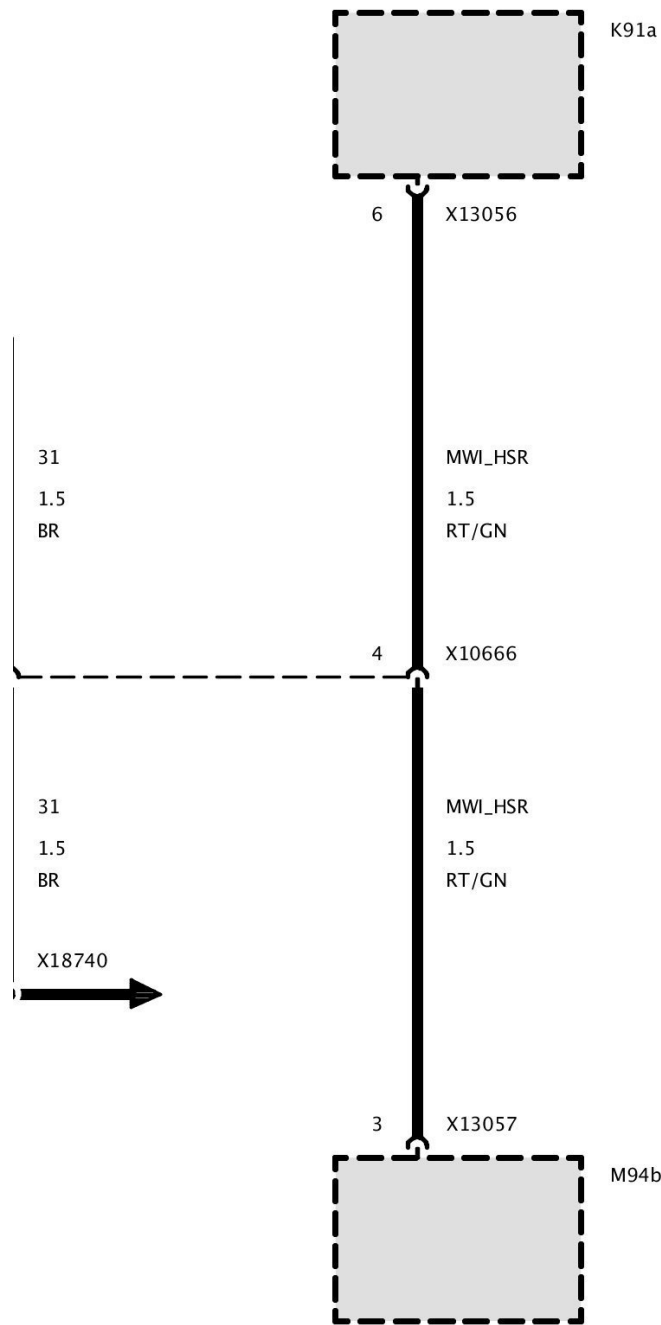
### X10666 Adapter 616023, Storage Location D103

X10666 Adapter 616023, Storage Location D103

Connector X10666 (Left-Hand Drive As of 03/08)



Part 1

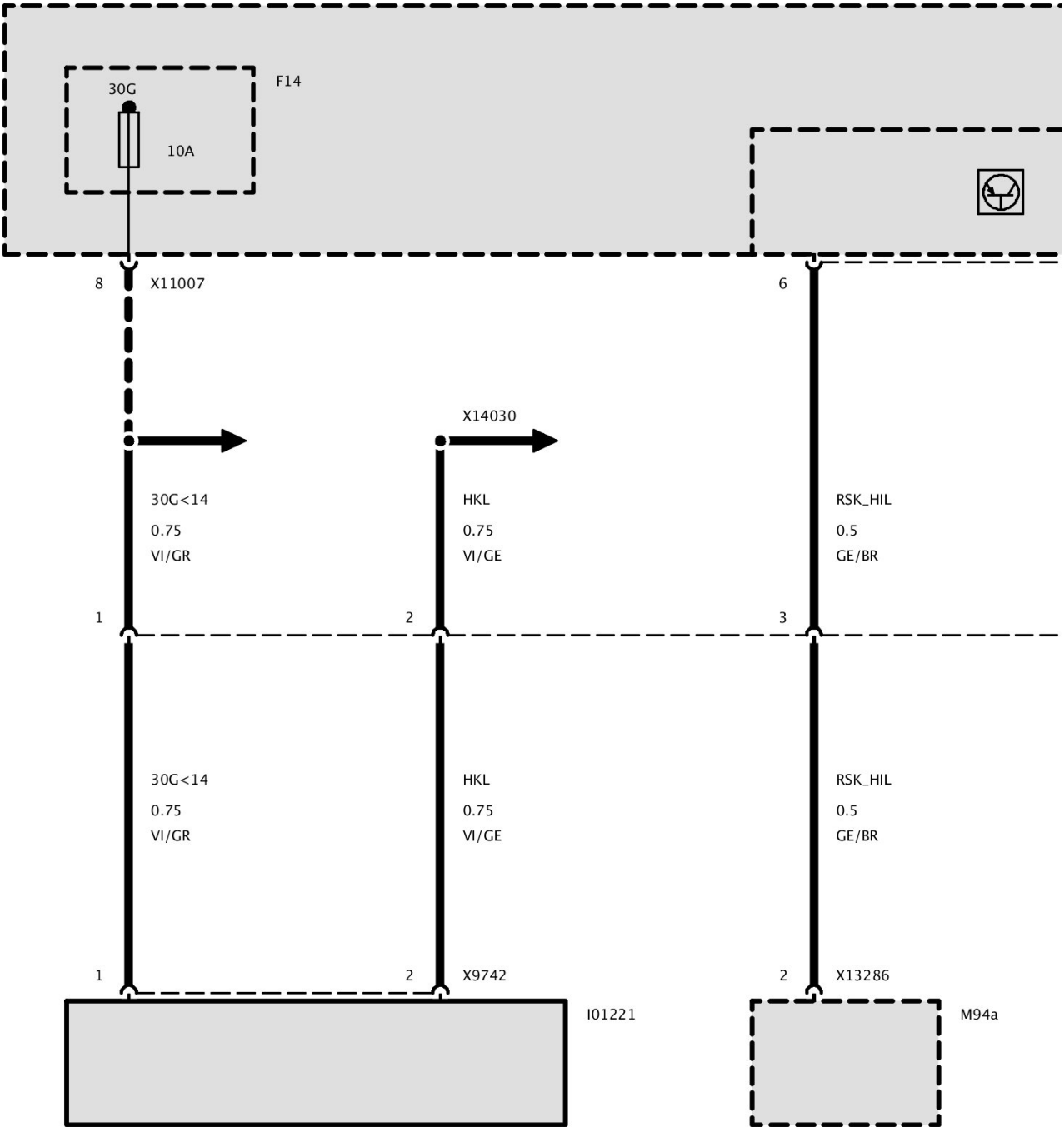


Part 2

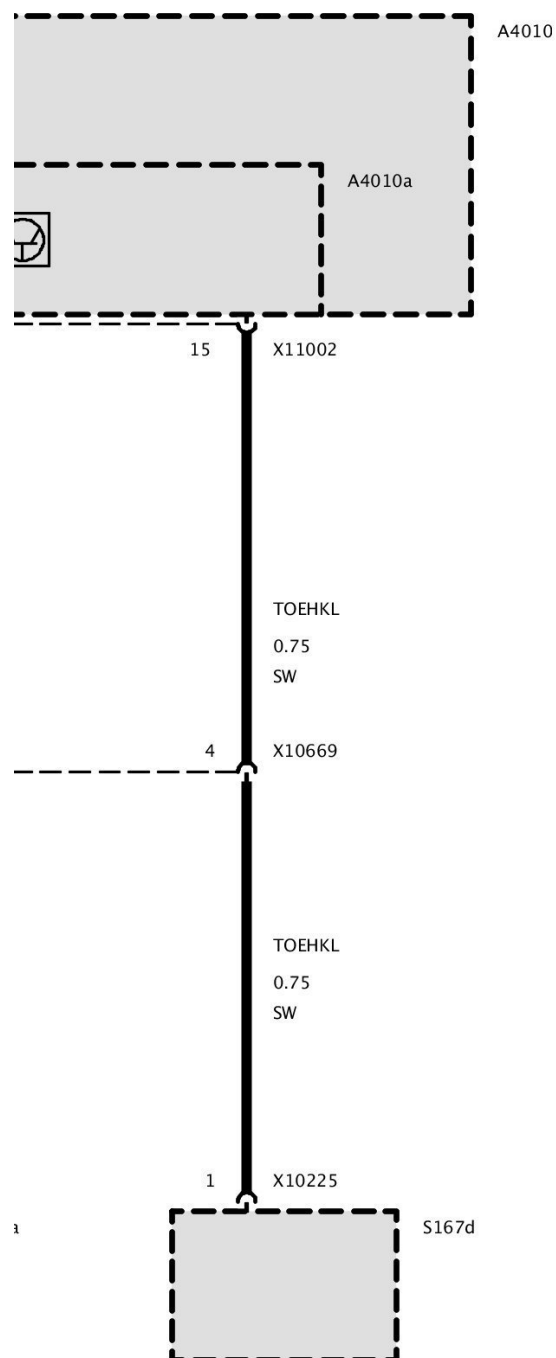
Connector X10669 (Left-hand Drive Up to 12/08)

X10669 Adapter 613240, Storage Location M210

Connector X10669 (Left-hand Drive Up to 12/08)



Part 1



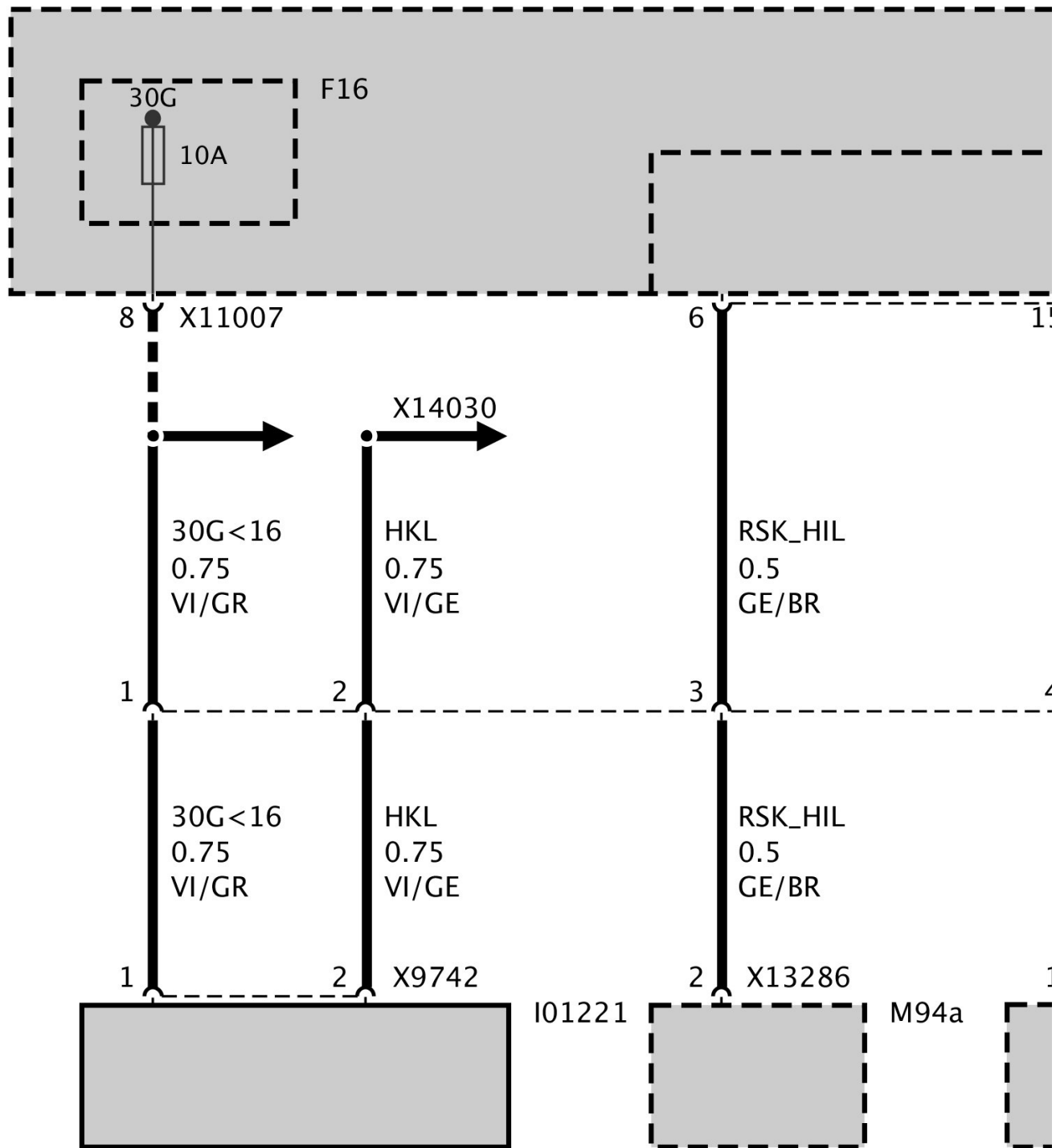
## Part 2

### Connector X10669 (Left-Hand Drive As of 12/08)

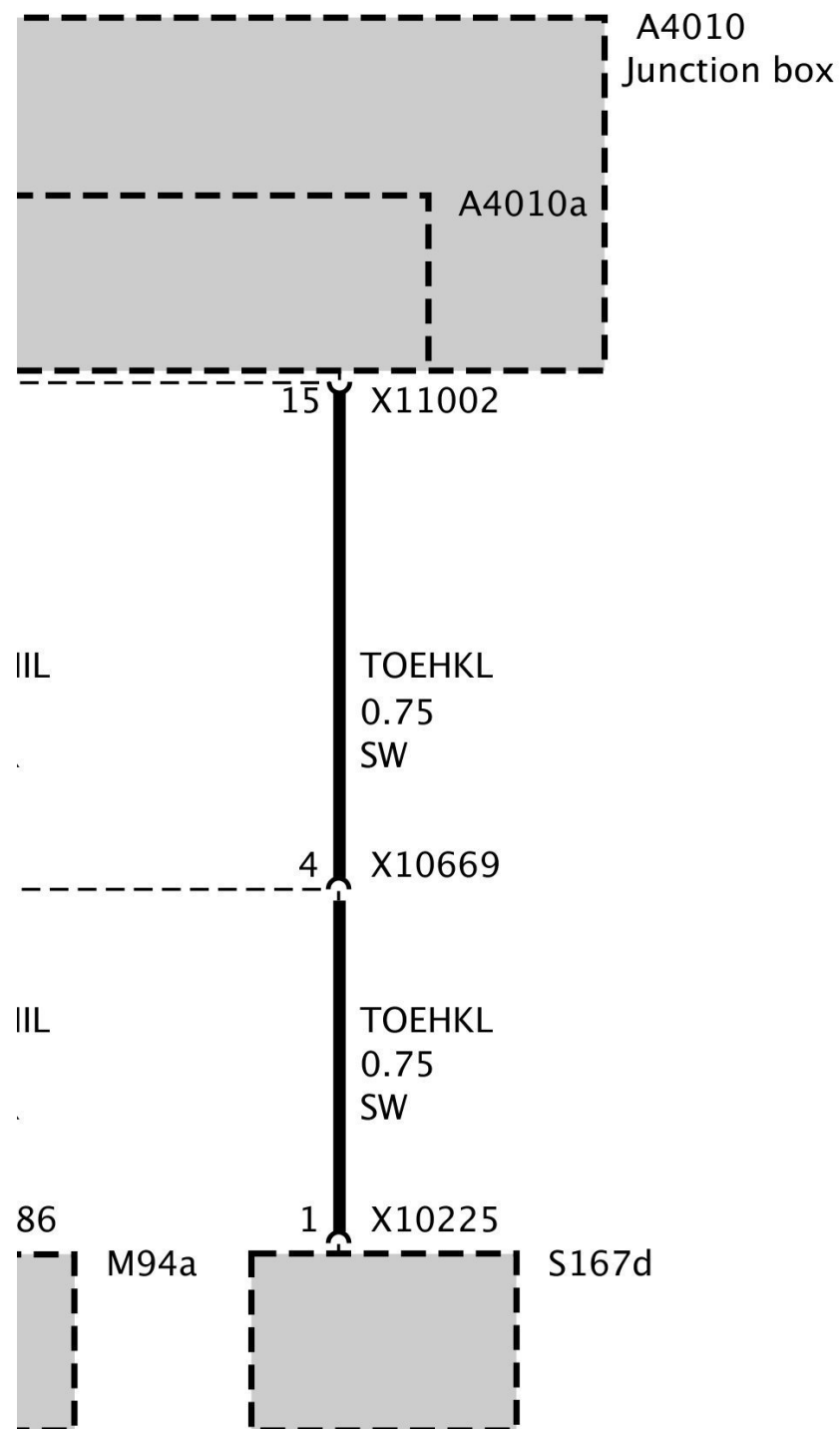
X10669 Adapter 613240, Storage Location M210

Connector X10669 (Left-Hand Drive As of 12/08)





Part 1

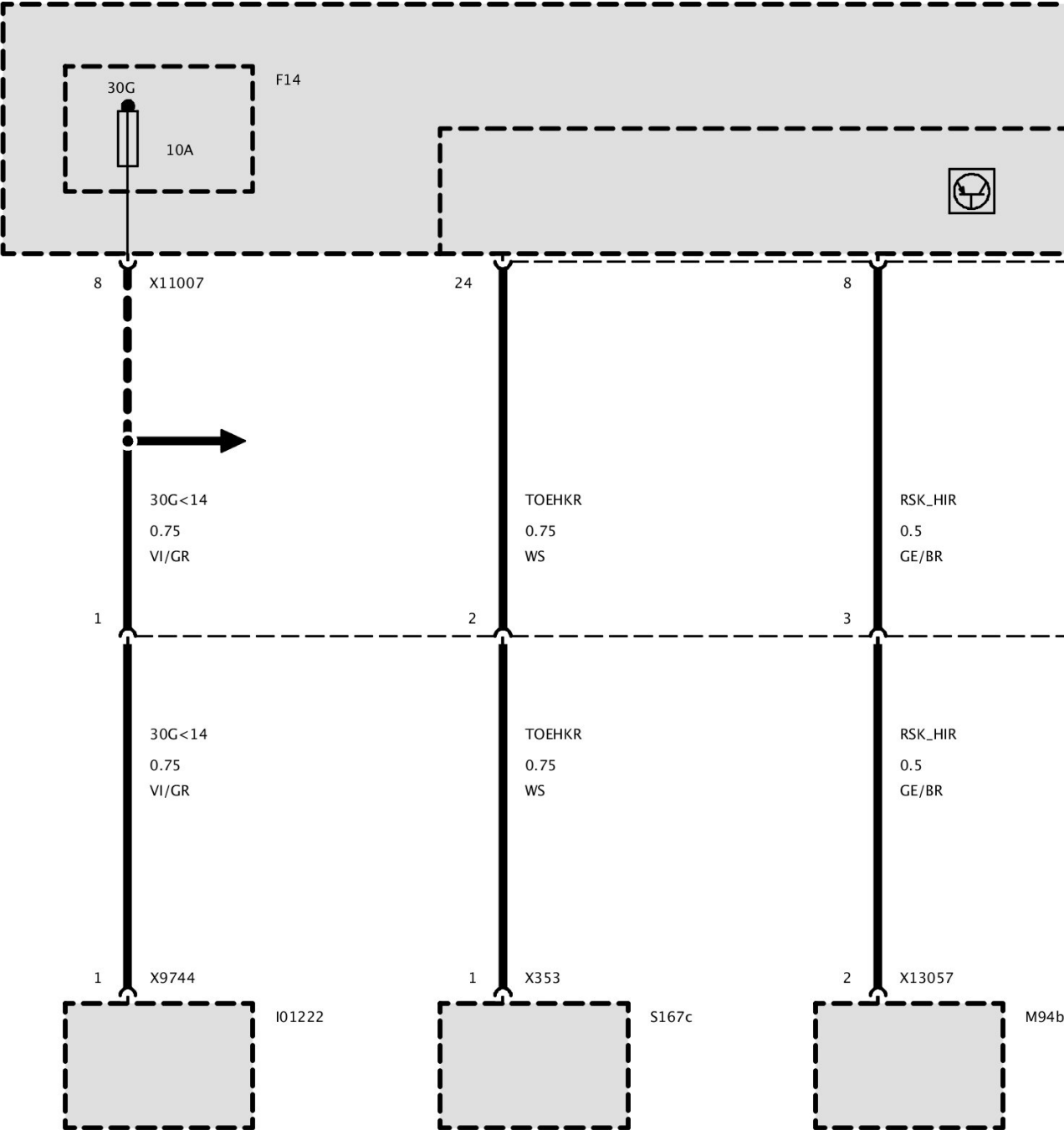


## Part 2

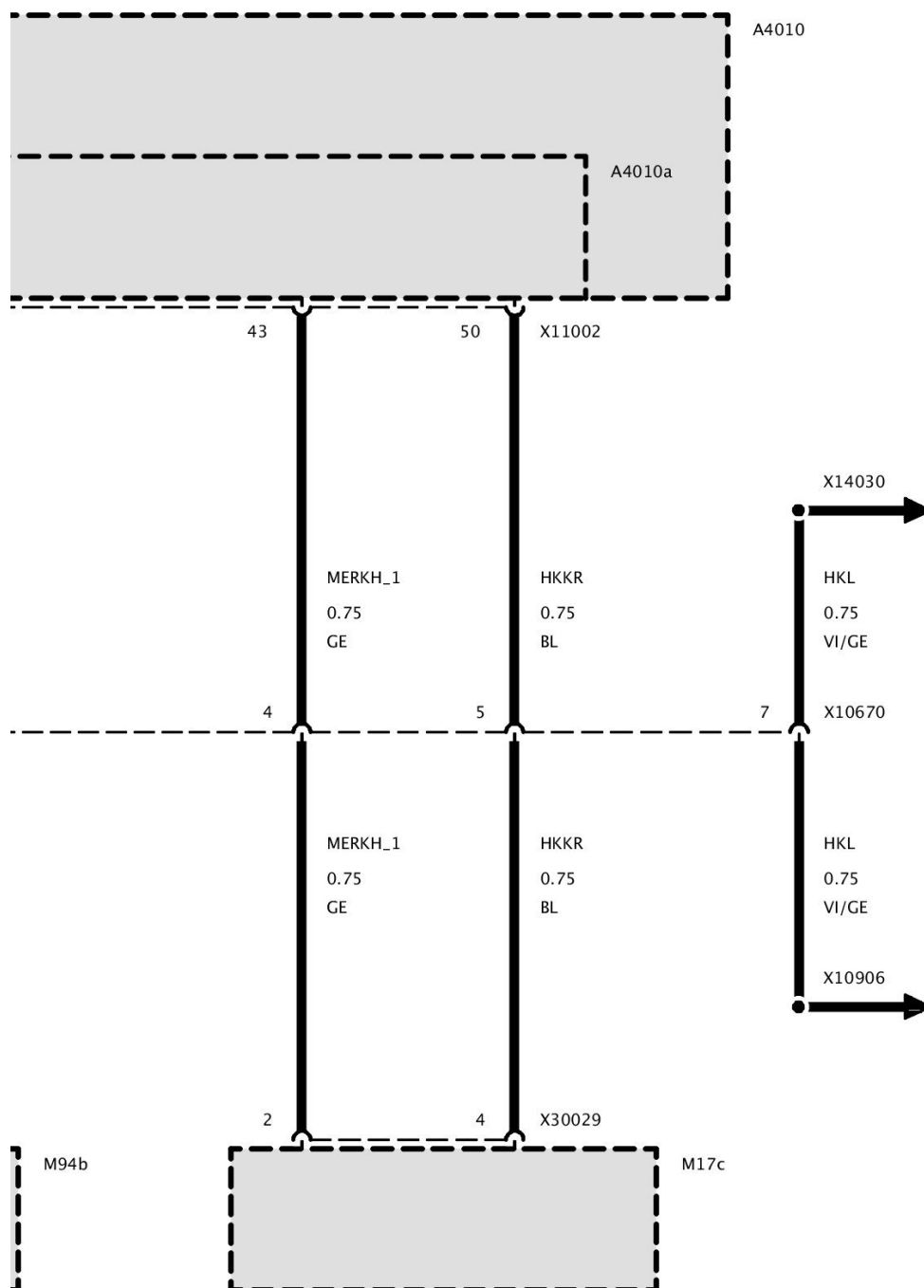
### Connector X10670 (Left-Hand Drive As of 03/08 Up to 12/08)

X10670 Adapter 613240, Storage Location M210

Connector X10670 (Left-Hand Drive As of 03/08 Up to 12/08)



Part 1

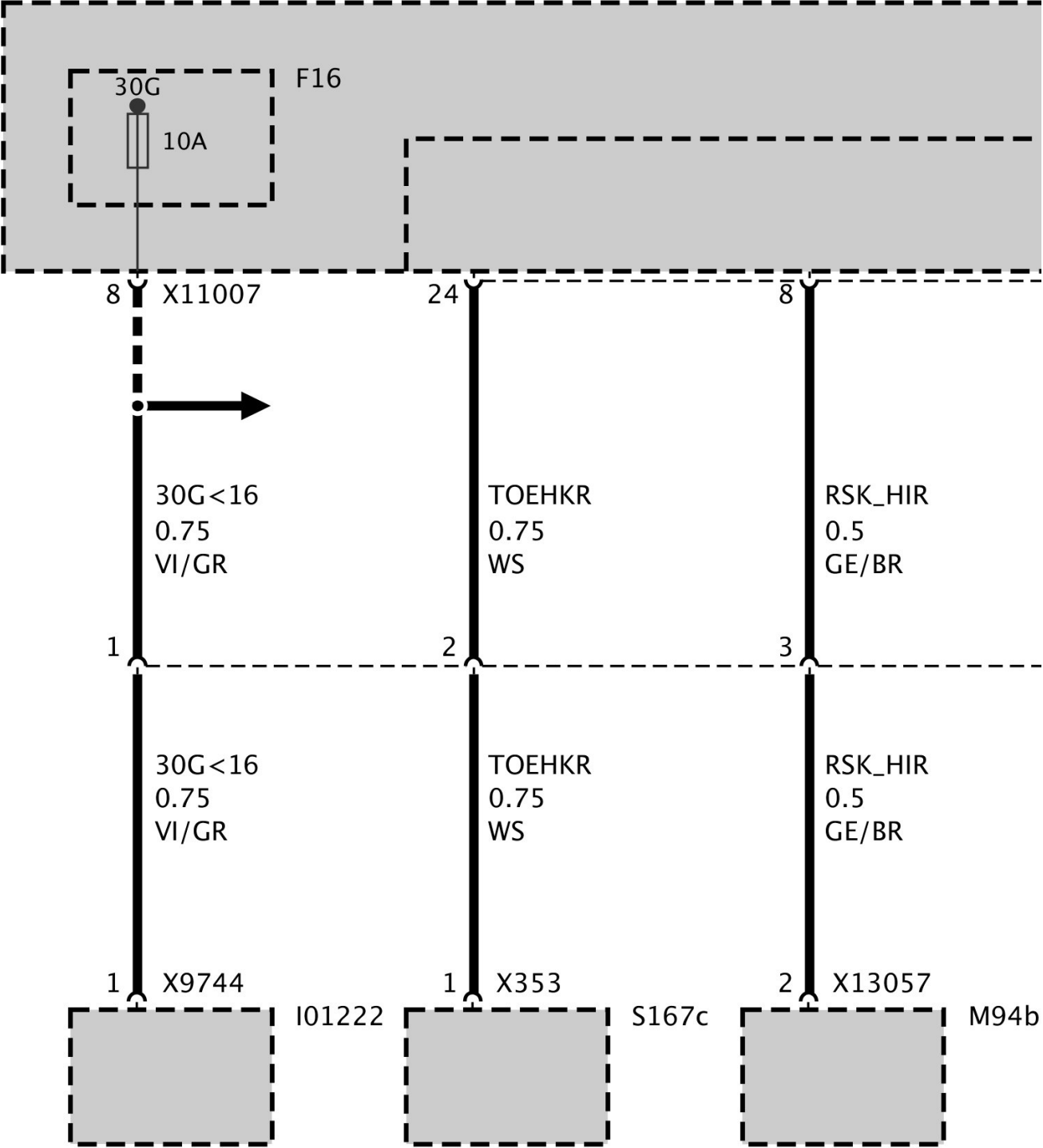


## Part 2

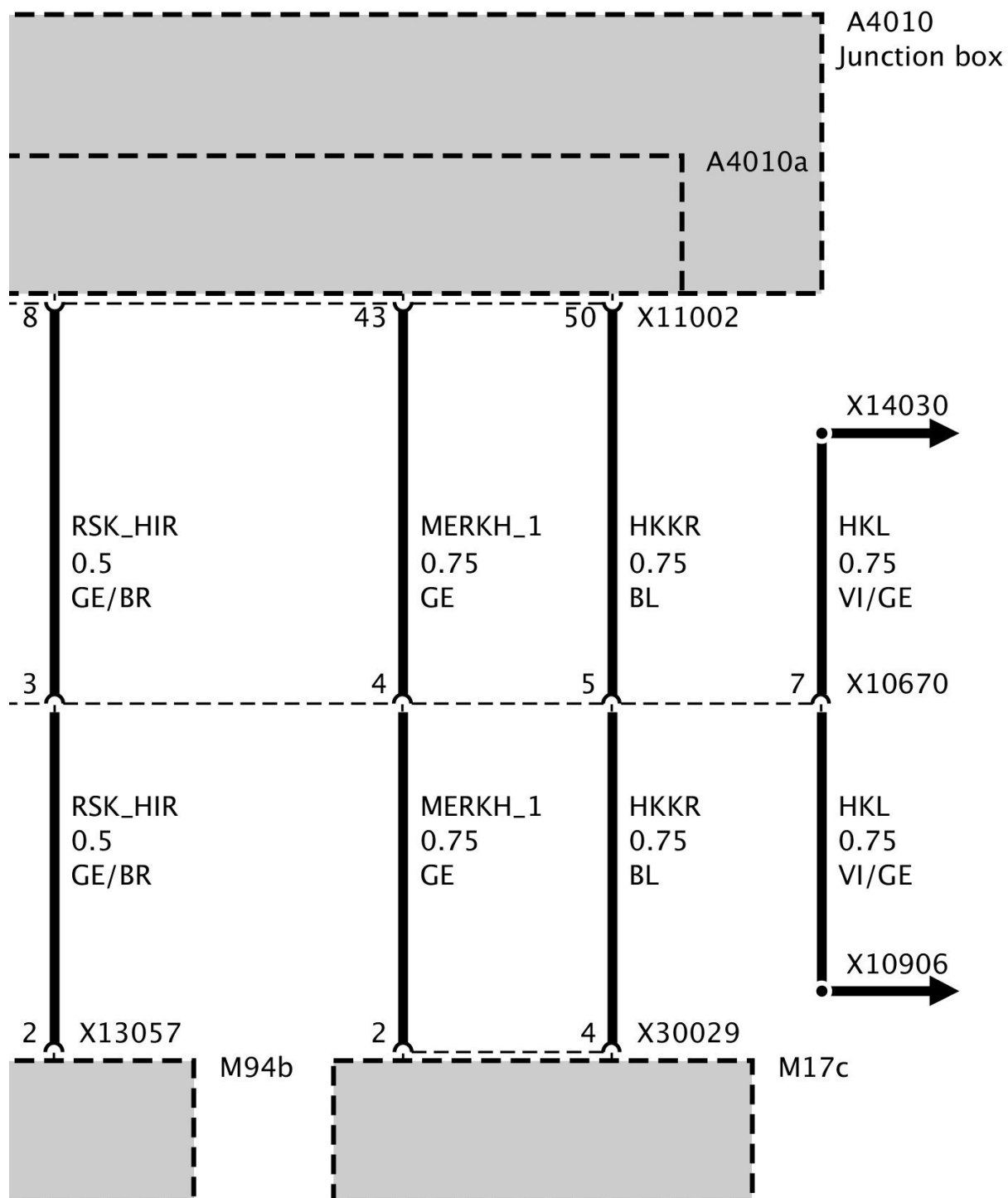
### Connector X10670 (Left-Hand Drive As of 12/08)

X10670 Adapter 613240, Storage Location M210

Connector X10670 (Left-Hand Drive As of 12/08)



Part 1

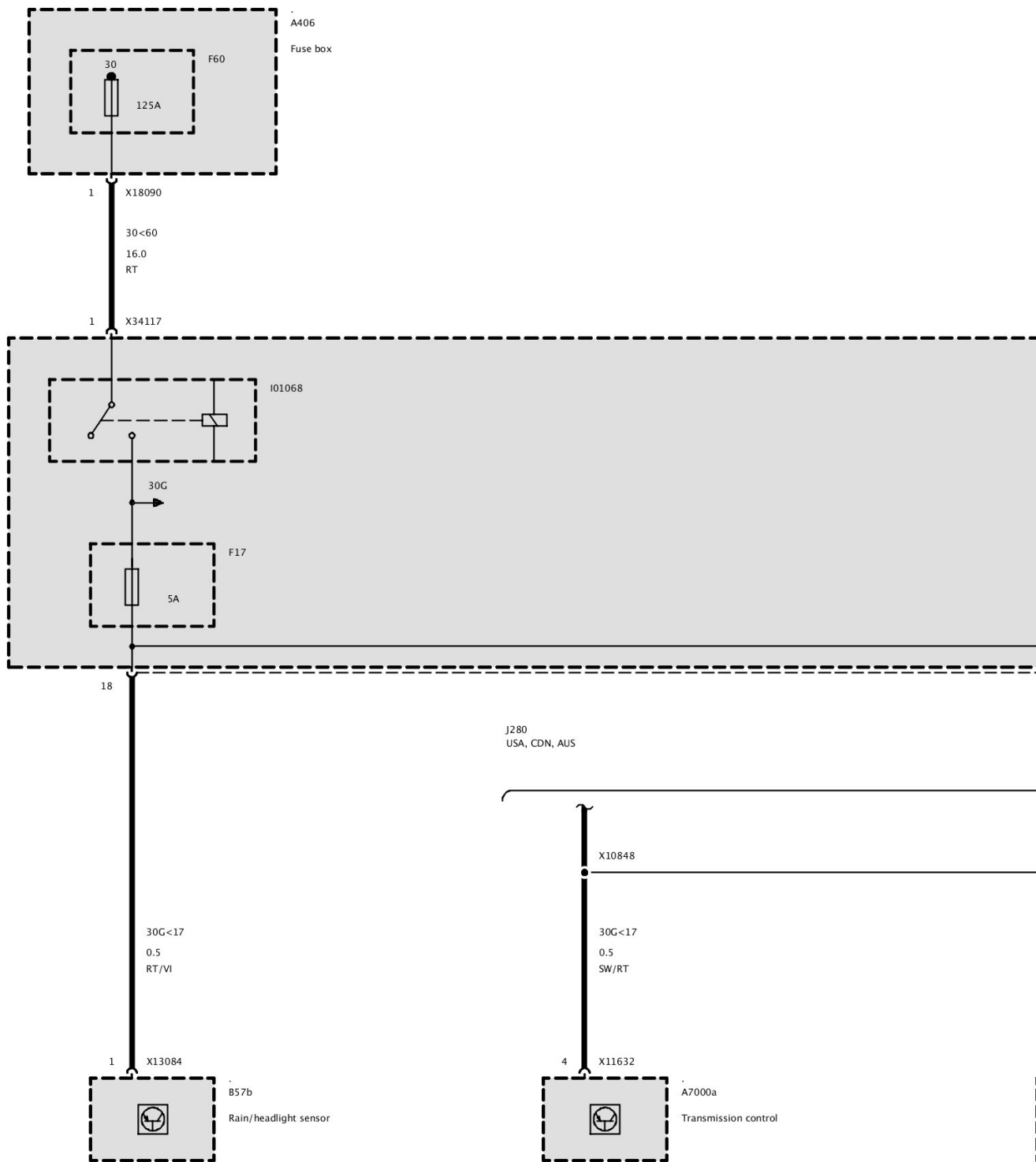


## Part 2

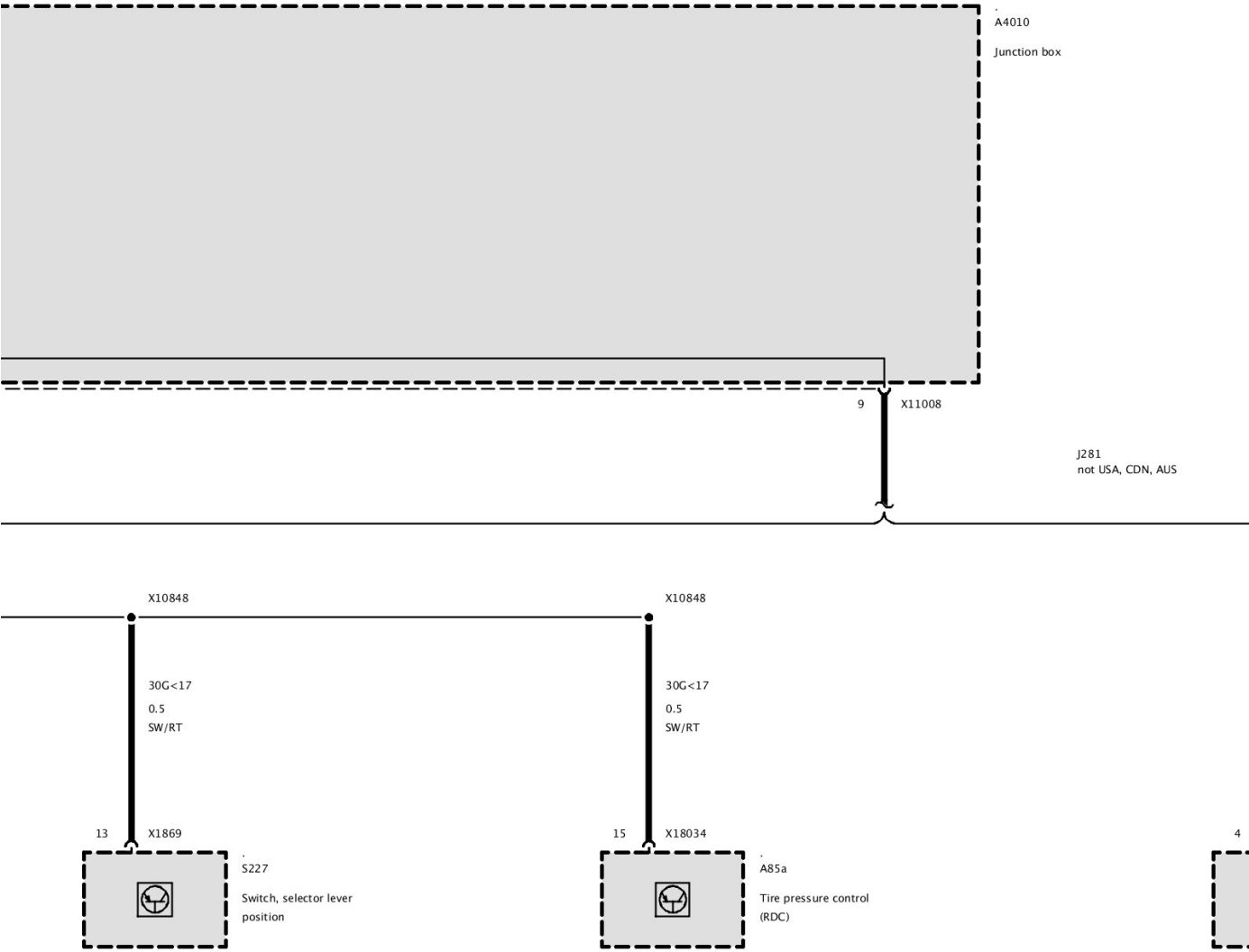
### X10848 No Adapter

### X10848 No Adapter

### Fuse F17



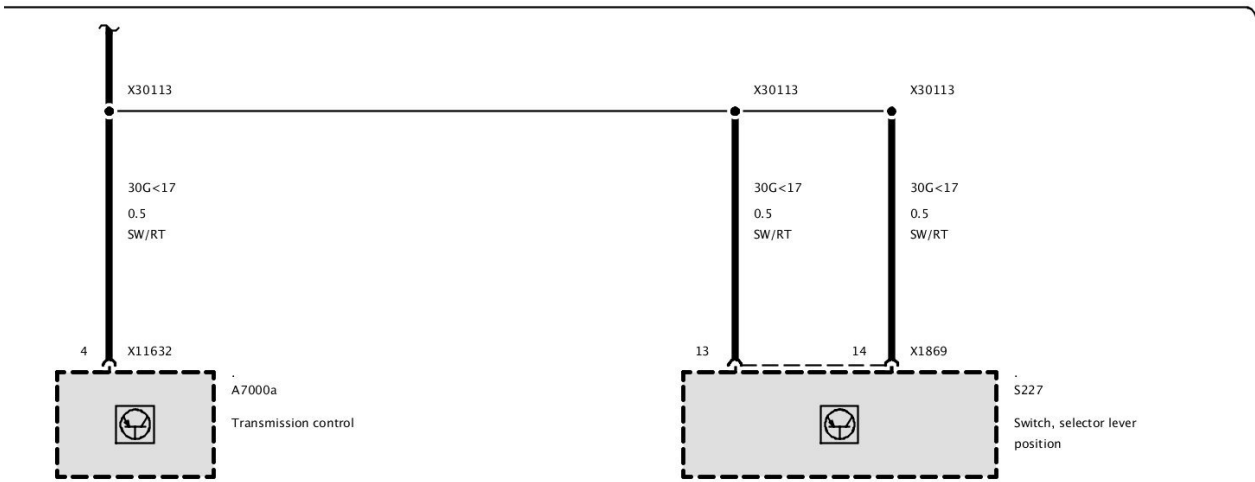
Part 1



Part 2



JS

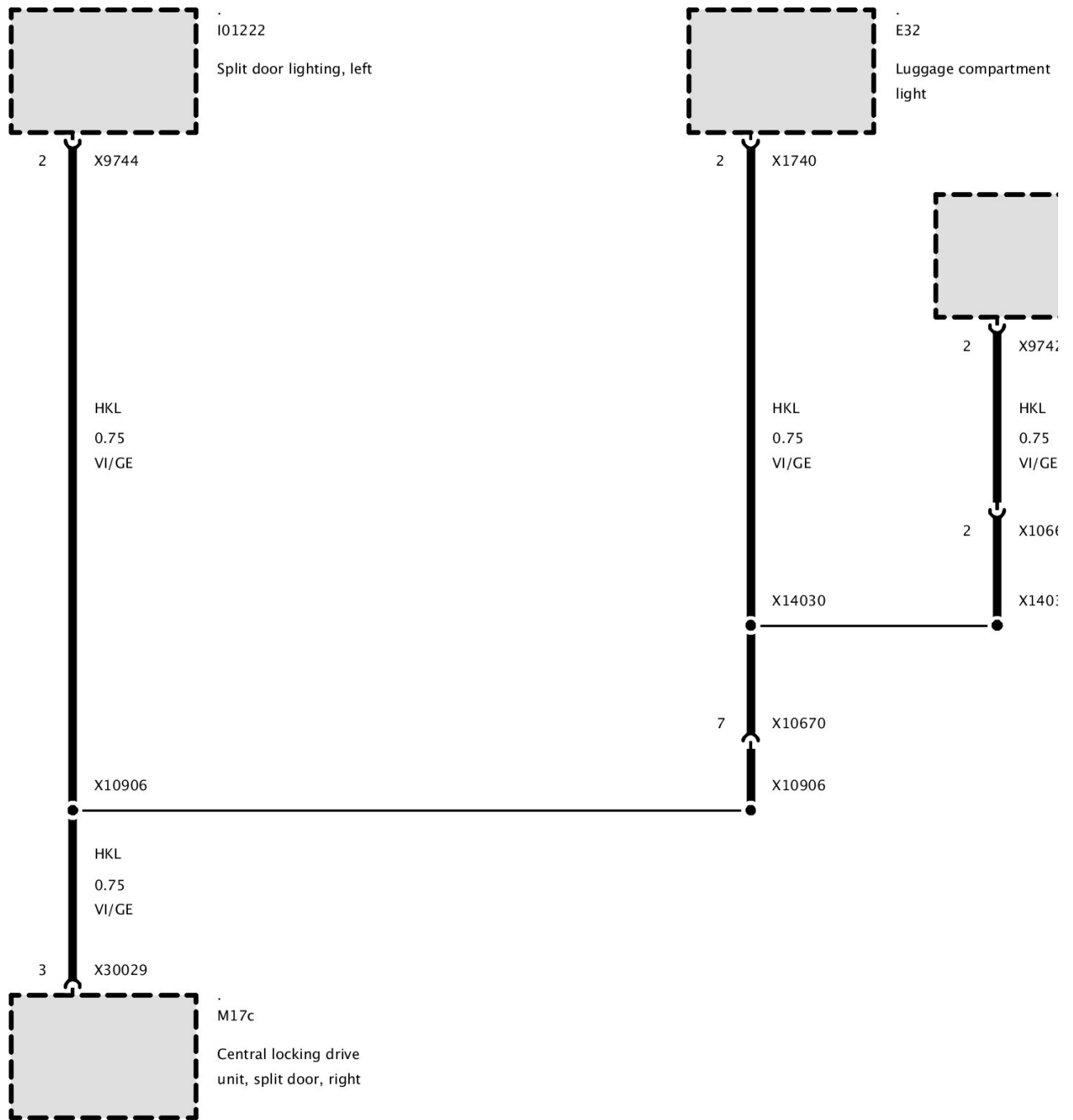


Part 3

**X10906 No Adapter**

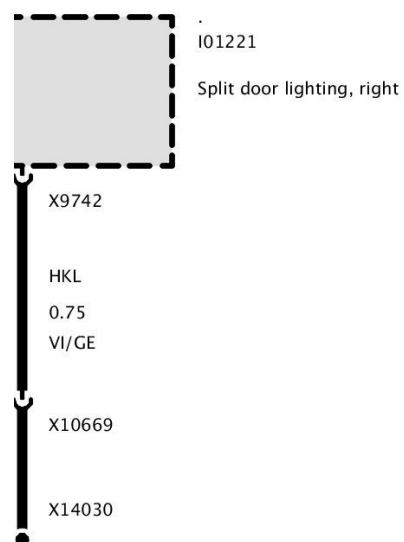
**X10906 No Adapter**

**Connector X10906, X14030**



Part 1

partment

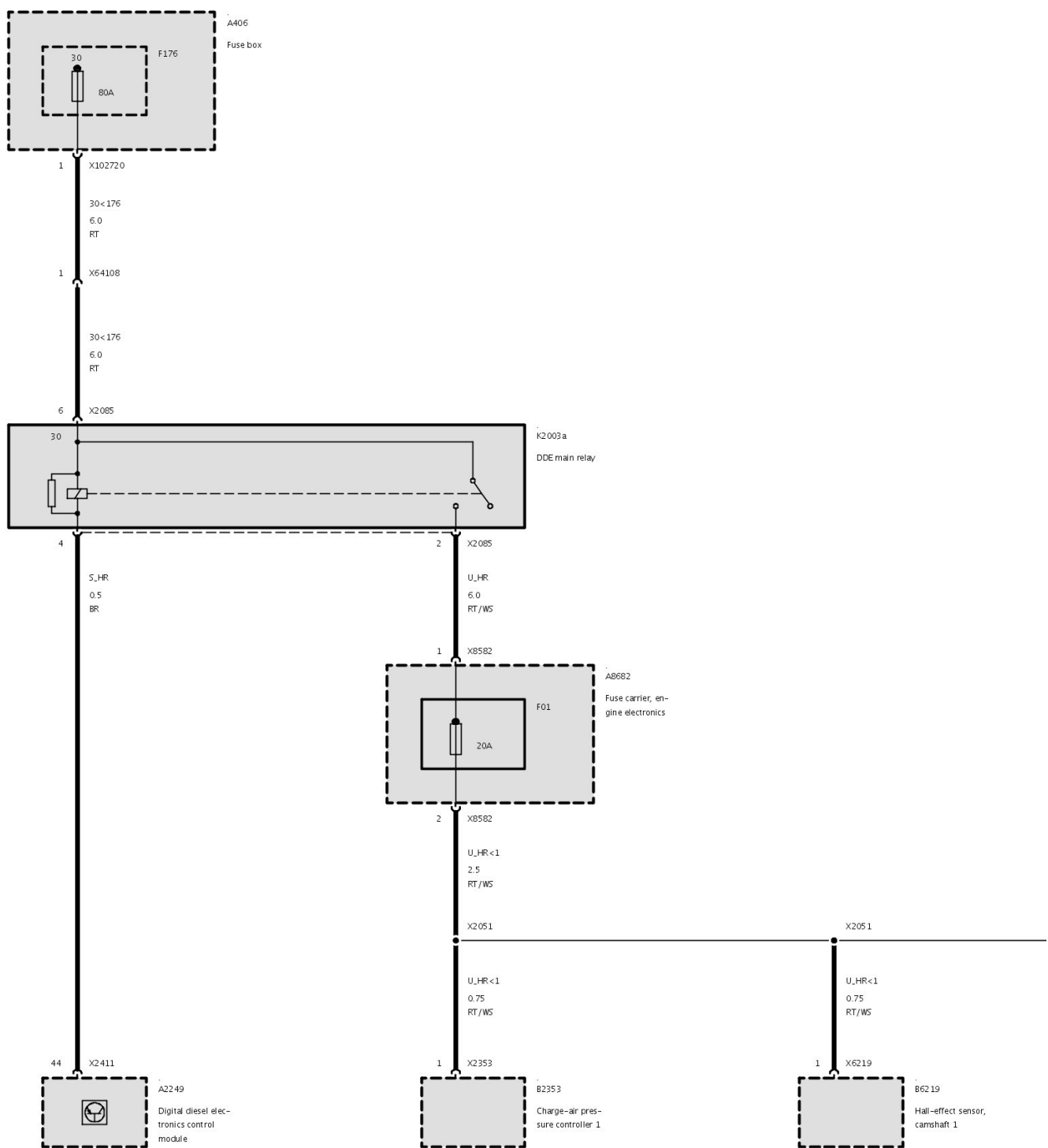


## Part 2

**X11212 No Adapter**

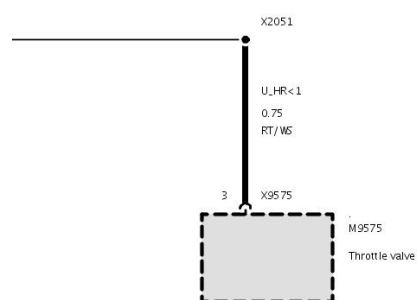
**X11212 No Adapter**

**Fuse F02**



Part 1



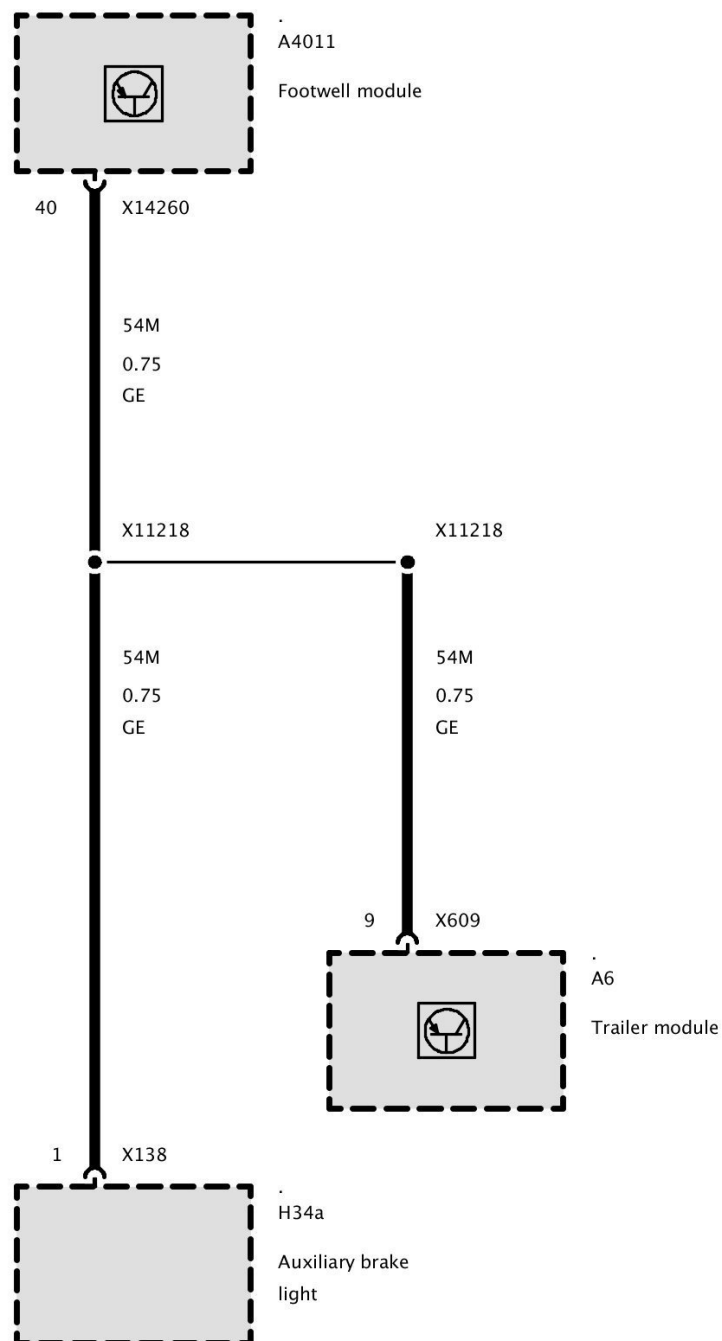


### Part 3

## X11218 No Adapter

### X11218 No Adapter

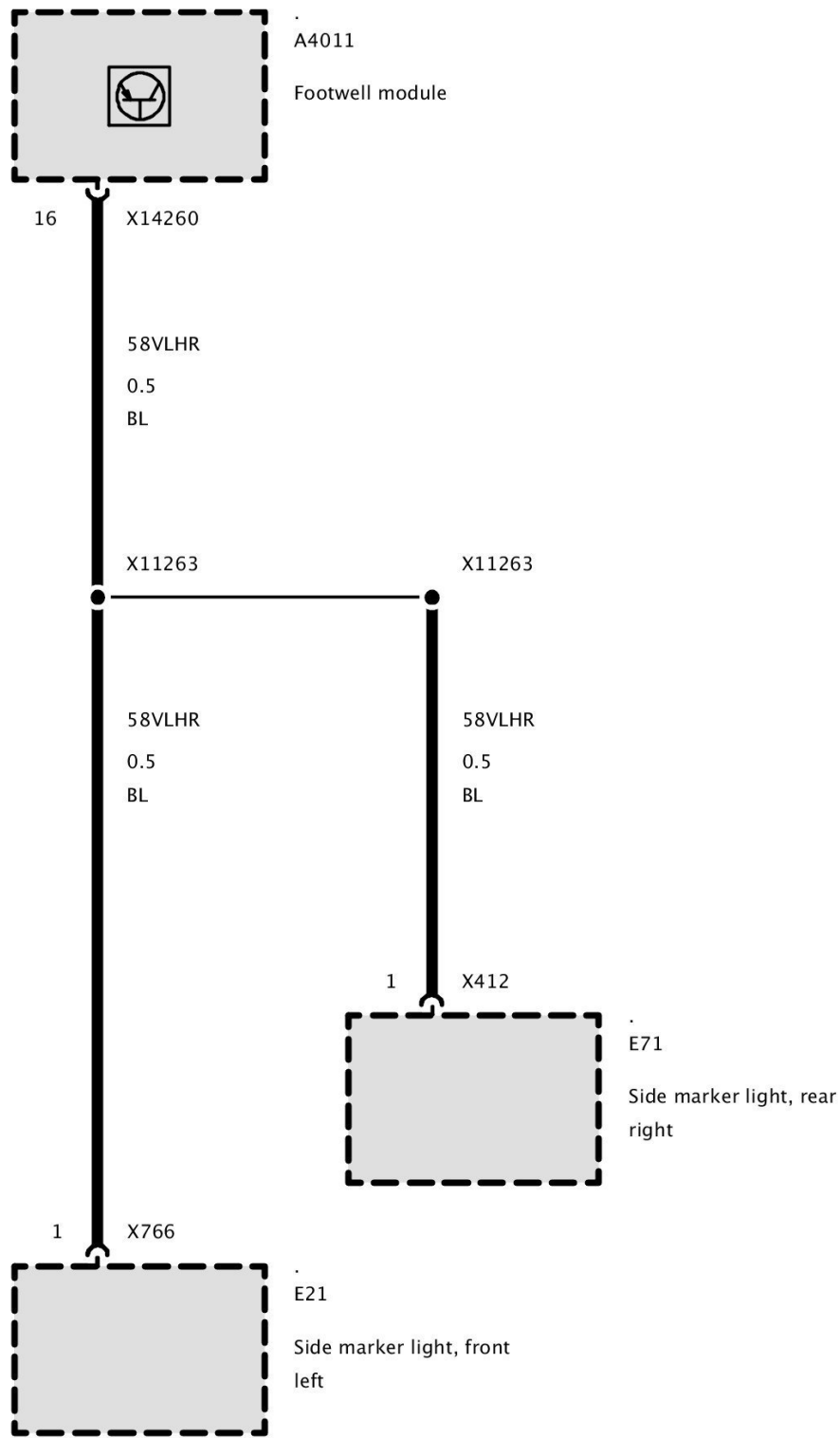
### Connector X11218



**X11263 No Adapter**

**X11263 No Adapter**

**Connector X11263**

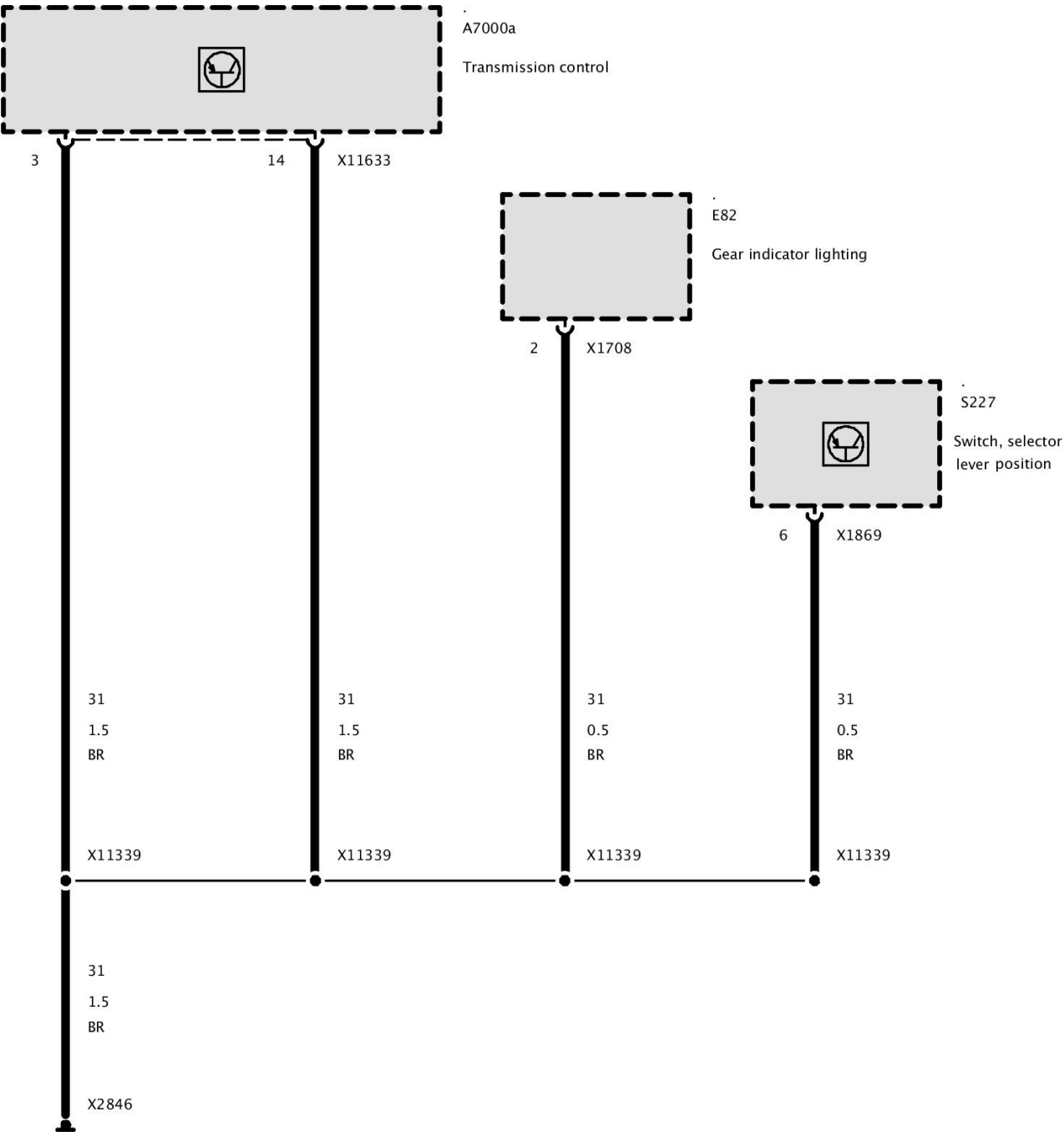


**X11339 No Adapter**

**X11339 No Adapter**

**Ground Connector X11339**

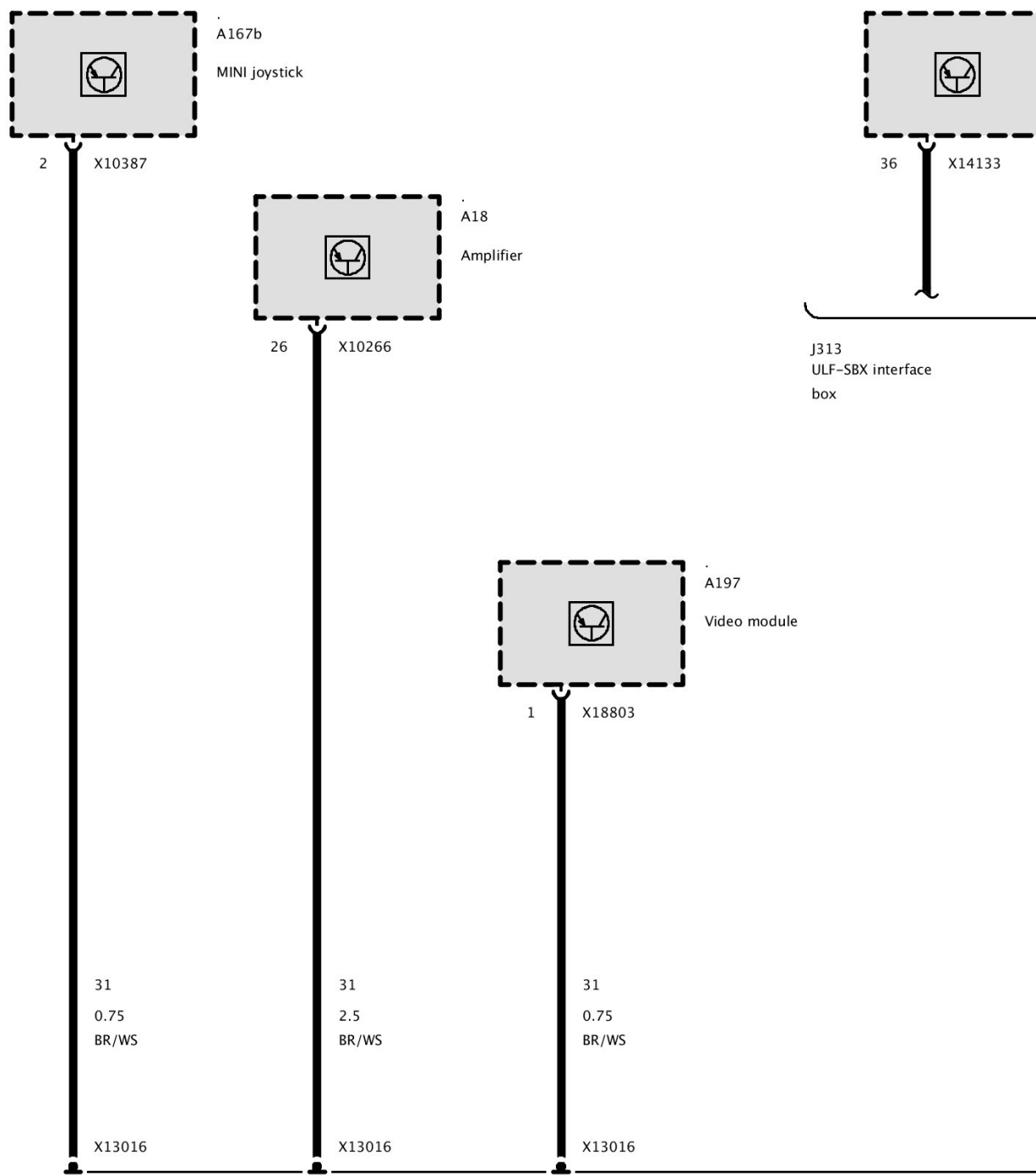




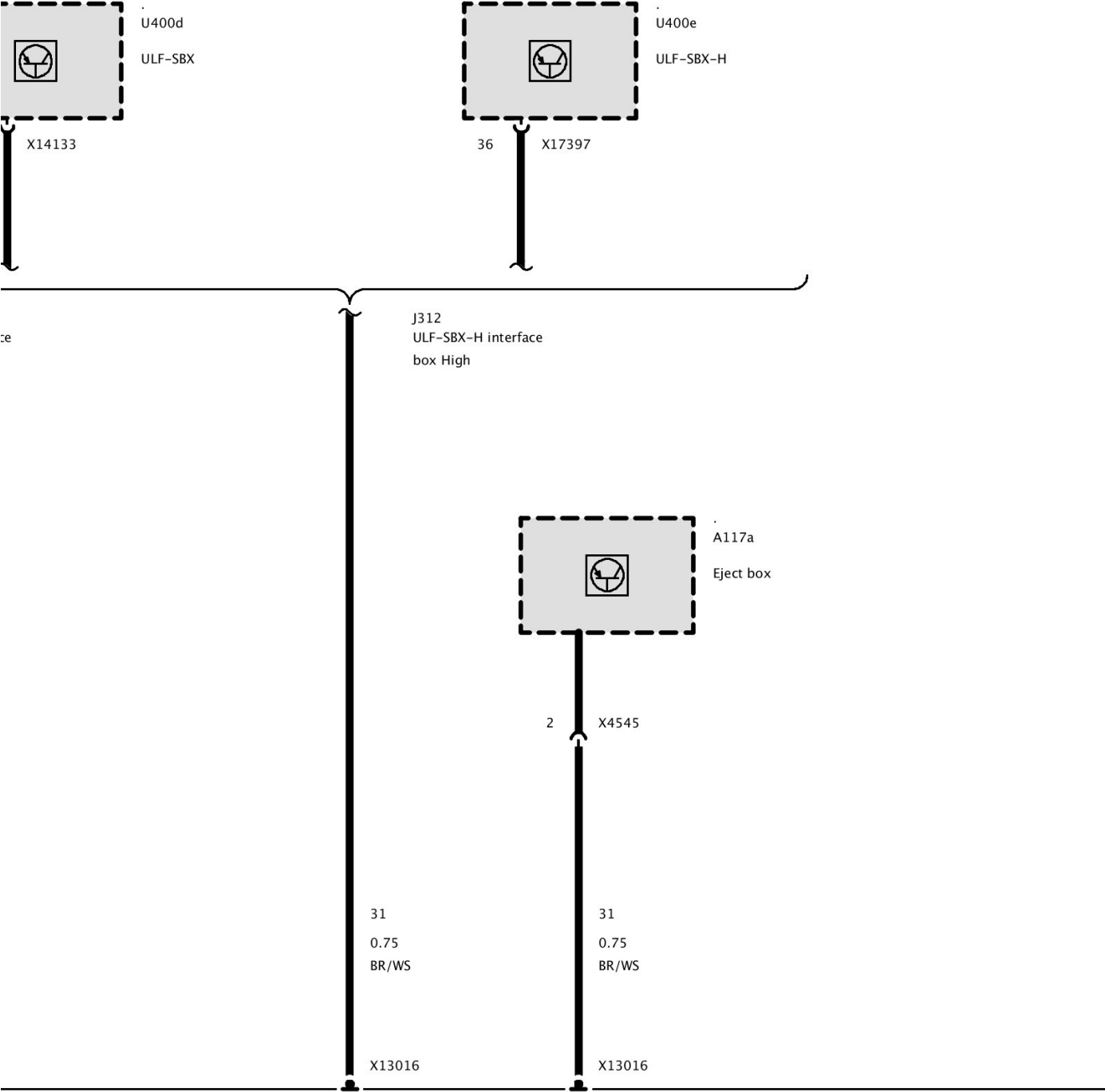
**X13016 No Adapter**

**X13016 No Adapter**

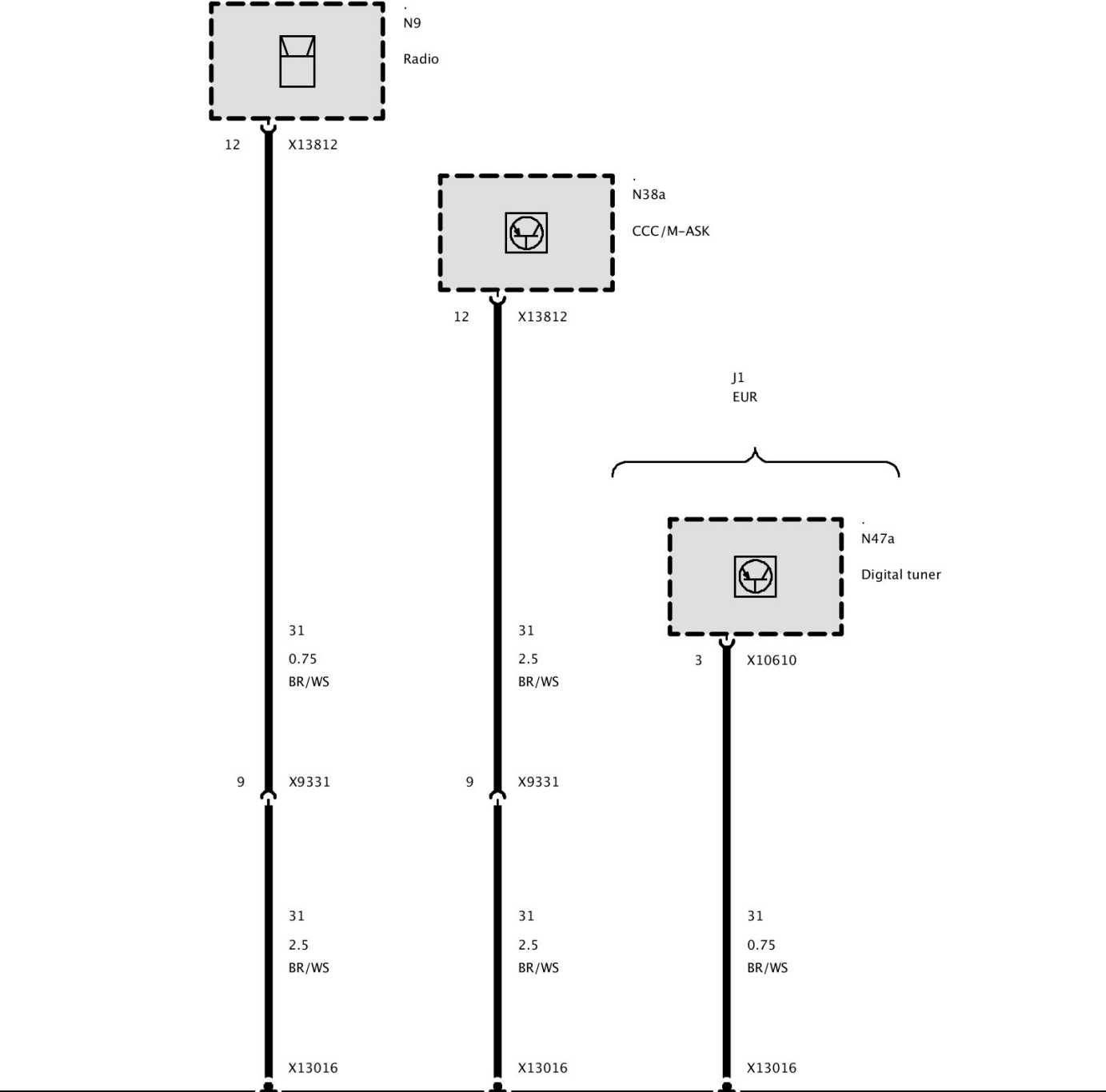
**Ground Connection X13016 (As of 08/07)**



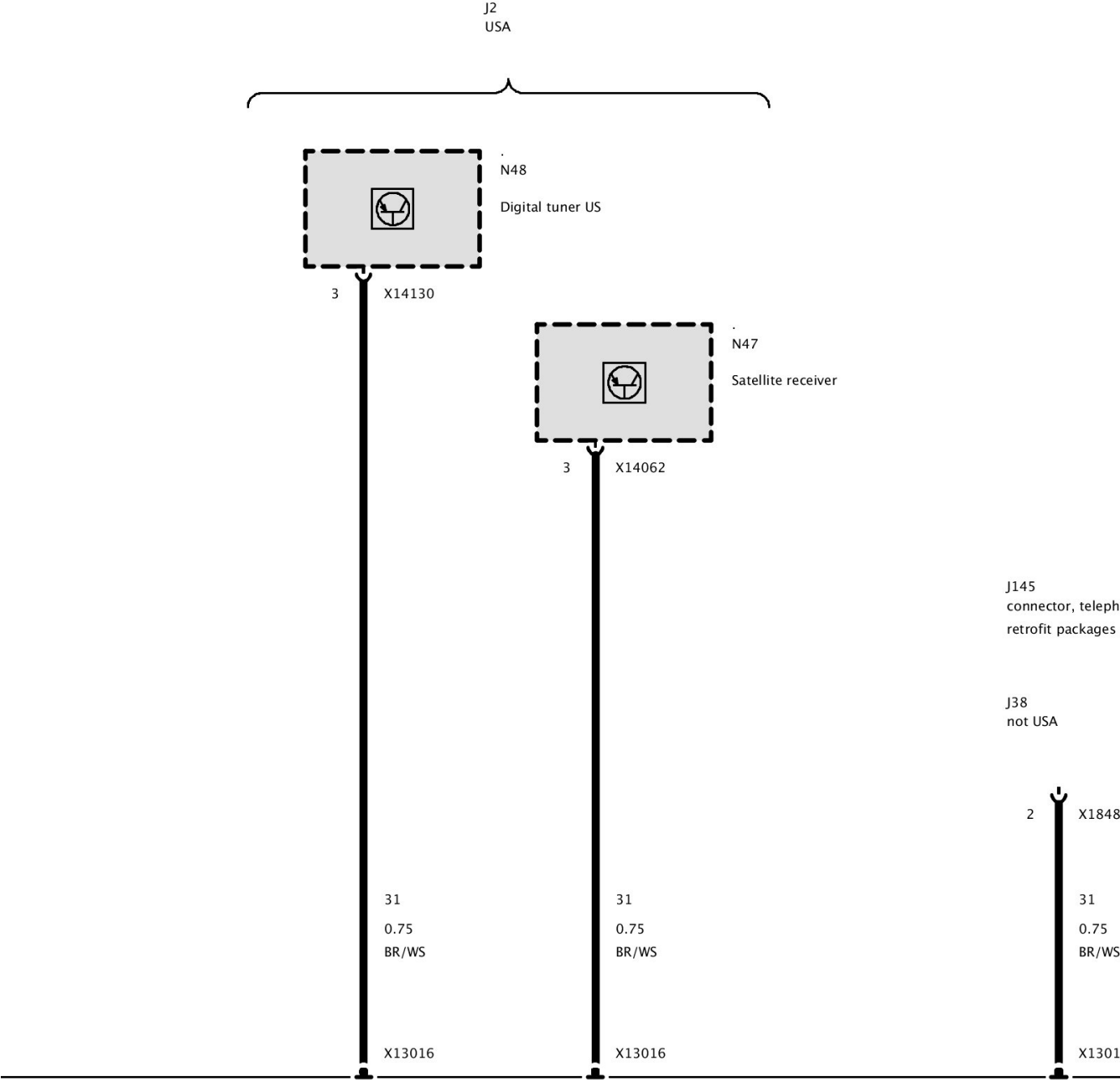
Part 1



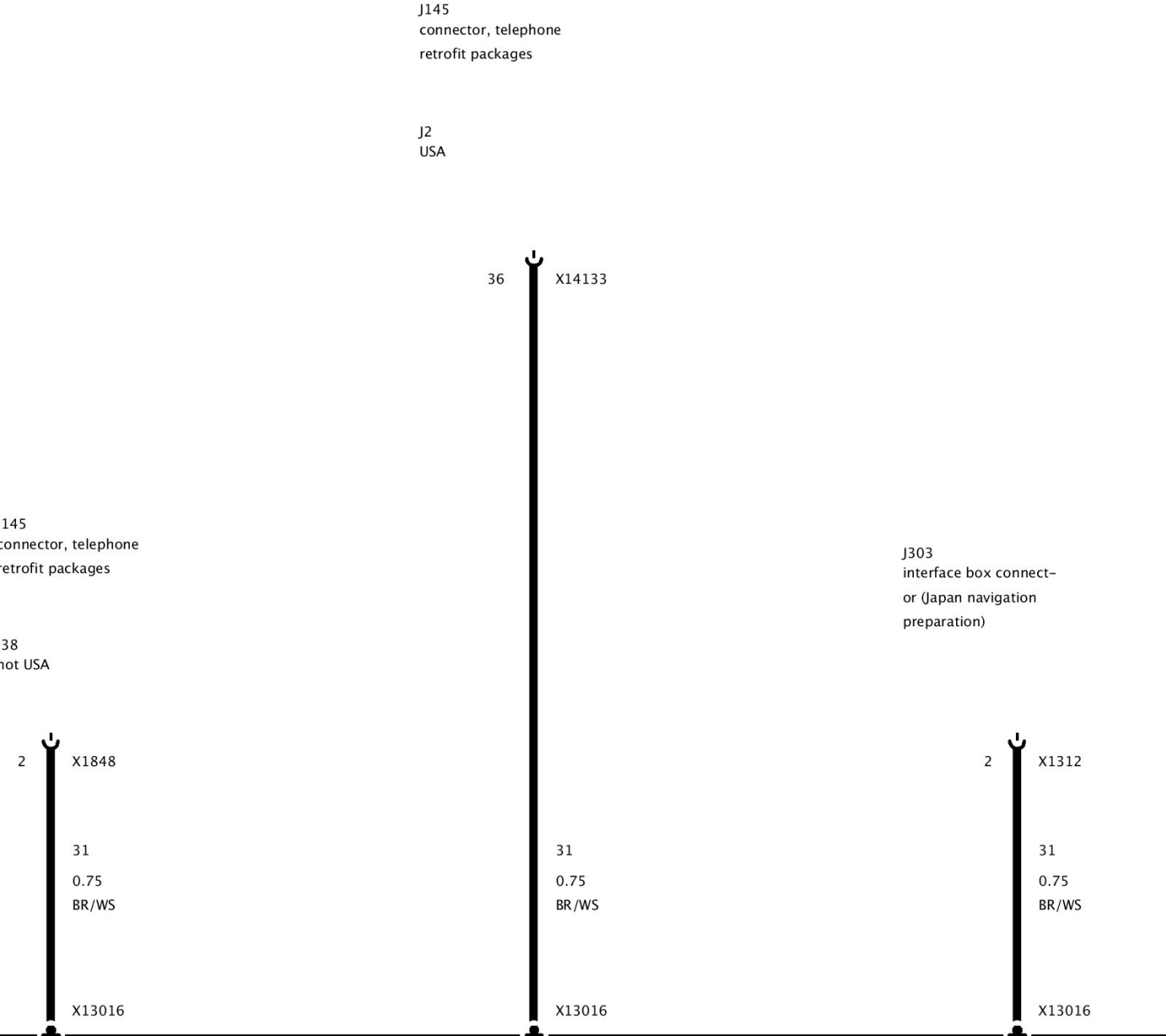
Part 2



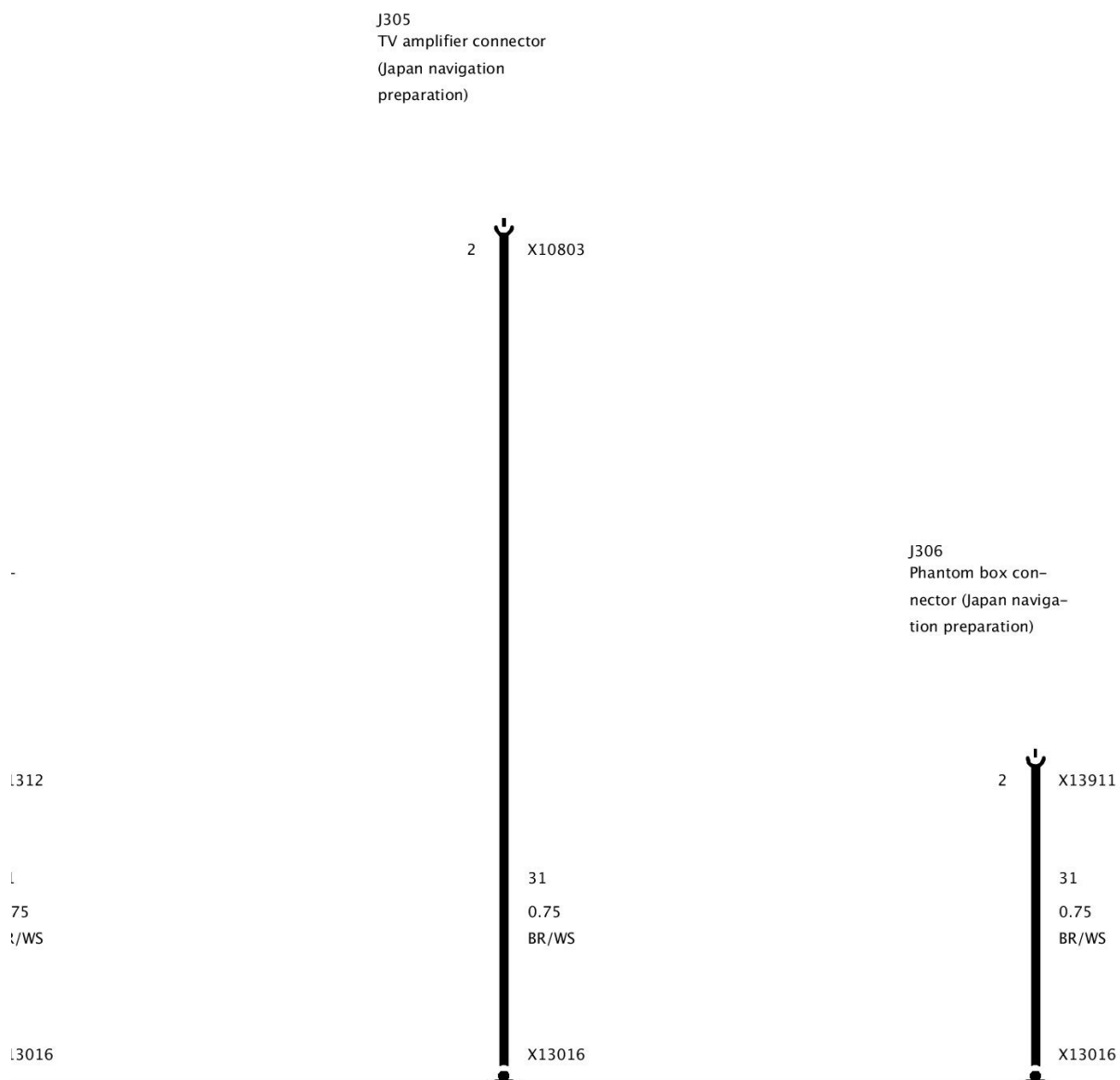
Part 3



Part 4



Part 5

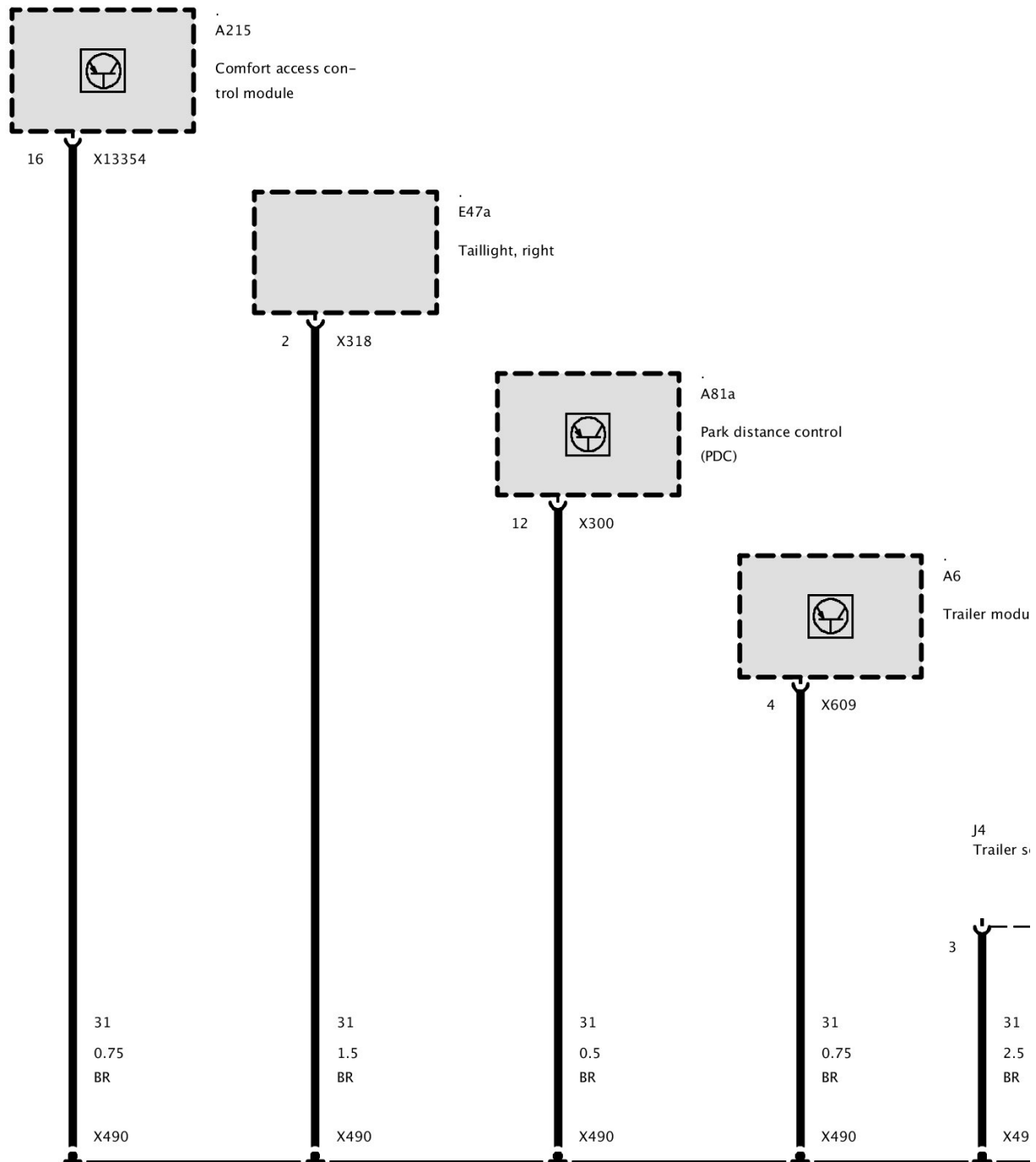


## Part 6

### X13229 No Adapter

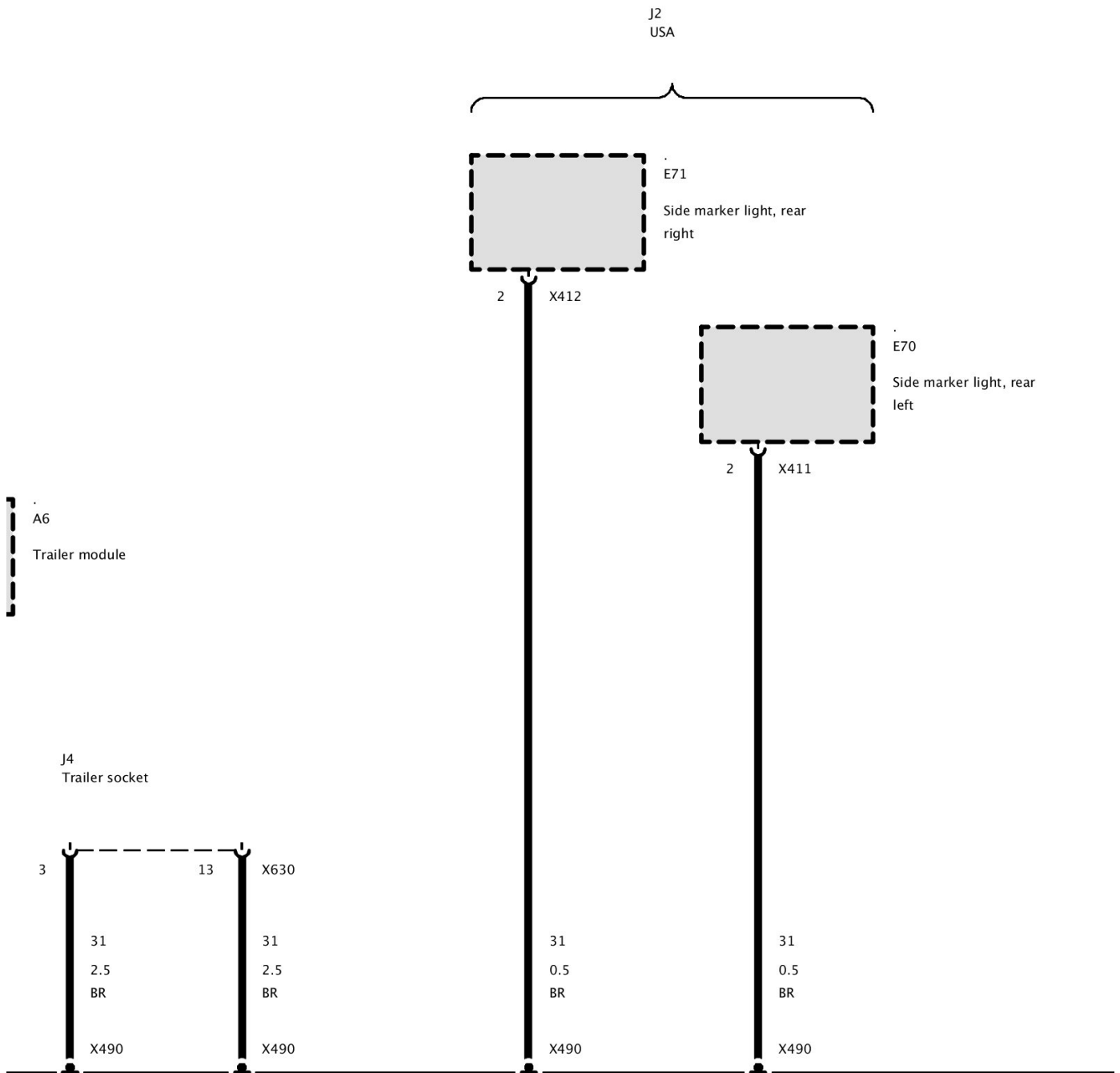
#### X13229 No Adapter

Ground Connection X490, Connector X18740, X9641, X13229 (Left-Hand Drive As of 03/08)

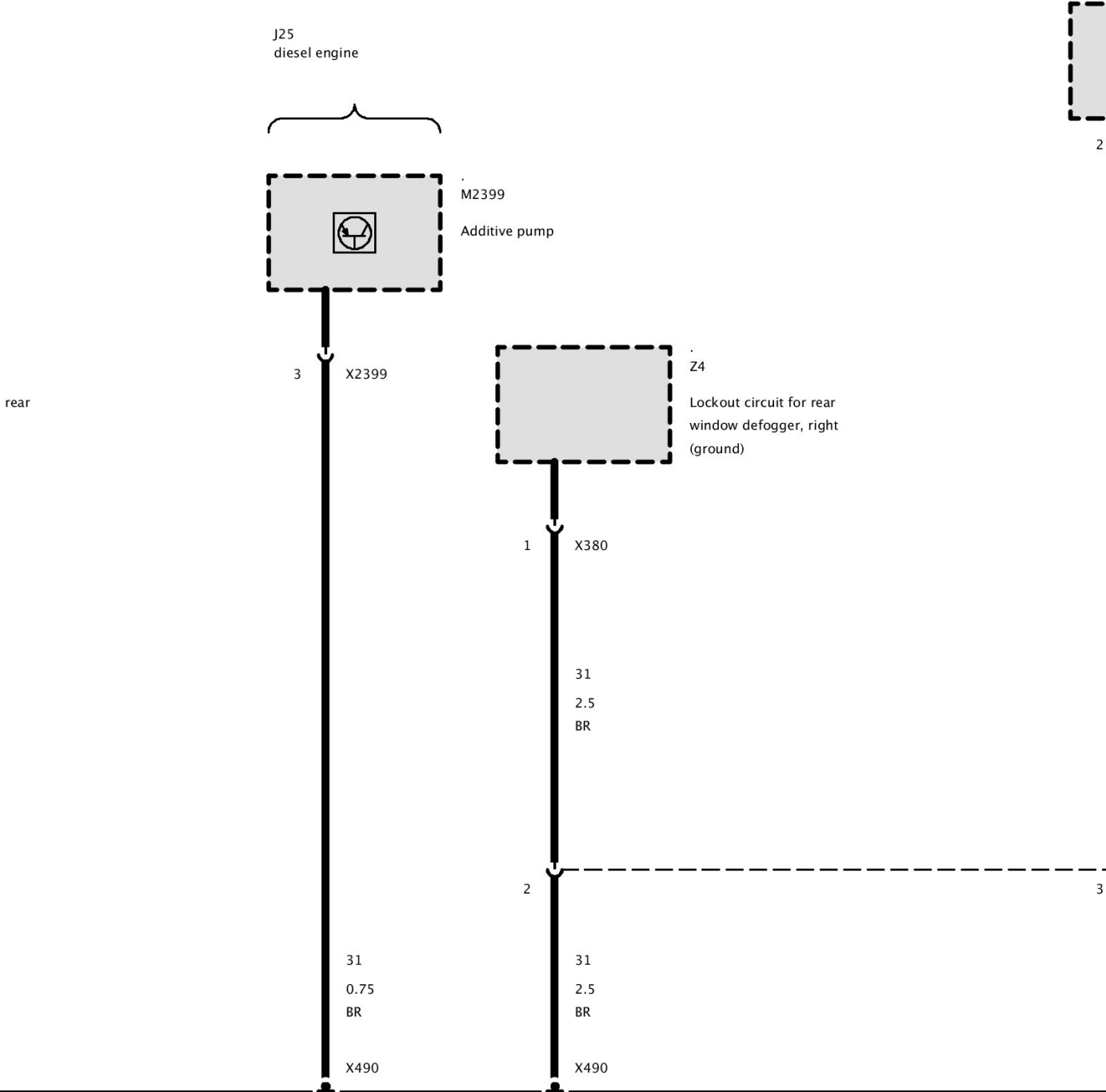


Part 1

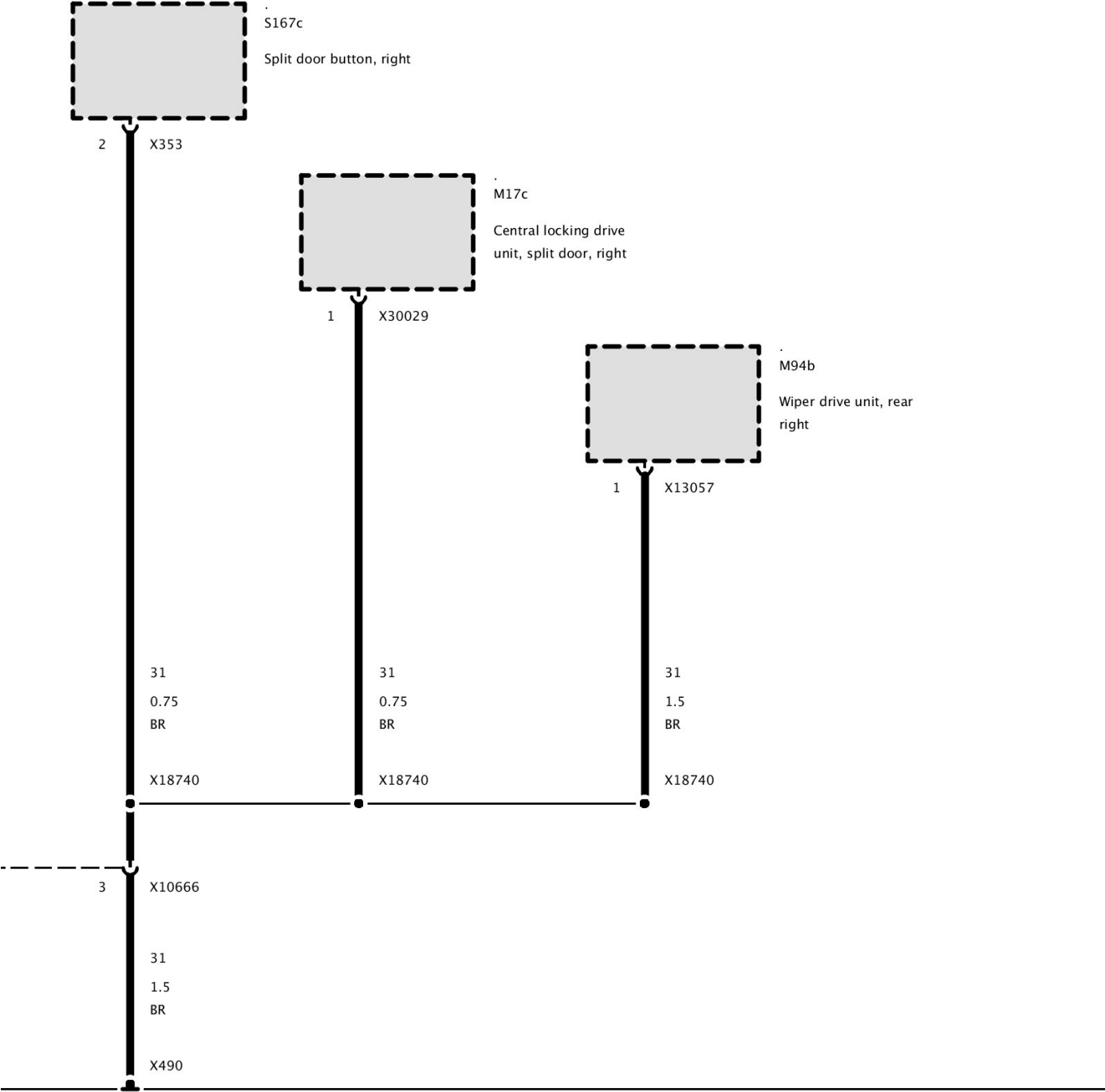




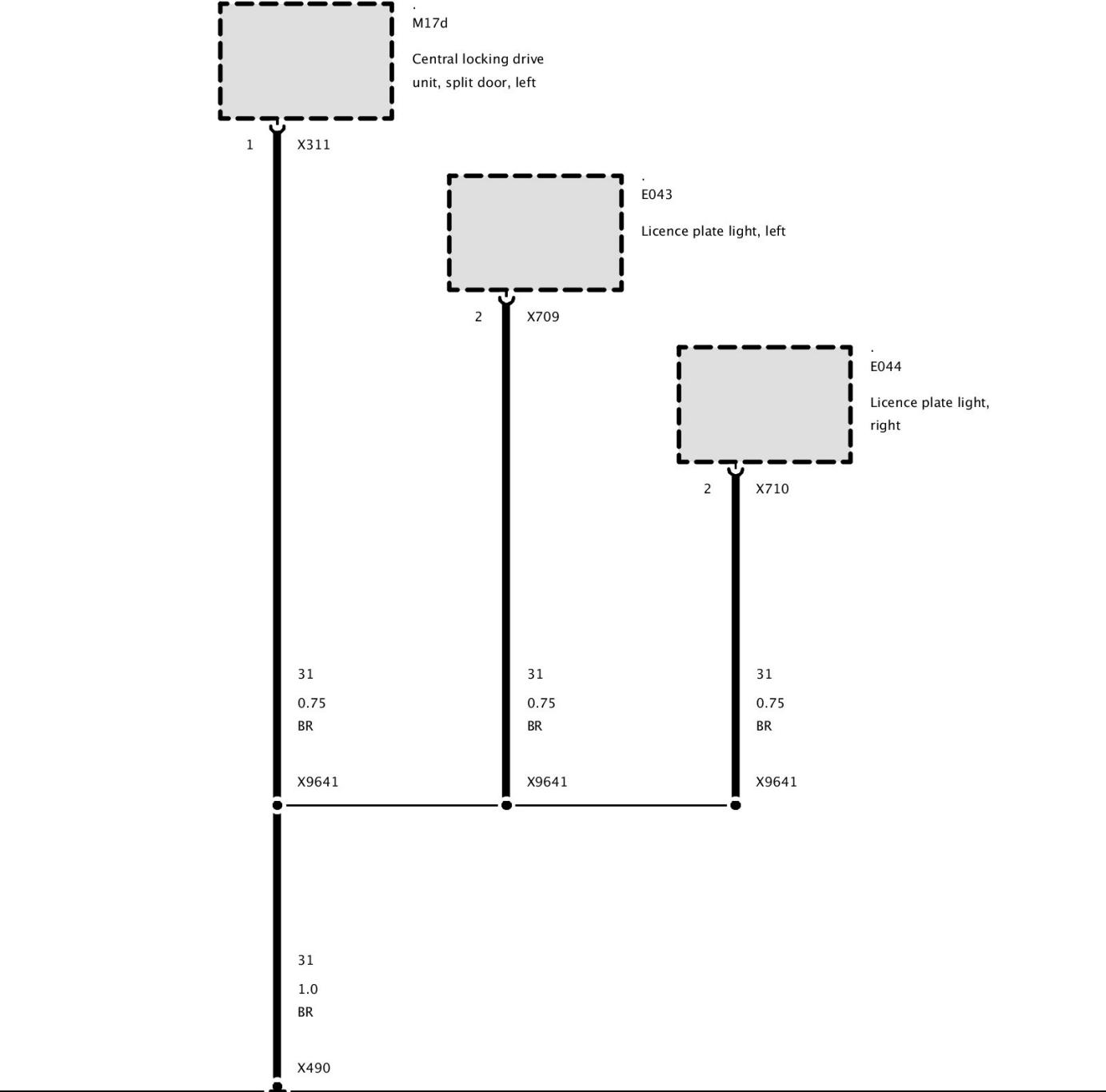
**Part 2**



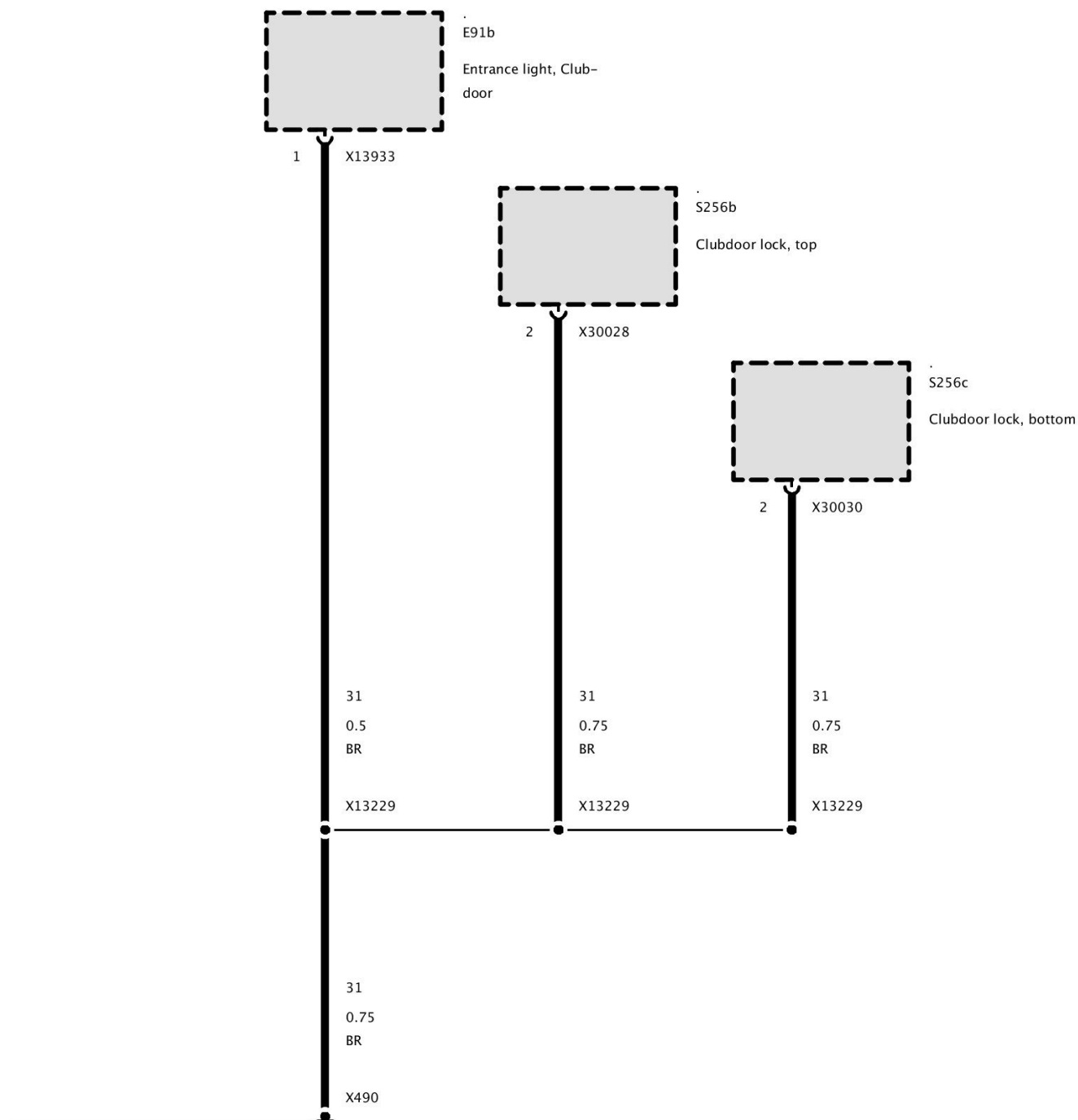
Part 3



Part 4



Part 5

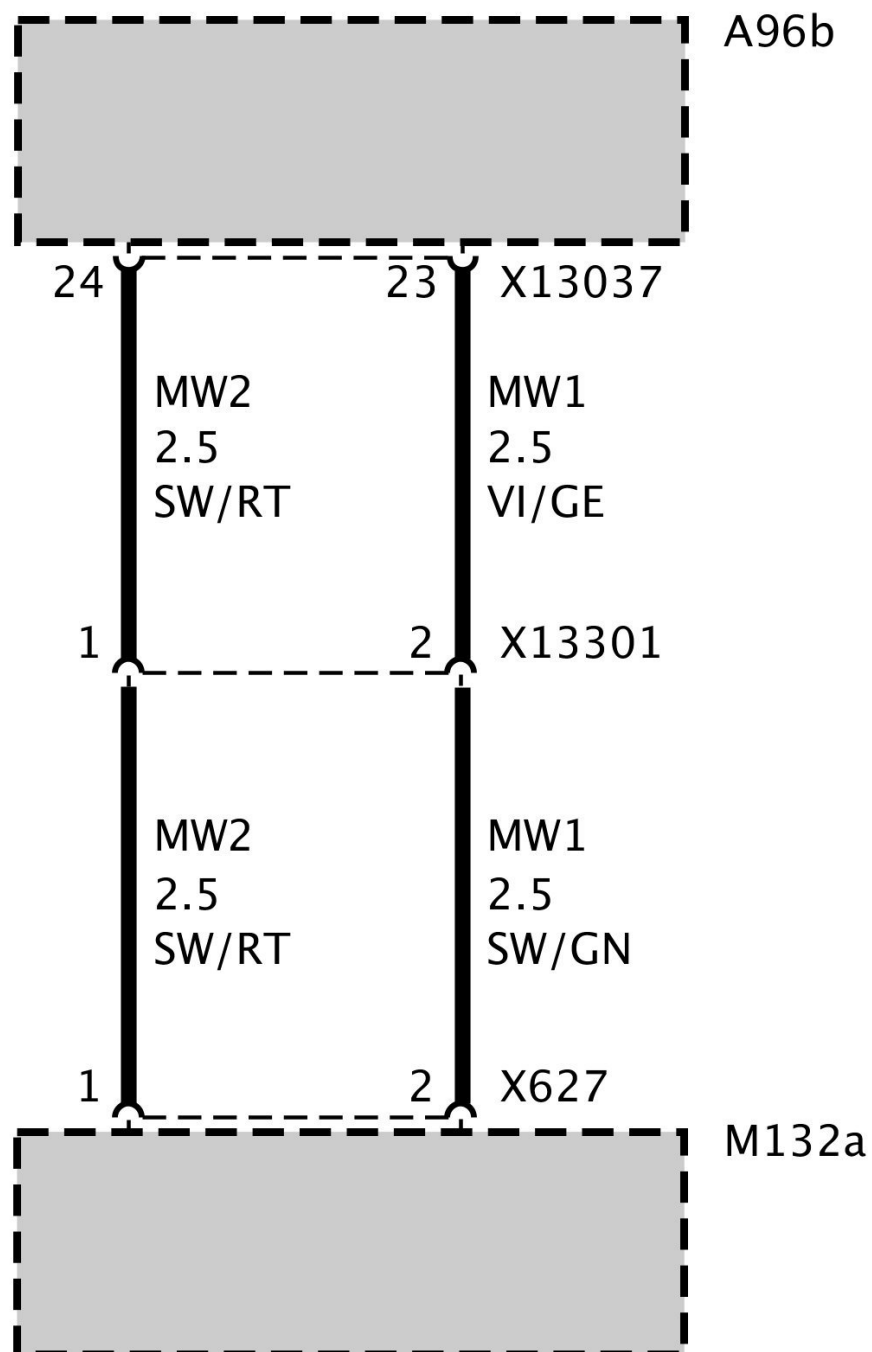


## Part 6

### X13301 No Adapter

#### X13301 No Adapter

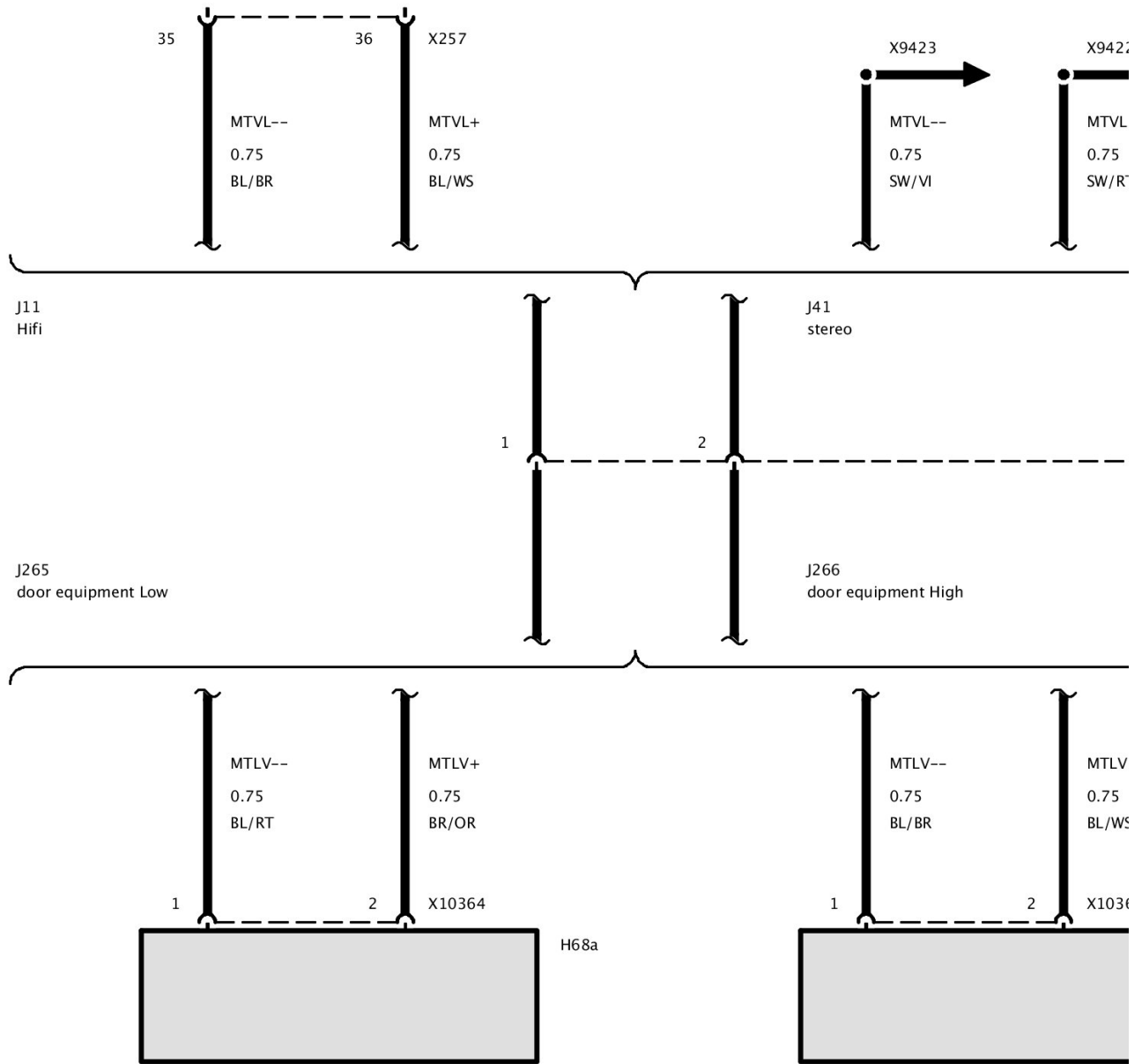
#### Connector X13301



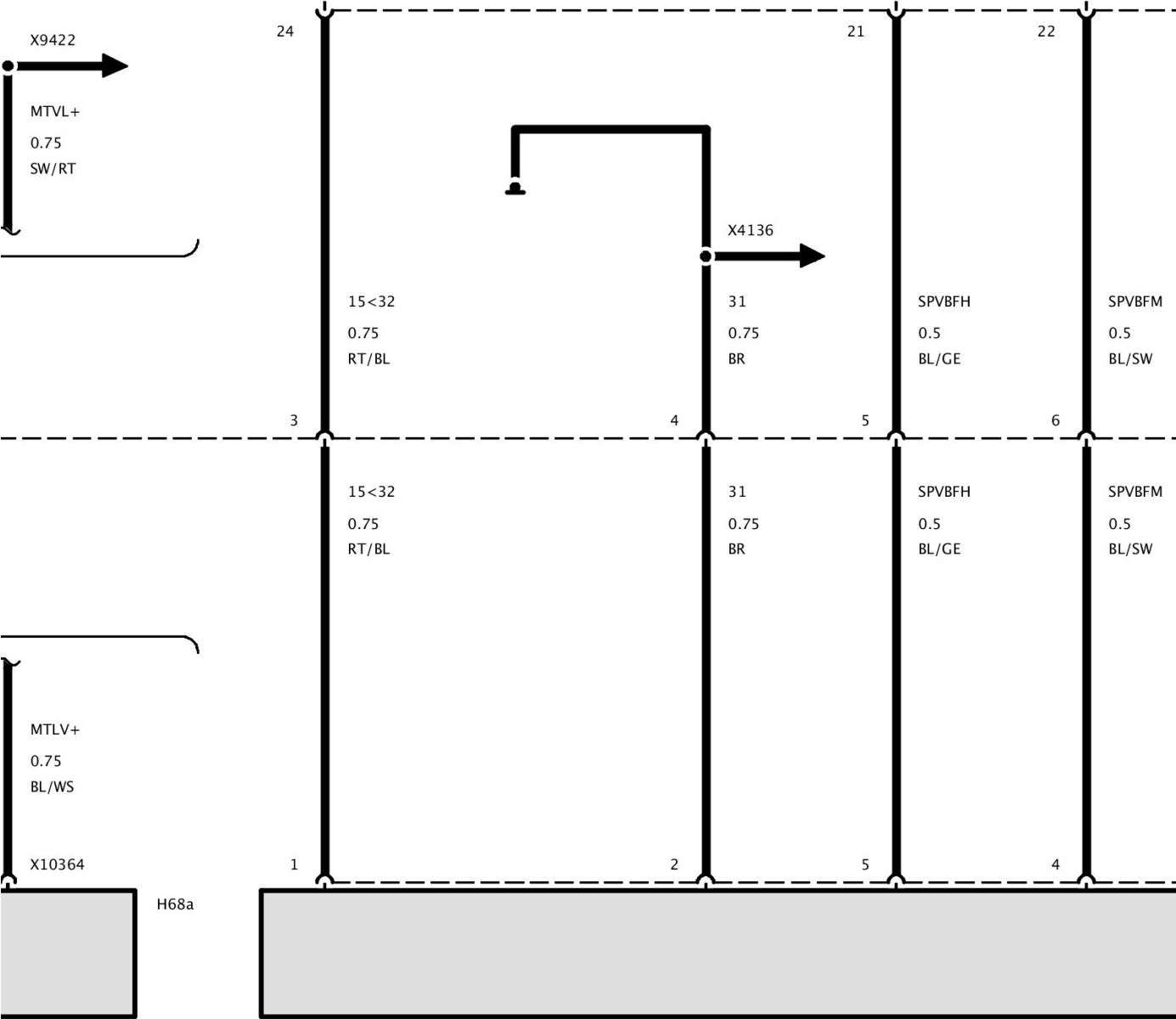
**X13566 Adapter 614470, Storage Location C110**

X13566 Adapter 614470, Storage Location C110

Connector X13566 (Left-Hand Drive)

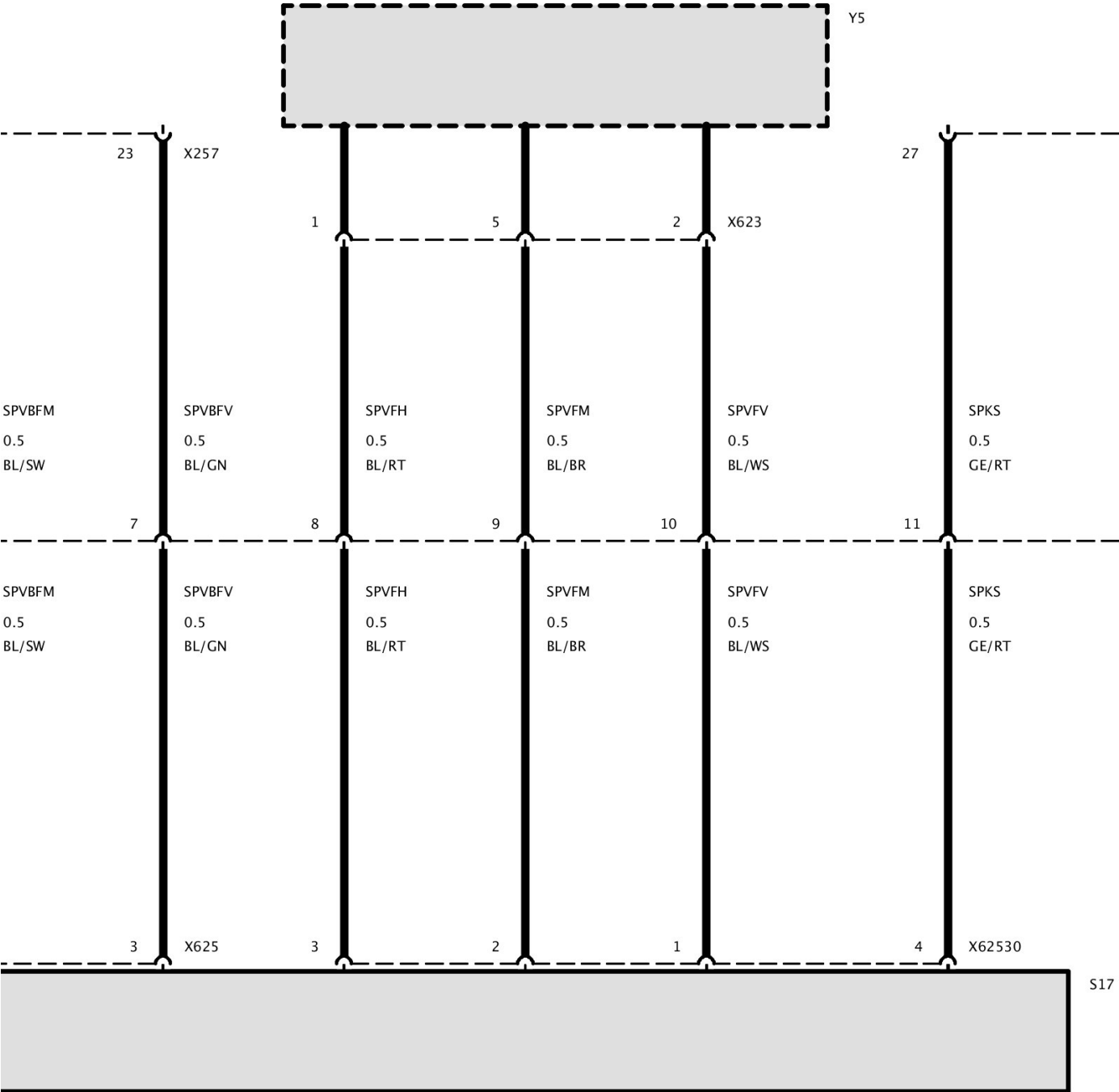


Part 1

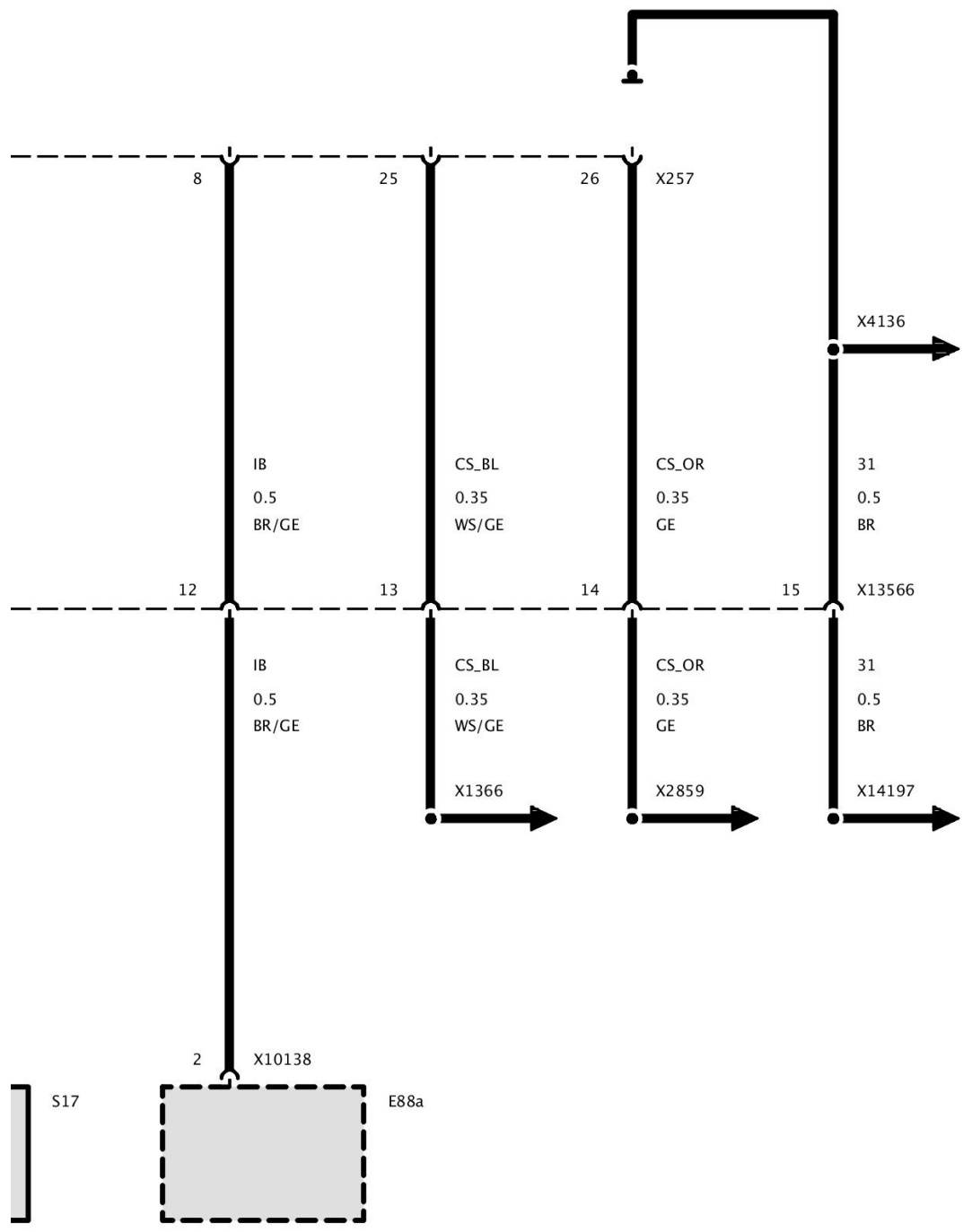


Part 2





Part 3

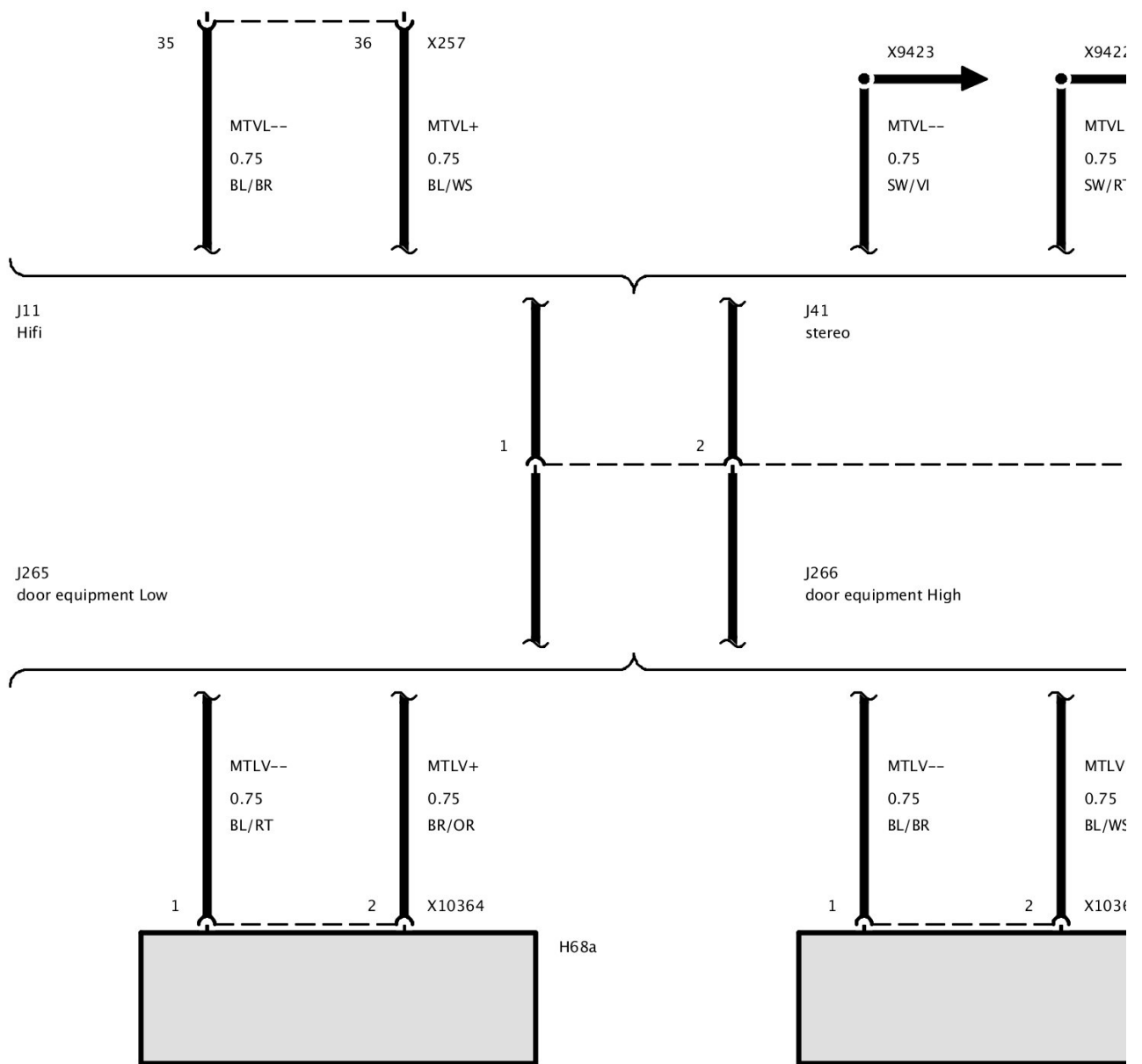


Part 4

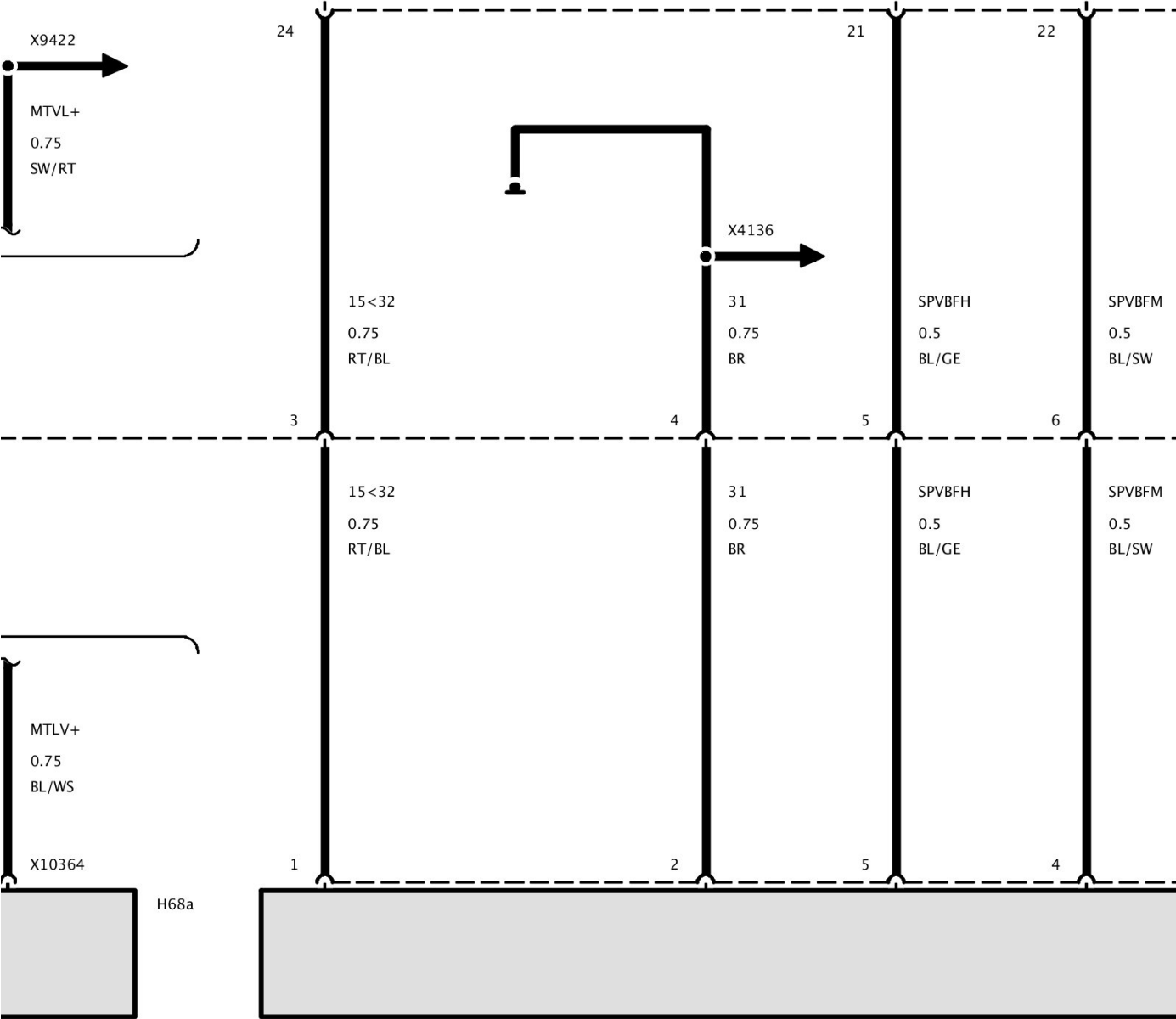
X13566 Adapter 616035, Storage Location D111

X13566 Adapter 616035, Storage Location D111

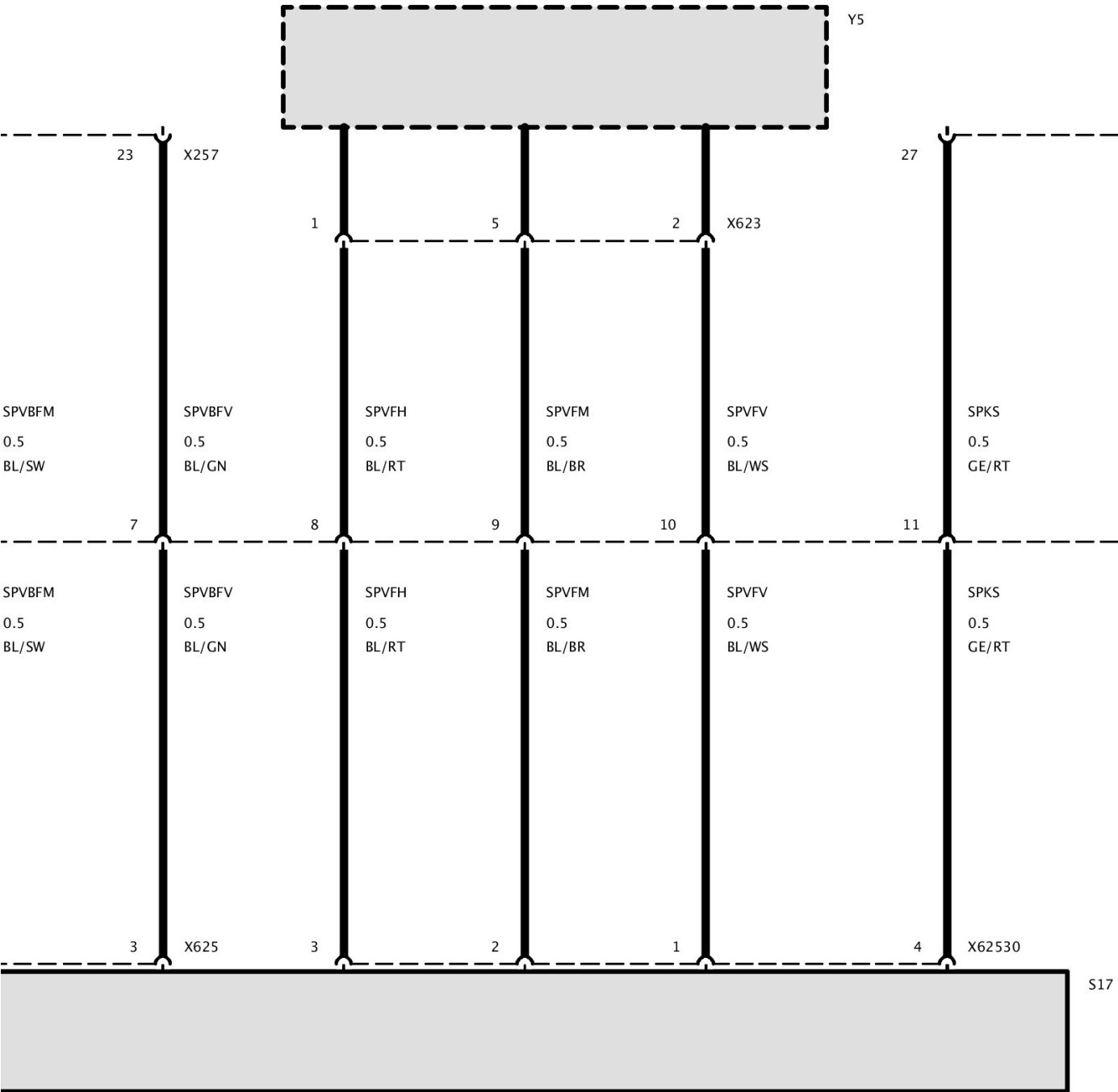
Connector X13566 (Left-Hand Drive)



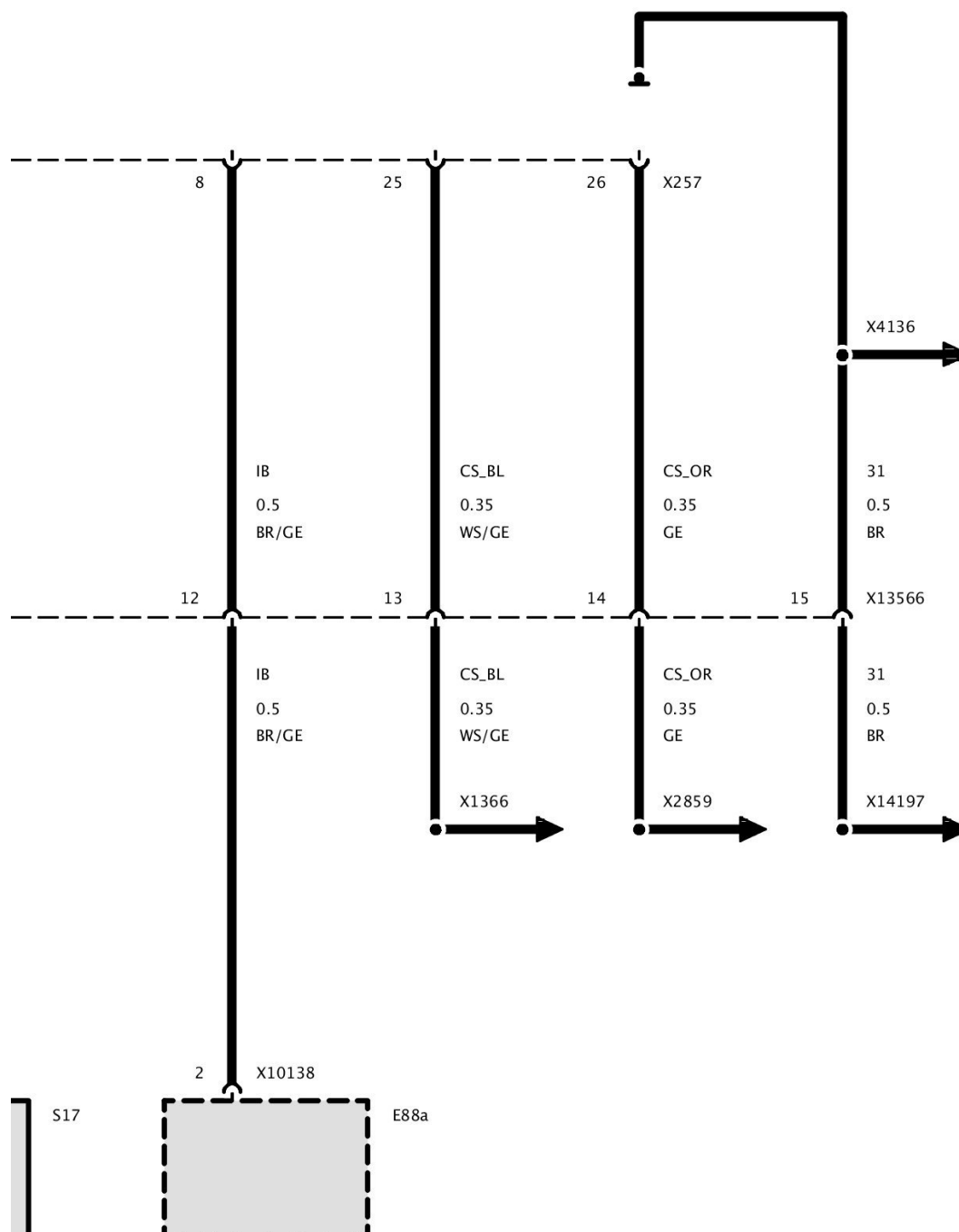
Part 1



Part 2



Part 3

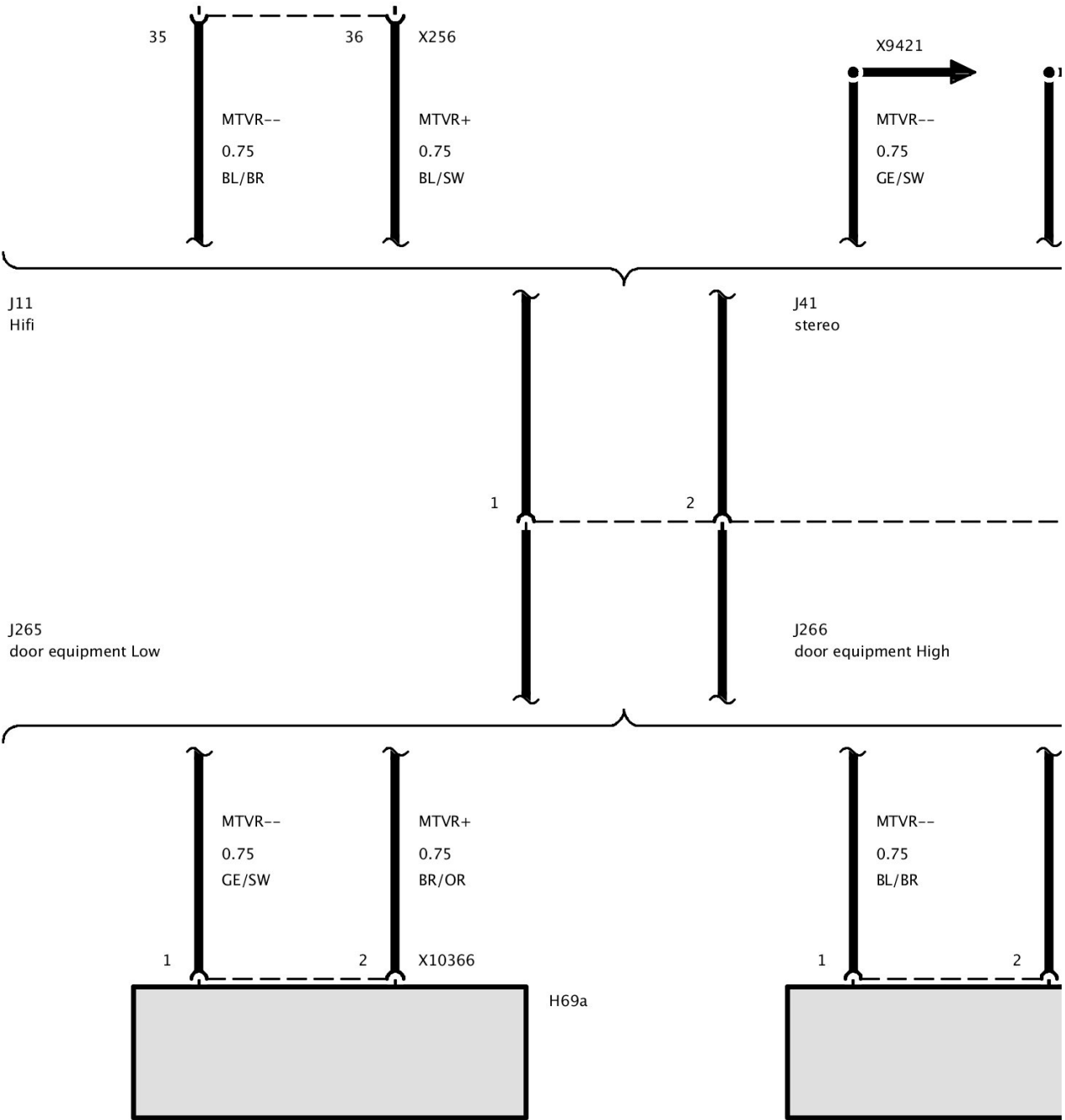


#### Part 4

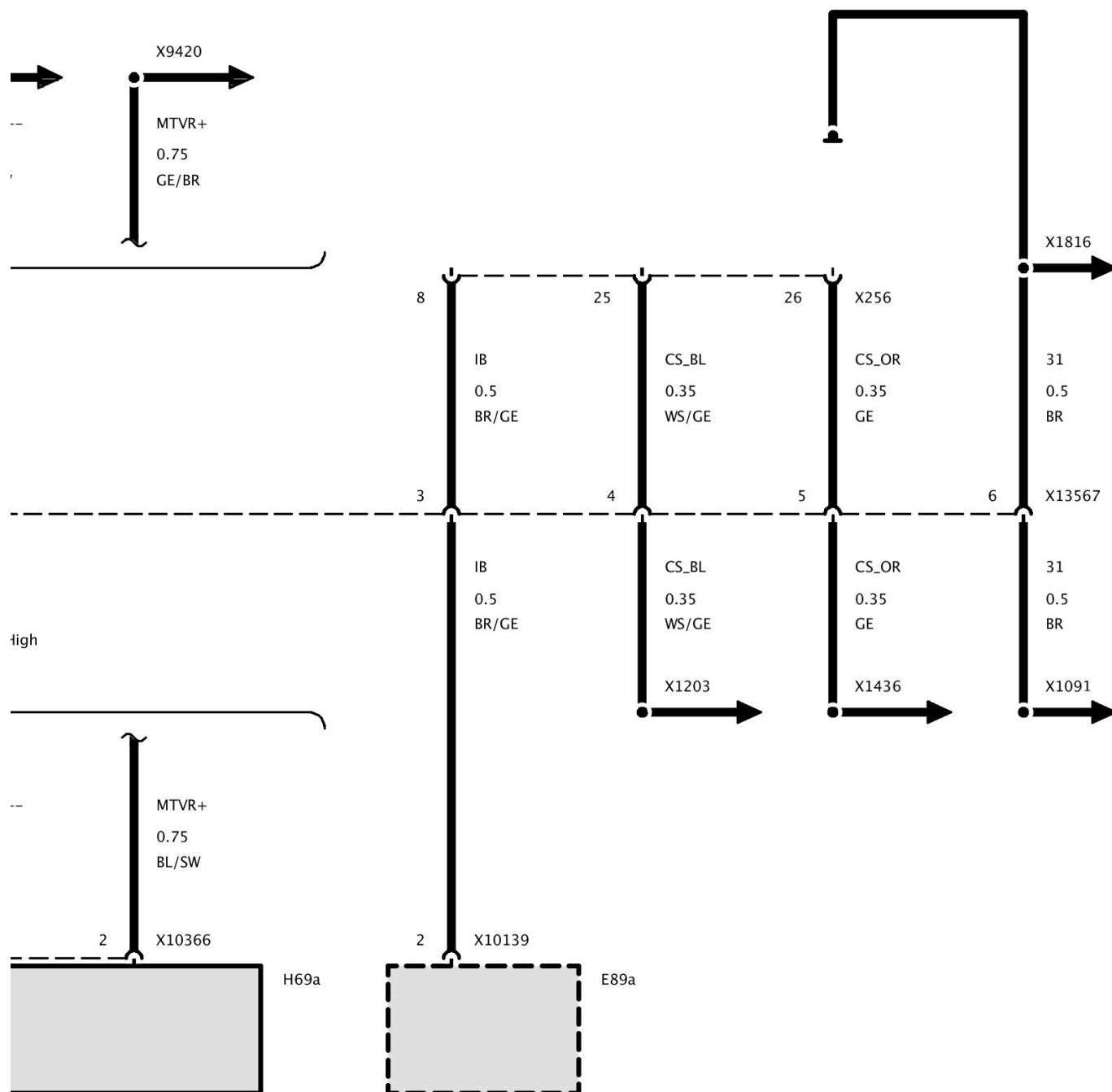
### X13567 Adapter 611465/-66, Storage Location B112/-13

X13567 Adapter 611465/-66, Storage Location B112/-13

Connector X13567



Part 1



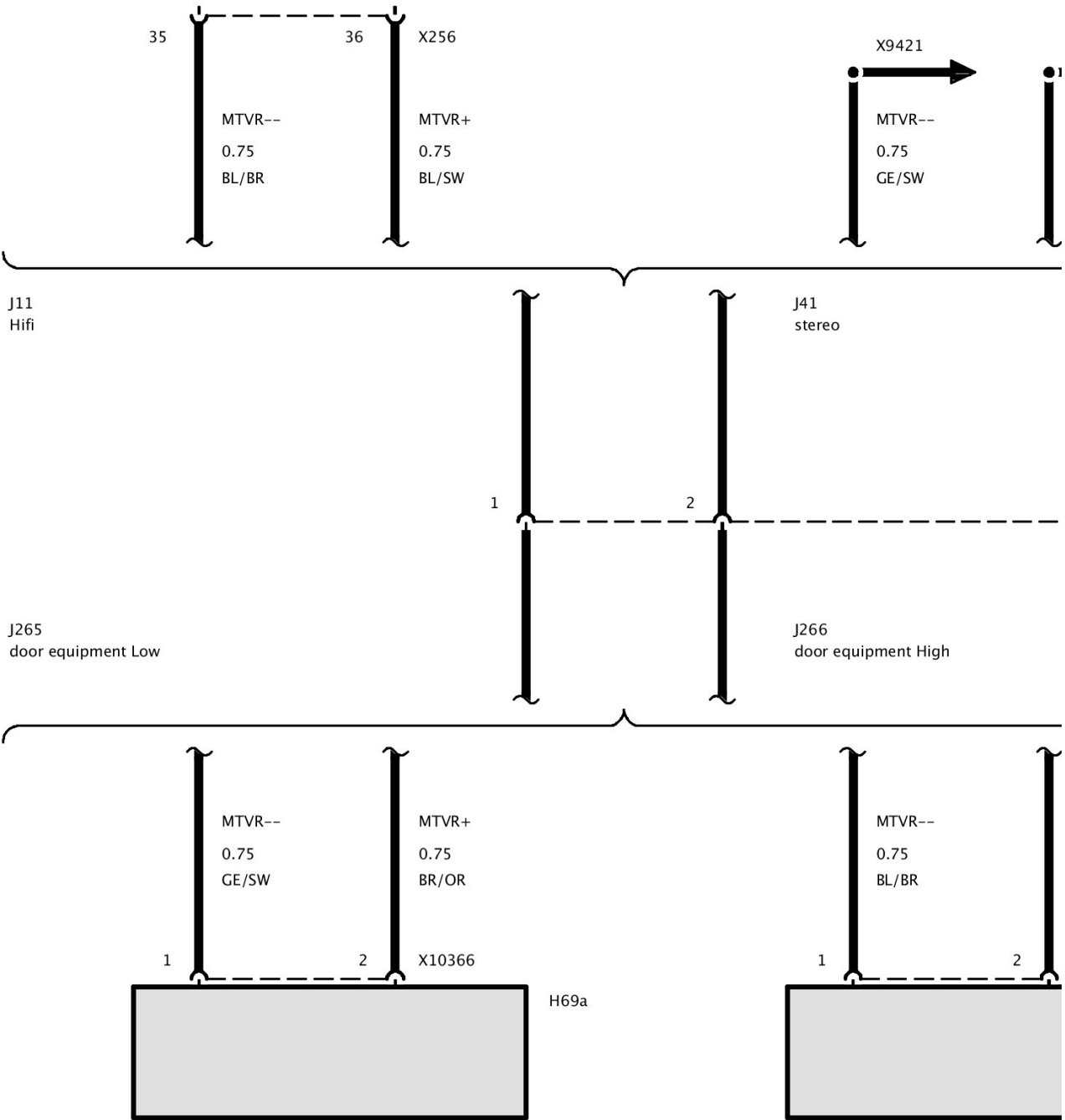
## Part 2

### X13567 Adapter 616035, Storage Location D111

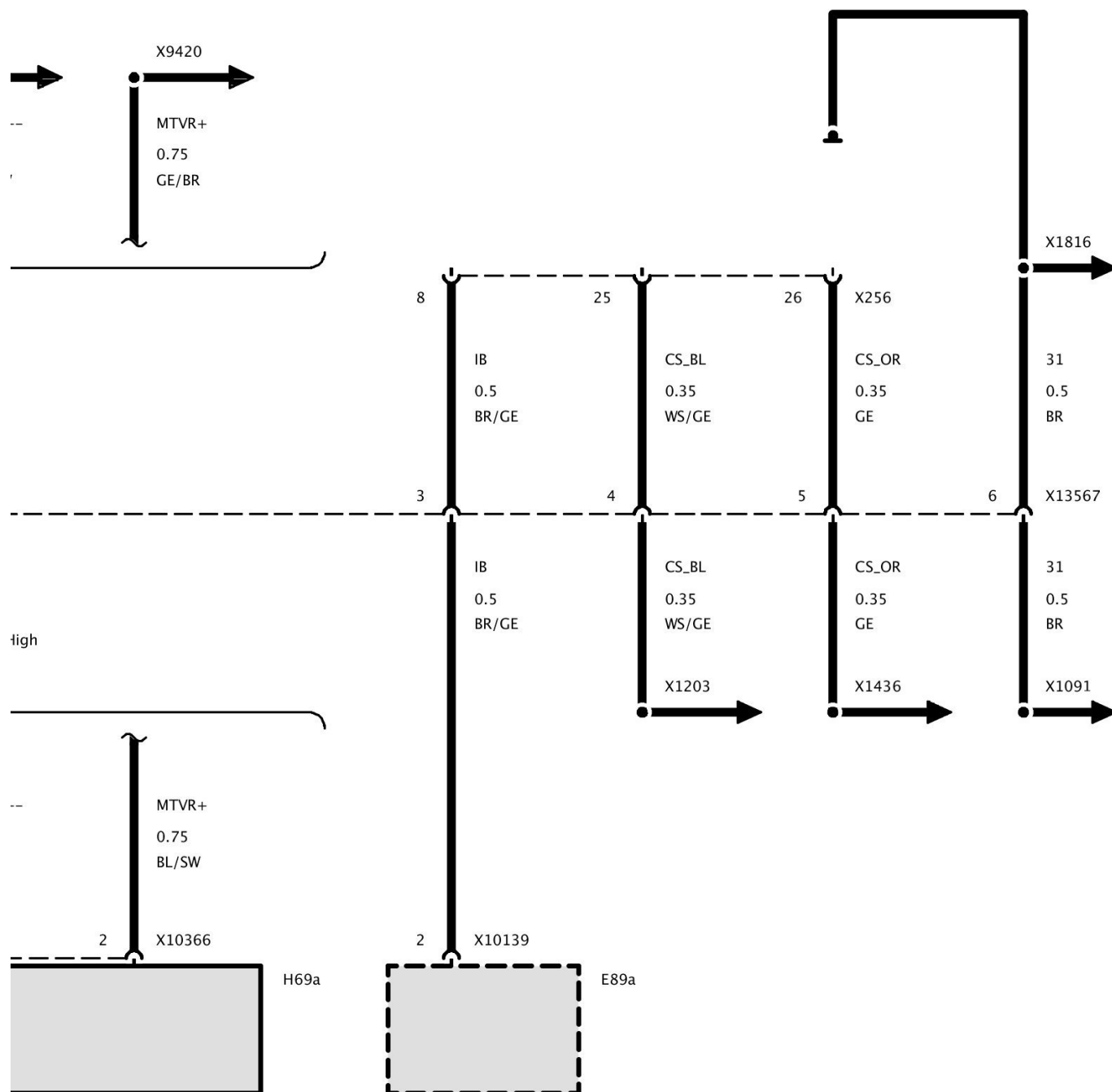
X13567 Adapter 616035, Storage Location D111

Connector X13567





Part 1

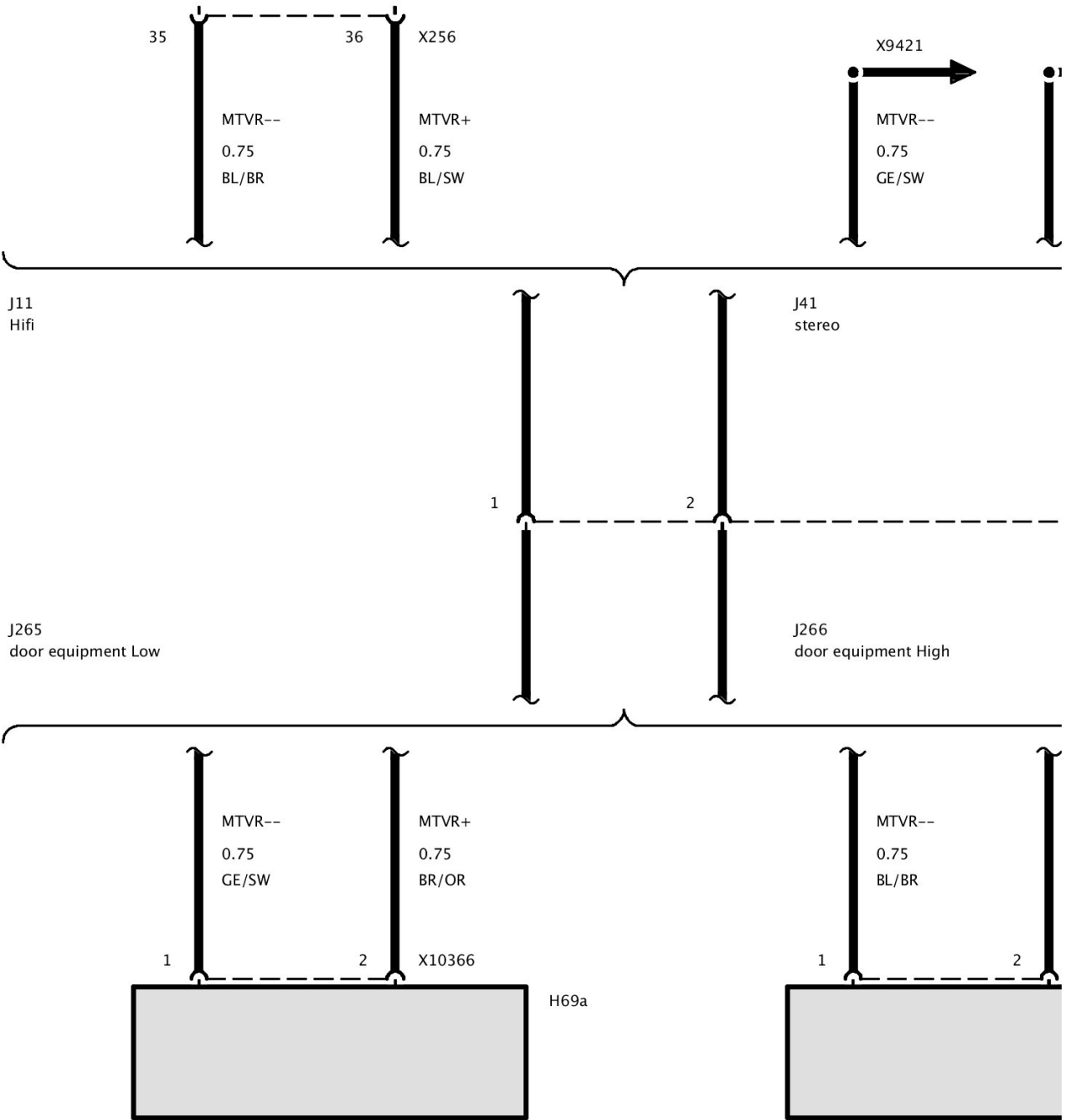


## Part 2

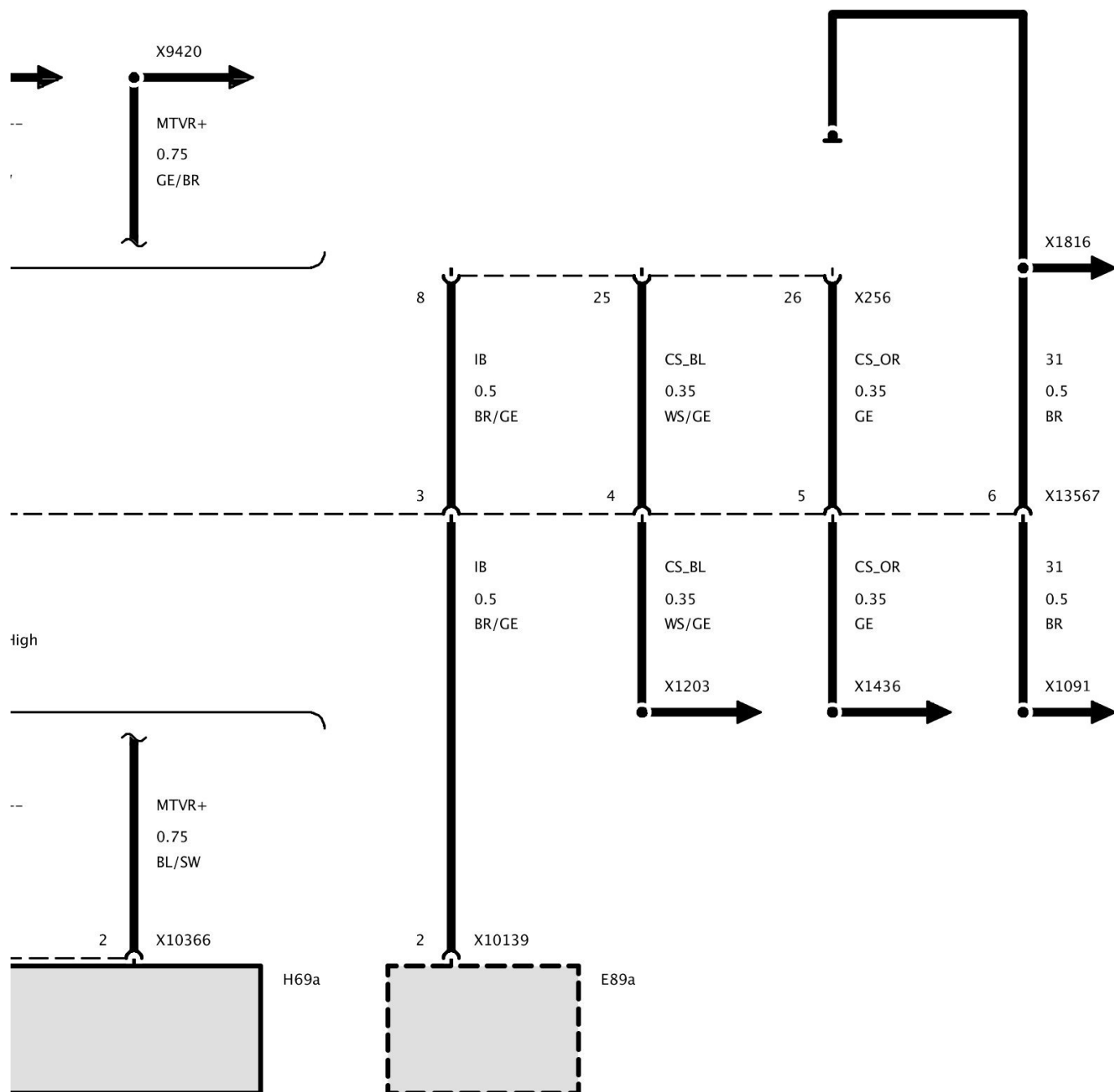
**X13567 Adapter 611465, Storage Location B112**

X13567 Adapter 611465, Storage Location B112

Connector X13567



Part 1

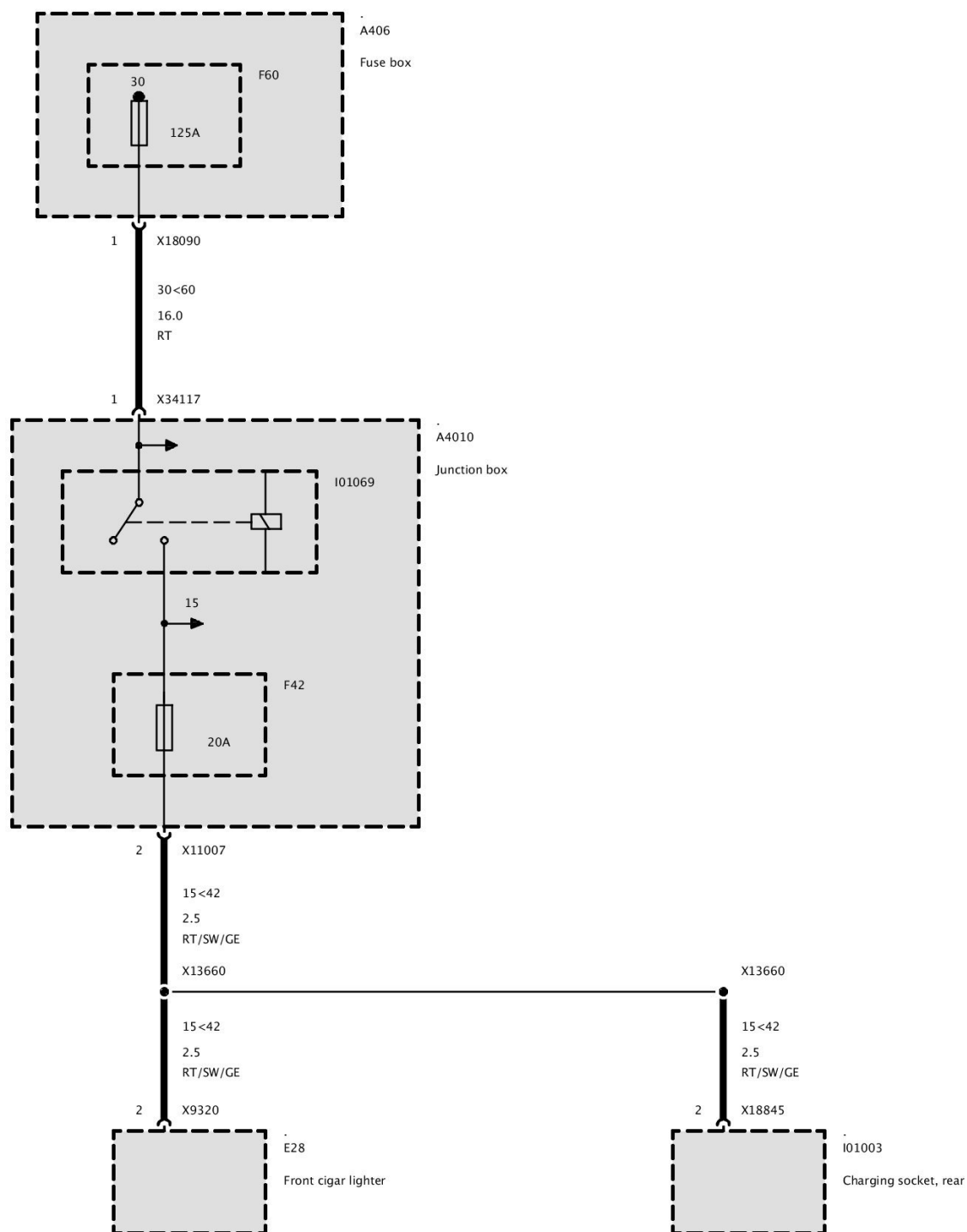


## Part 2

**X13660 No Adapter**

**X13660 No Adapter**

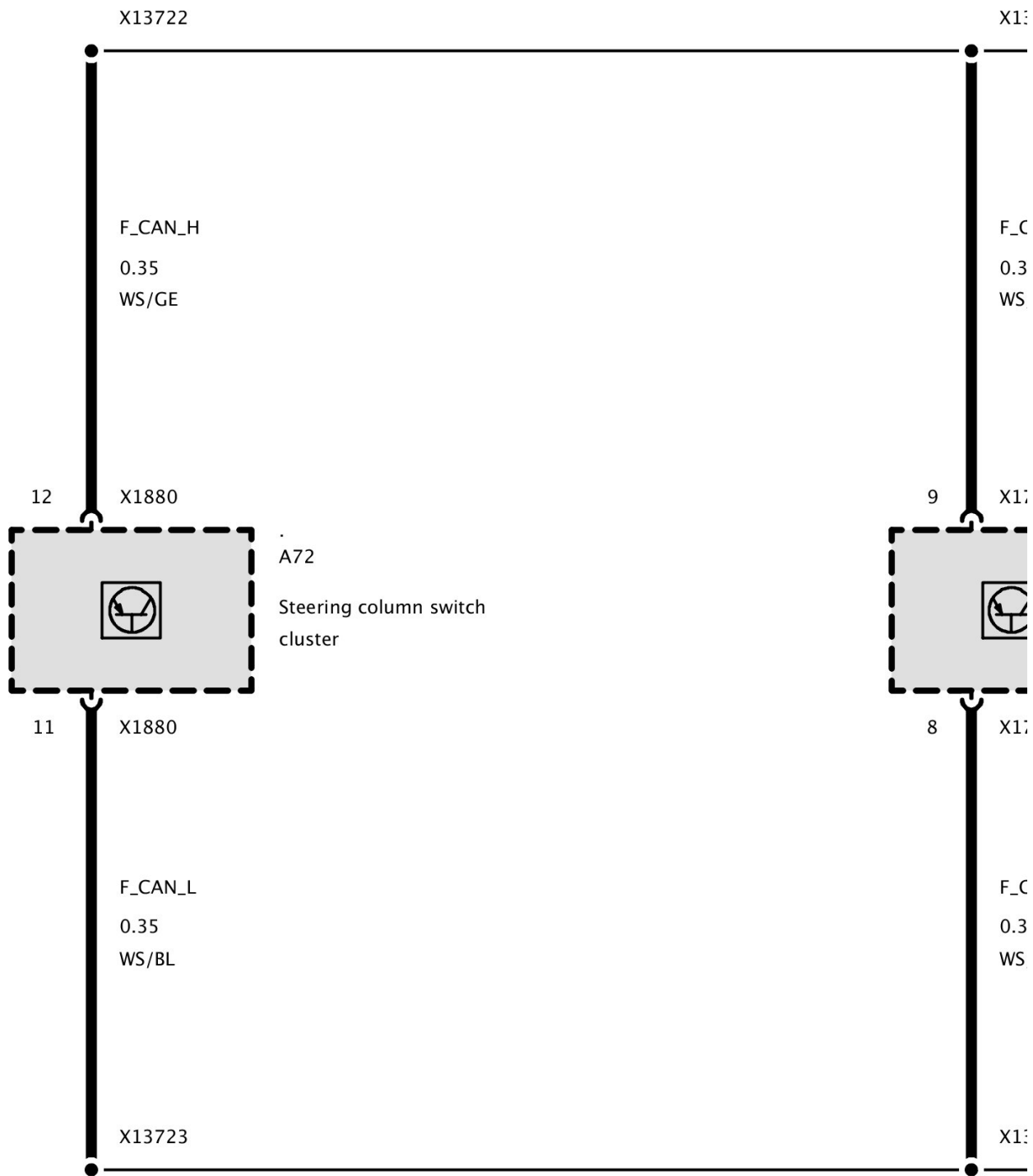
**Fuse F42**



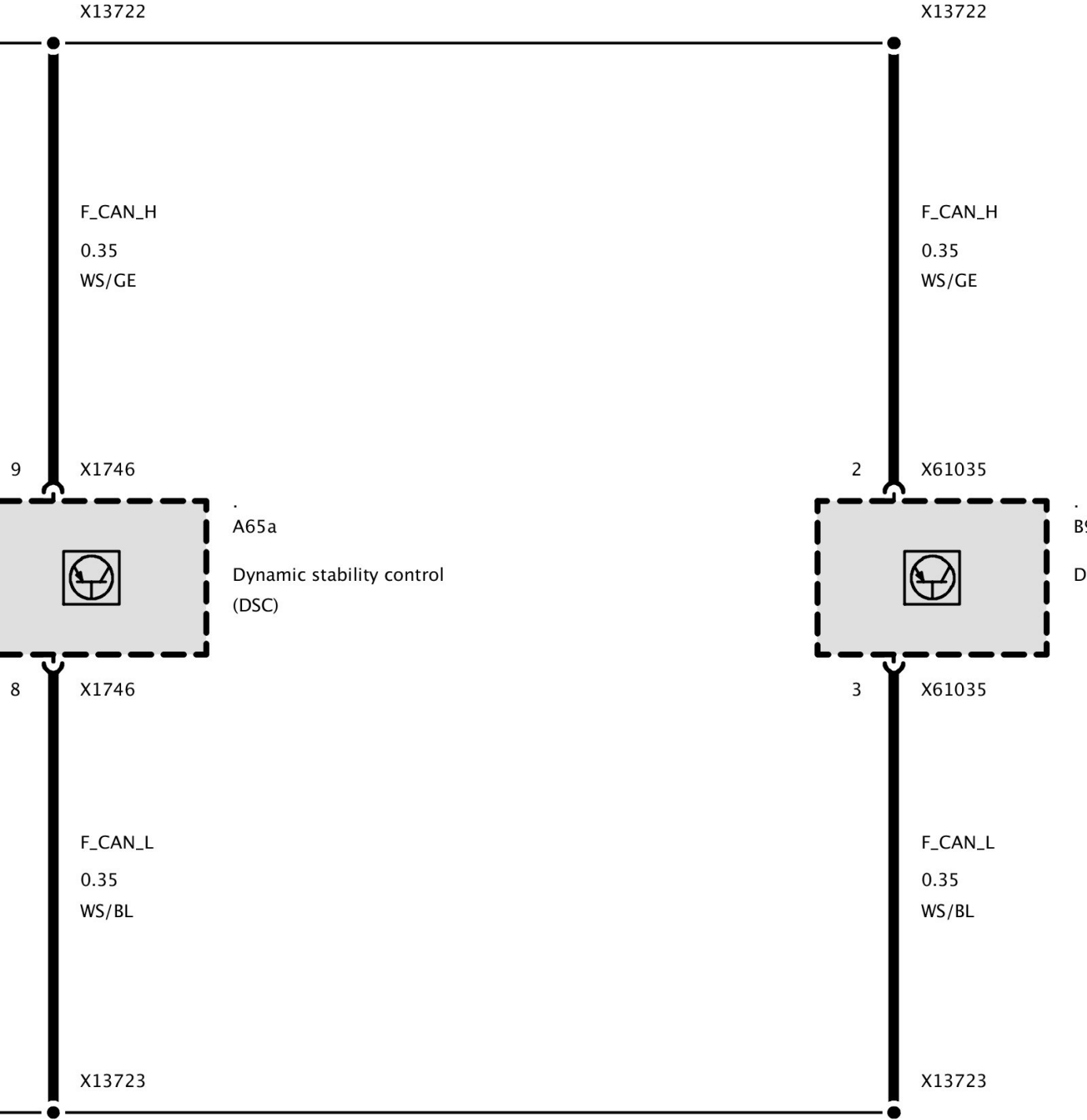
**X13722 No Adapter**

**X13722 No Adapter**

**F-CAN-bus connector**



Part 1



Part 2

2

.H

5



B9801

DSC sensor

5

.L

3

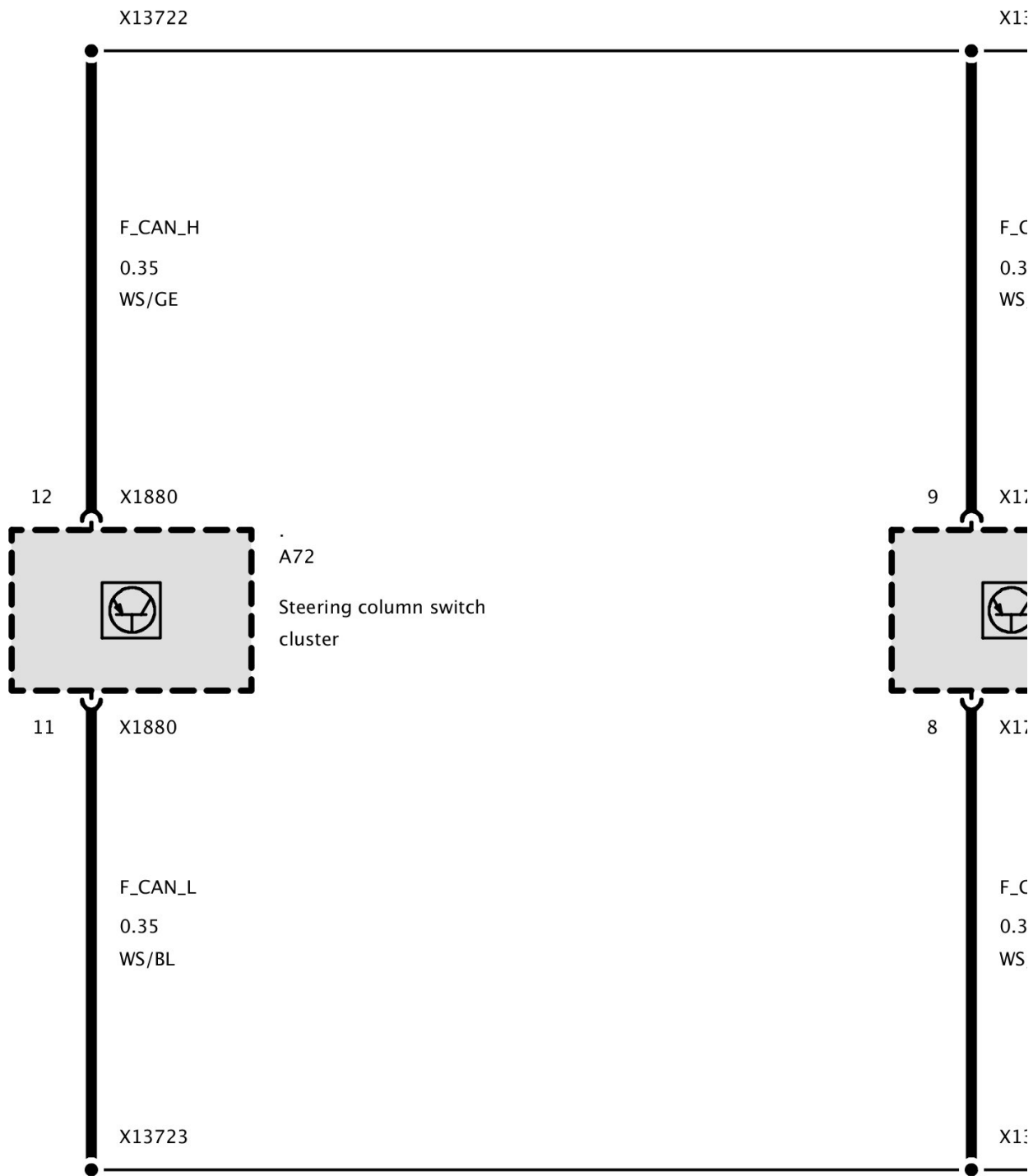
### Part 3

**X13723 No Adapter**

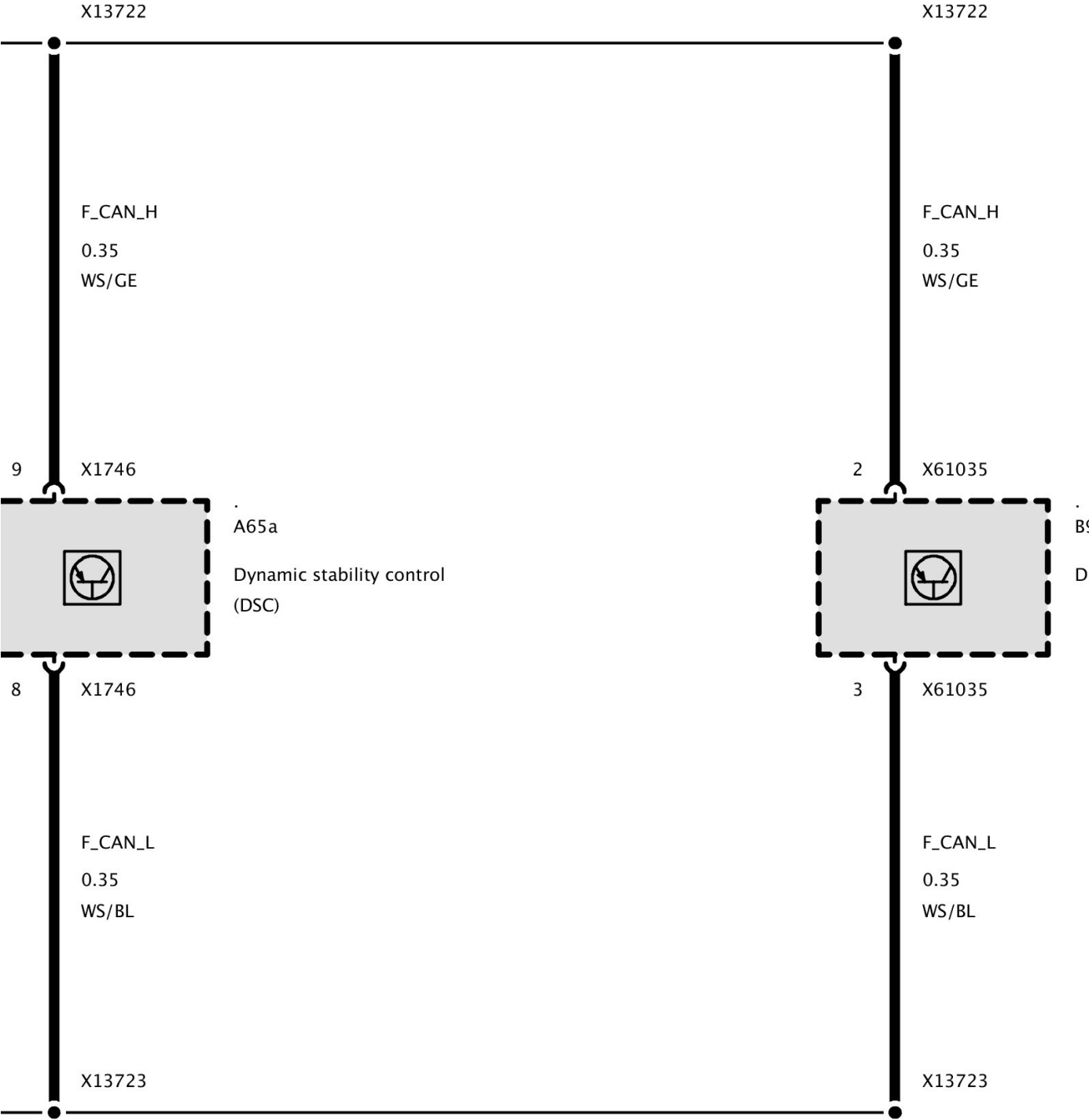
**X13723 No Adapter**

**F-CAN-bus connector**





Part 1



Part 2

2

.H

5



B9801

DSC sensor

5

.L

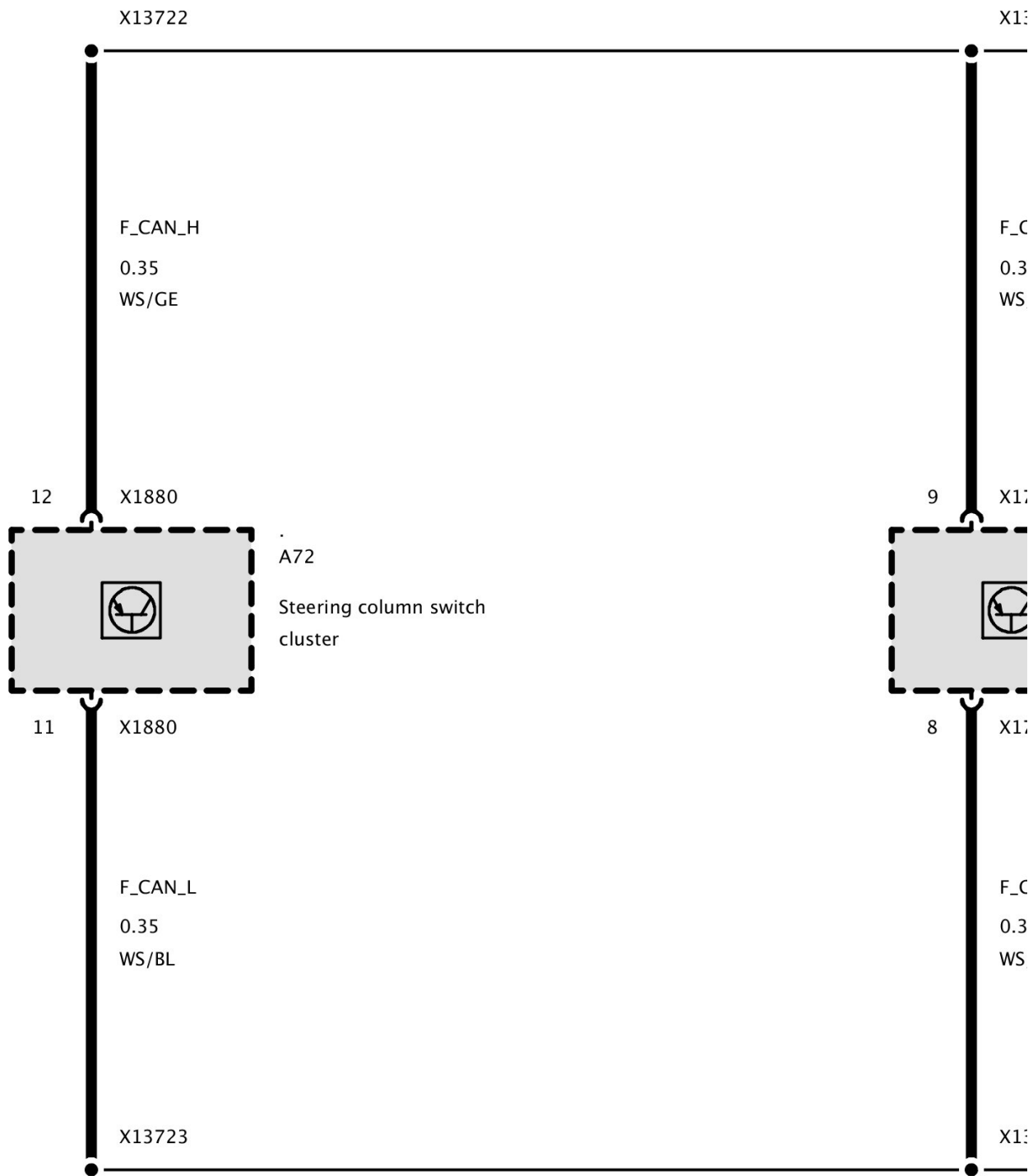
3

### Part 3

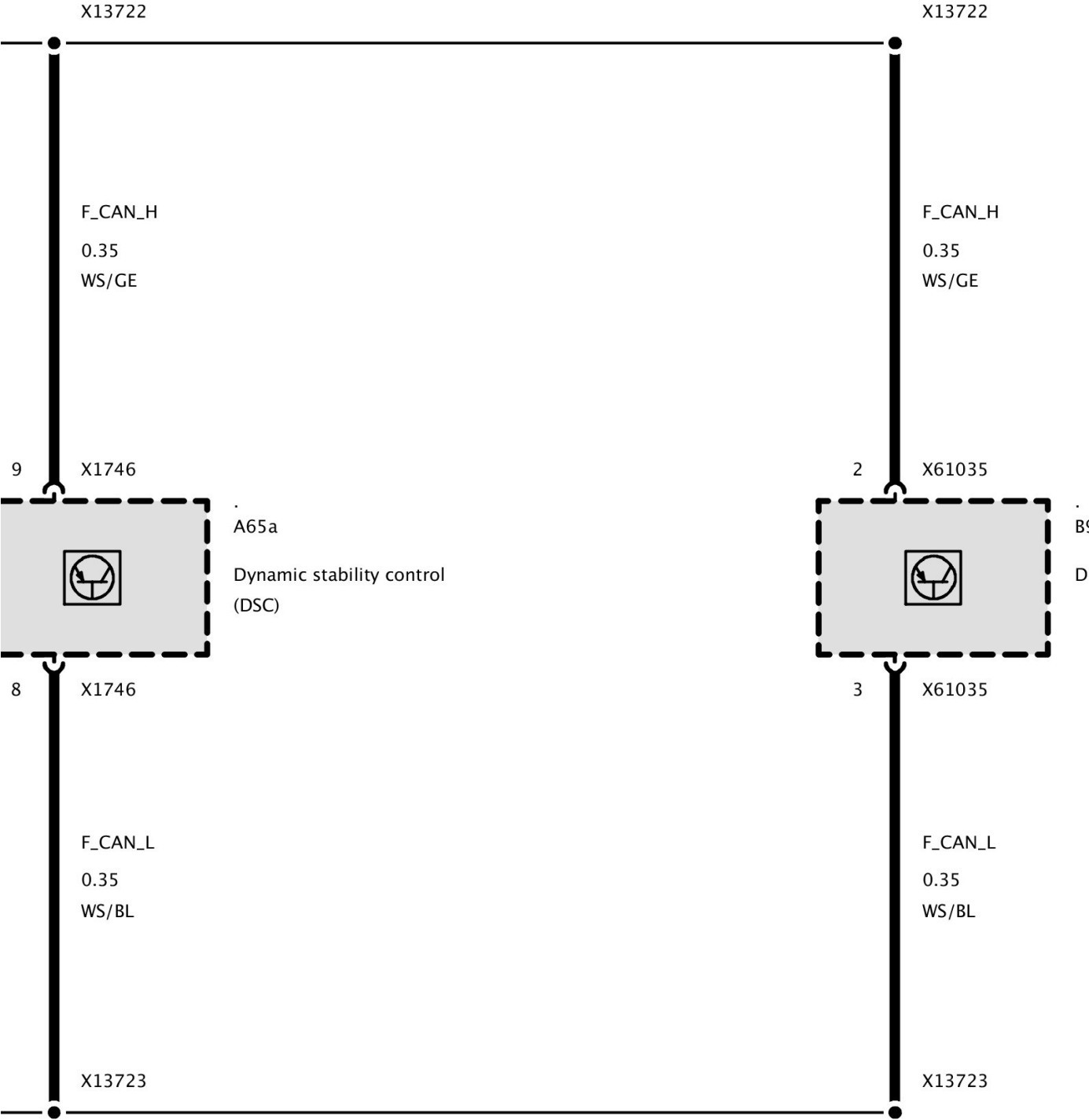
**X13724 No Adapter**

**X13724 No Adapter**

**F-CAN-bus connector**



Part 1



Part 2

2

.H

5



B9801

DSC sensor

5

.L

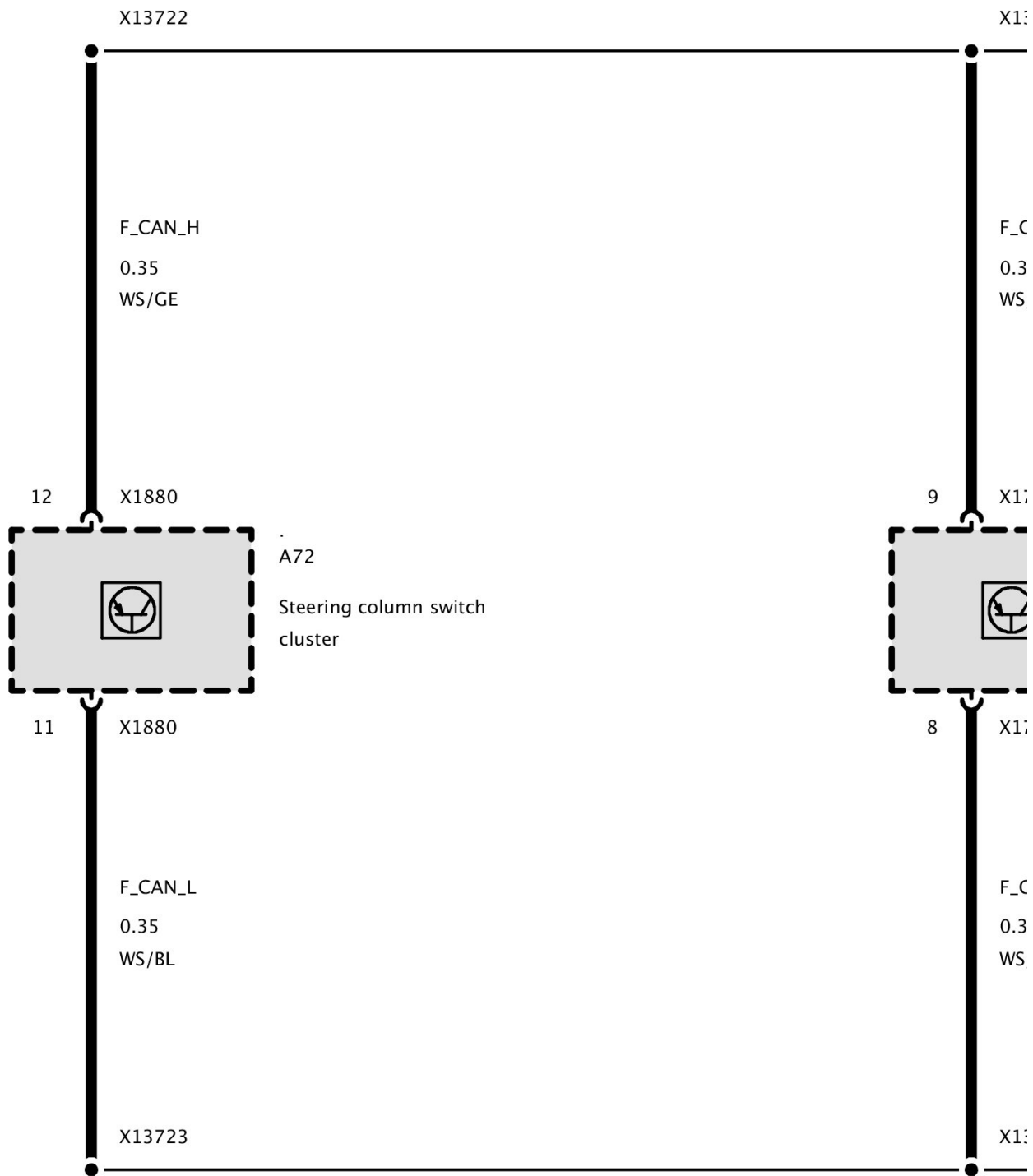
3

### Part 3

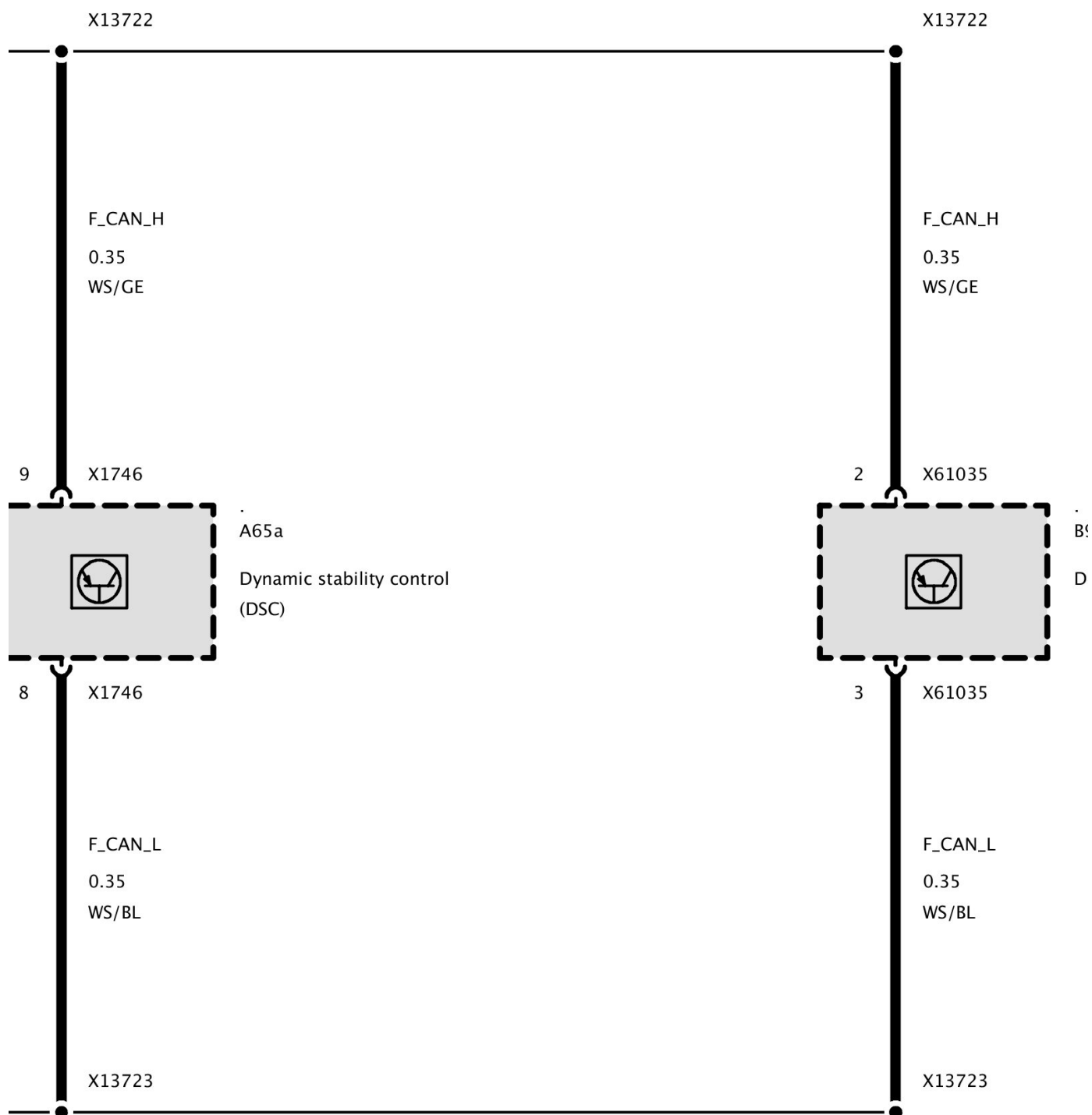
**X13725 No Adapter**

**X13725 No Adapter**

**F-CAN-bus connector**



Part 1



jmoraflores@hotmail.cl



2

.H

5



B9801

DSC sensor

5

.L

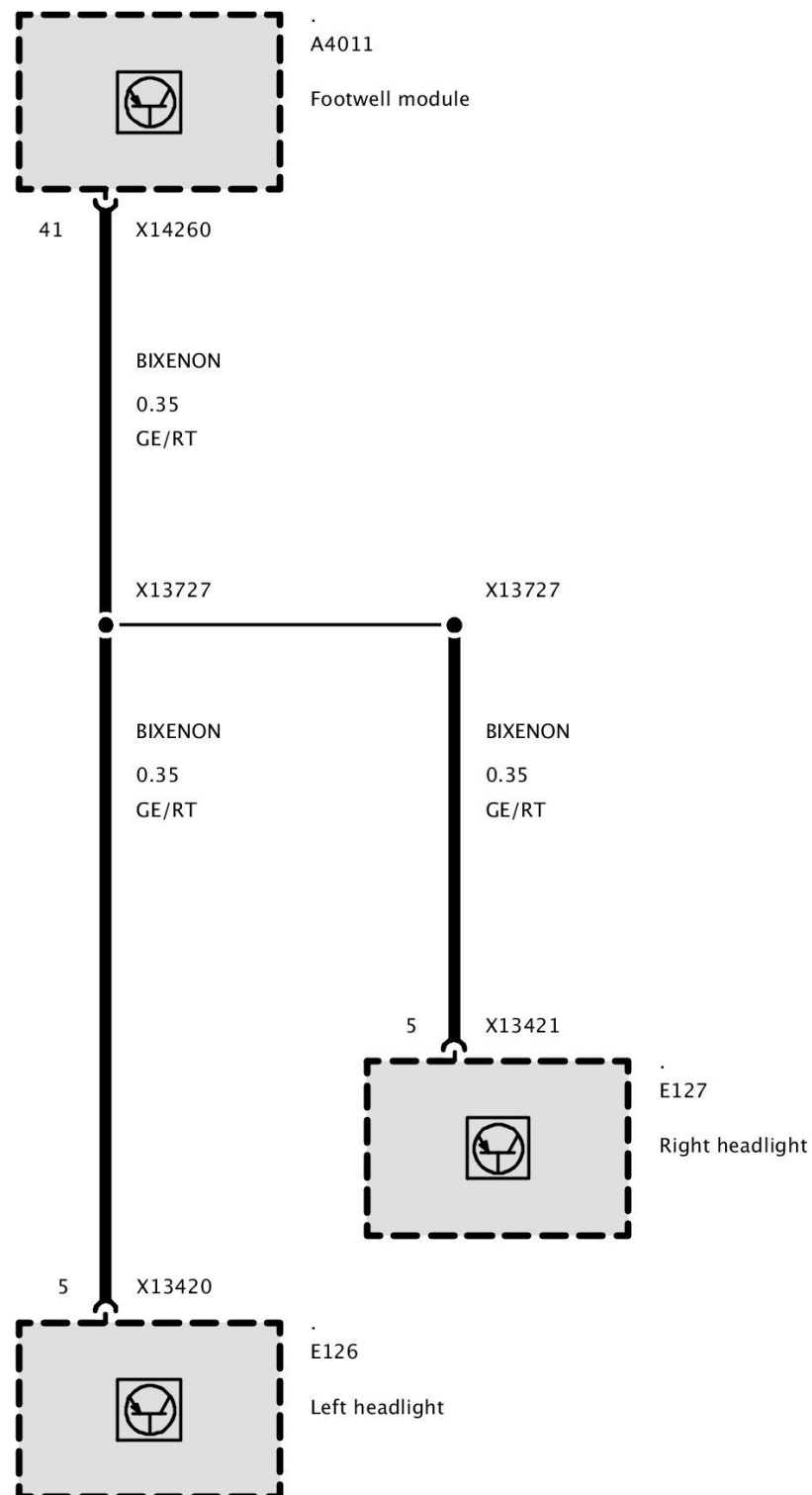
3

### Part 3

## X13727 No Adapter

X13727 No Adapter

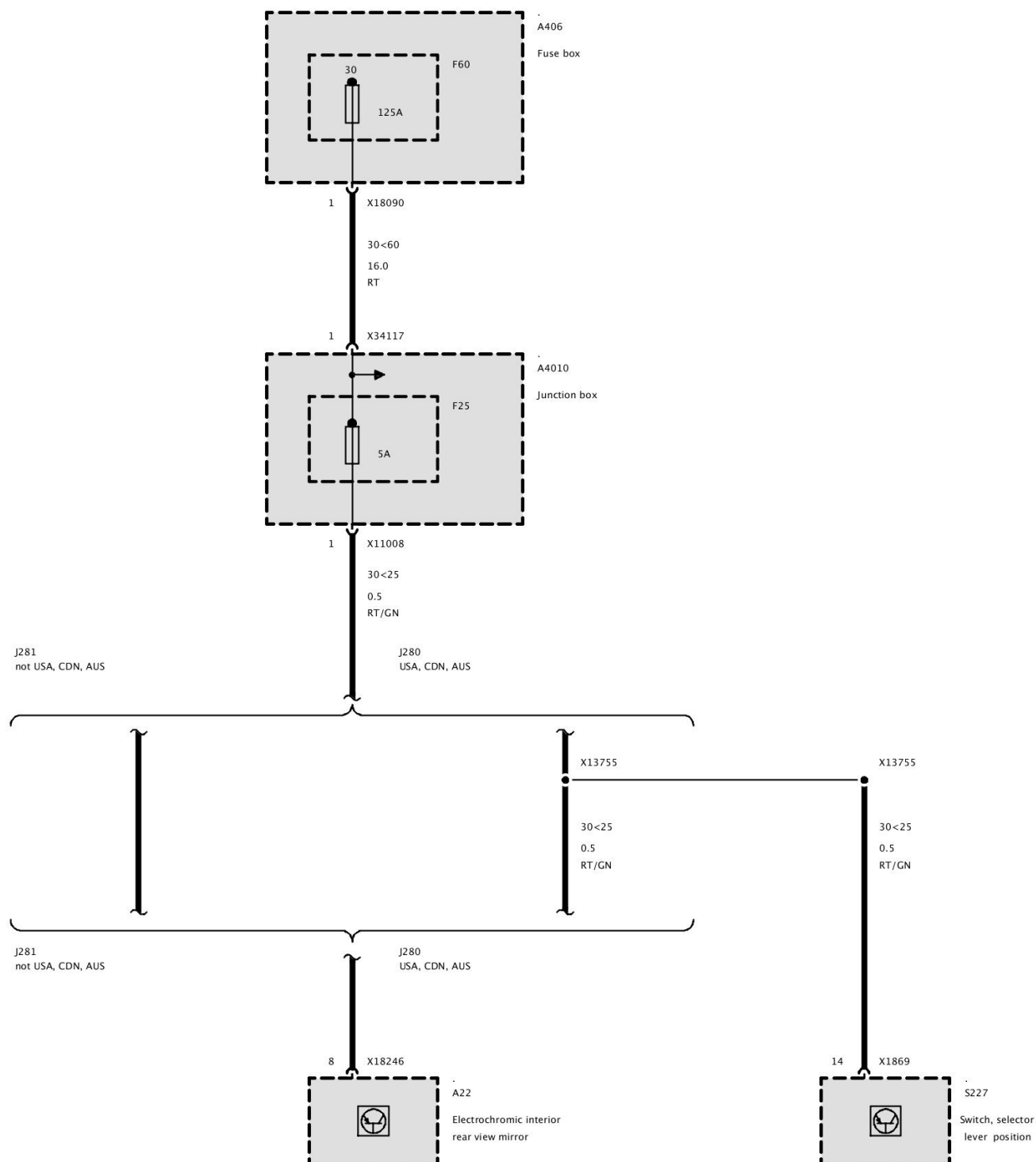
Connector X13727



**X13755 No Adapter**

**X13755 No Adapter**

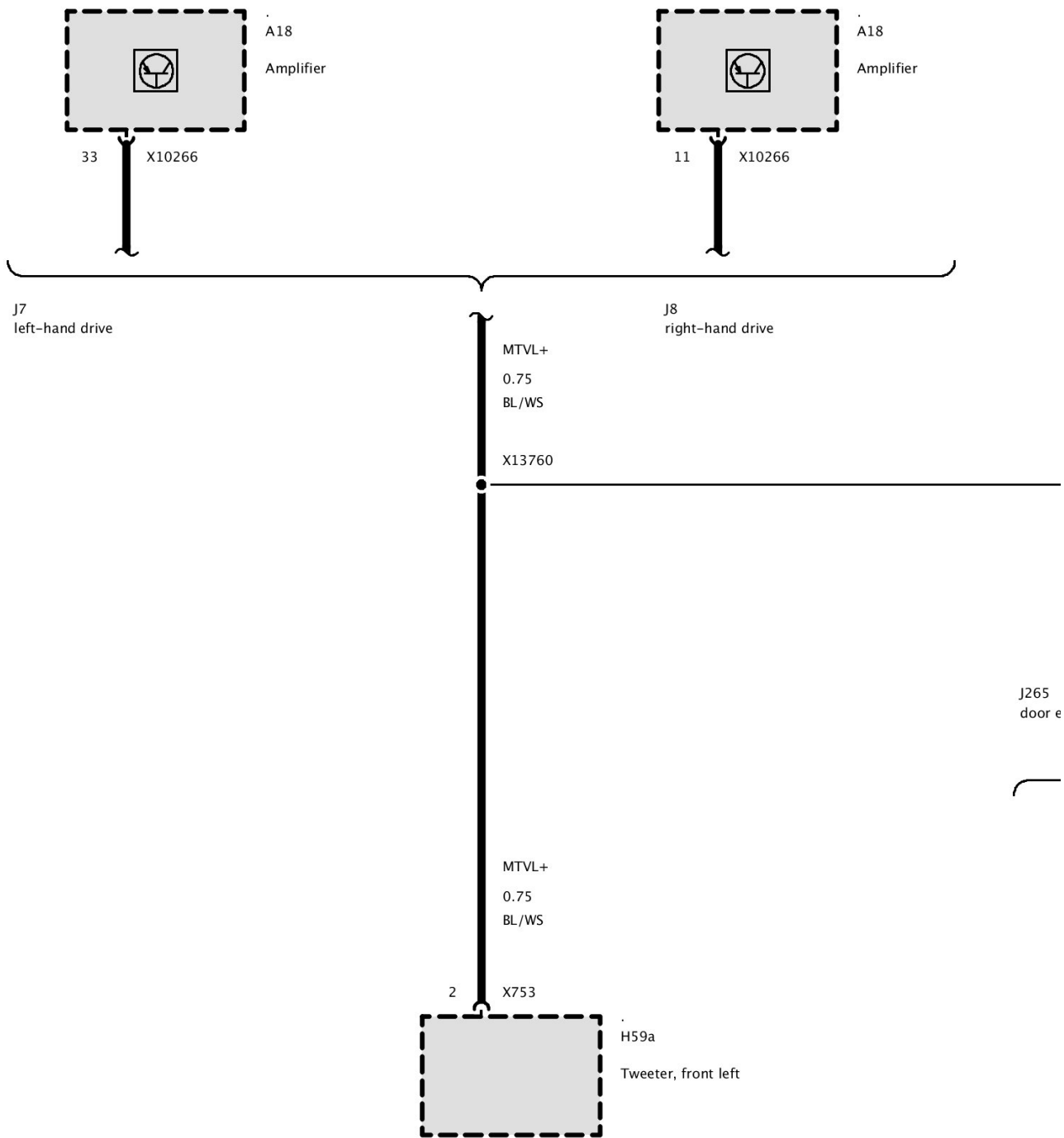
**Fuse F25**



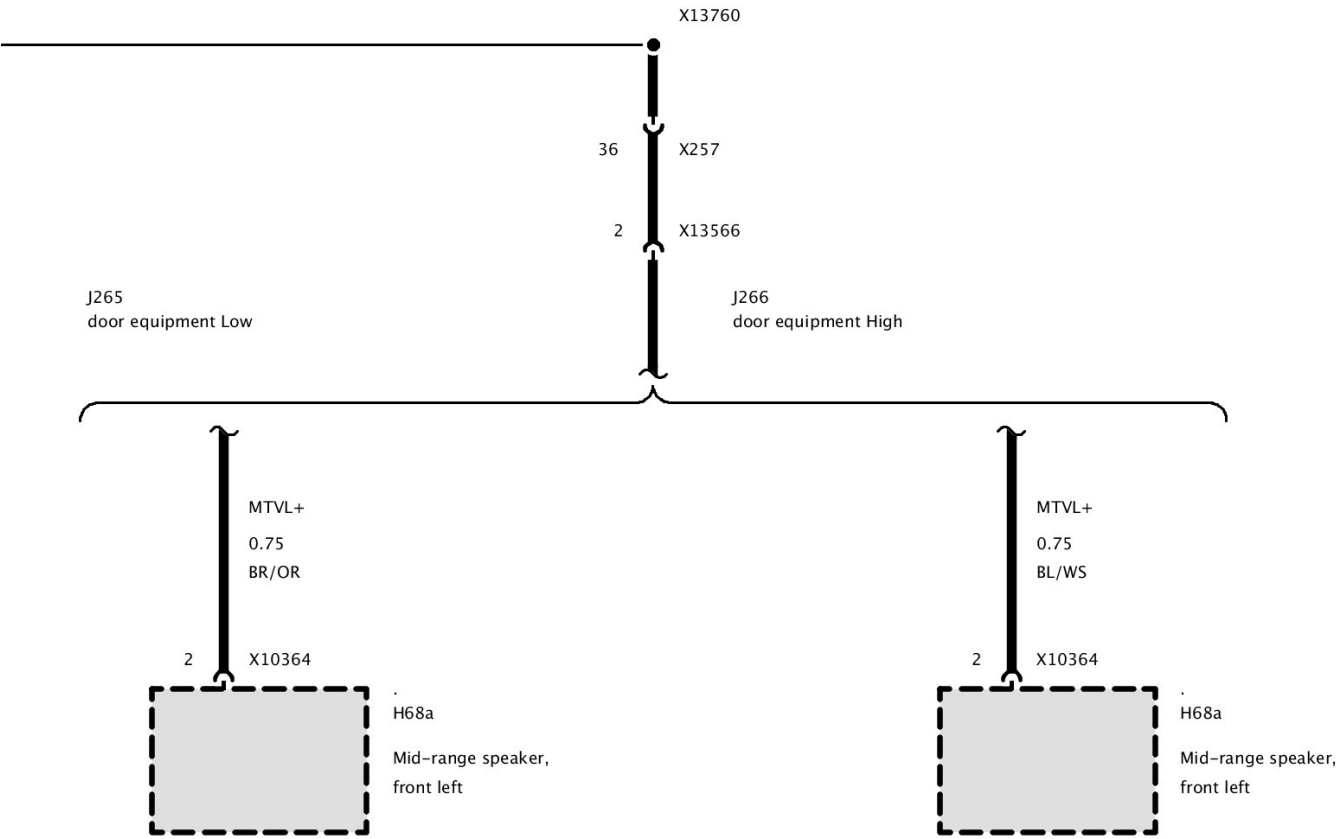
**X13760 No Adapter**

**X13760 No Adapter**

**Connector X13760**



Part 1

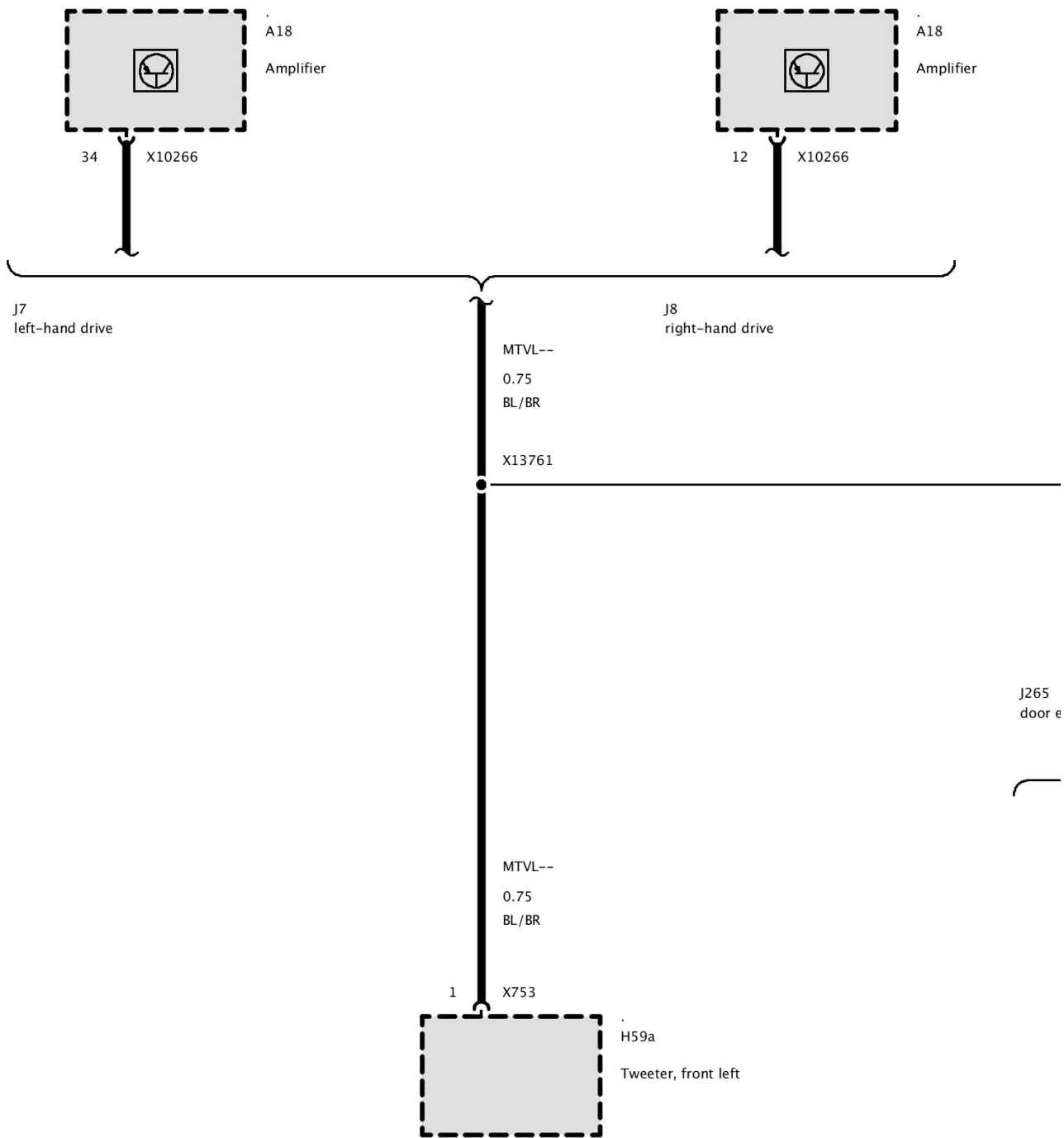


Part 2

X13761 No Adapter

X13761 No Adapter

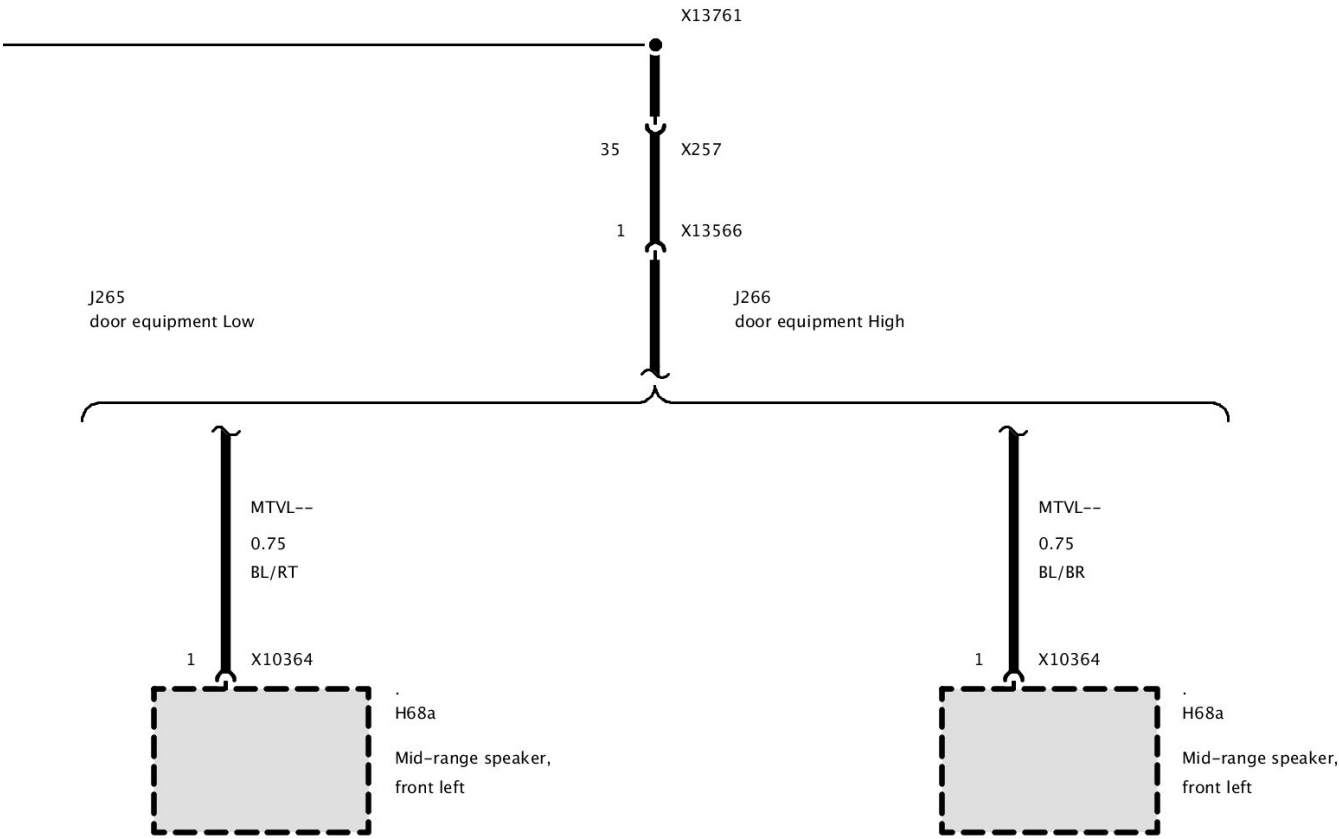
Connector X13761



Part 1

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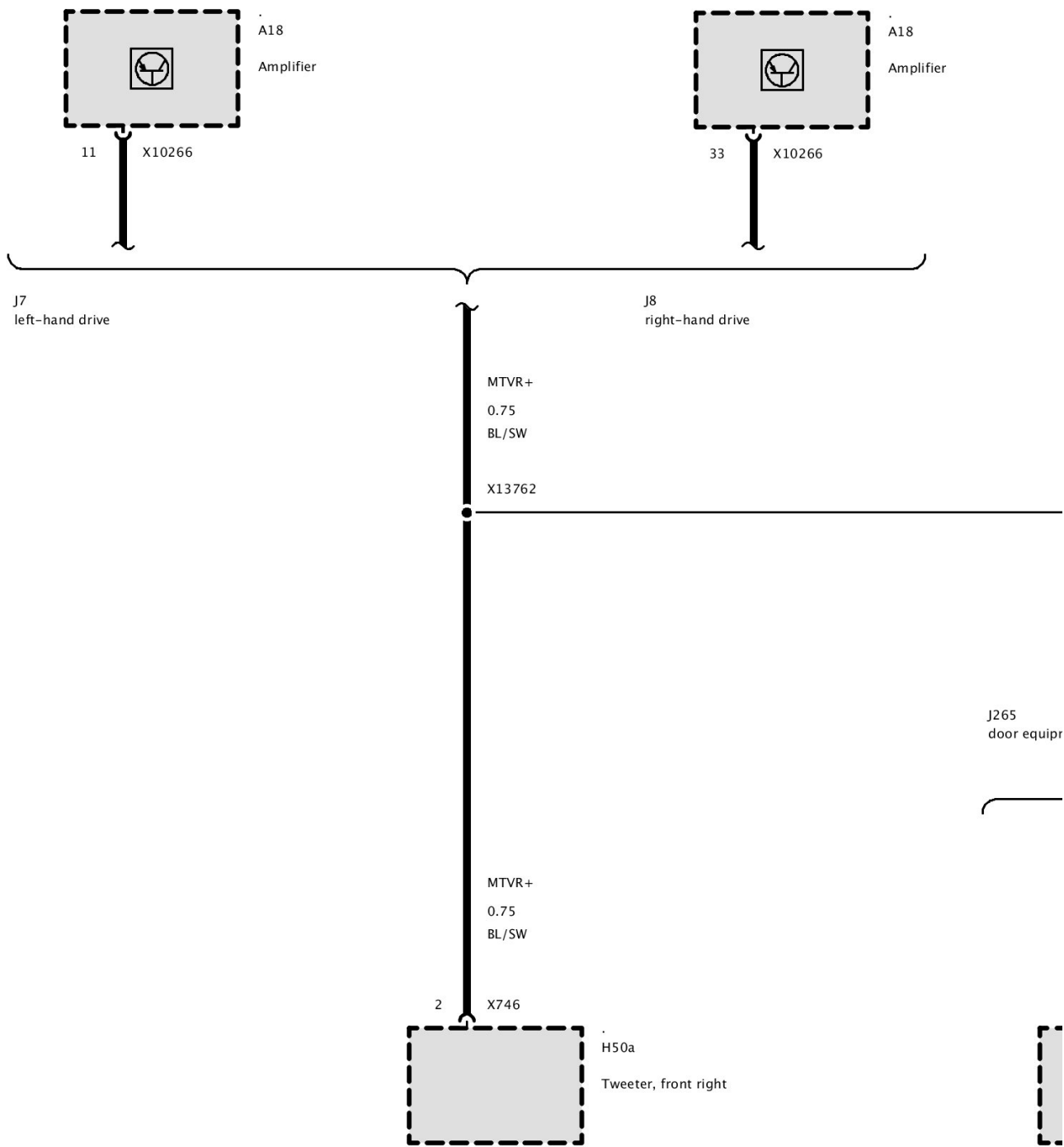


Part 2

X13762 No Adapter

X13762 No Adapter

Connector X13762

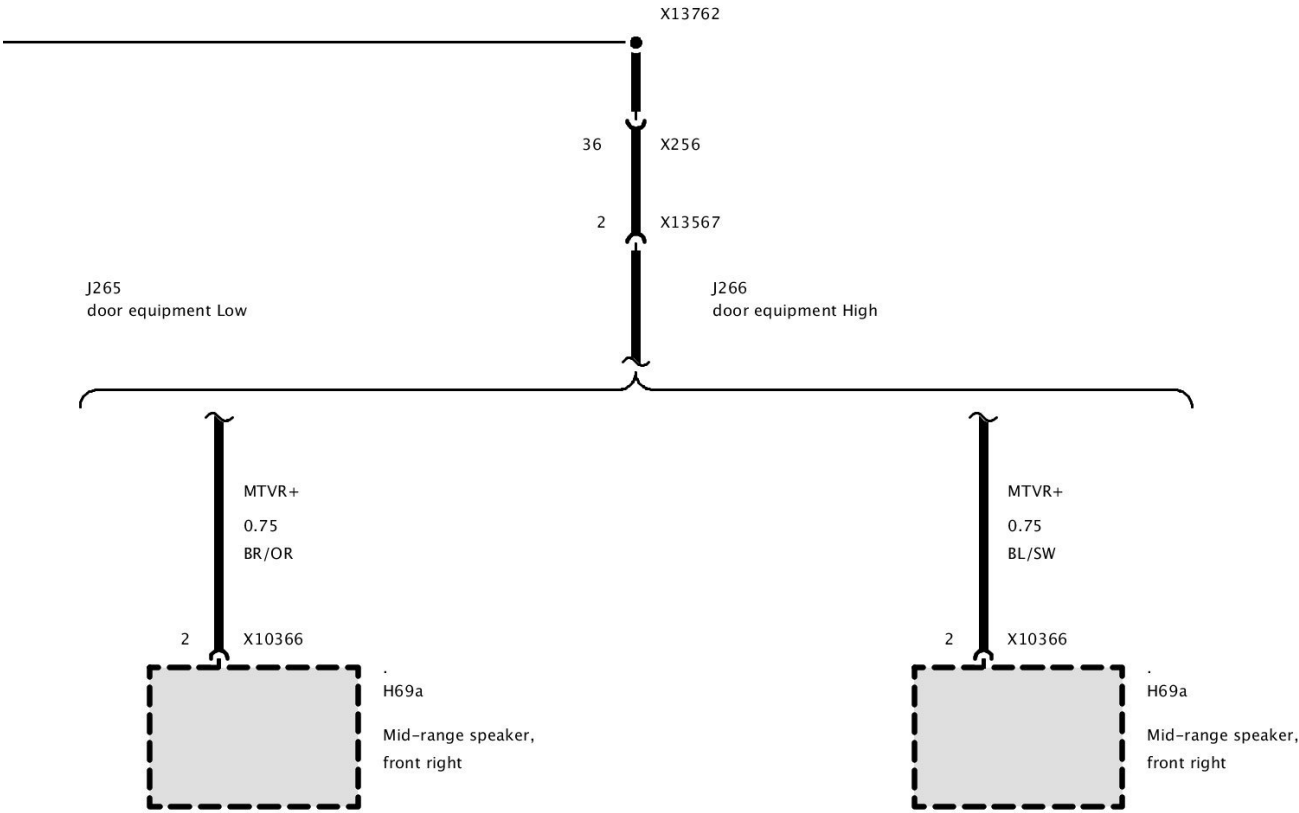


Part 1



lifier

,

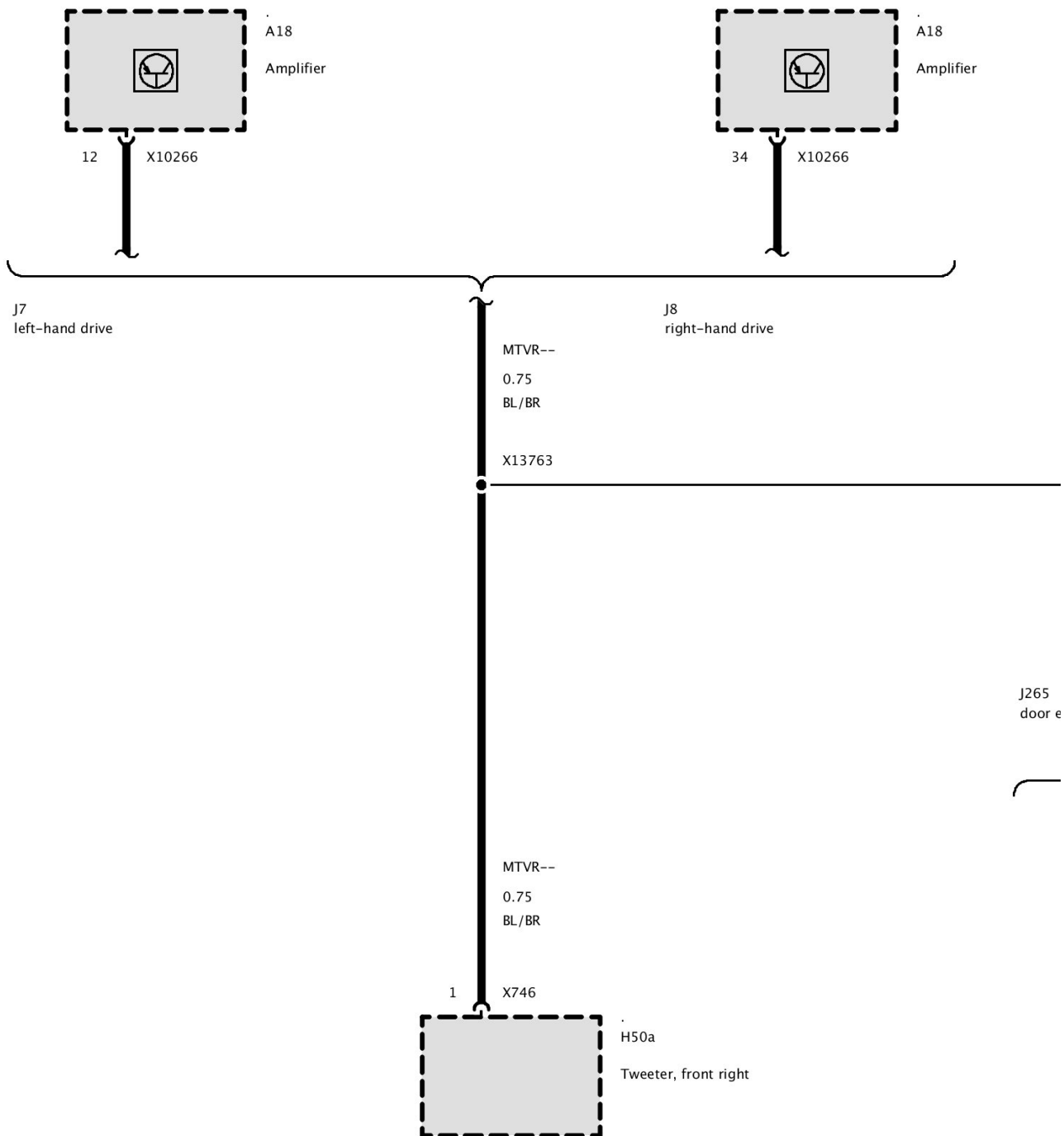


Part 2

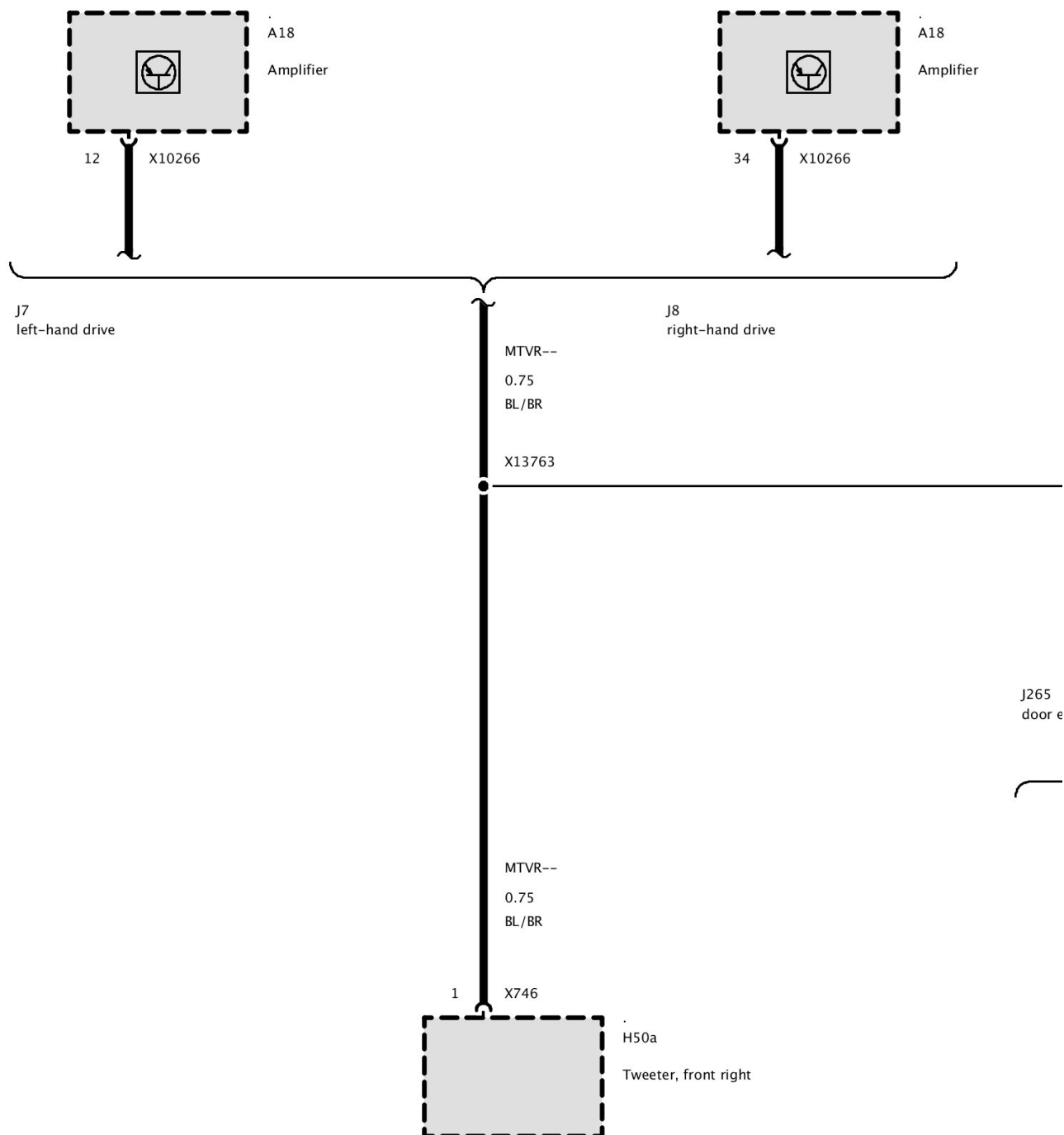
X13763 No Adapter

X13763 No Adapter

Connector X13763



Part 1

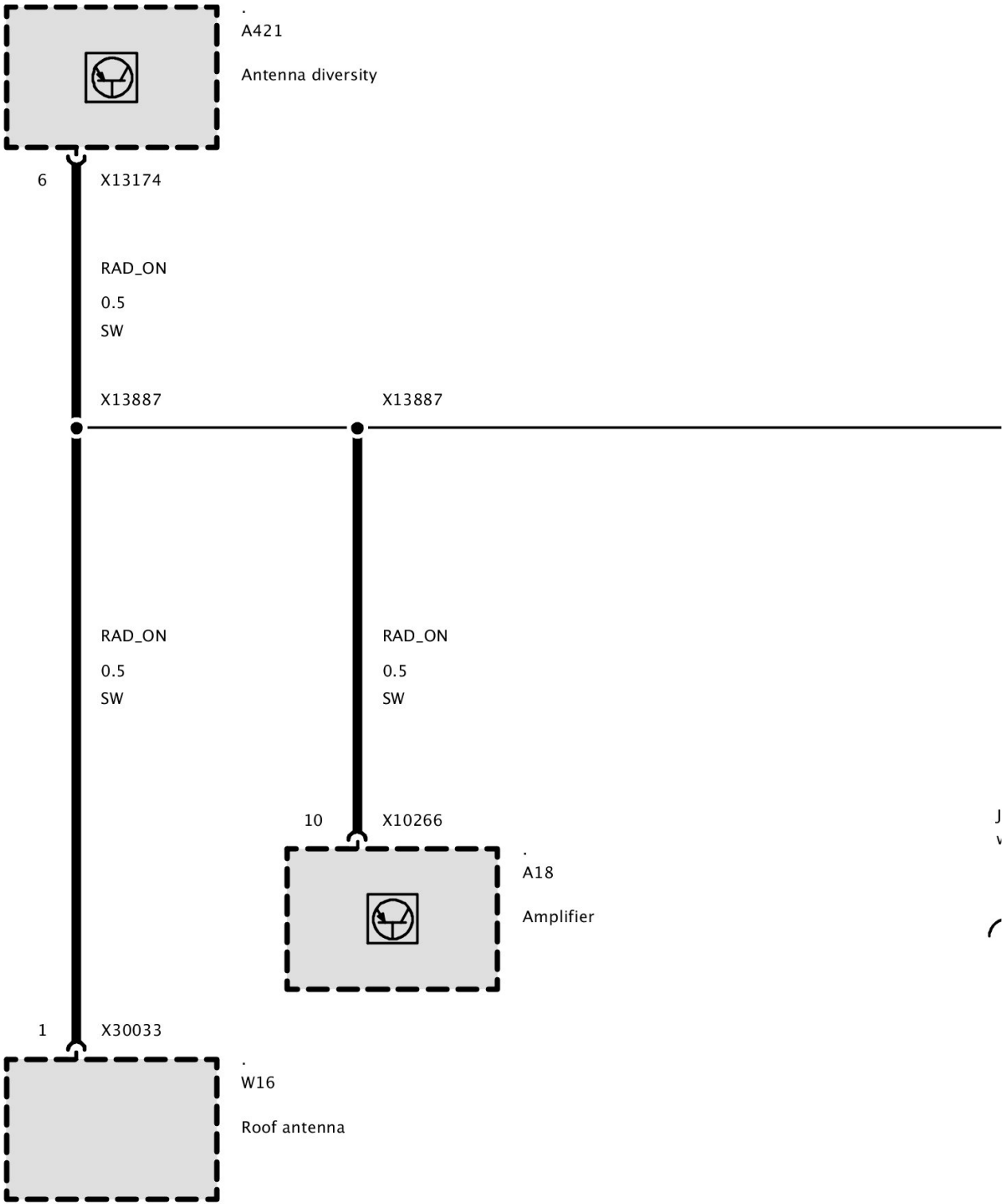


## Part 1

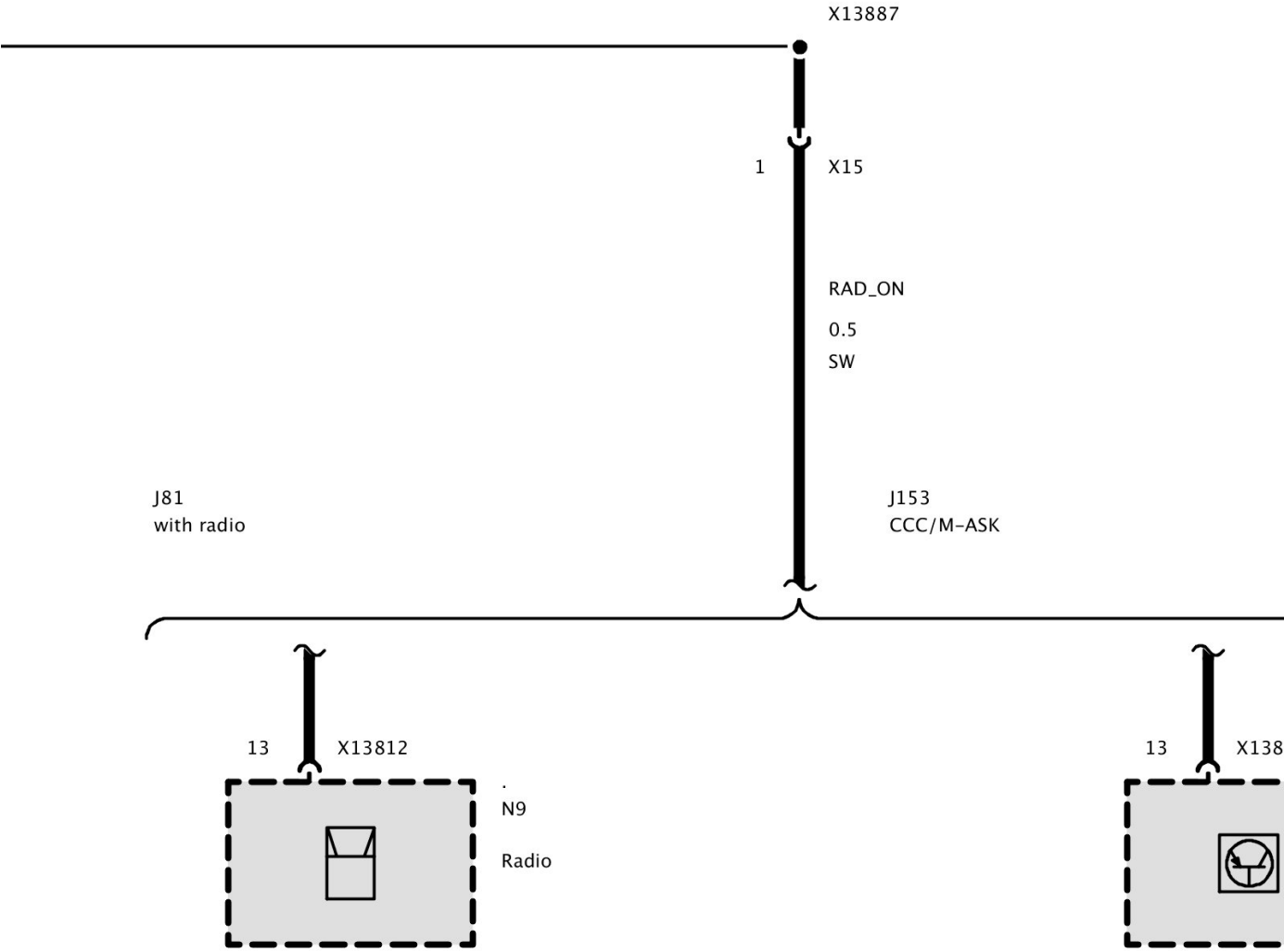
**X13887 No Adapter**

**X13887 No Adapter**

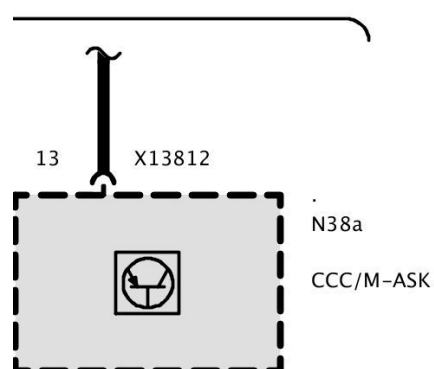
**Connector X13887**

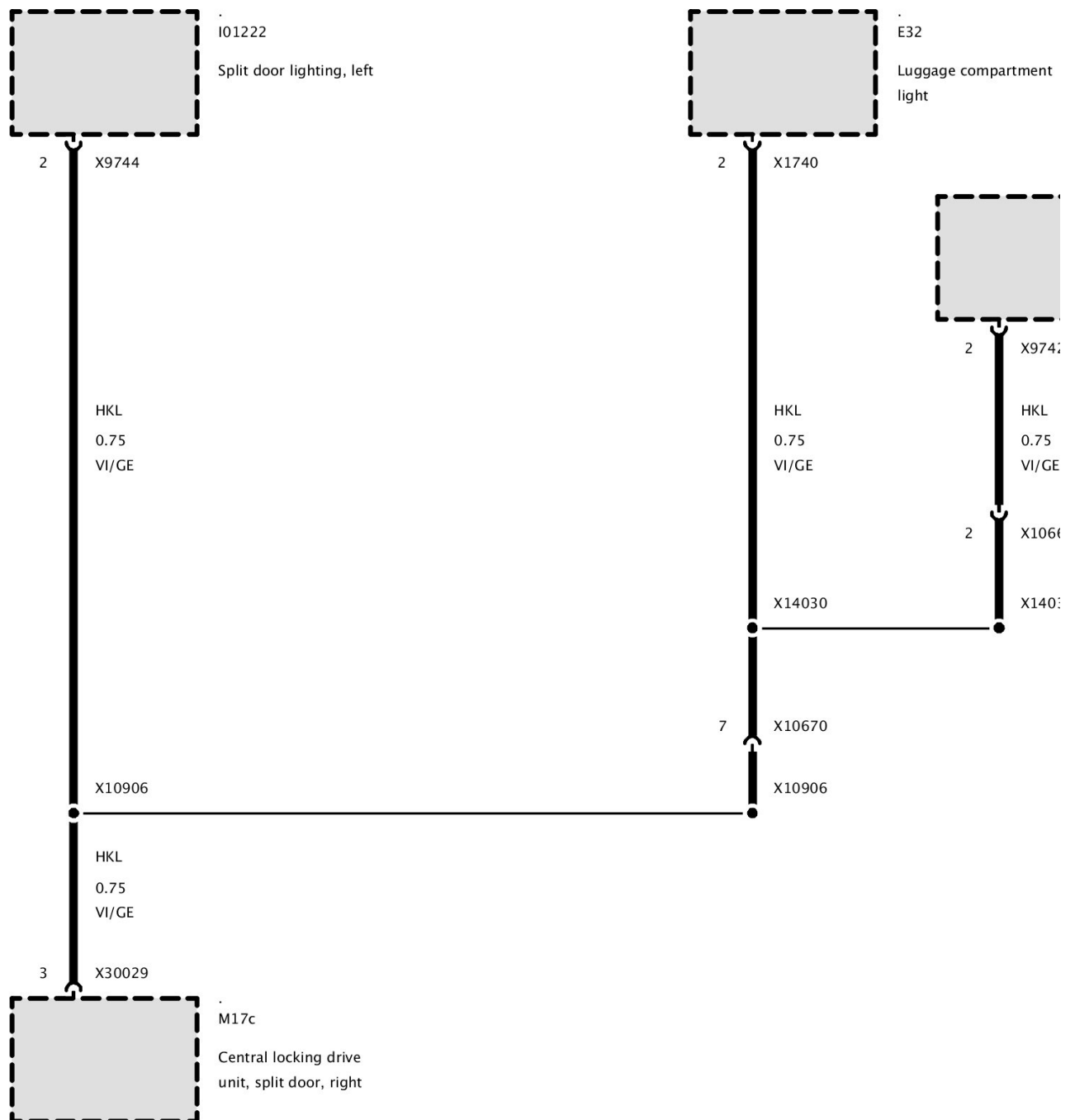


Part 1



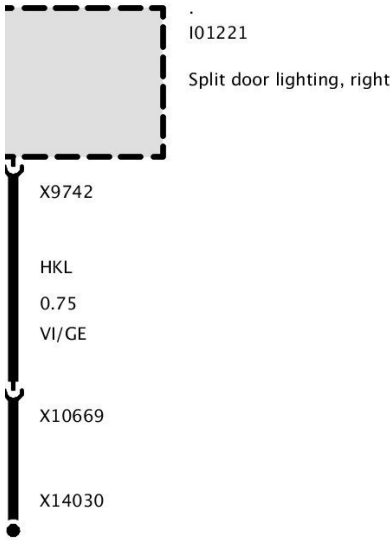
Part 2

**Part 3****X14030 No Adapter****X14030 No Adapter****Connector X10906, X14030 (As of 03/08)**



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partment



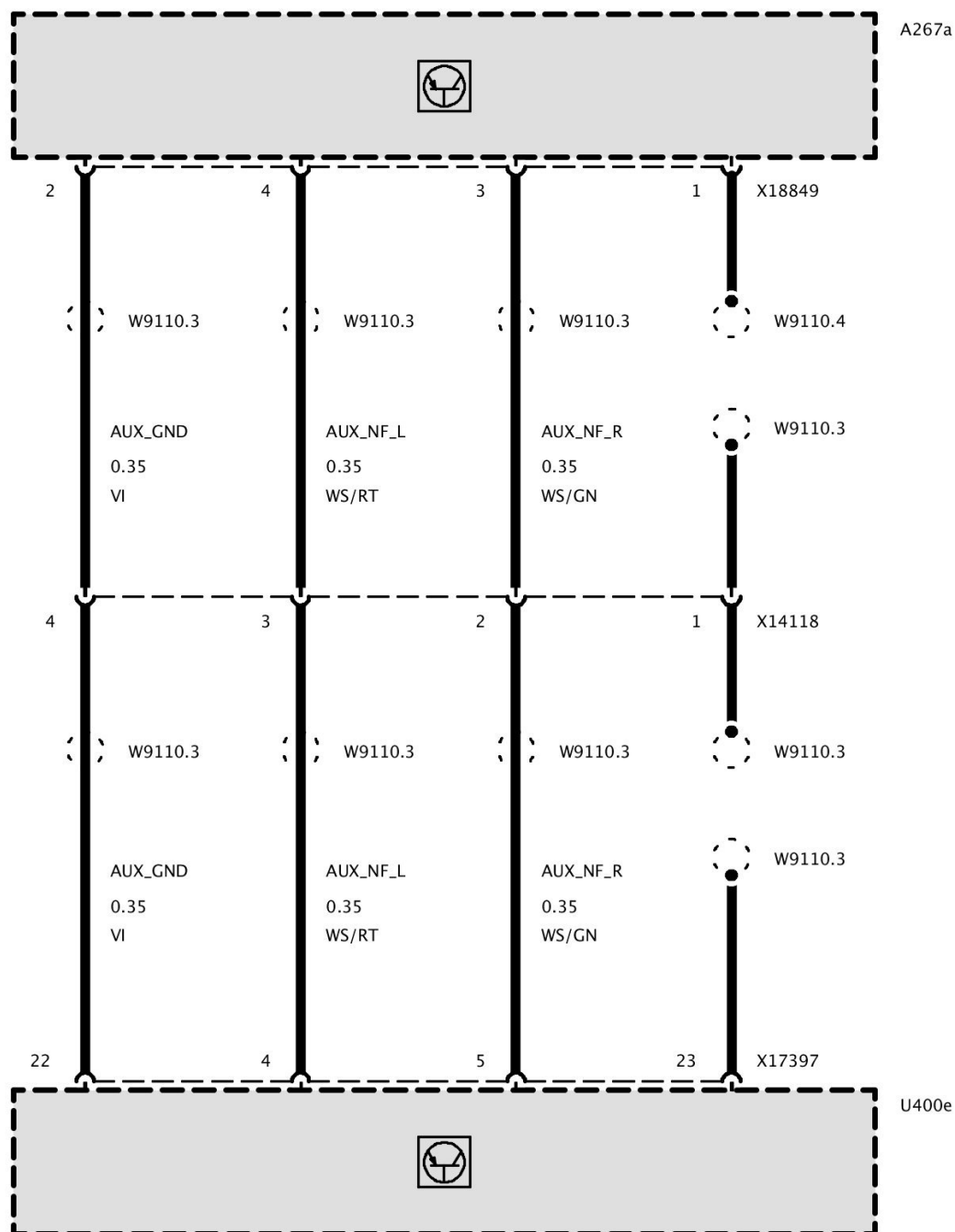
Part 2

X14118 Adapter 616032, Storage Location D108

X14118 Adapter 616032, Storage Location D108

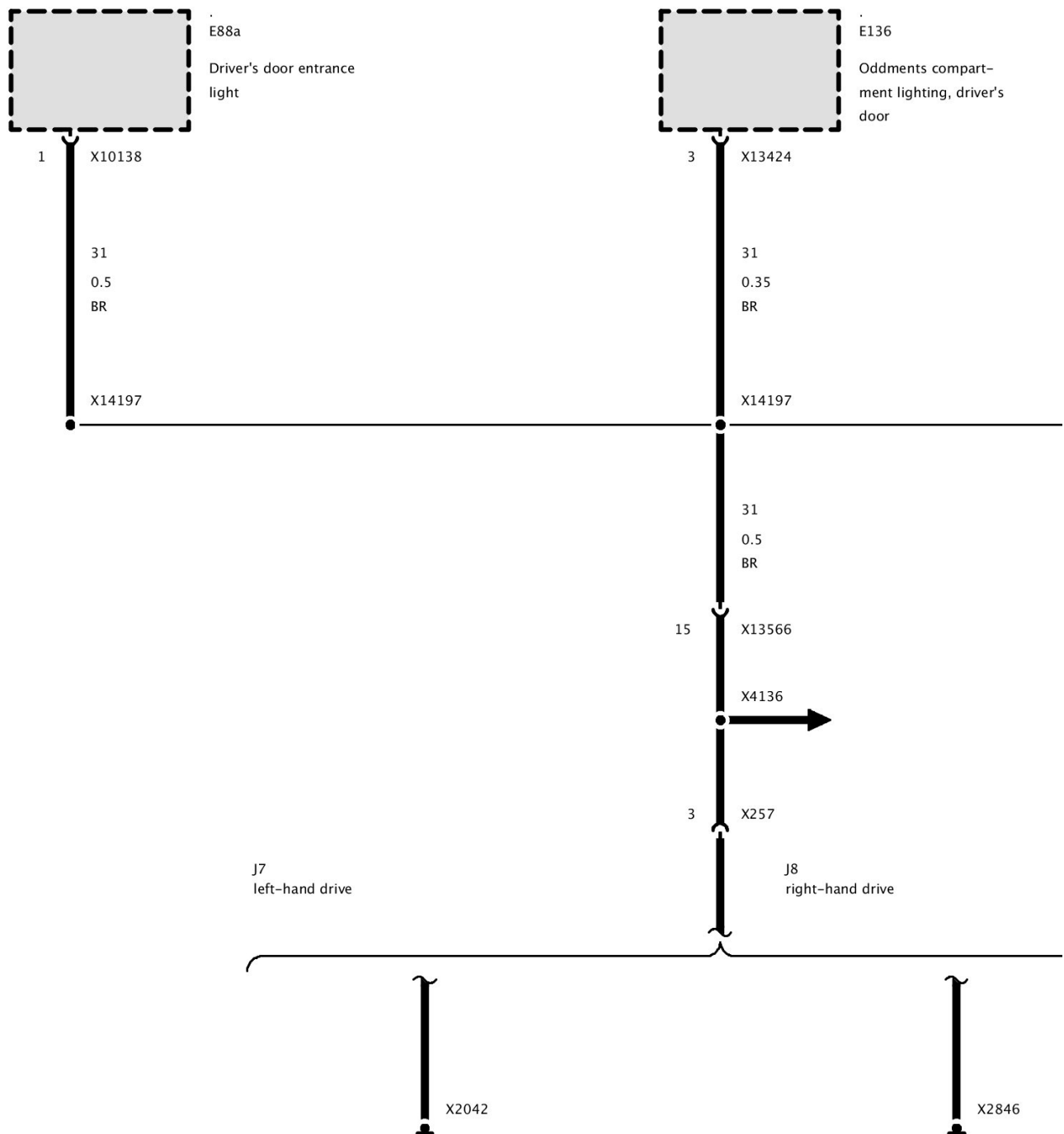
Connector X14118



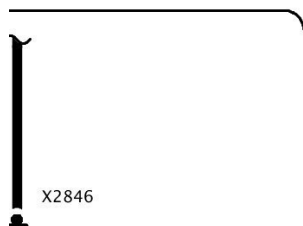
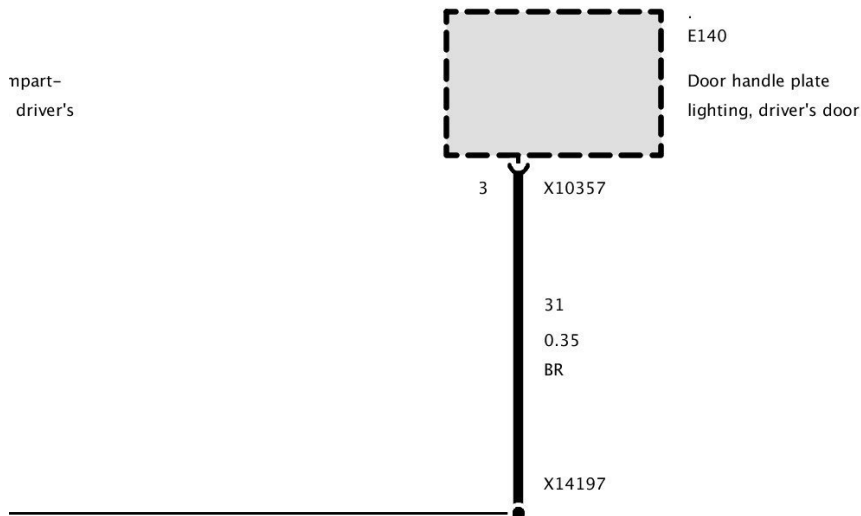


### X14197 No Adapter

## Ground Connector X14197



Part 1

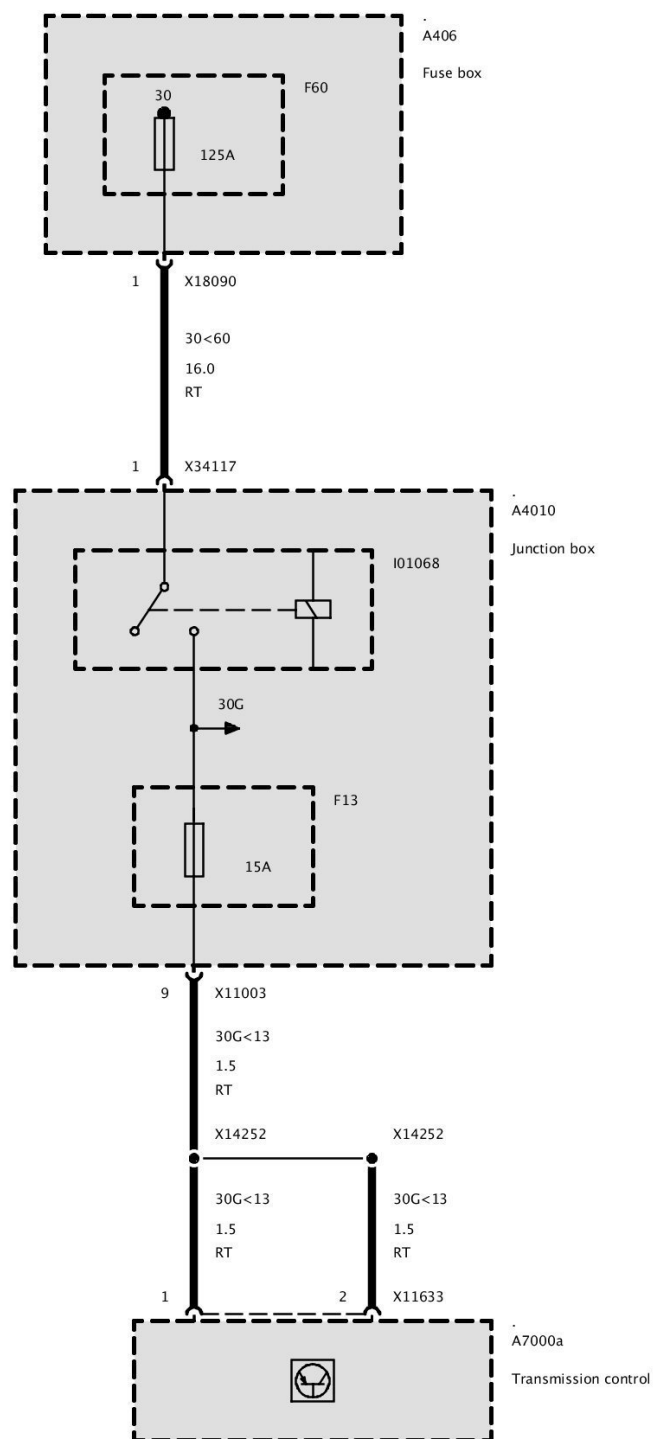


**Part 2**

**X14252 No Adapter**

**X14252 No Adapter**

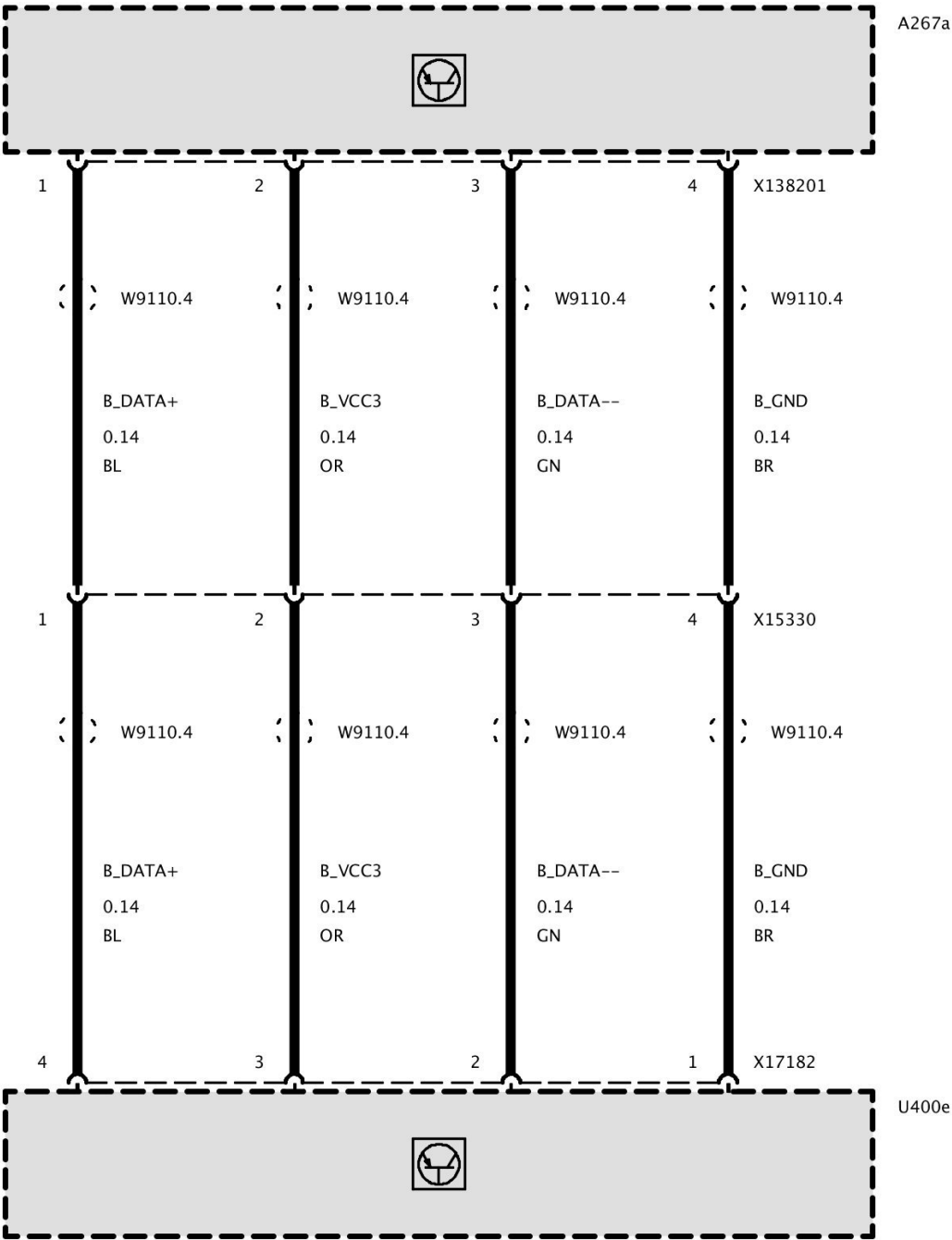
**Fuse F13 (EGS Electronic Transmission Control)**



**X15330 No Adapter**

**X15330 No Adapter**

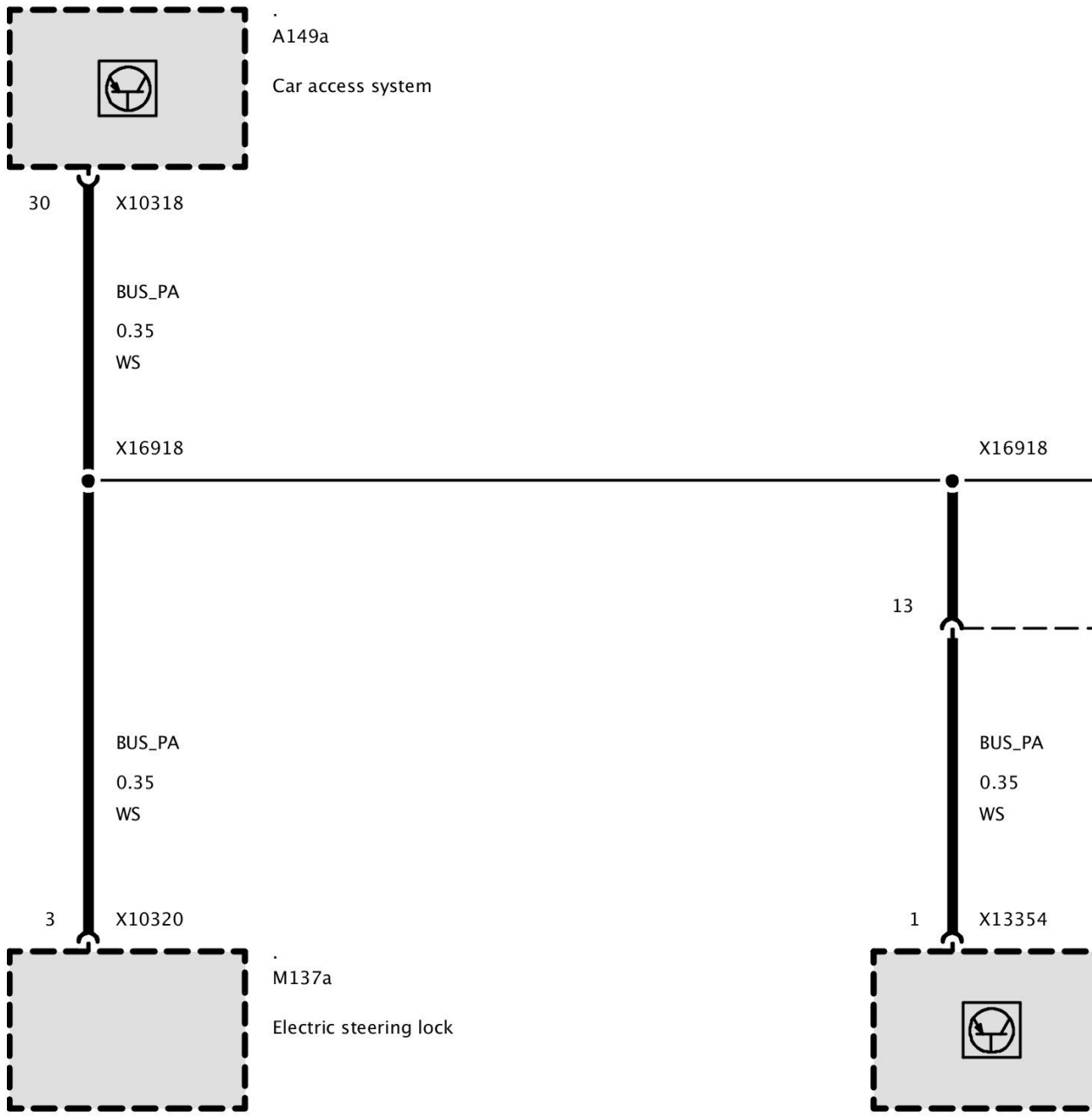
**Connector X15330**



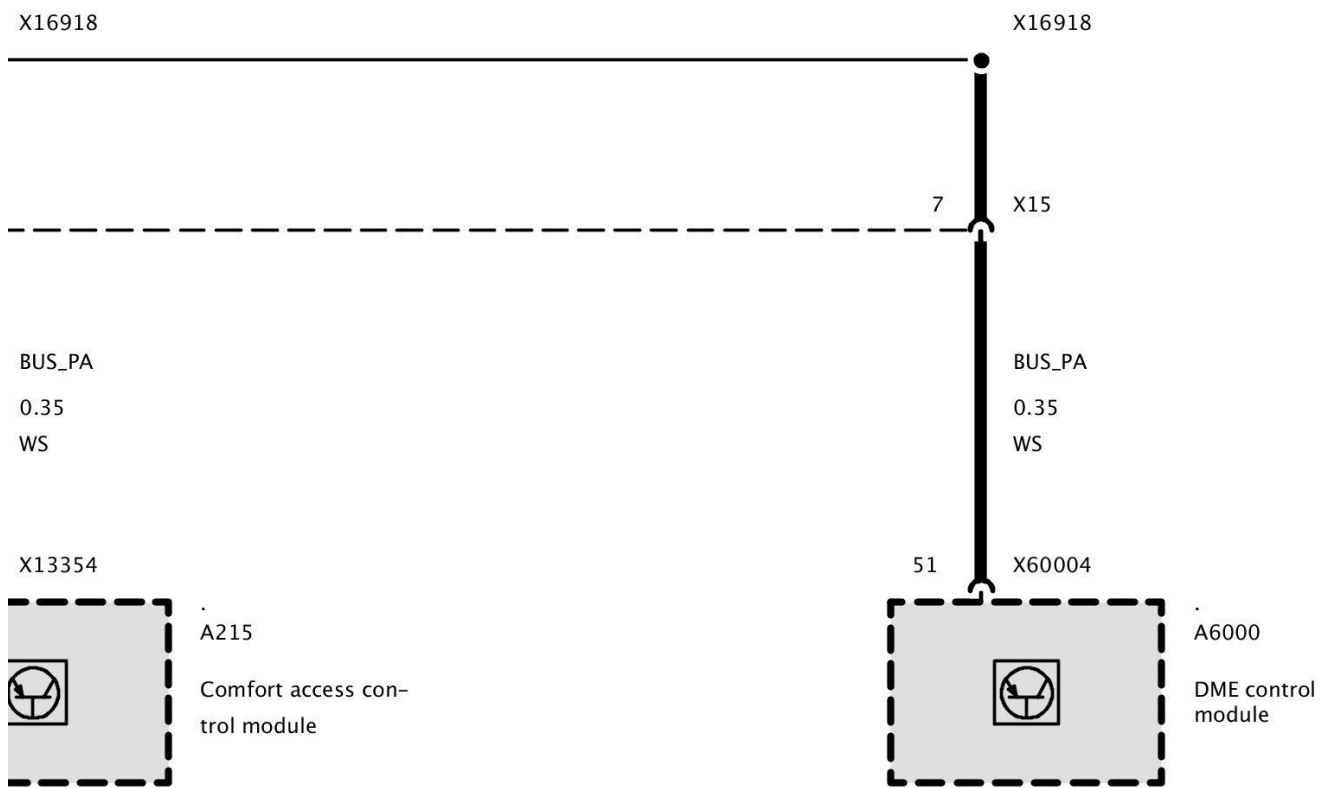
**X16918 No Adapter**

**X16918 No Adapter**

**Connector X16918**



Part 1

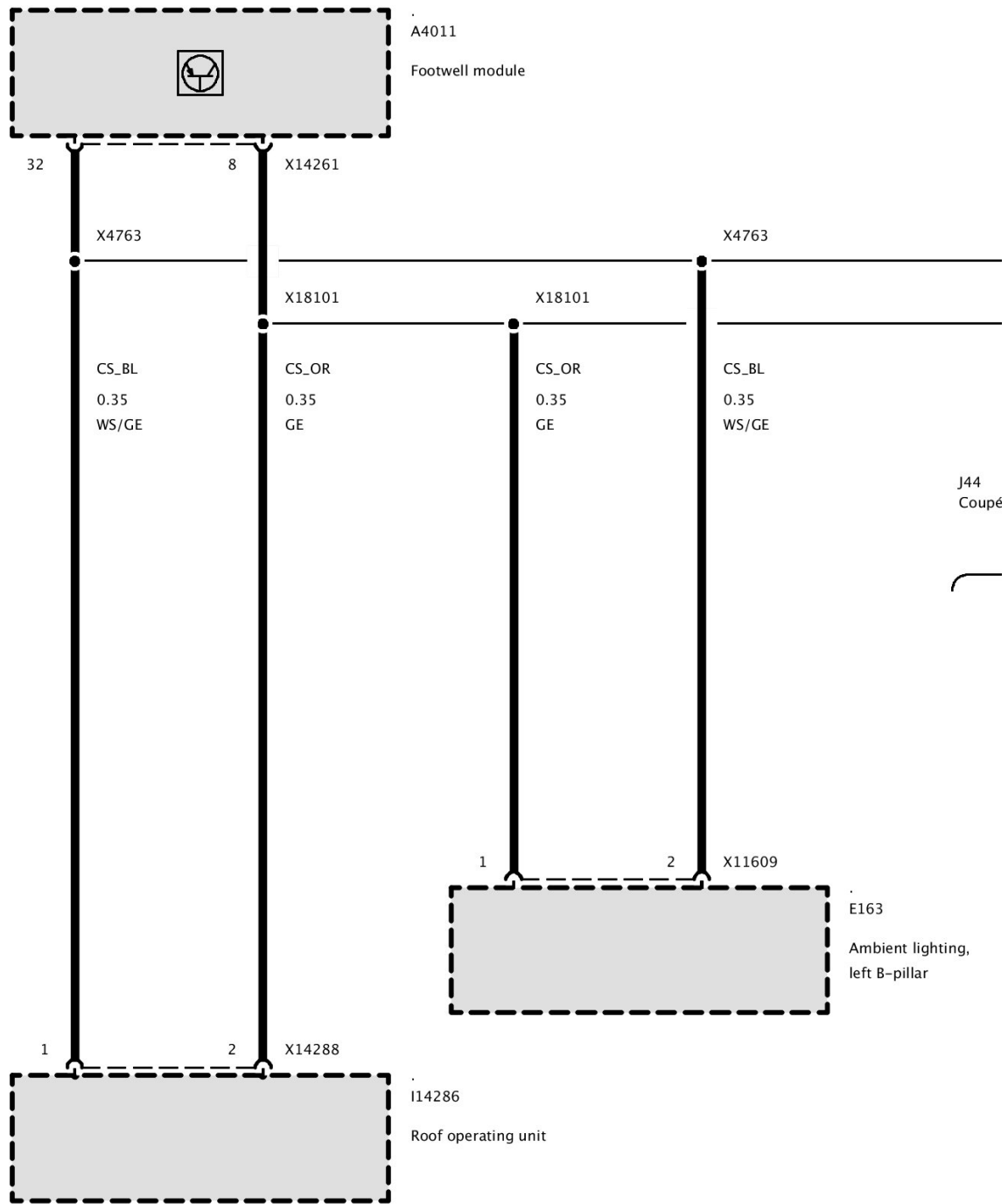


Part 2

X18101 No Adapter

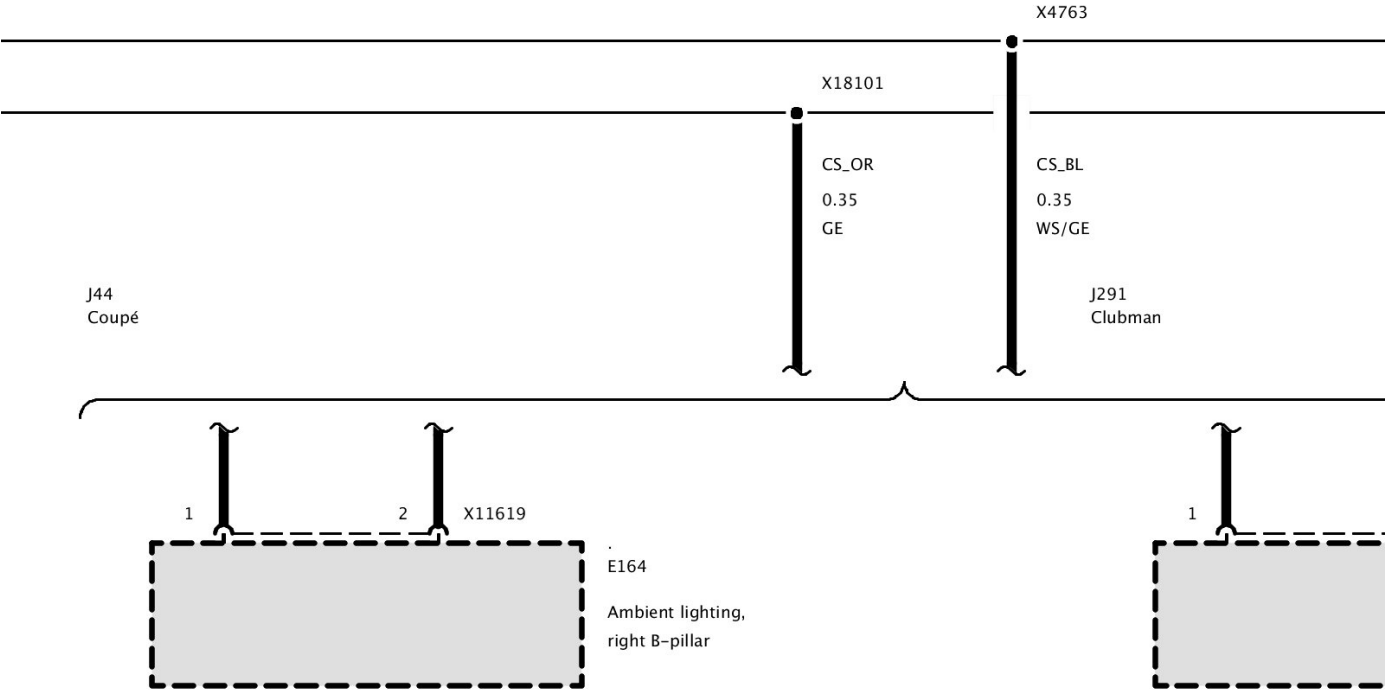
X18101 No Adapter

Connectors X4763, X18101, X2859, X1366, X01436, X1203



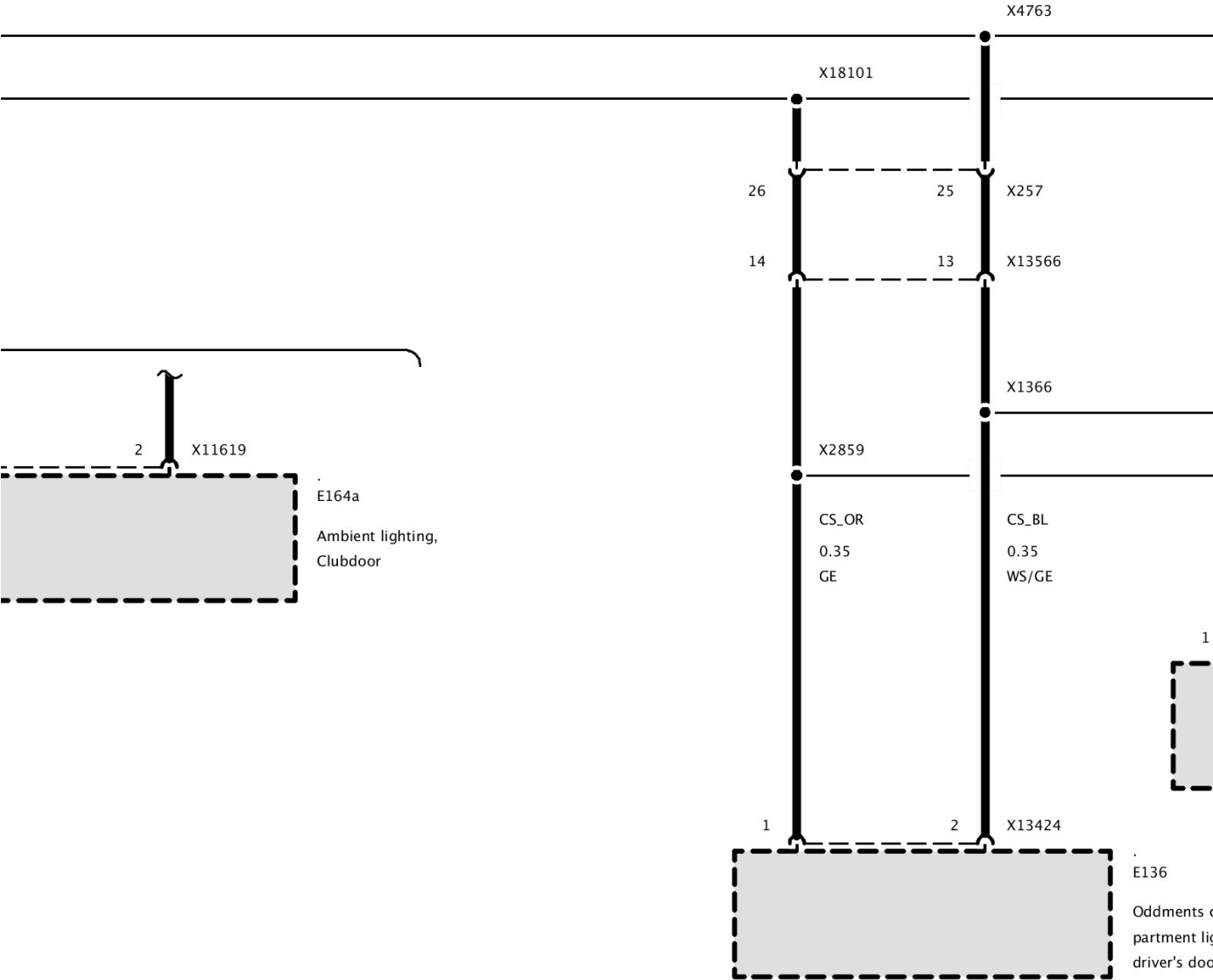
Part 1



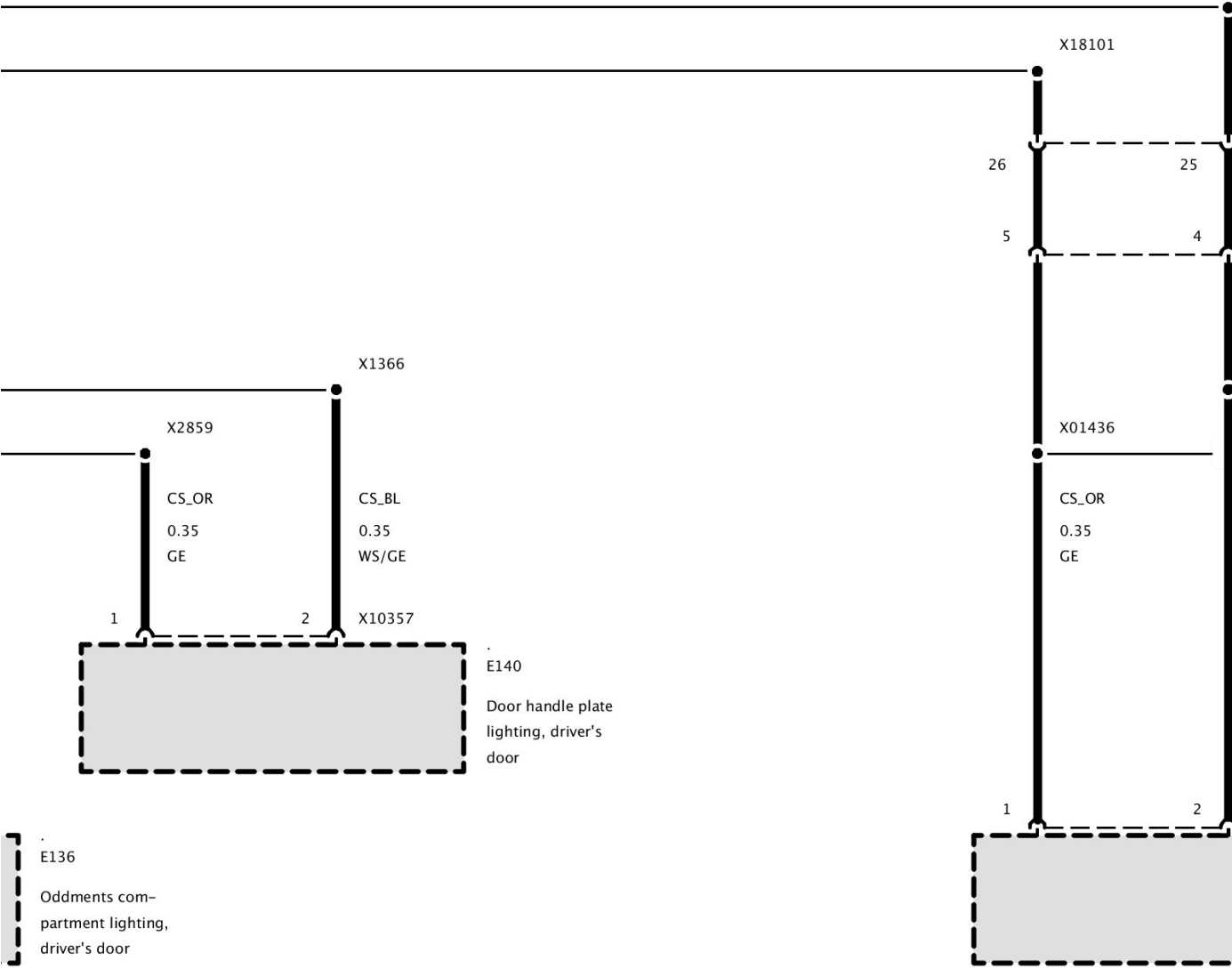


ient lighting,  
B-pillar

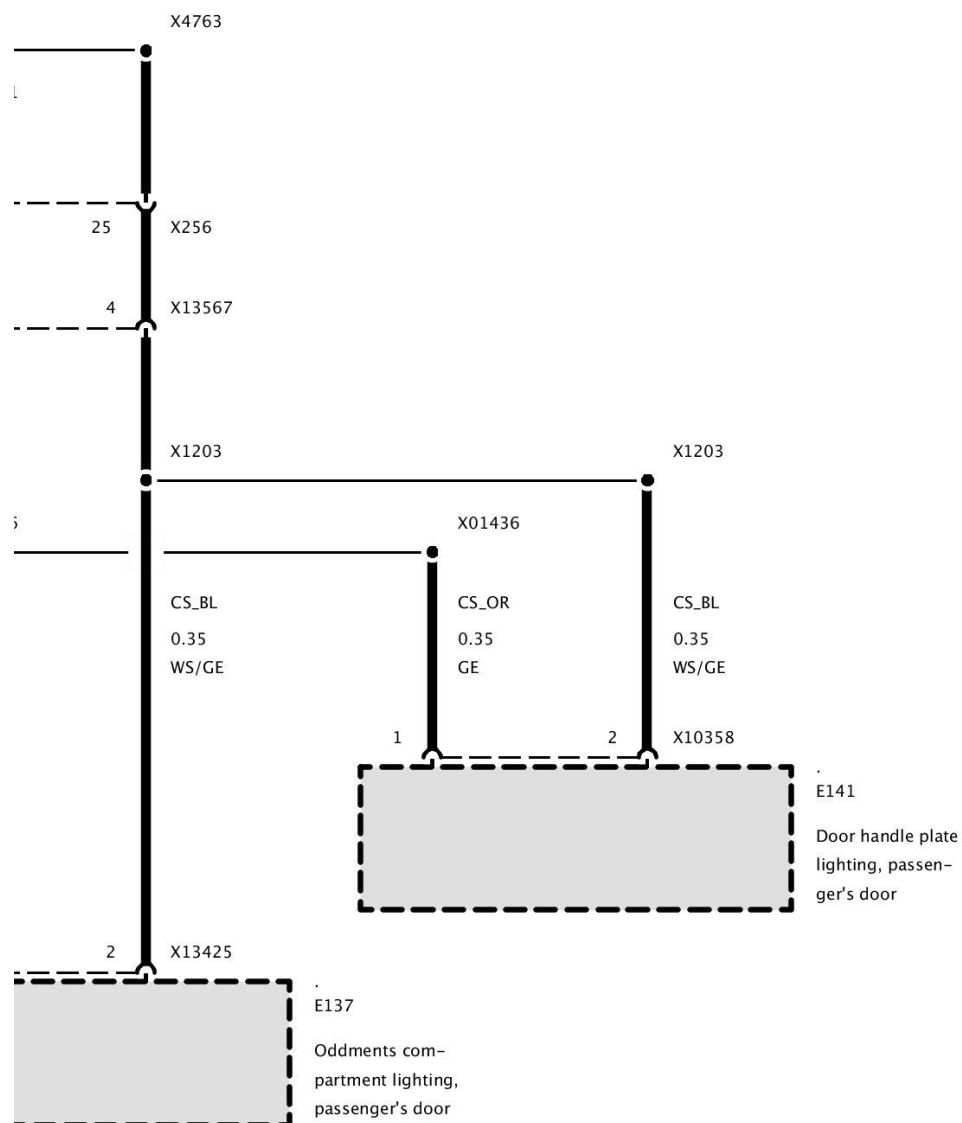
Part 2



Part 3

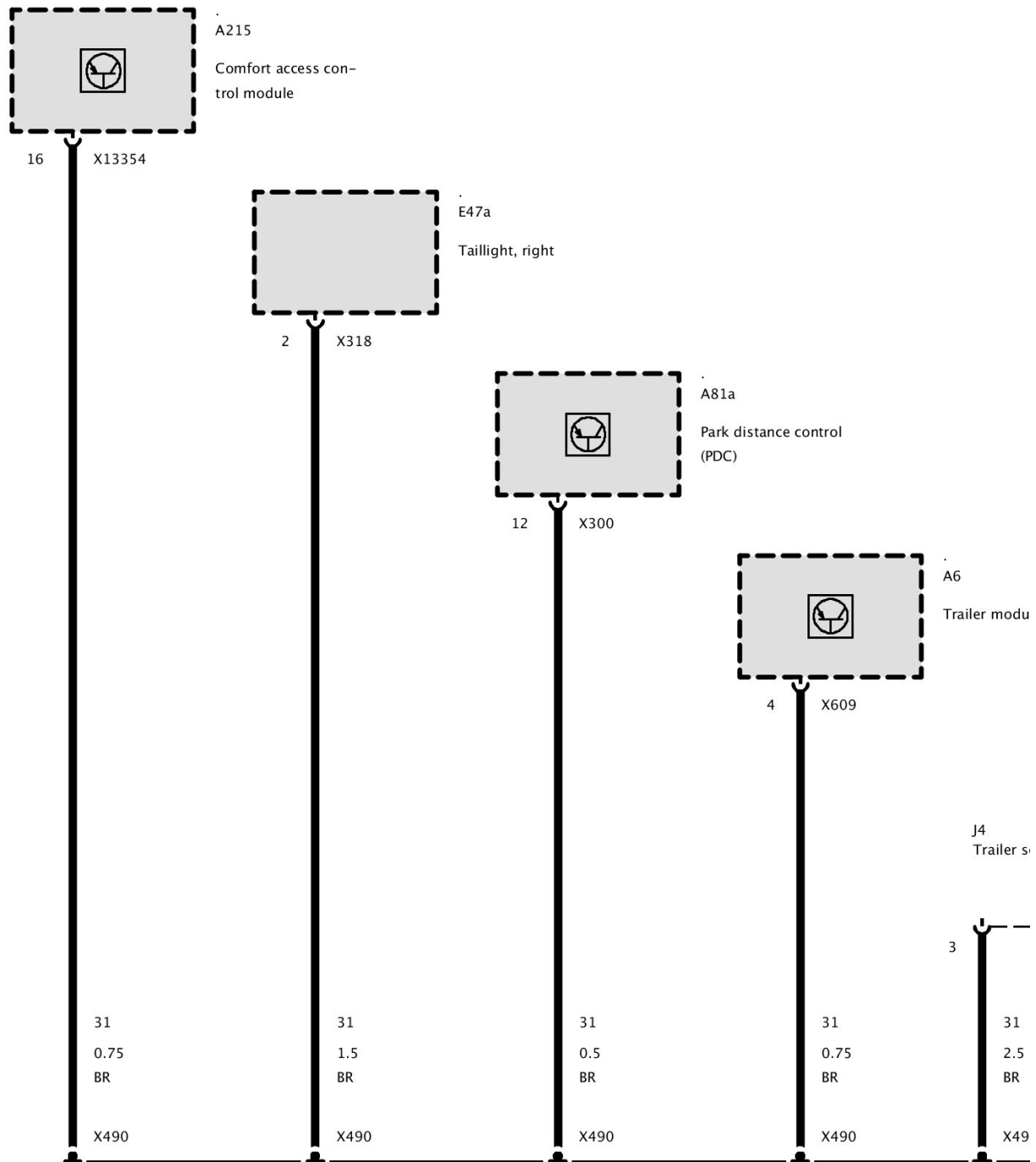


Part 4

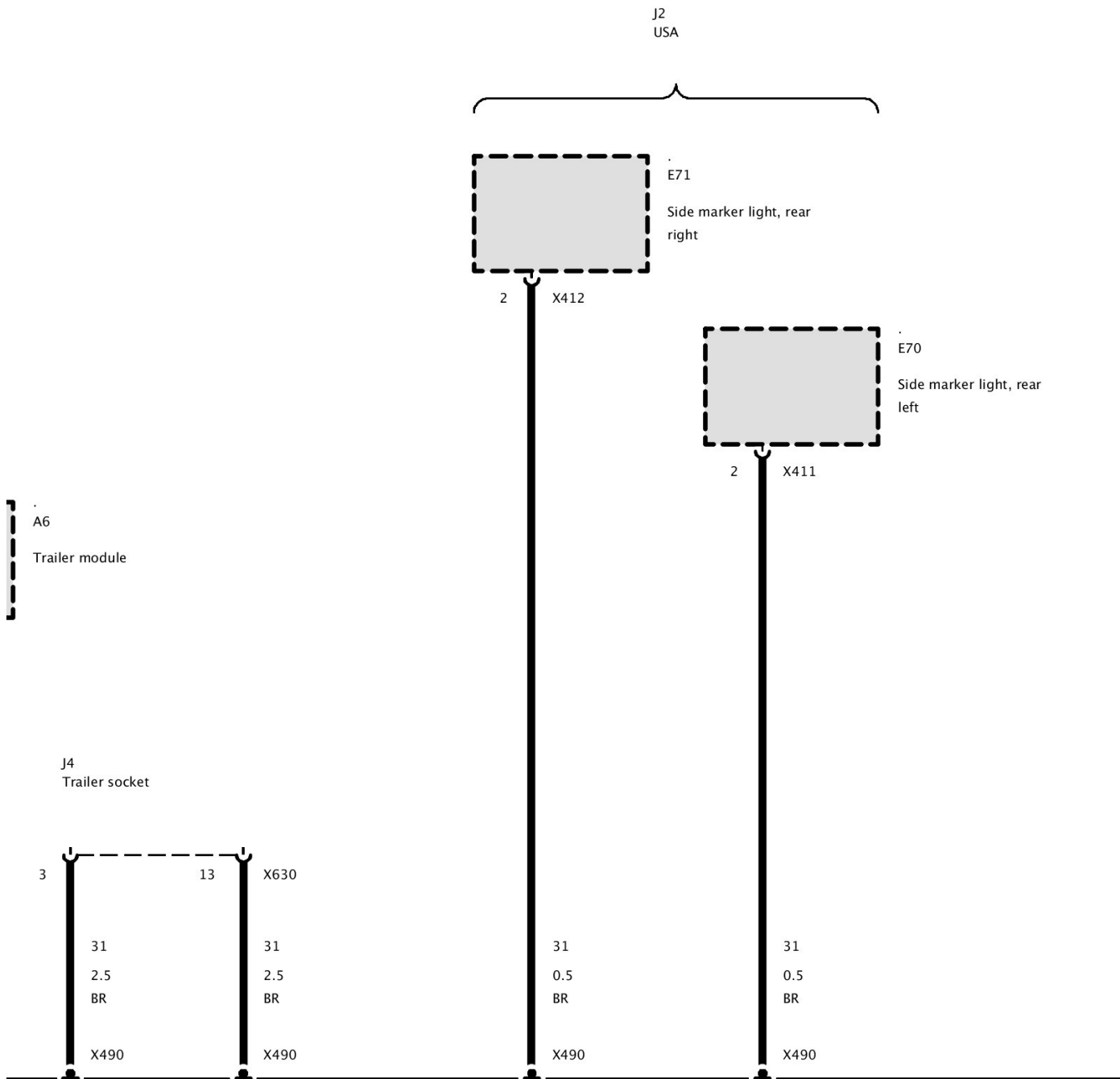


### X18740 No Adapter

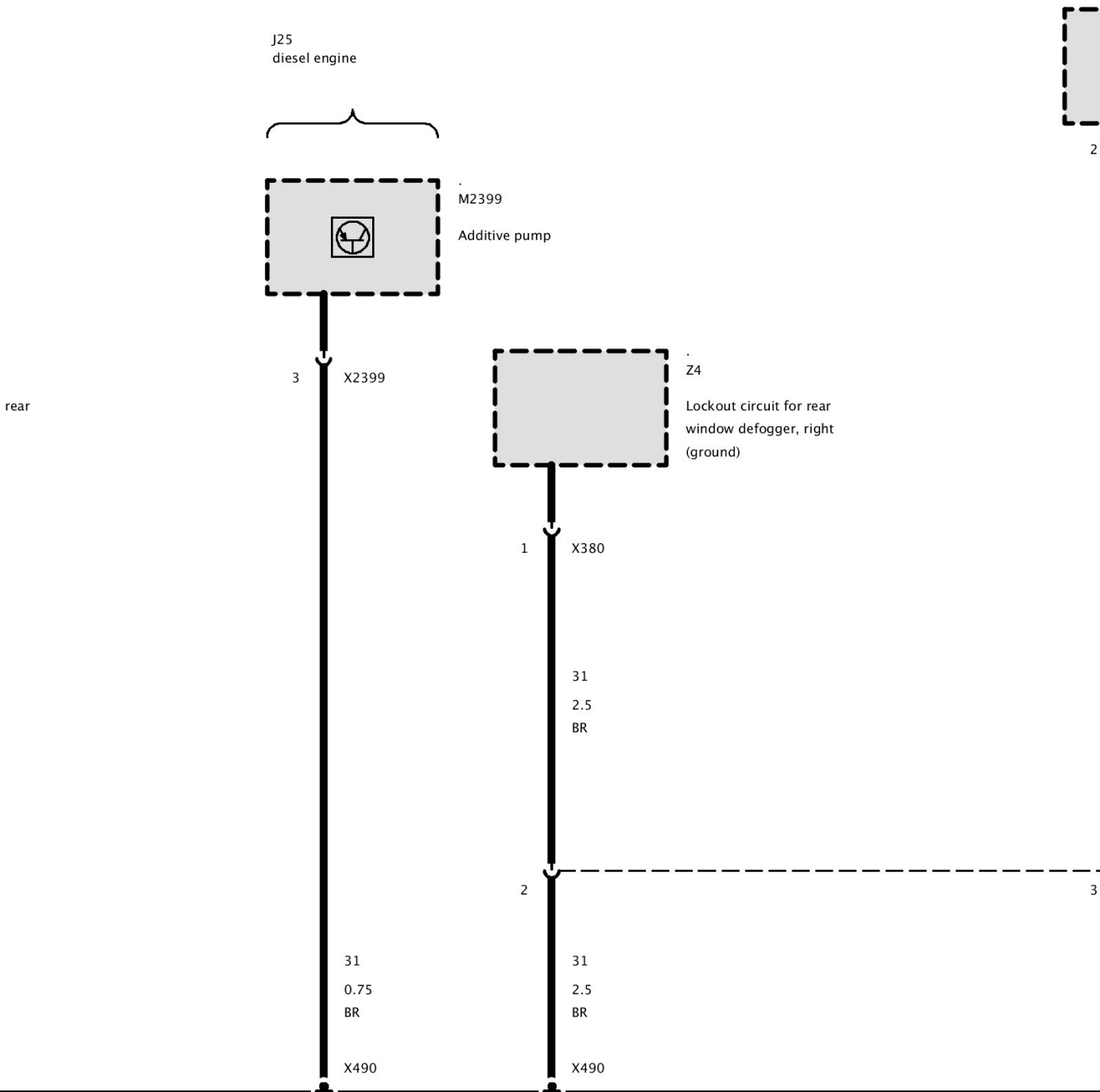
### Ground Connection X490, Connector X18740, X9641, X13229



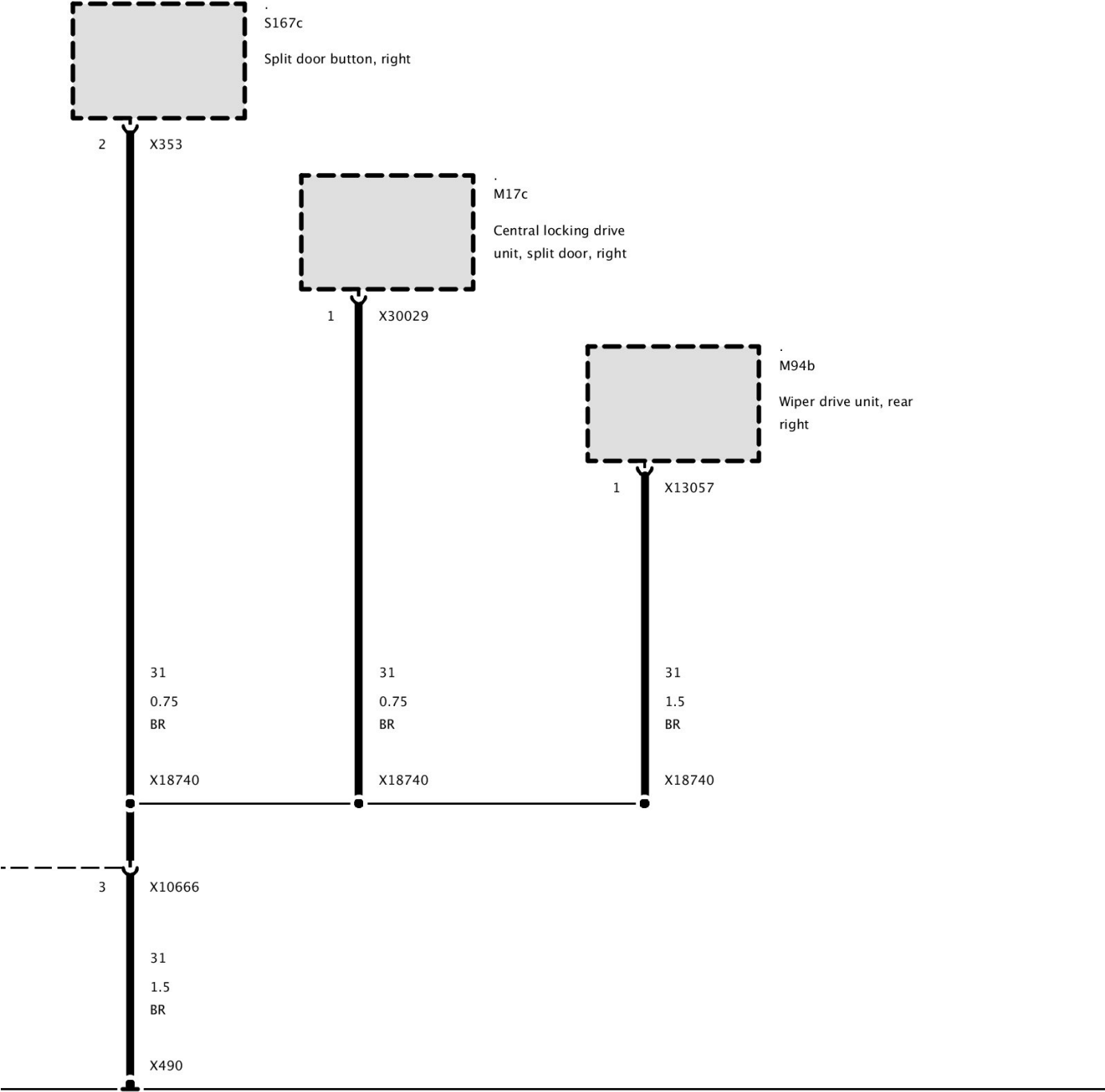
Part 1



Part 2



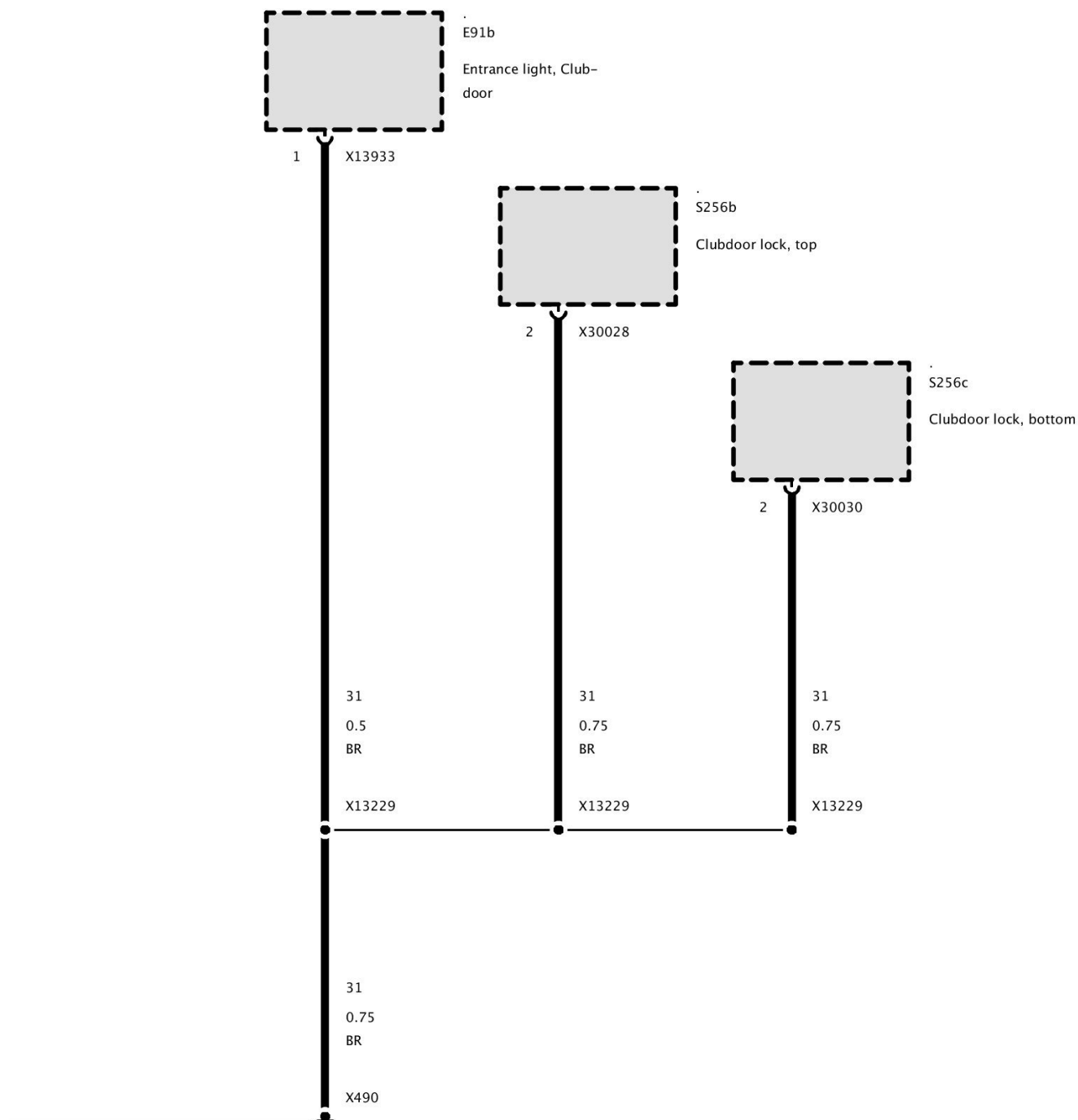
Part 3



Part 4





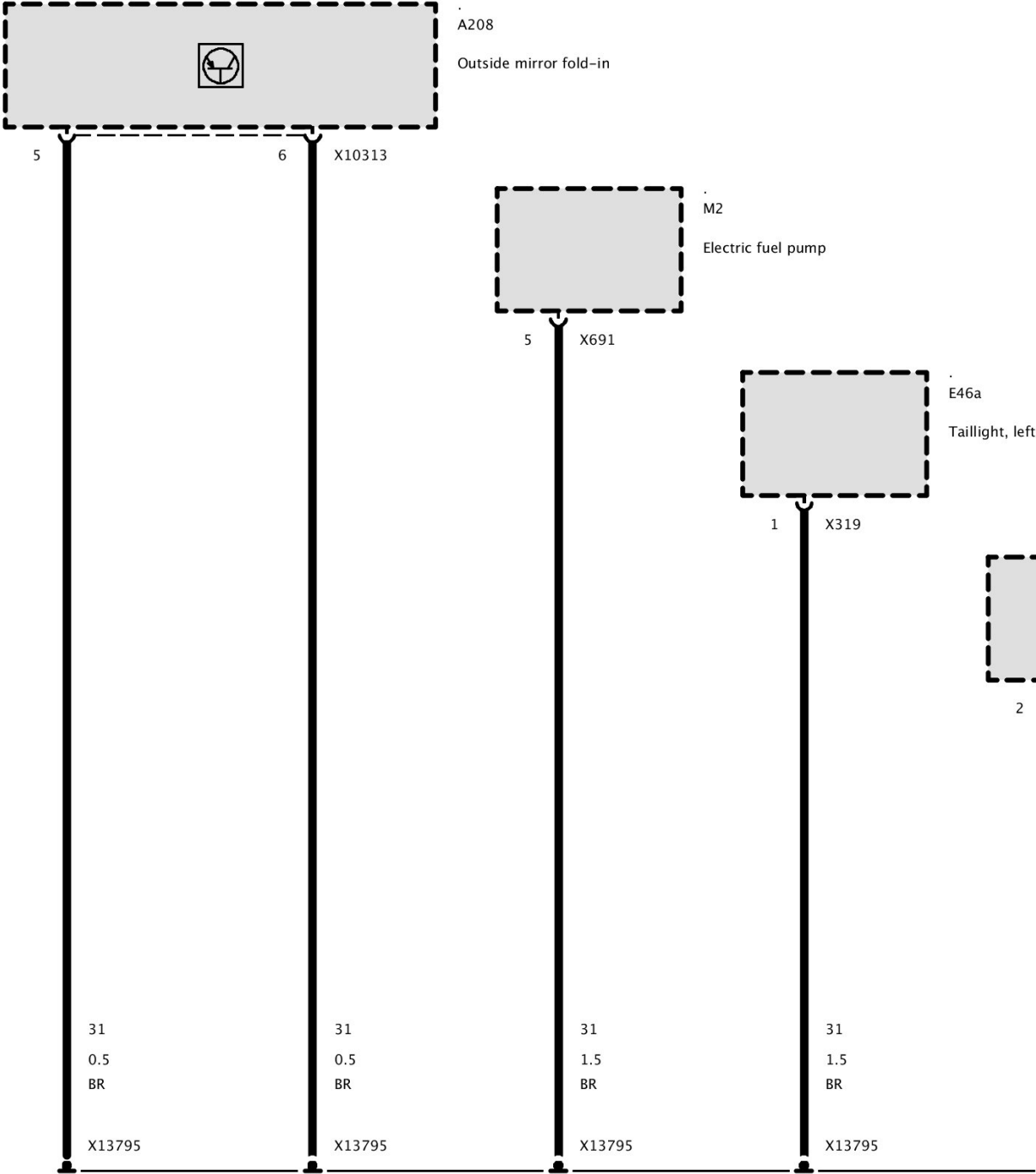


## Part 6

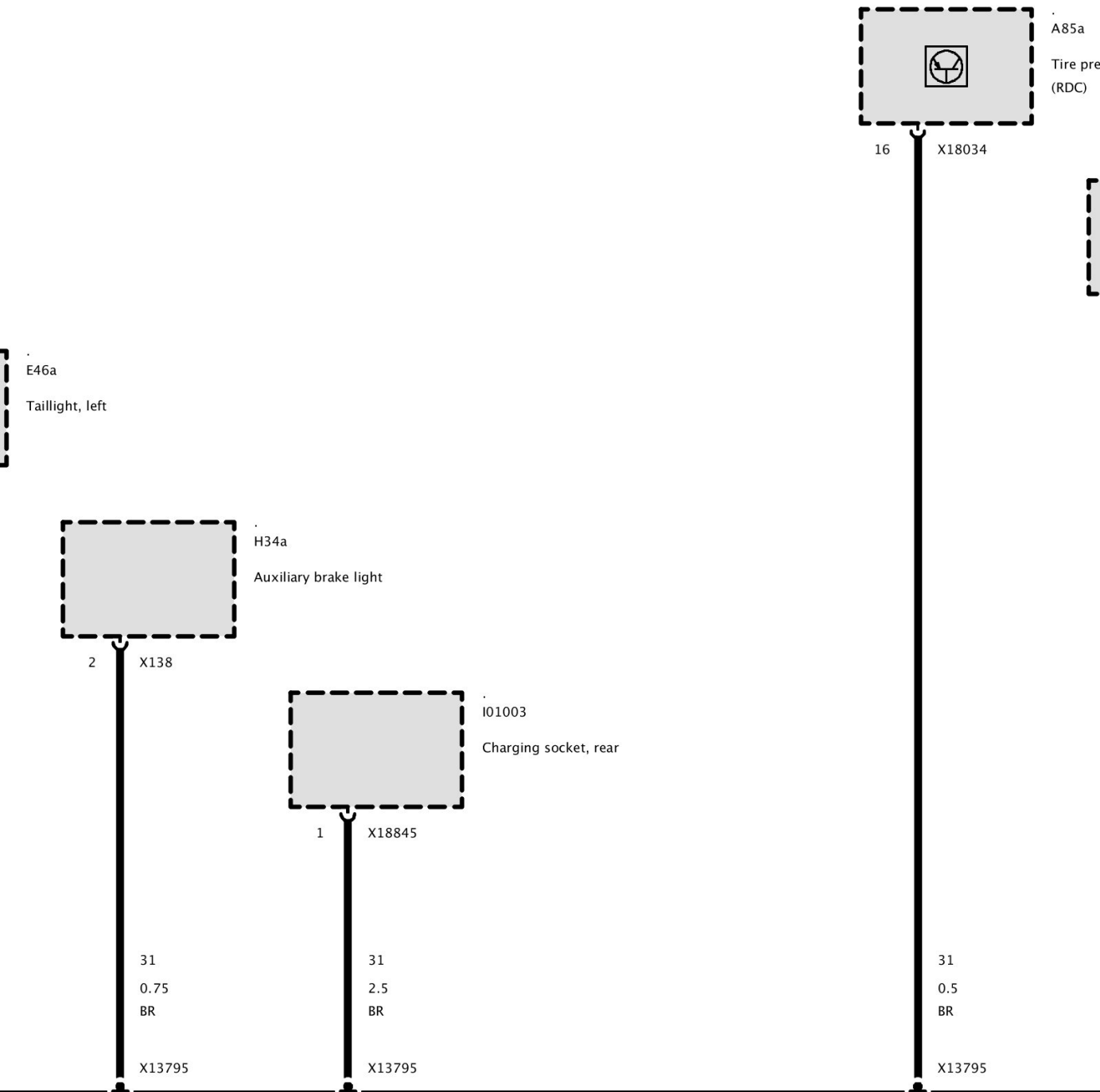
### X18753 No Adapter

#### X18753 No Adapter

Ground Connection X13795, Connector X18753

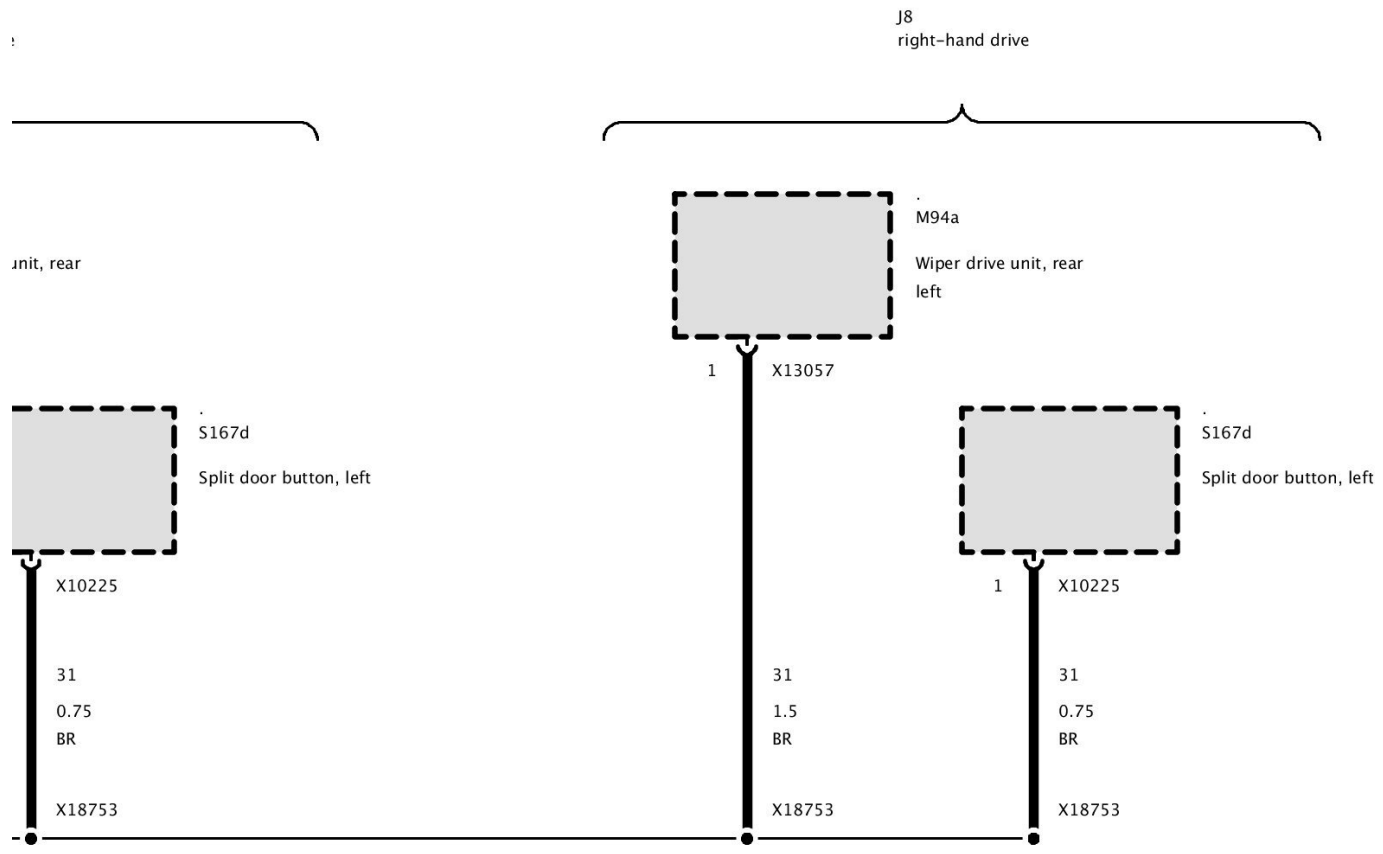


Part 1



Part 2



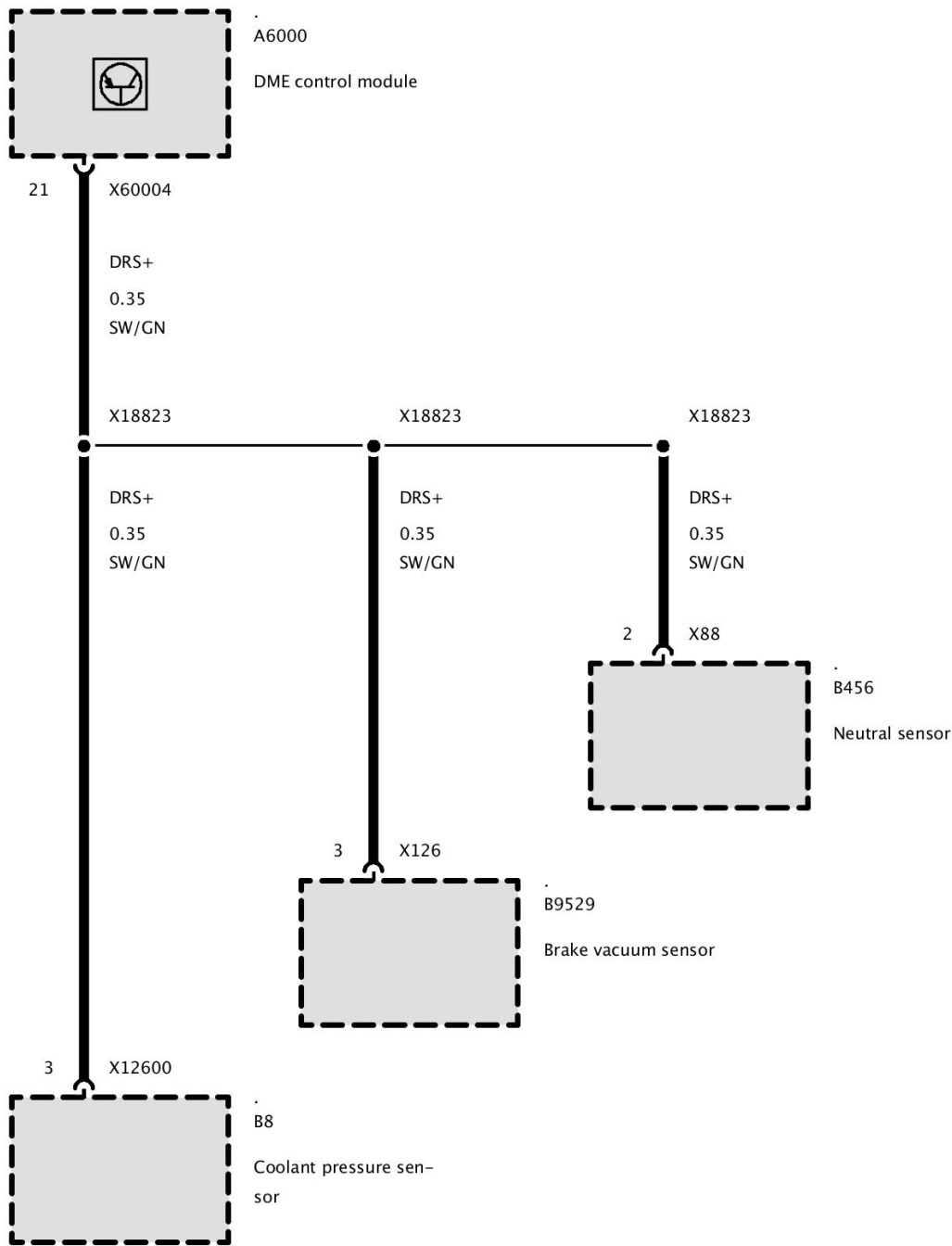


Part 4

X18823 No Adapter

X18823 No Adapter

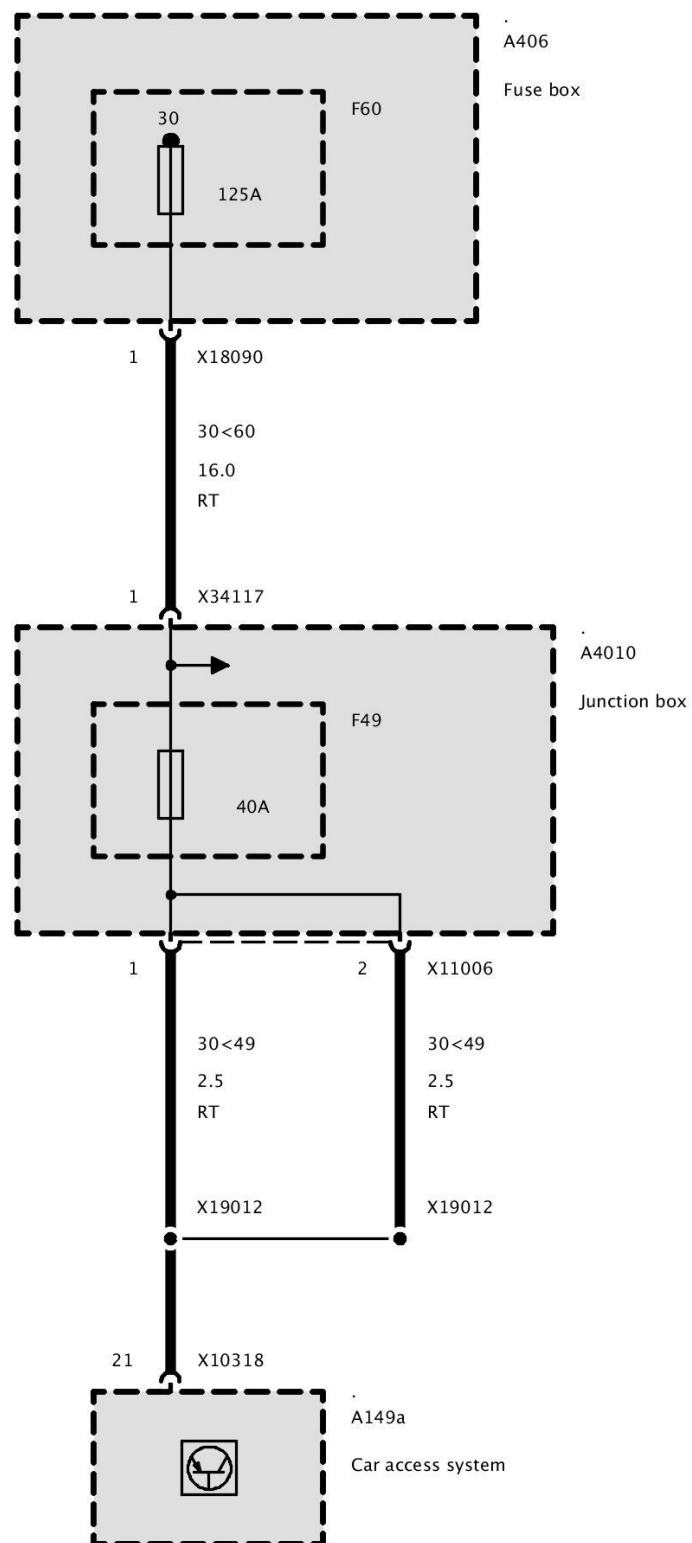
Connector X18823



**X19012 No Adapter**

**X19012 No Adapter**

**Fuse F49**

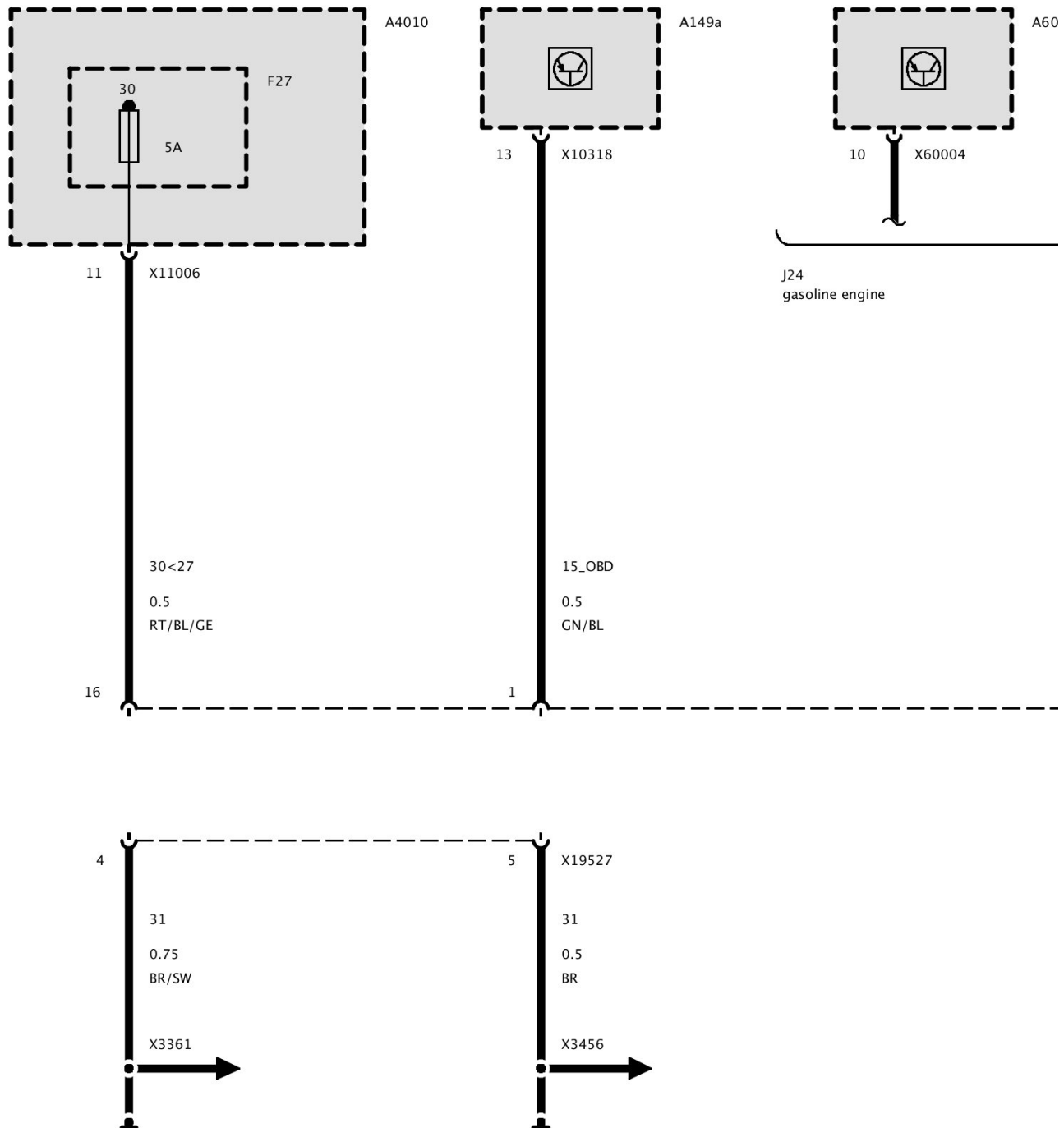


**X19527 No Adapter**

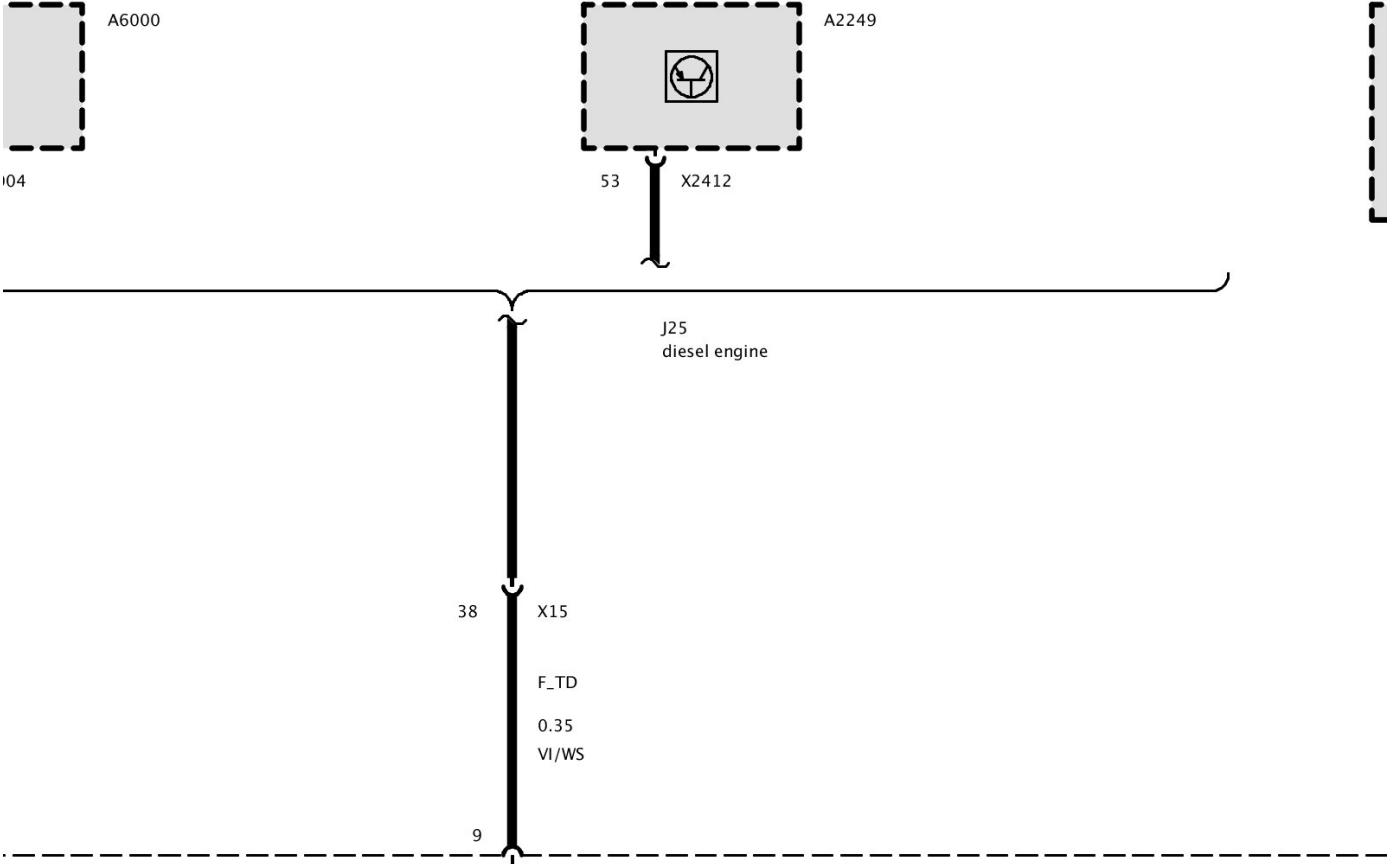
**X19527 No Adapter**

**OBDII Socket**

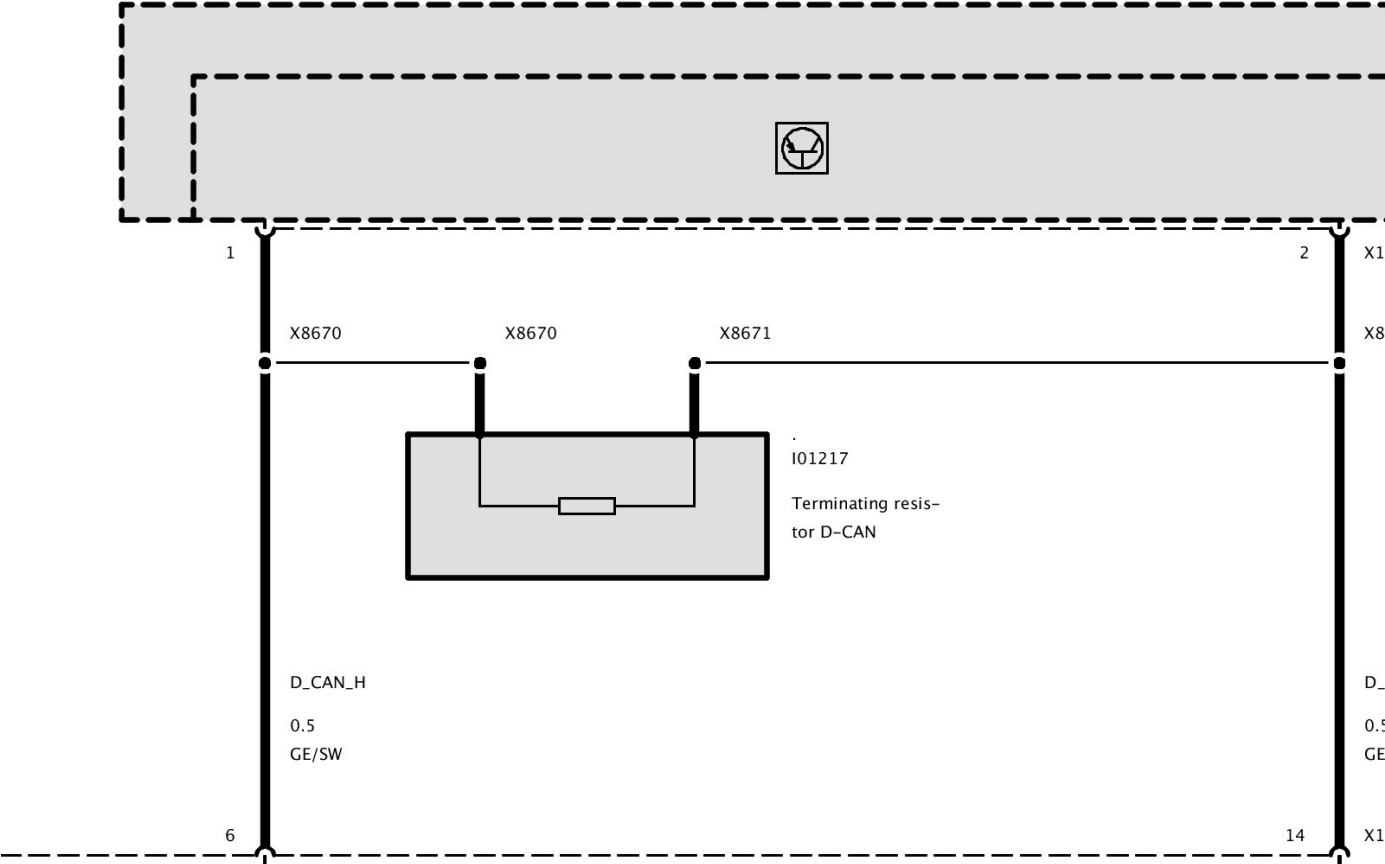




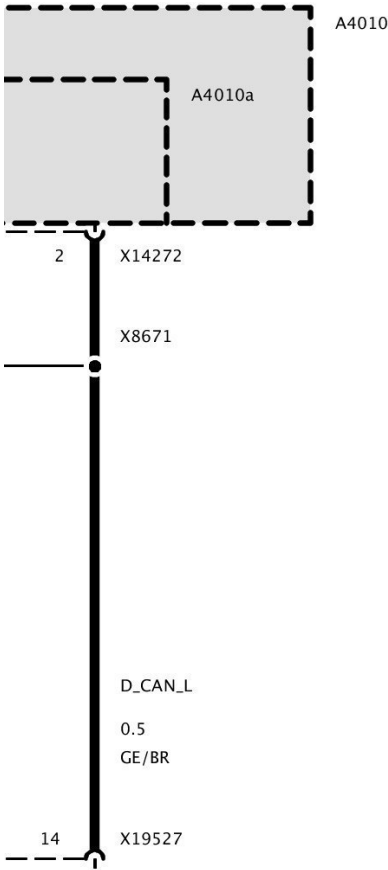
Part 1



Part 2



Part 3

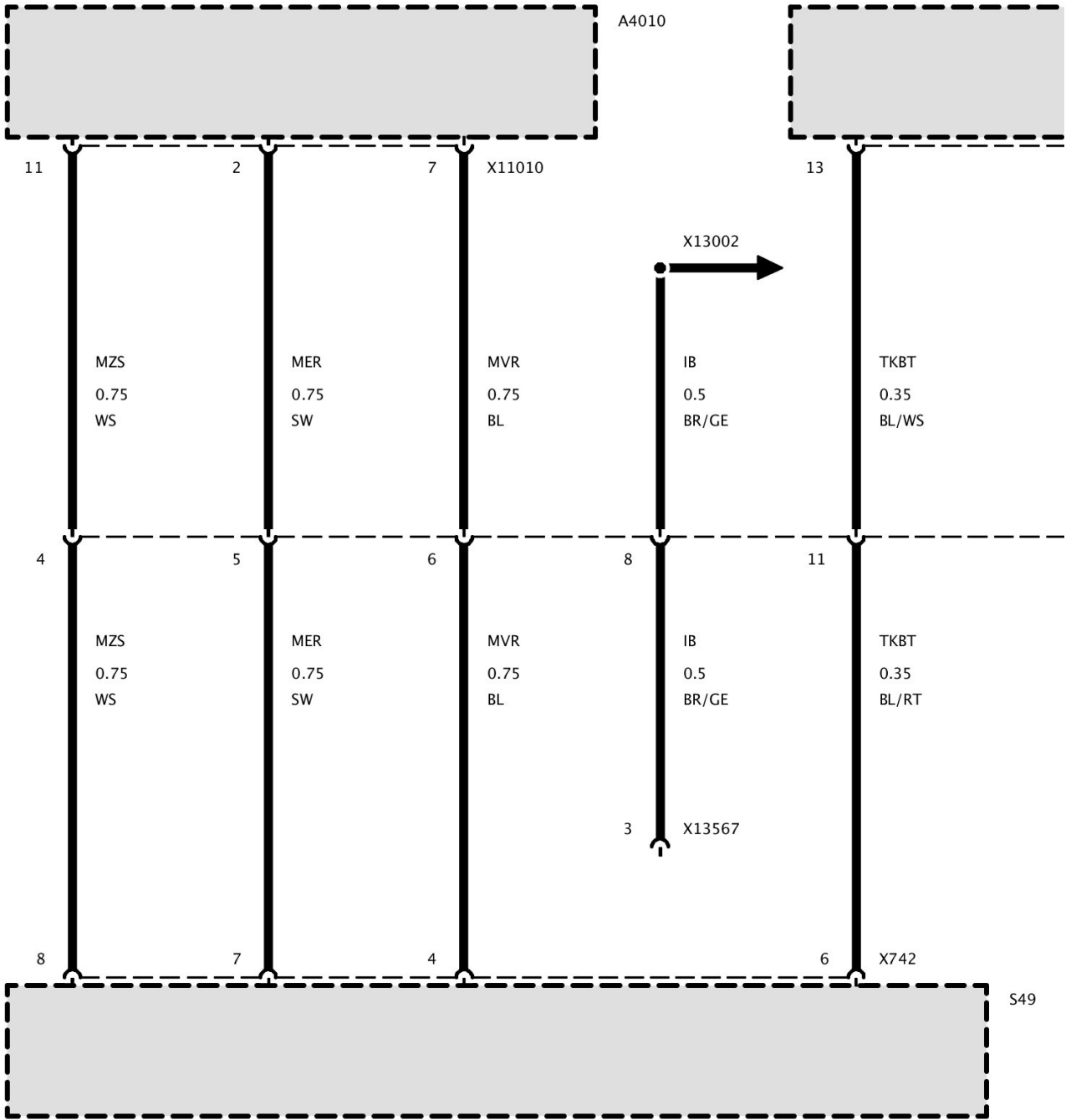


Part 4

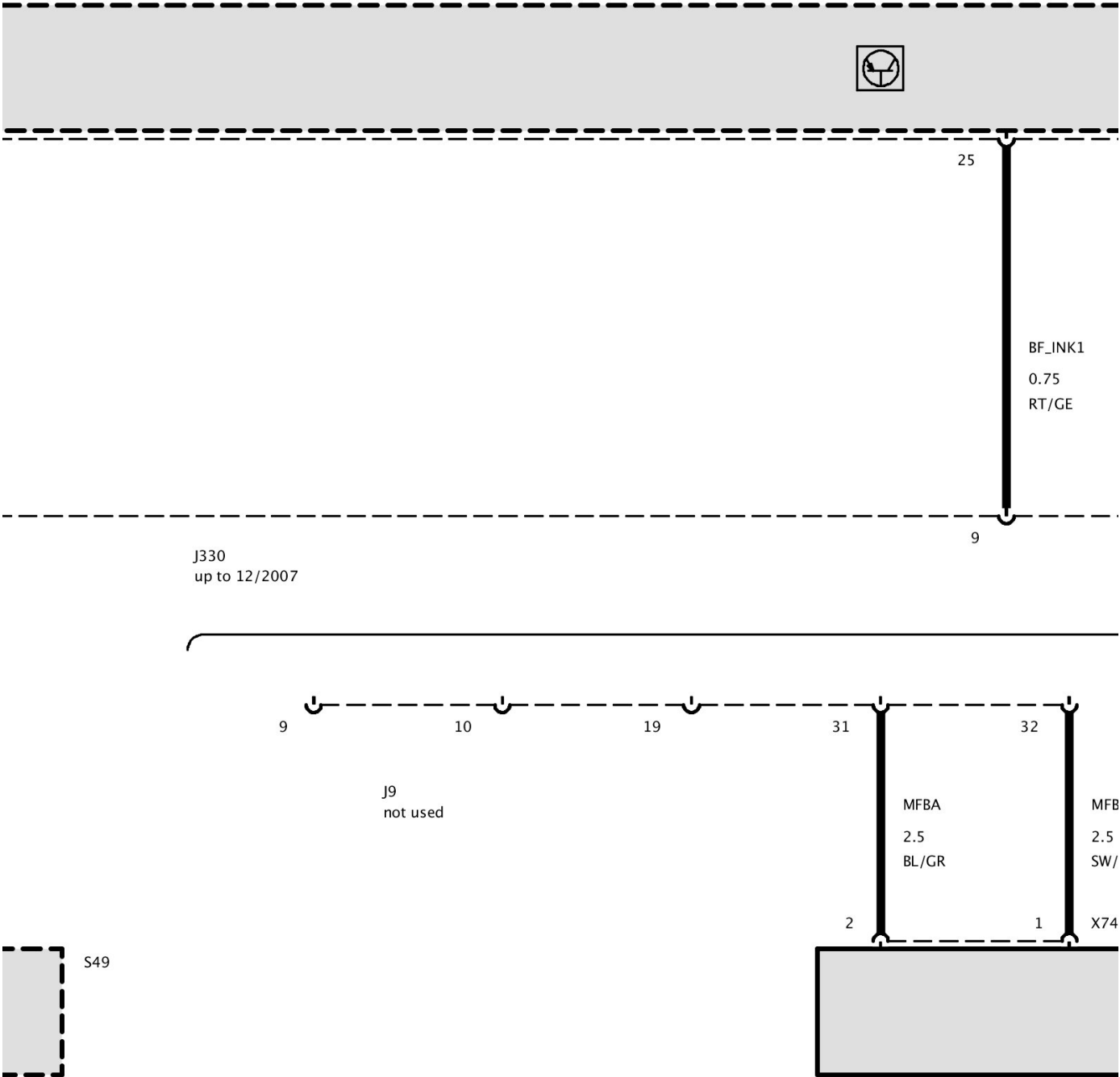
X256 Adapter 612360, Storage Location B106

X256 Adapter 612360, Storage Location B106

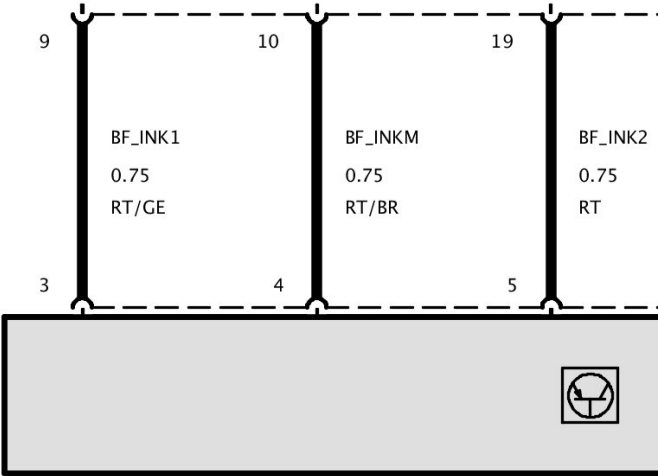
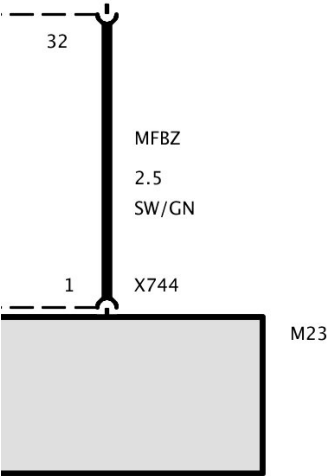
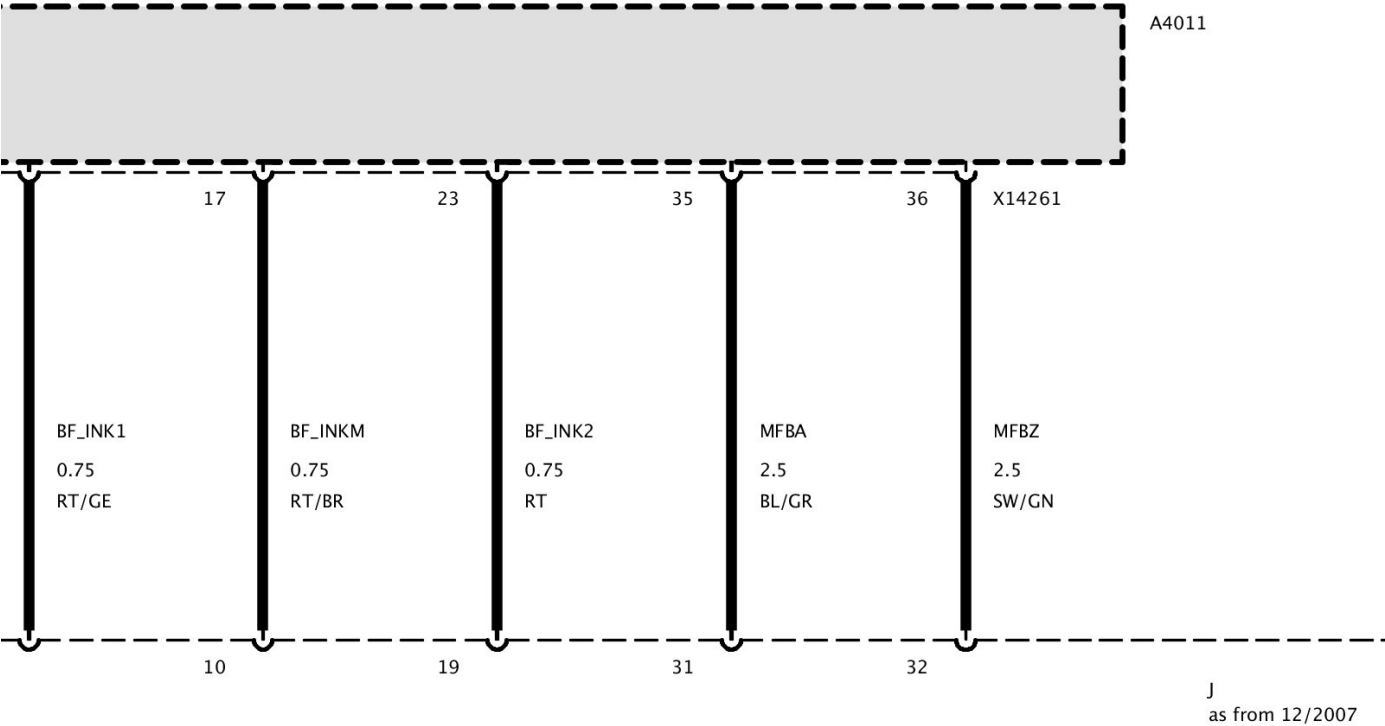
X256 Plug Connector, Passenger's Door (Left-Hand Drive As of 08/07)



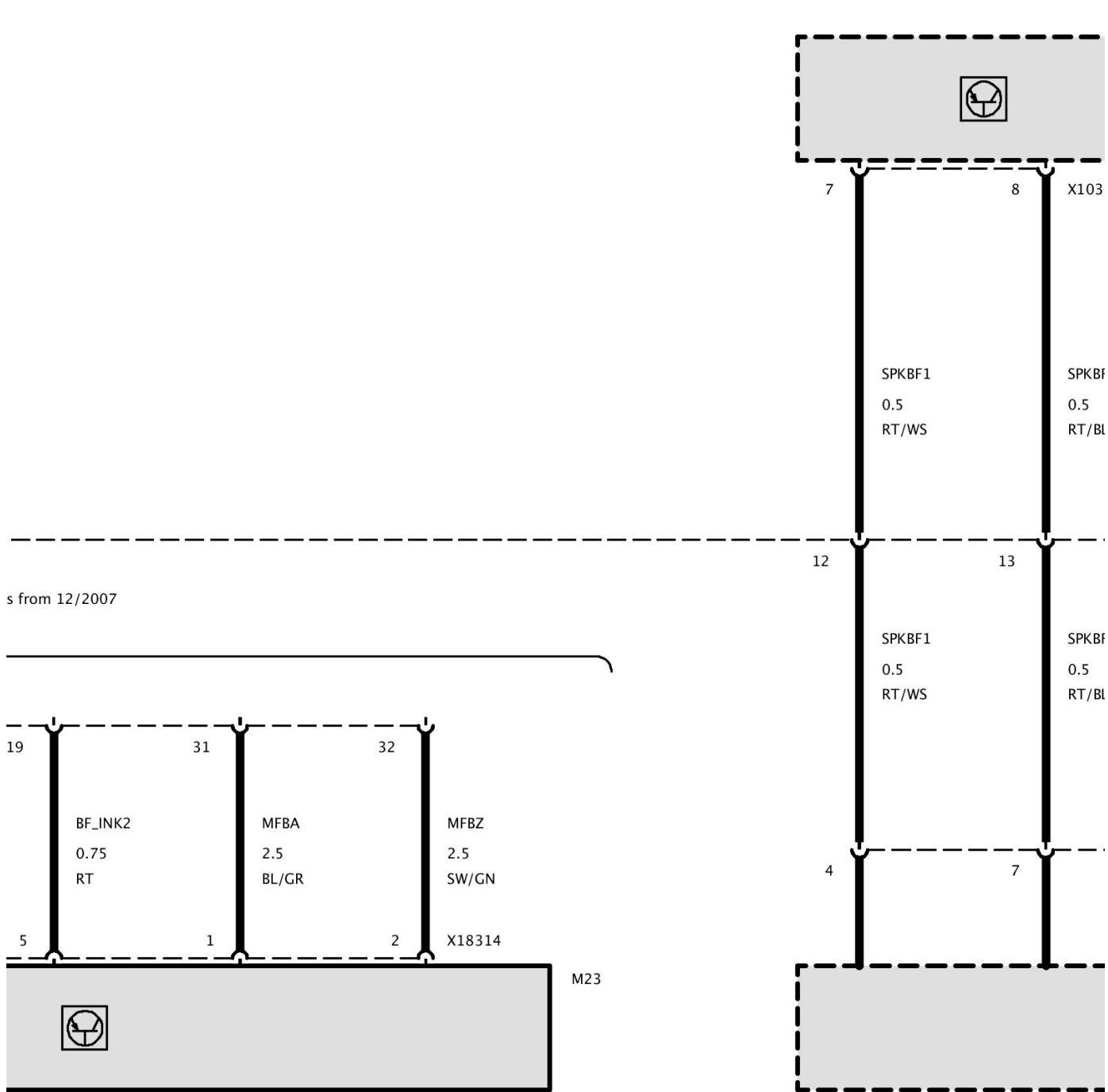
Part 1



Part 2

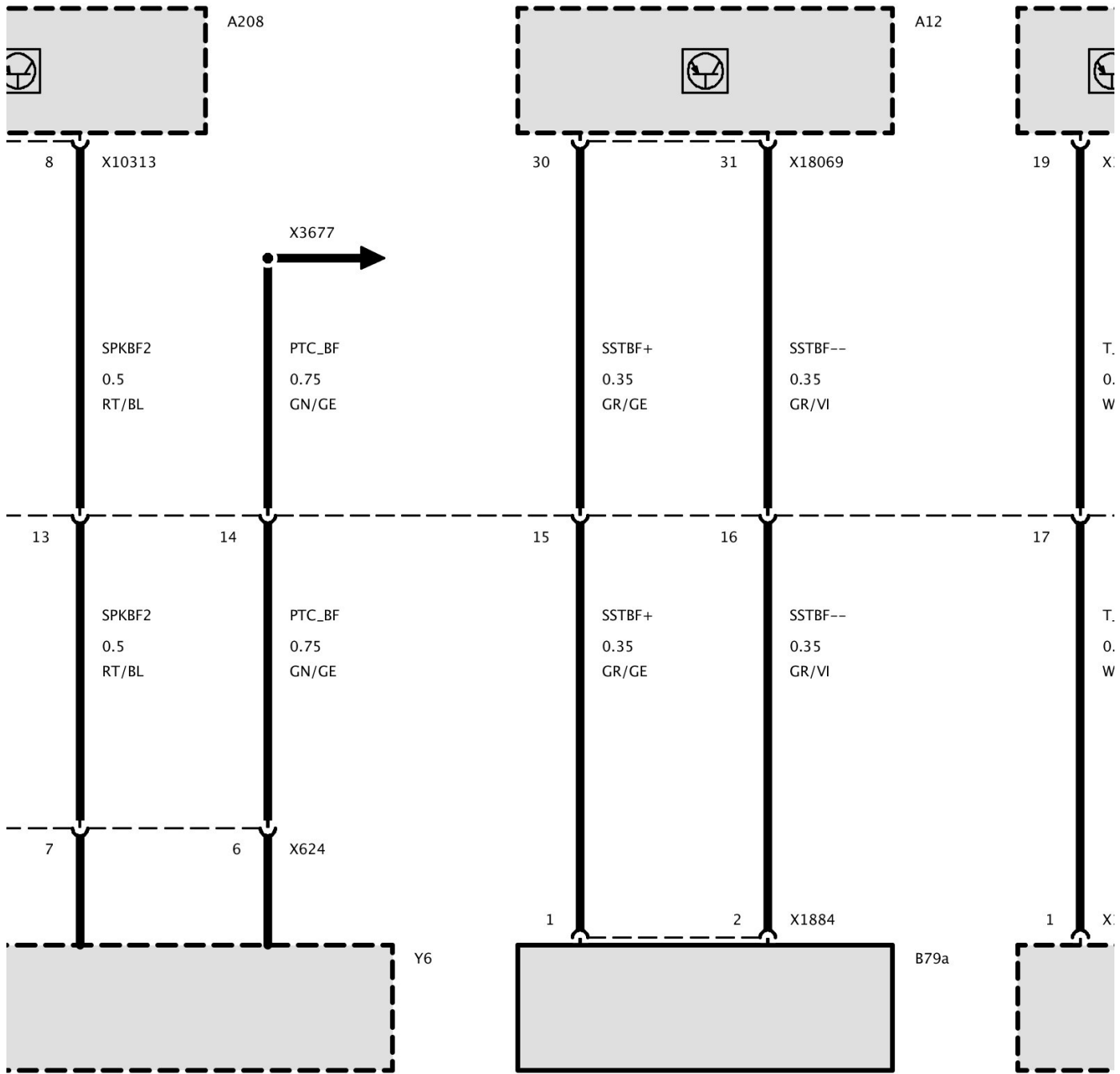


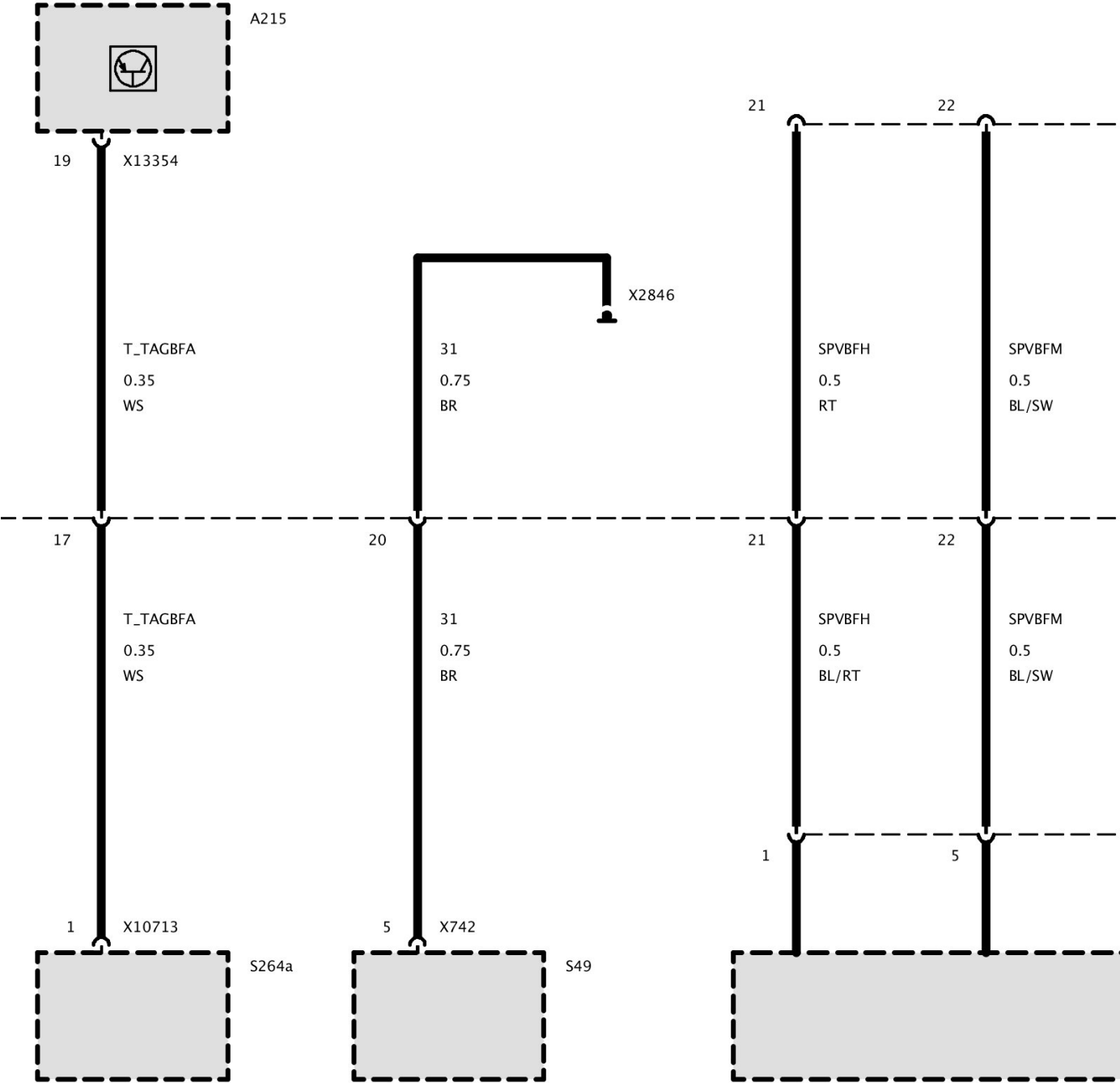
Part 3



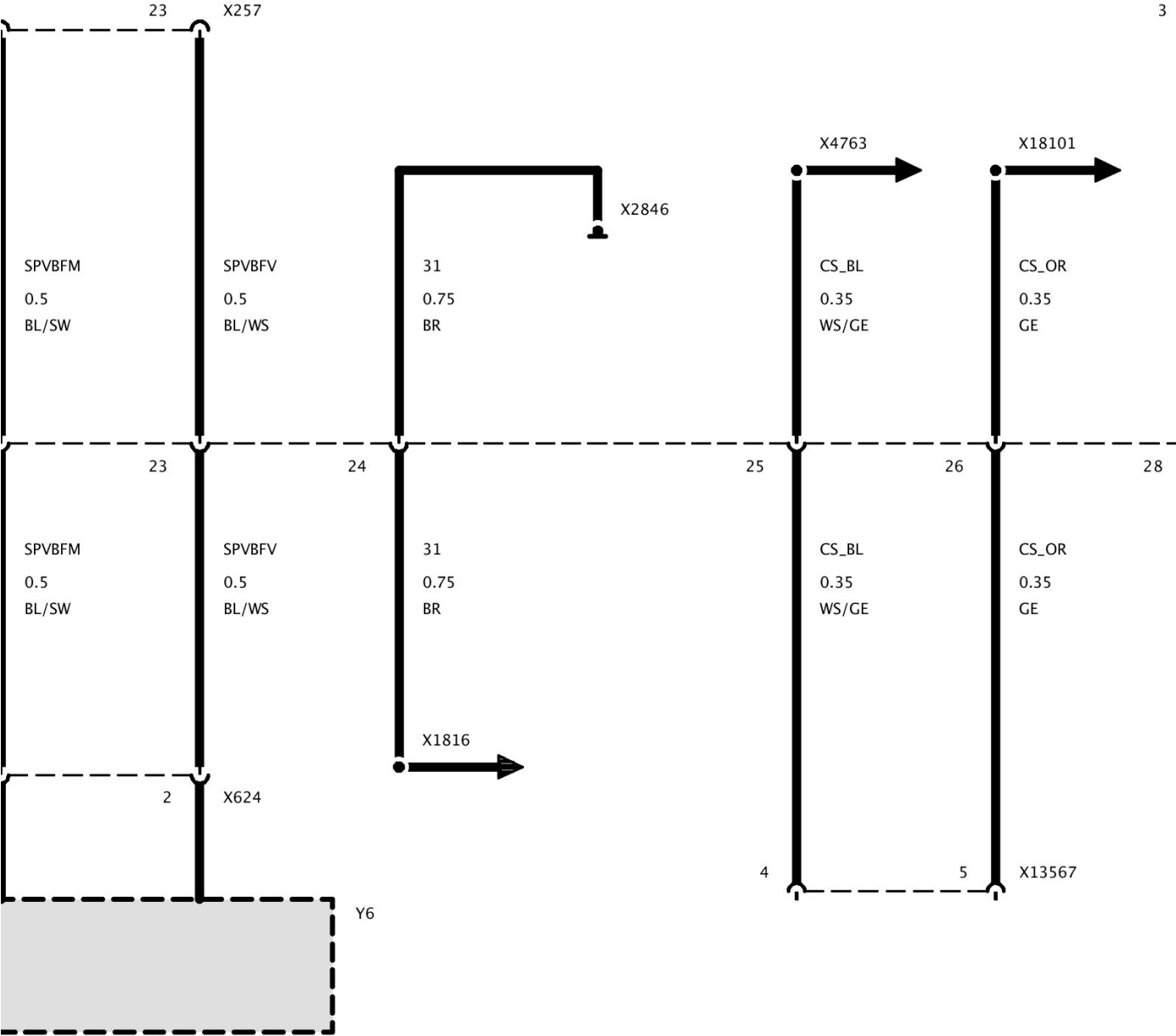
Part 4



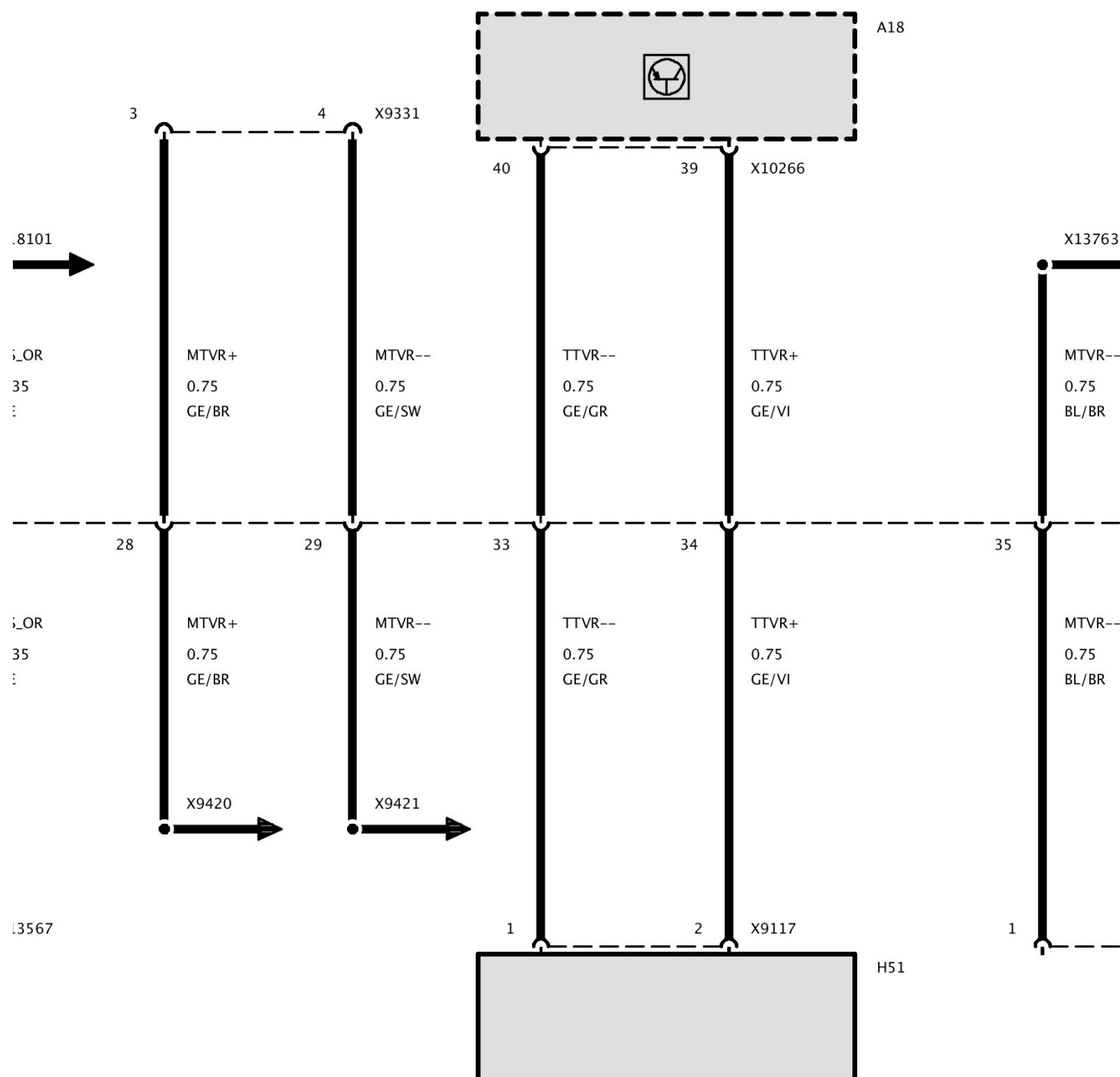




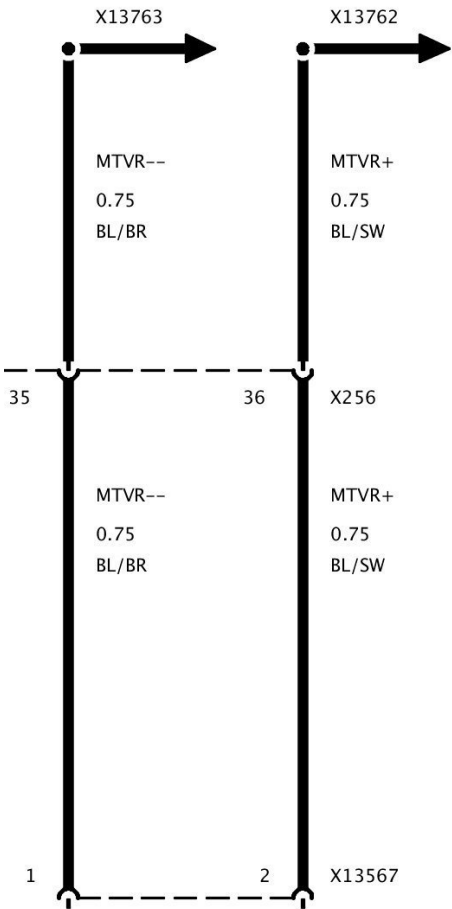
Part 6



Part 7



jmoraflores@hotmail.cl

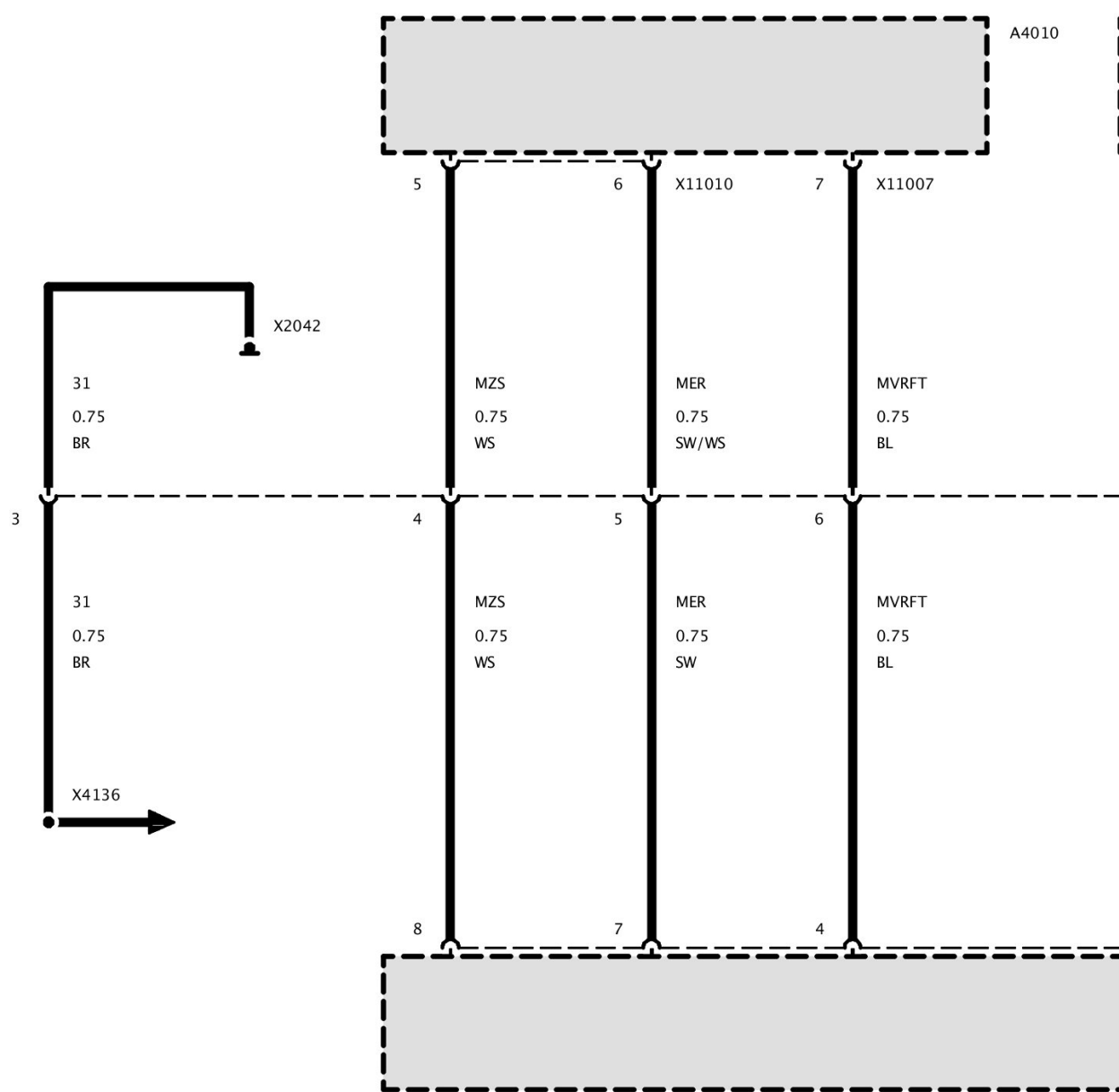


Part 9

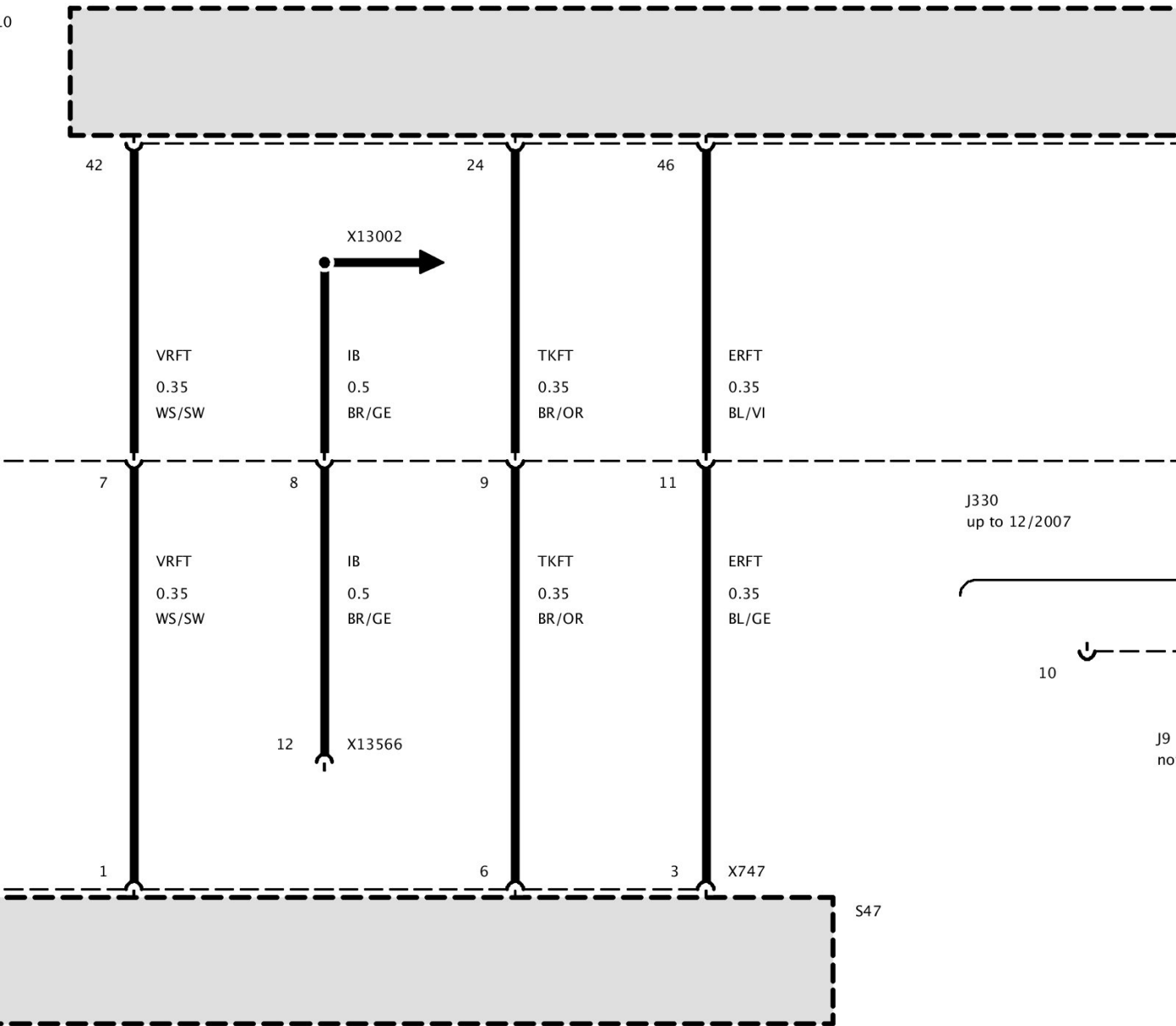
X257 Adapter 612360, Storage Location B106

X257 Adapter 612360, Storage Location B106

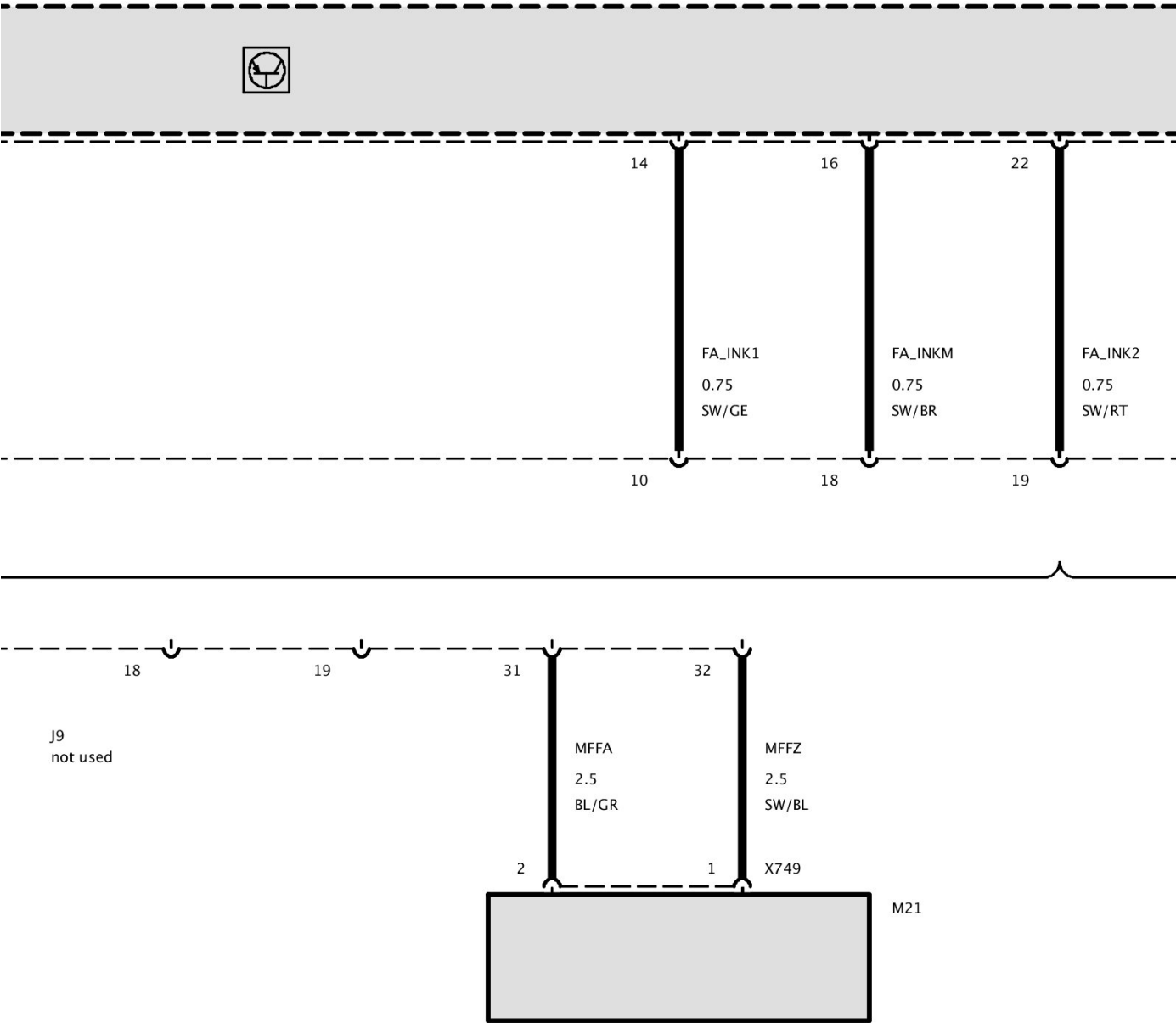
X257 Plug Connector, Driver's Door (Left-Hand Drive As of 08/07)



Part 1

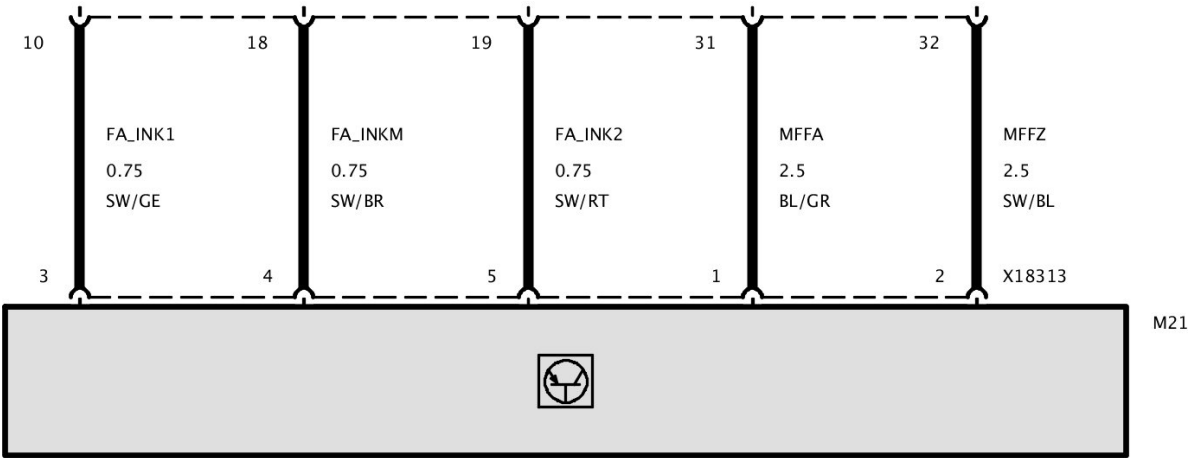
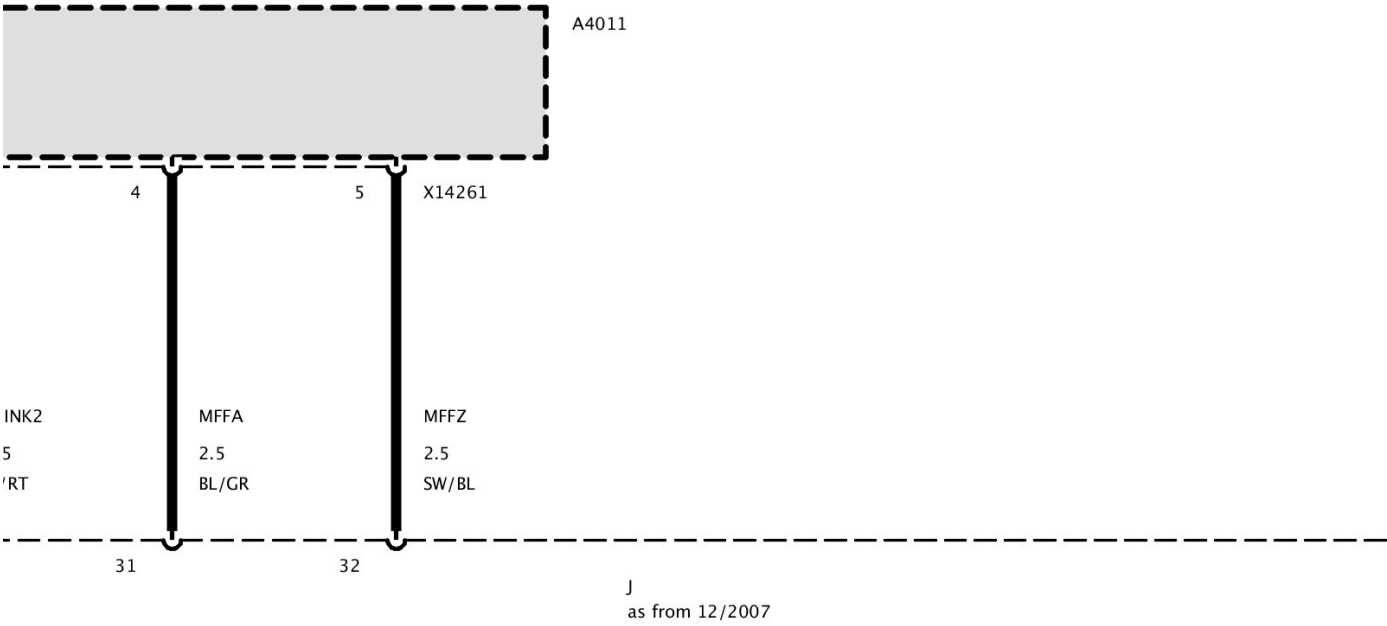


Part 2

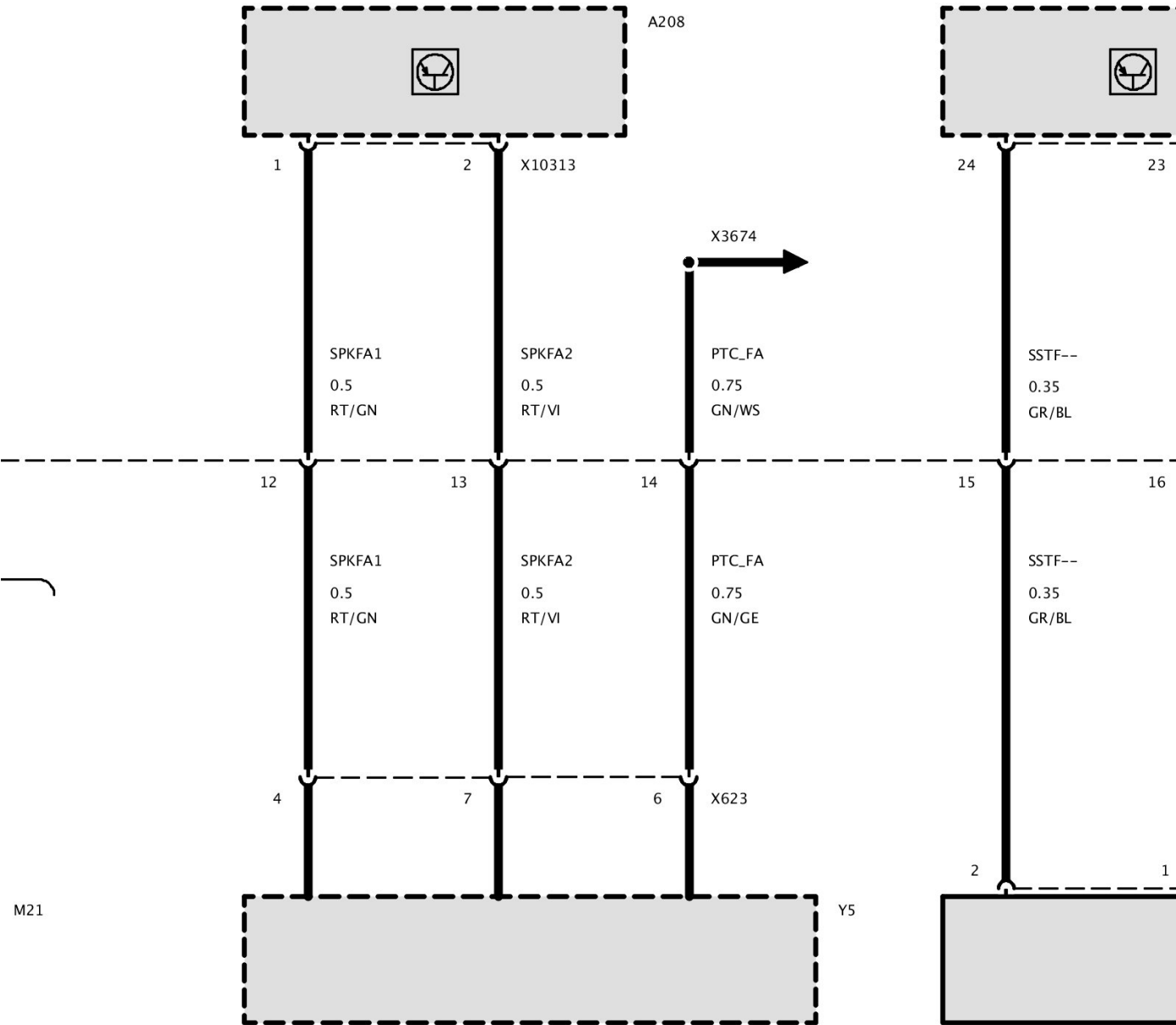


Part 3

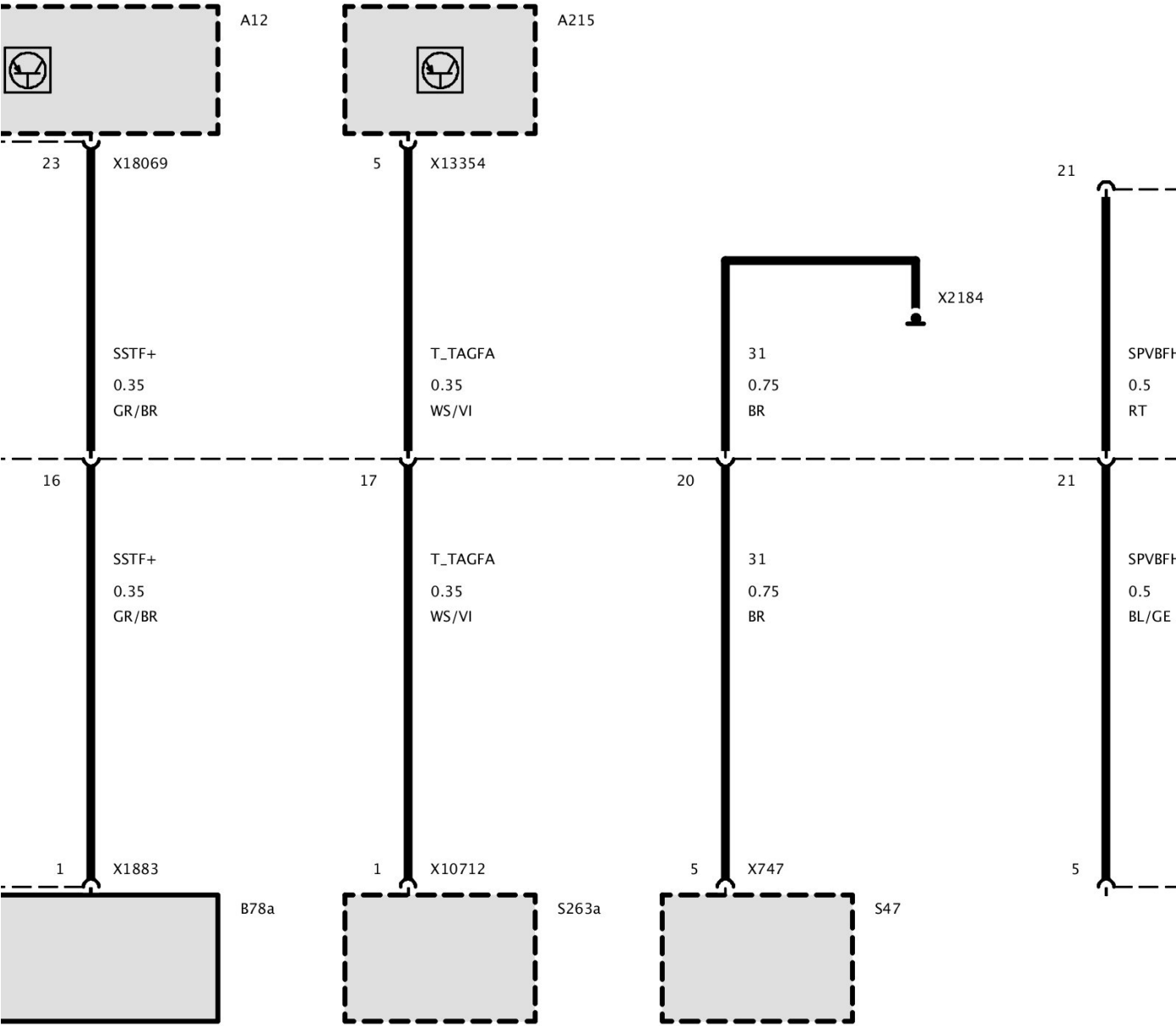




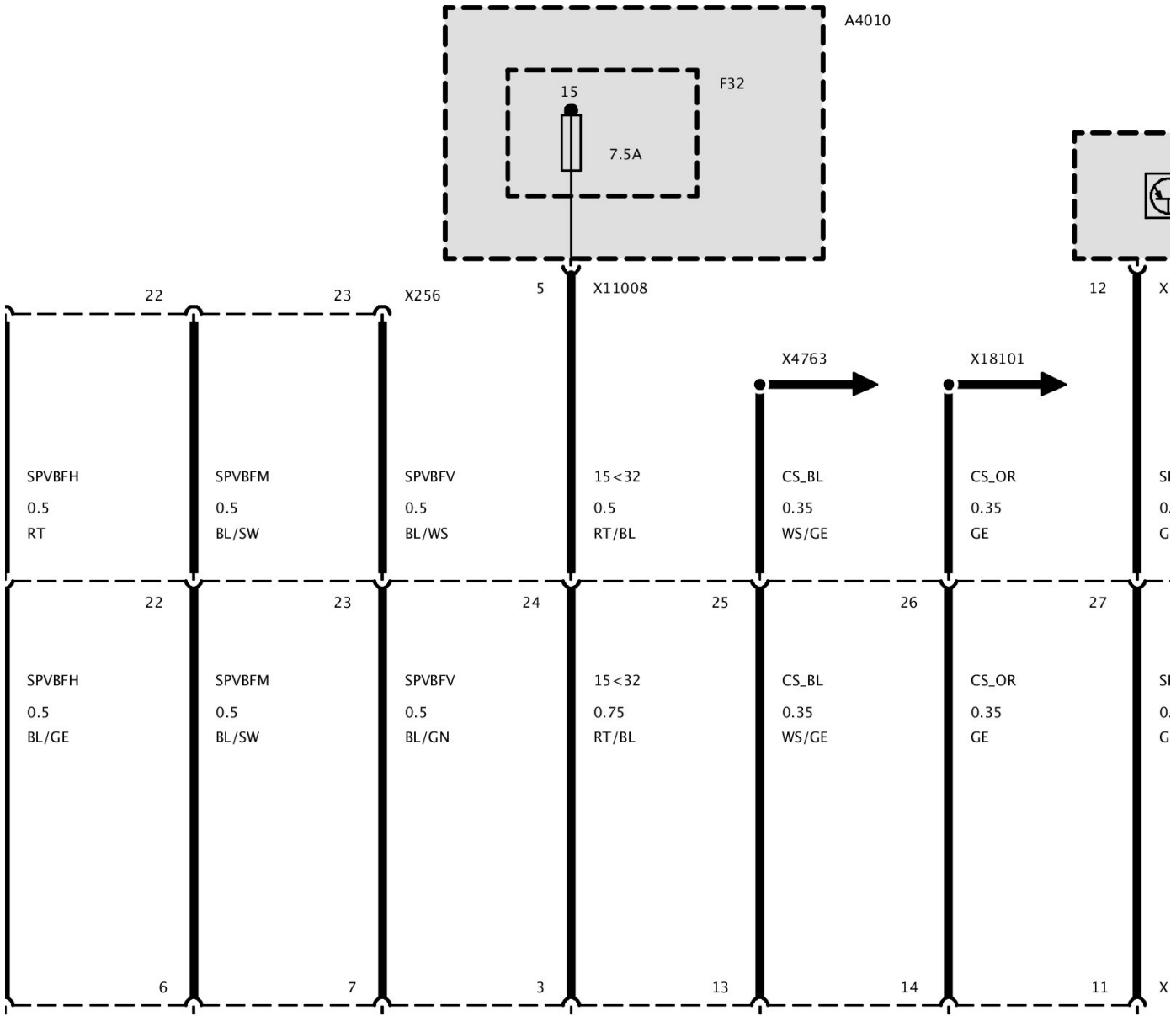
Part 4



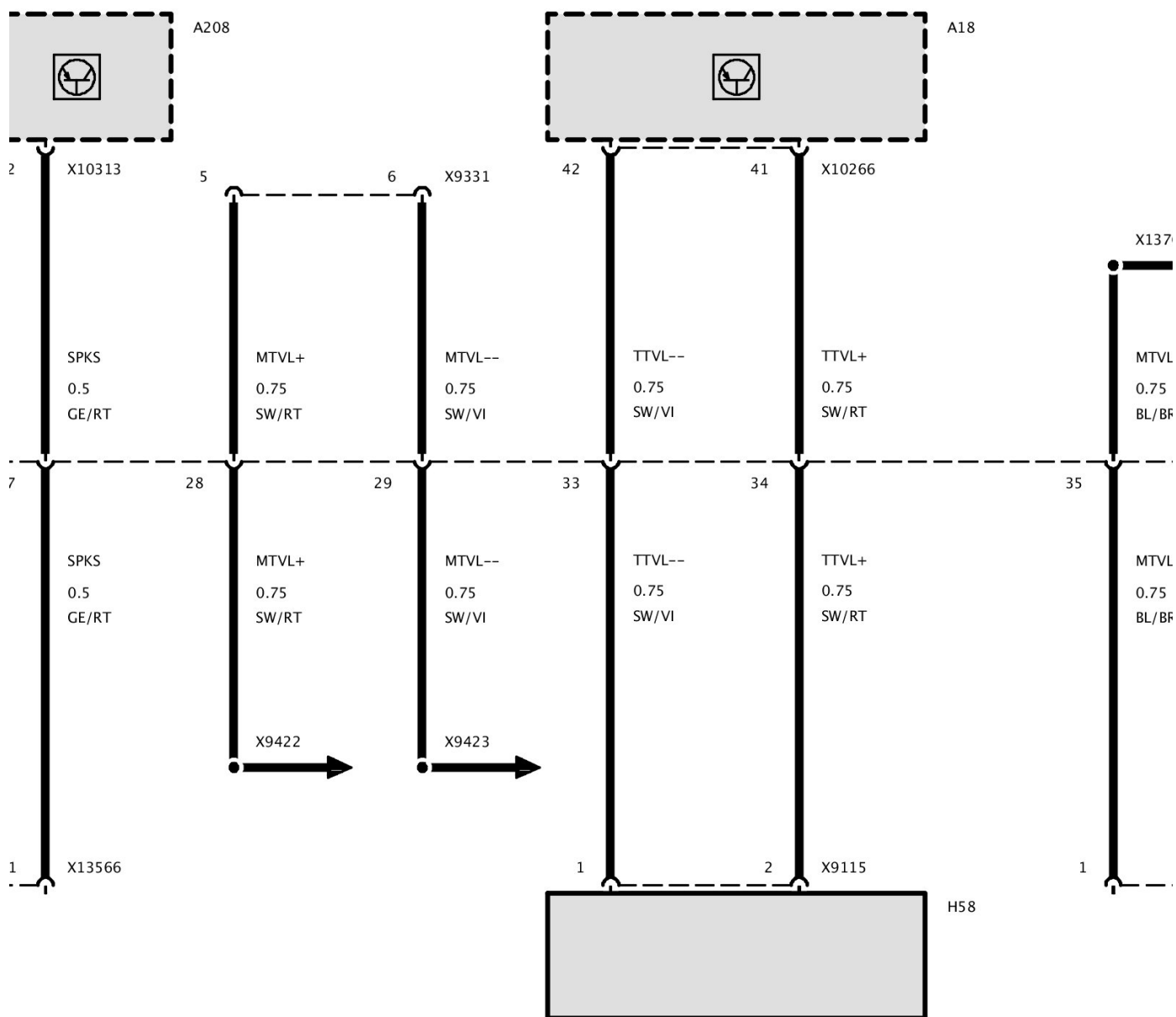
Part 5



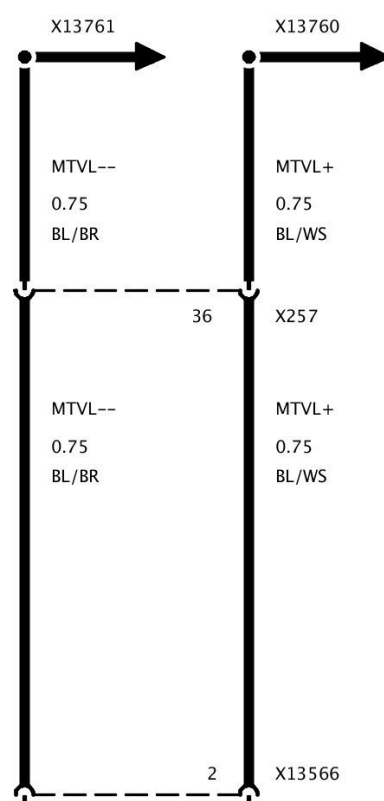
Part 6



Part 7



Part 8

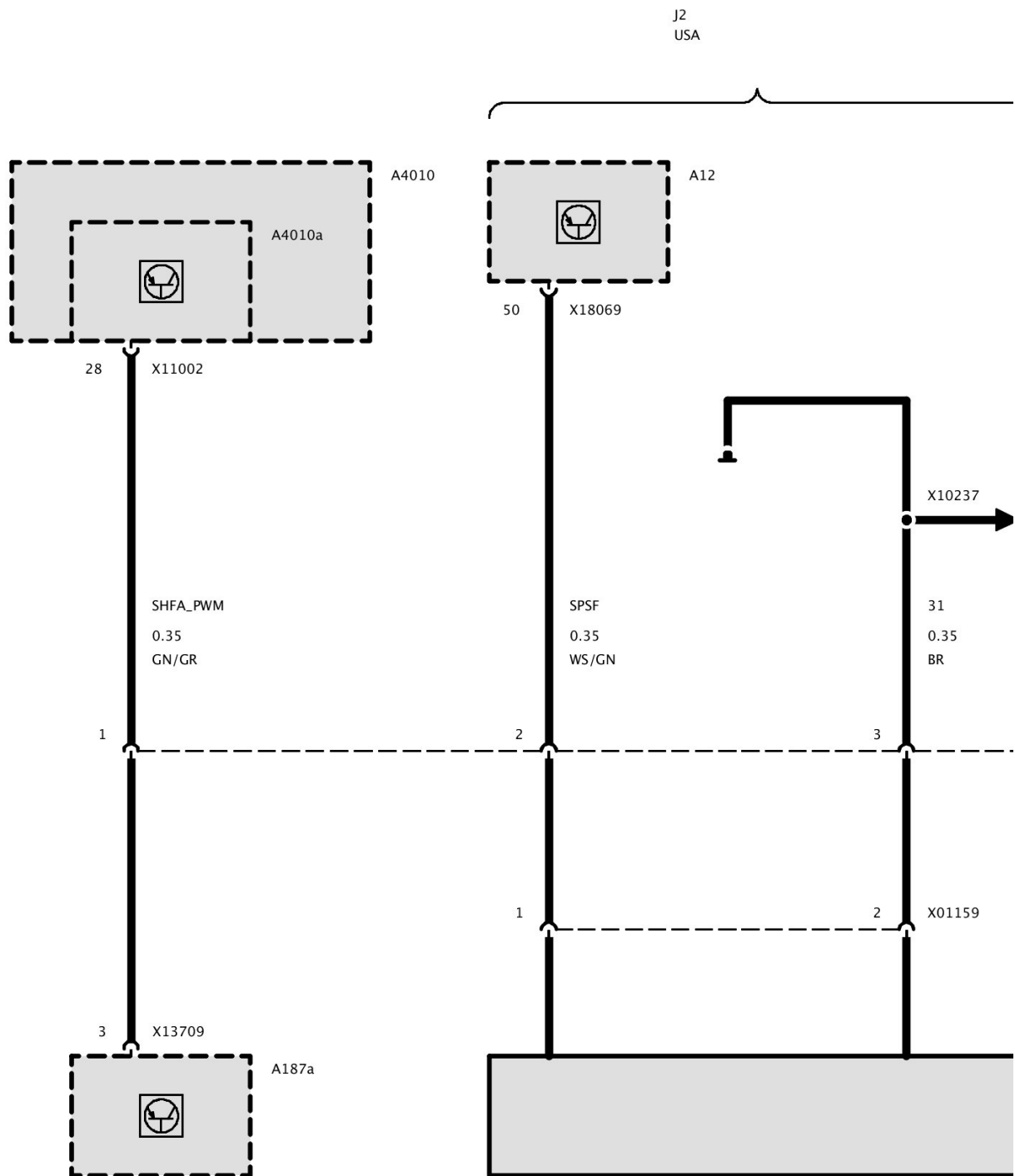


## Part 9

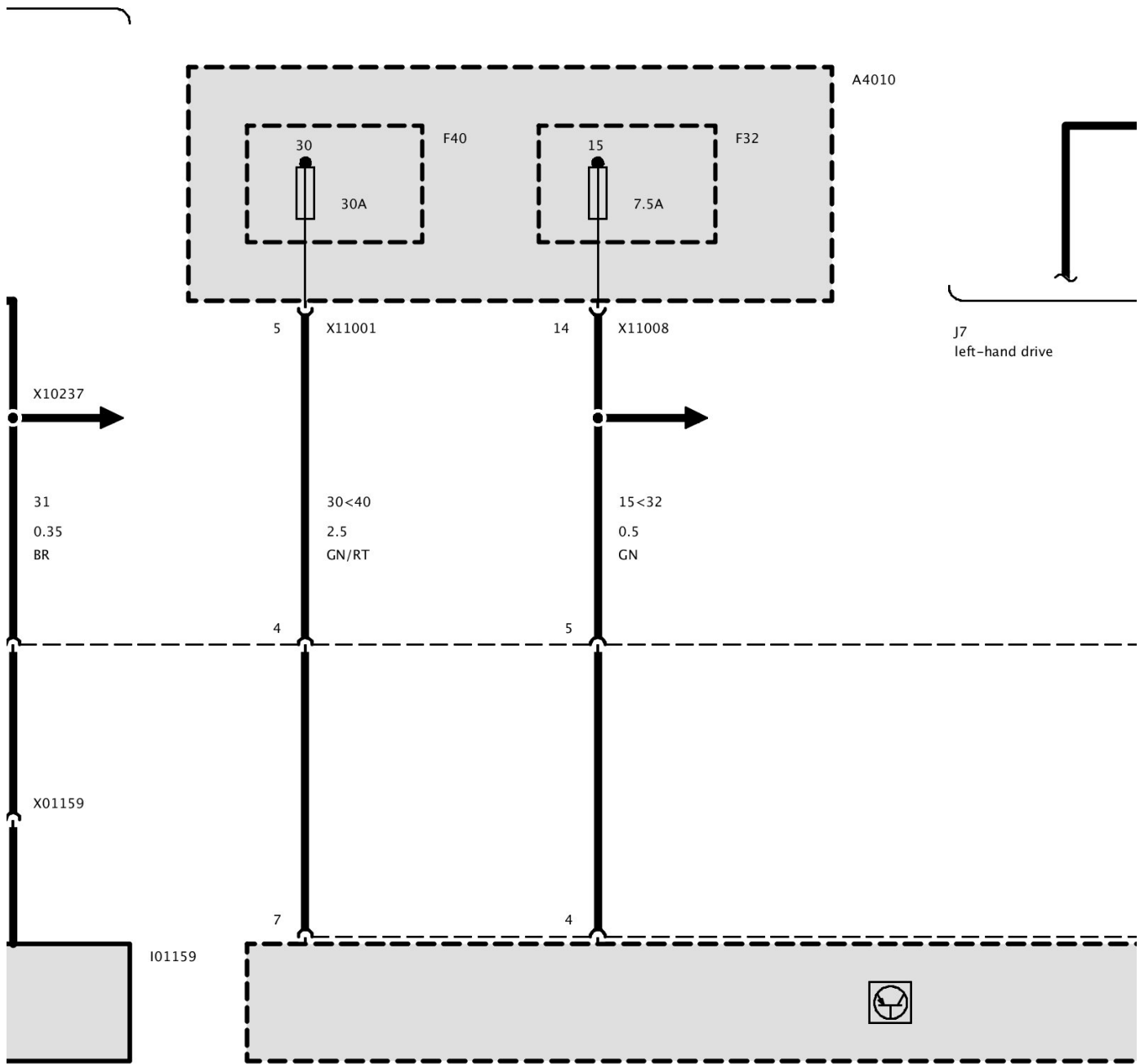
### X275 No Adapter

#### X275 No Adapter

#### Plug Connector X275

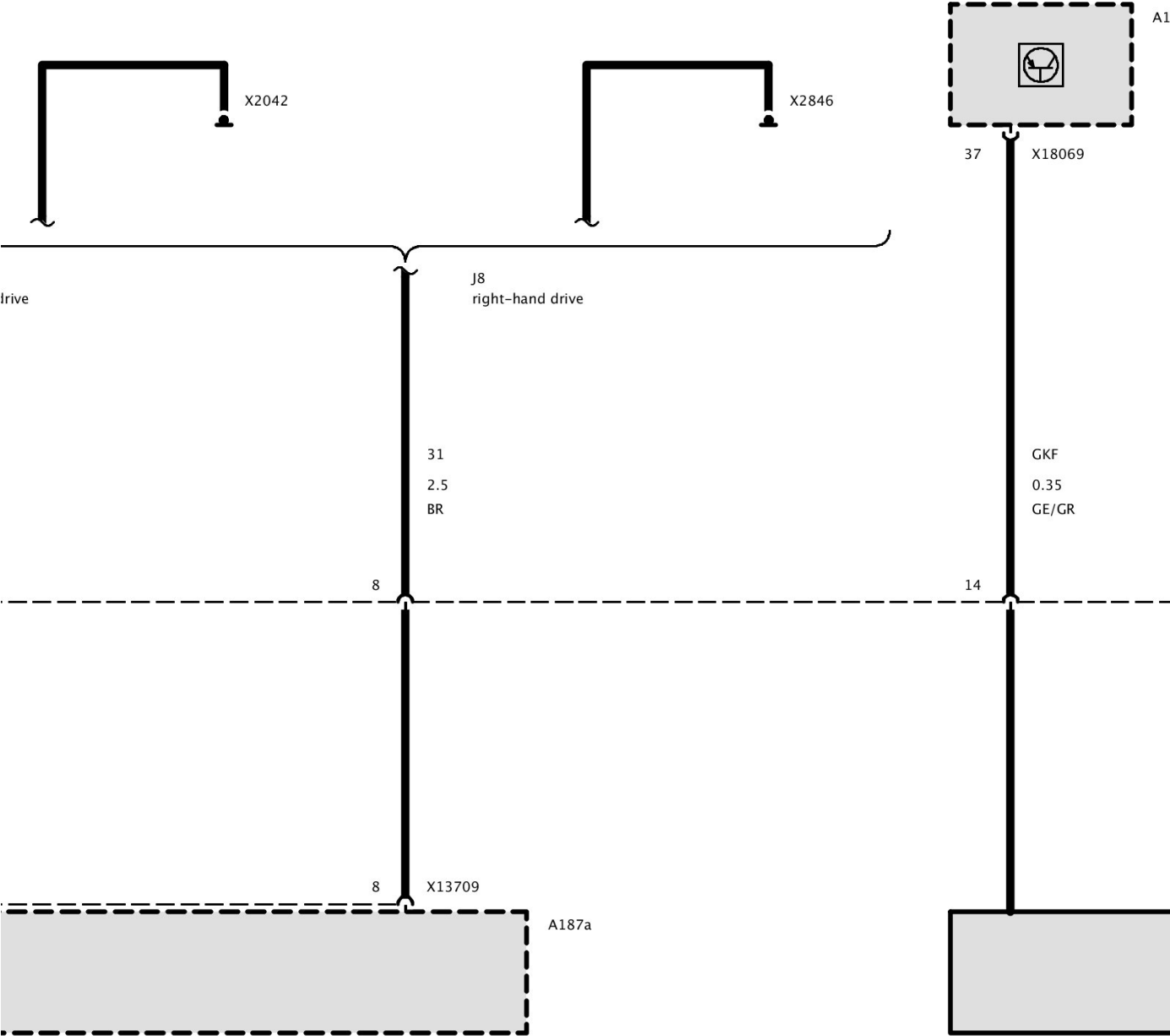


Part 1

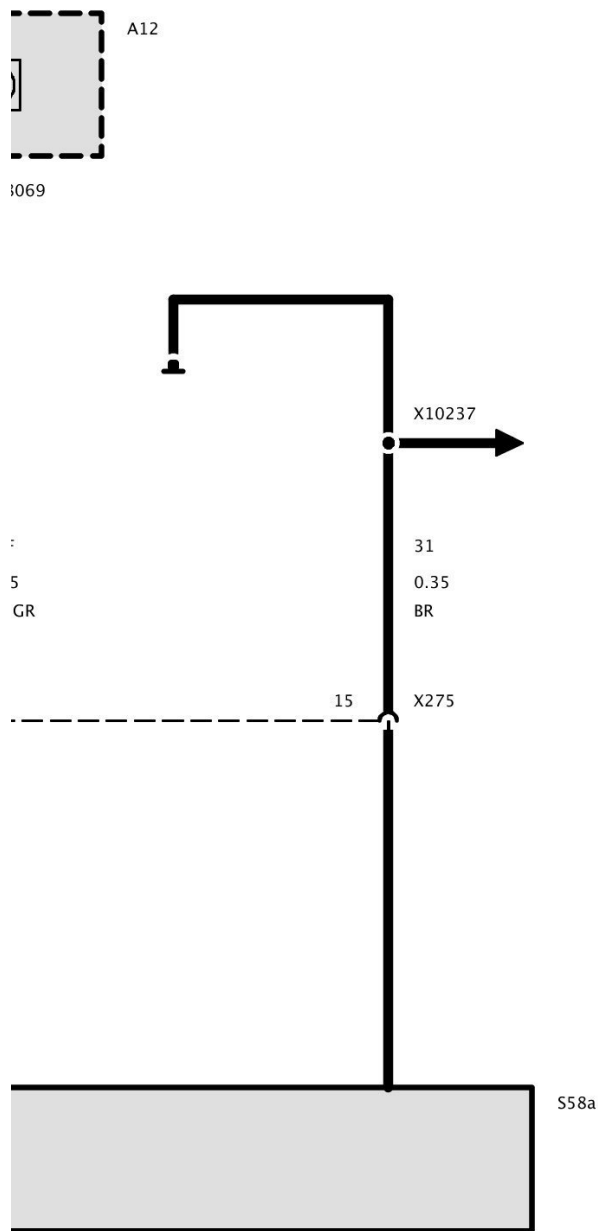


Part 2





Part 3

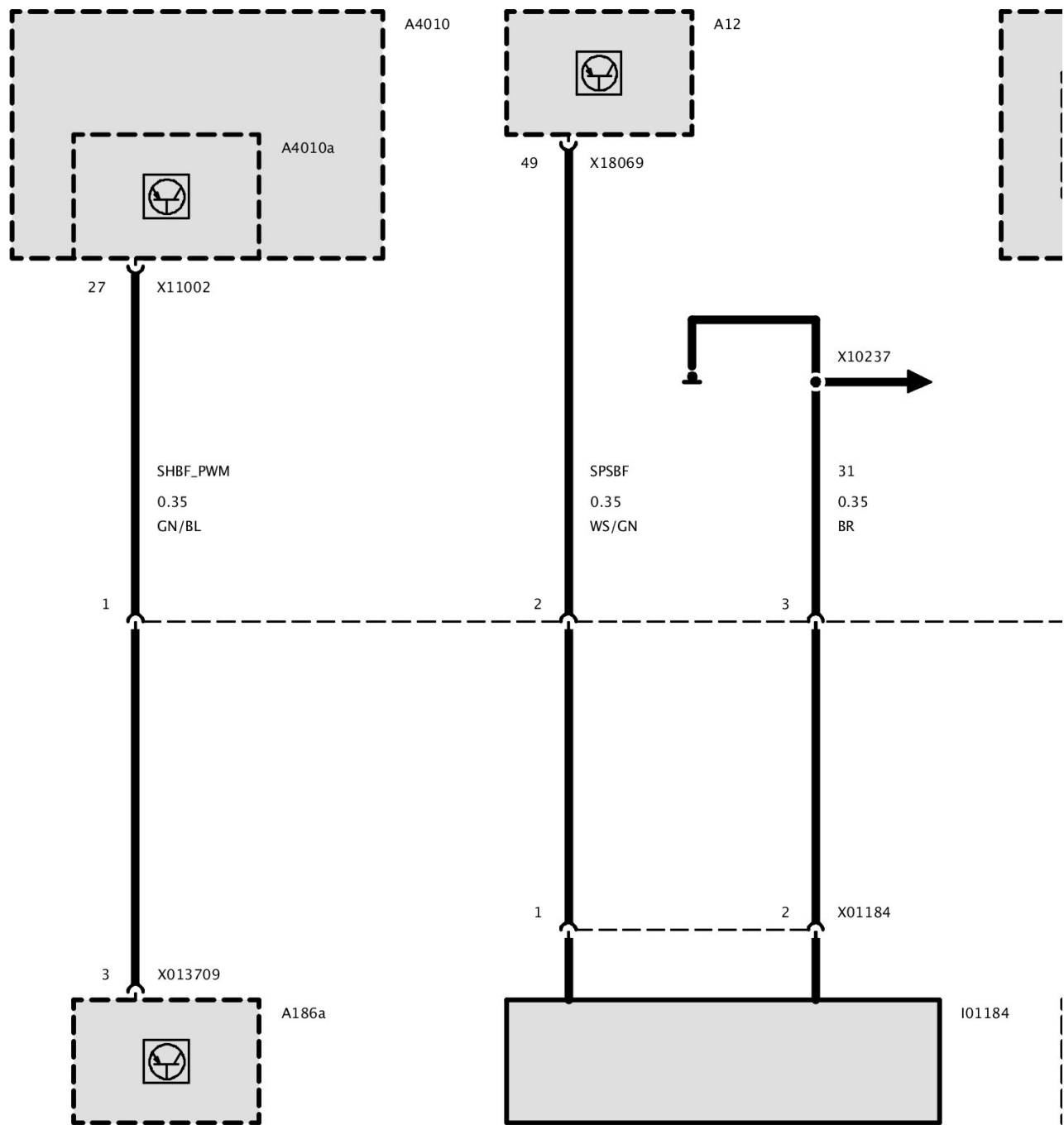


Part 4

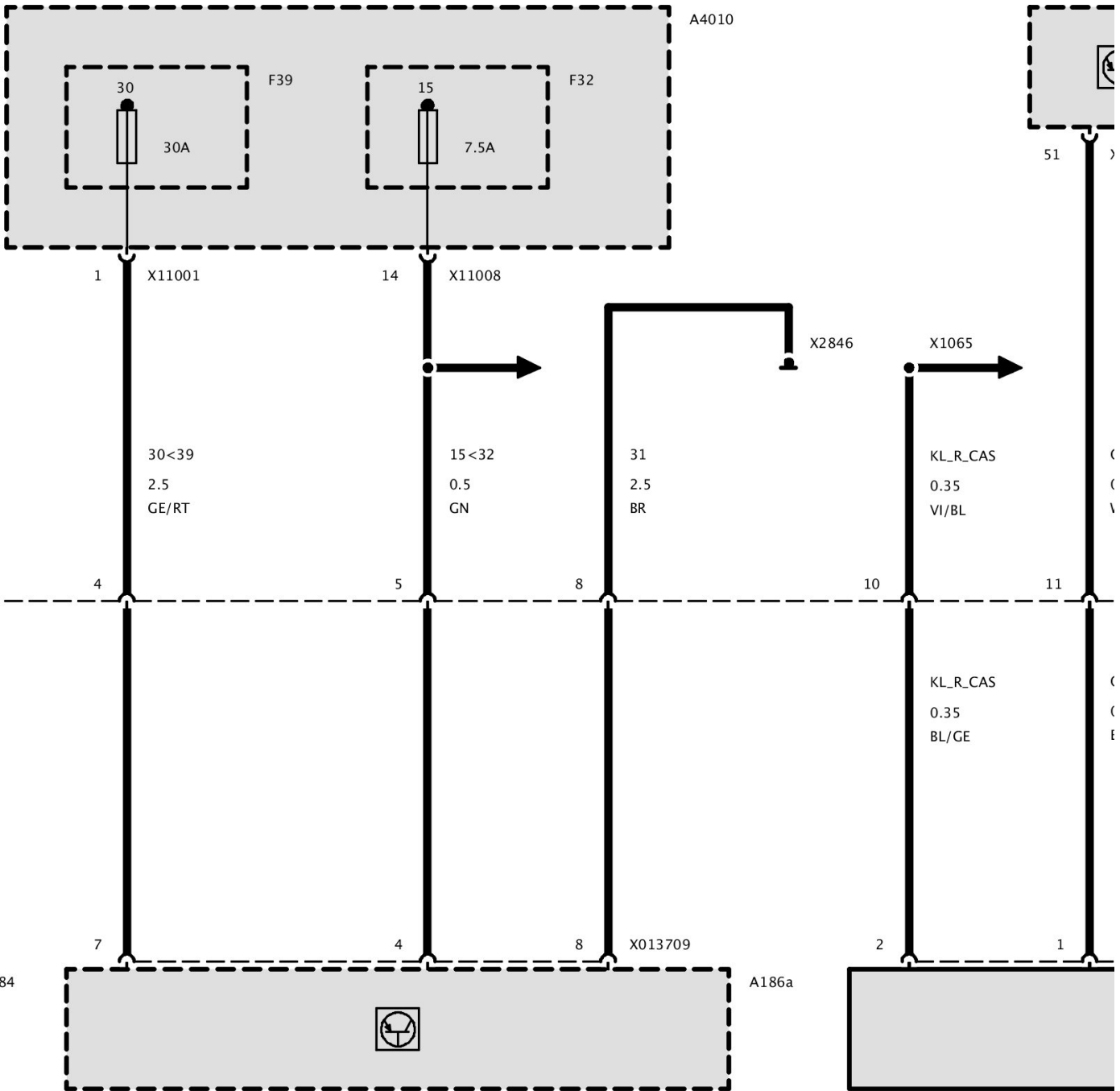
X279 No Adapter

X279 No Adapter

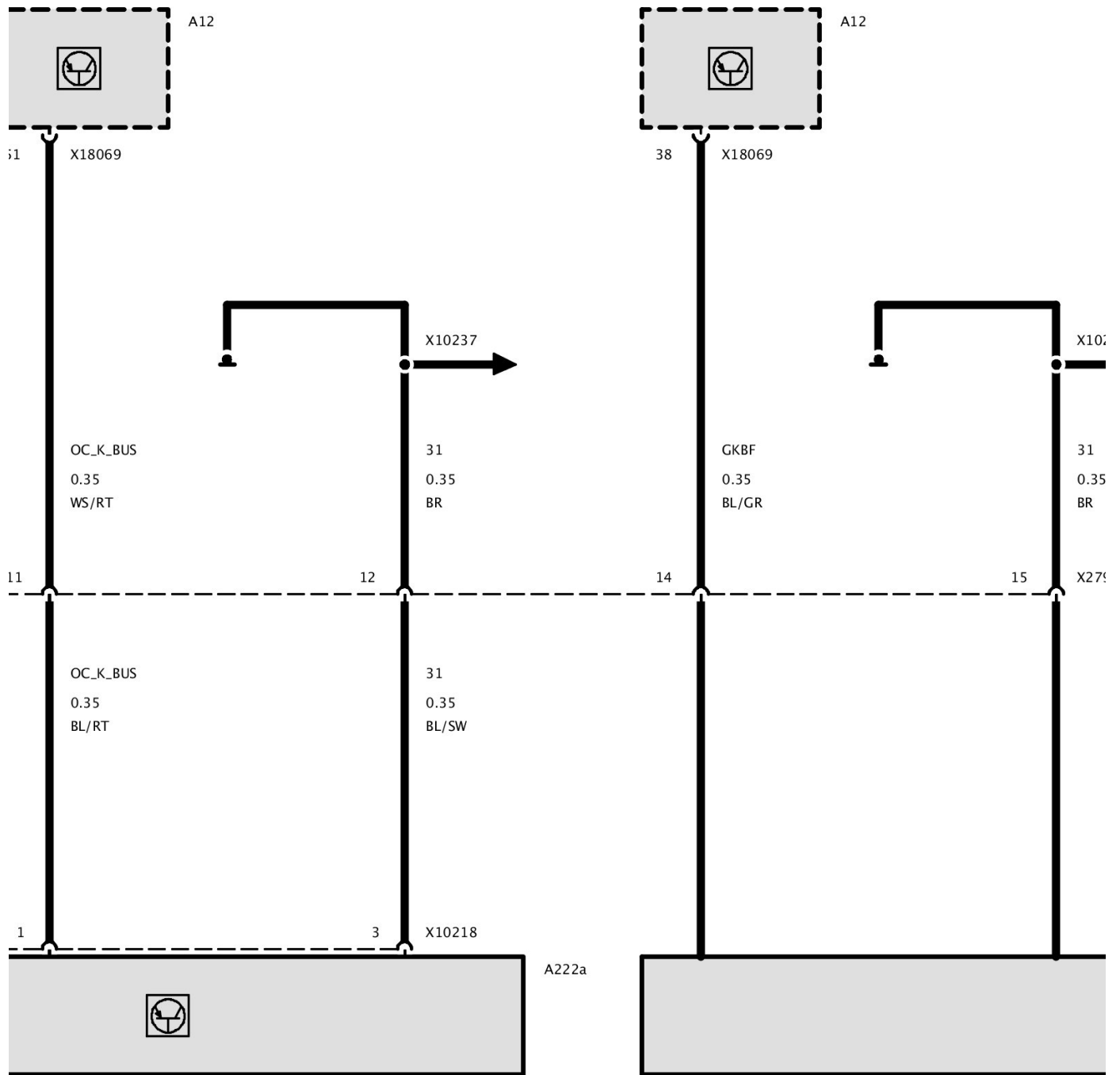
Plug Connector X279 (USA\_LHD)



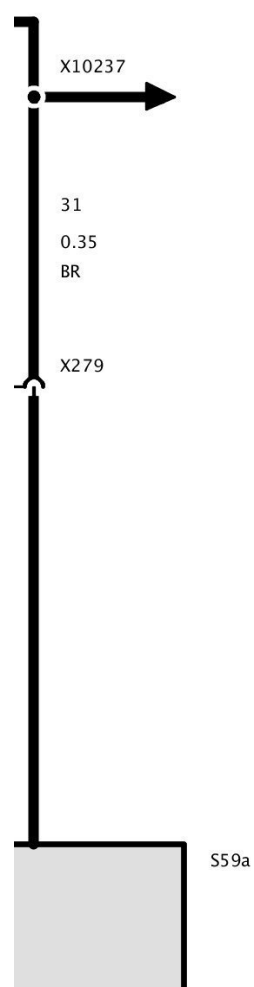
Part 1



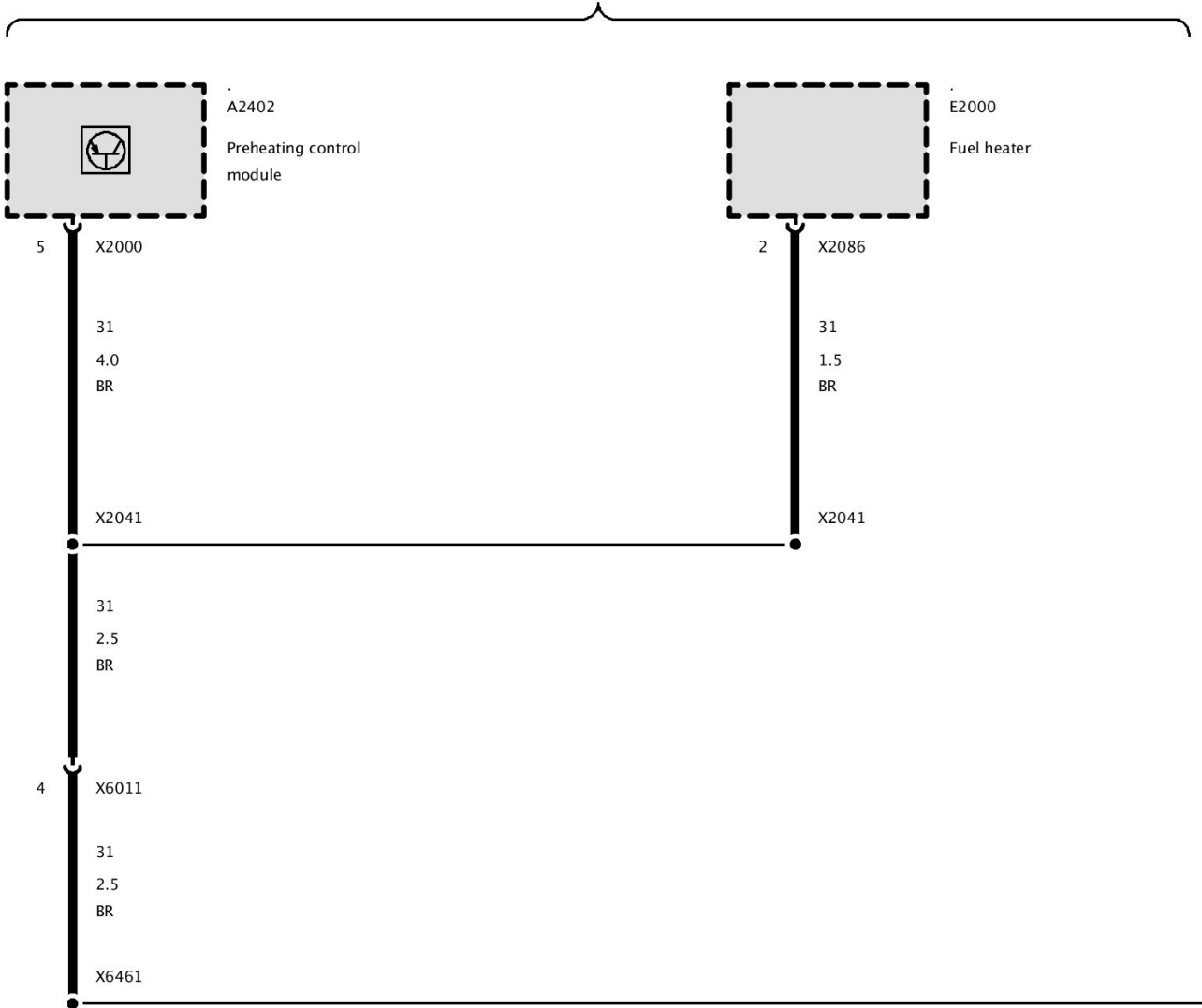
Part 2



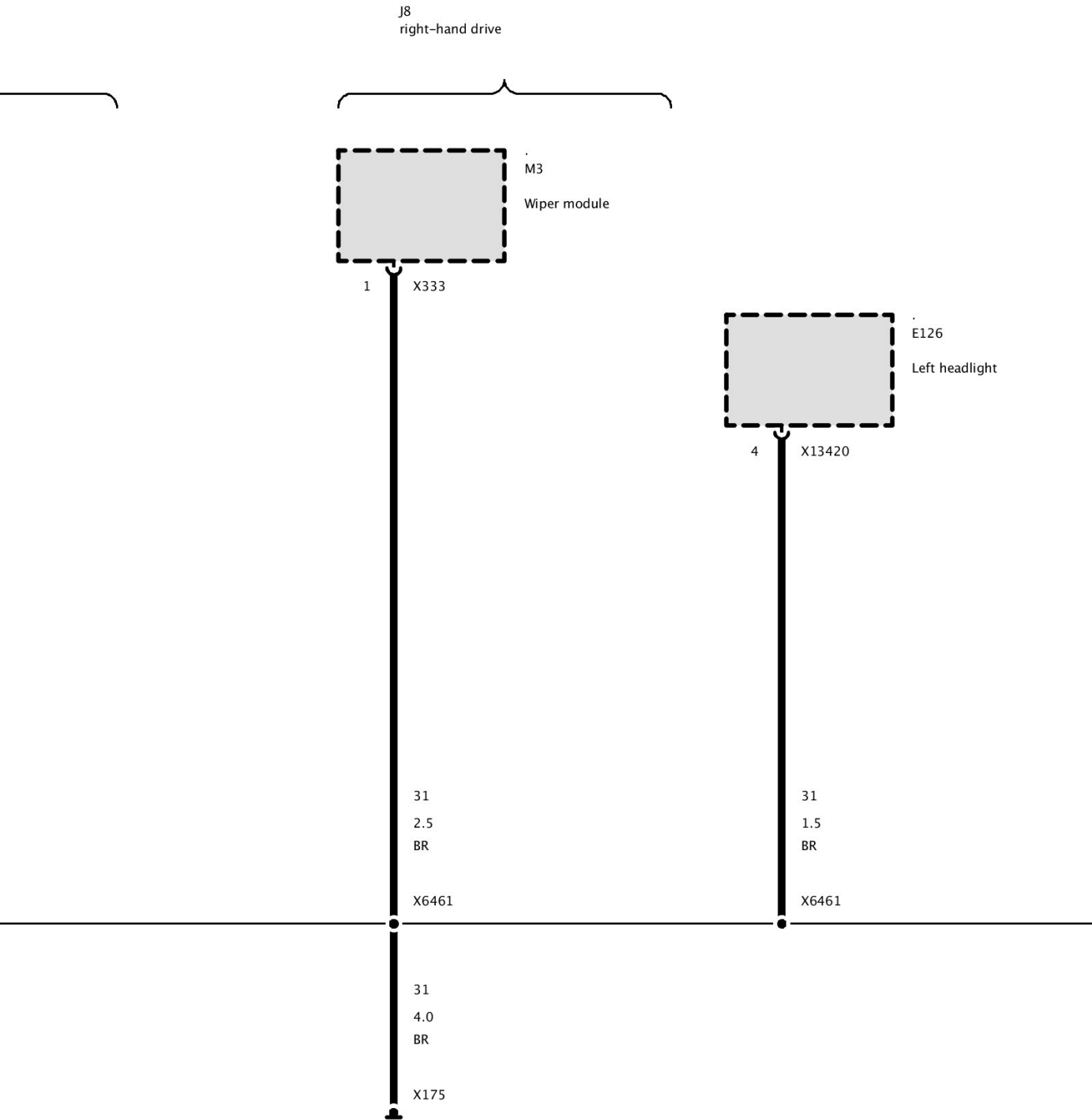
Part 3

**Part 4****X2041 No Adapter****X2041 No Adapter****Ground Connector X6461, X2041**

J25  
diesel engine



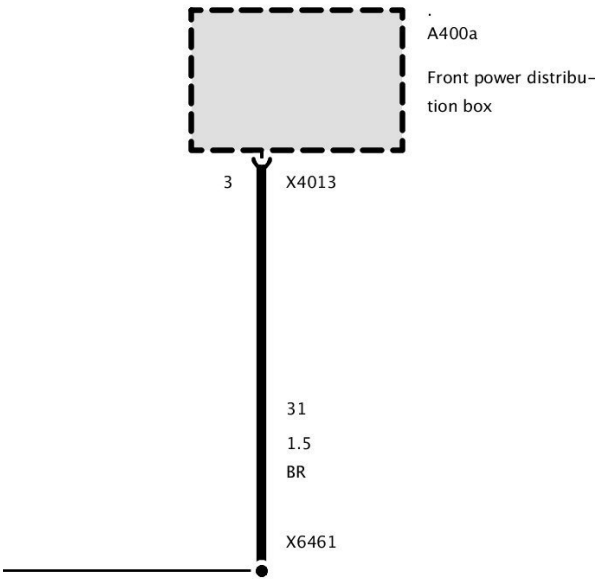
Part 1



Part 2



light

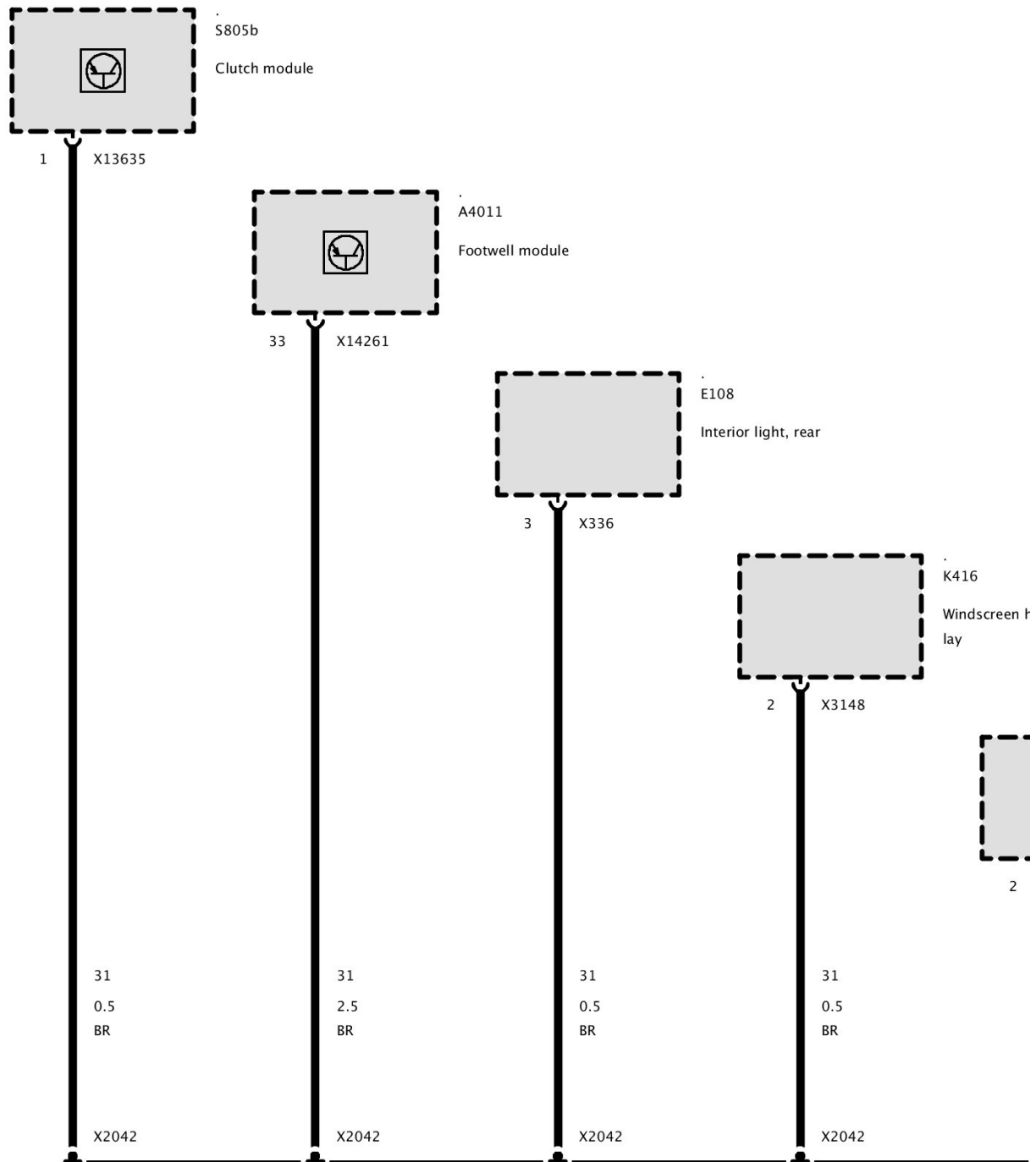


**Part 3**

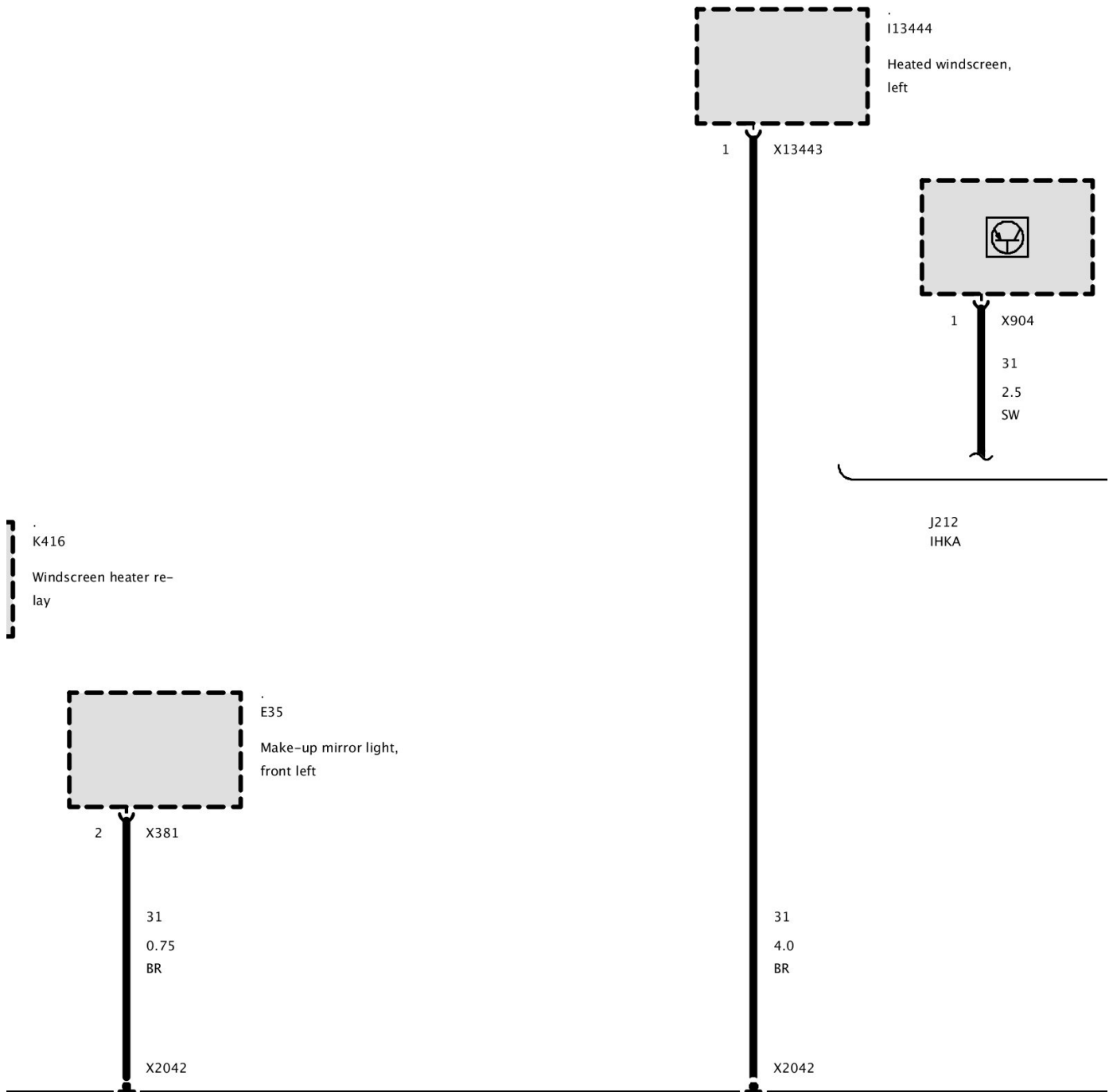
**X2042 No Adapter**

**X2042 No Adapter**

**Ground X2042**

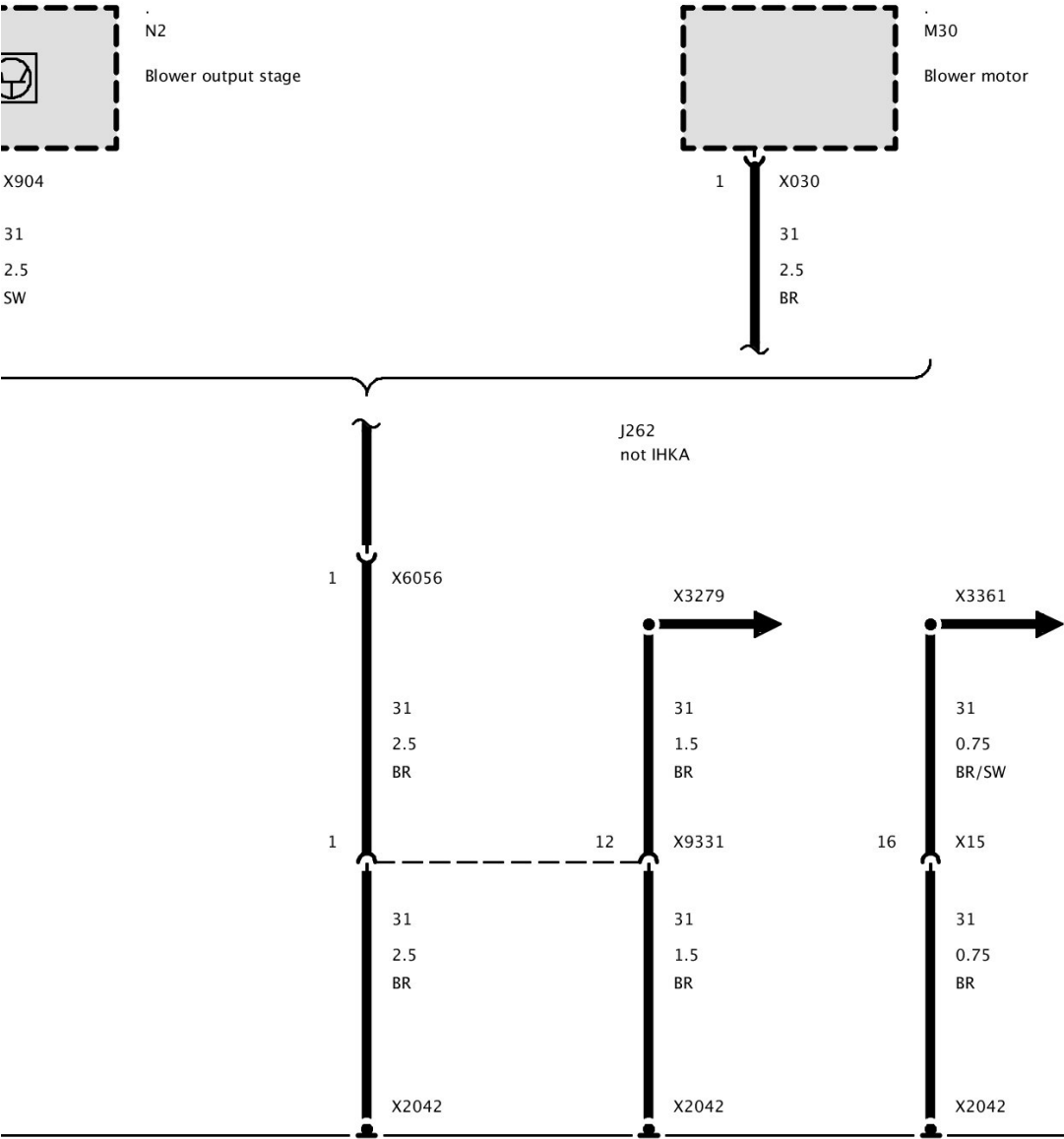


Part 1

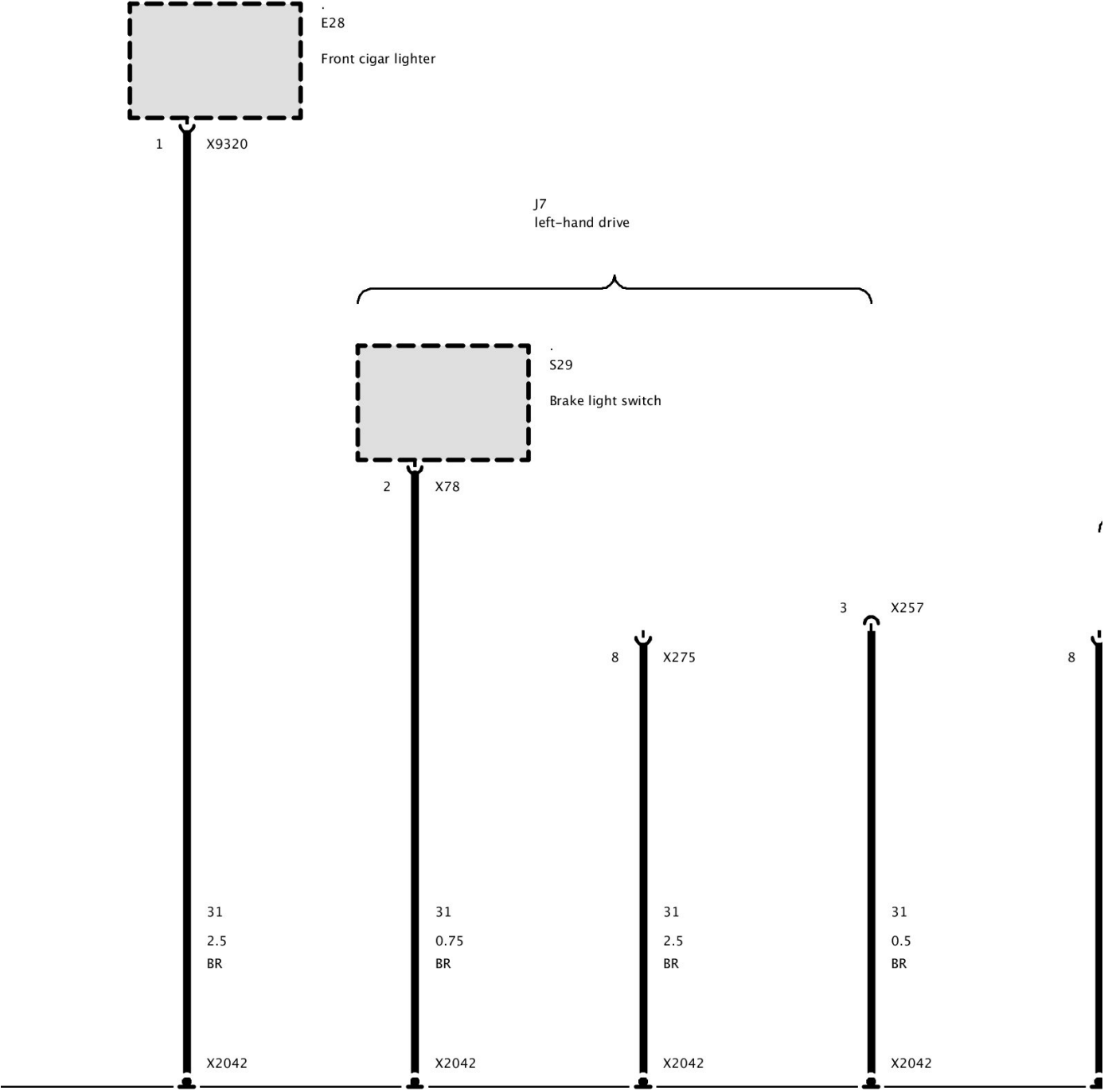


Part 2

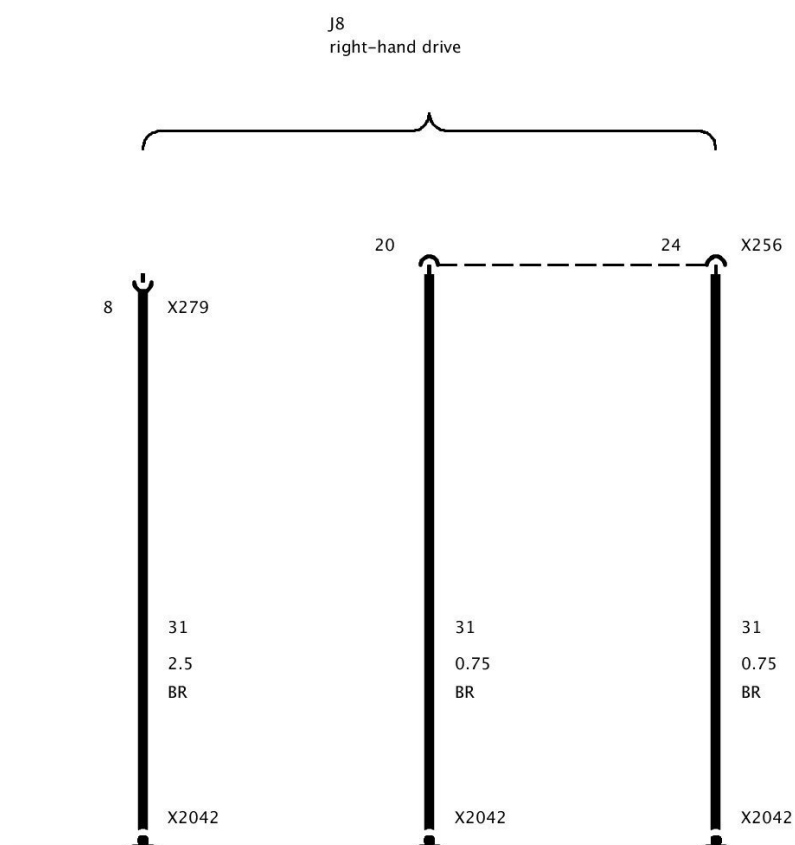
n,

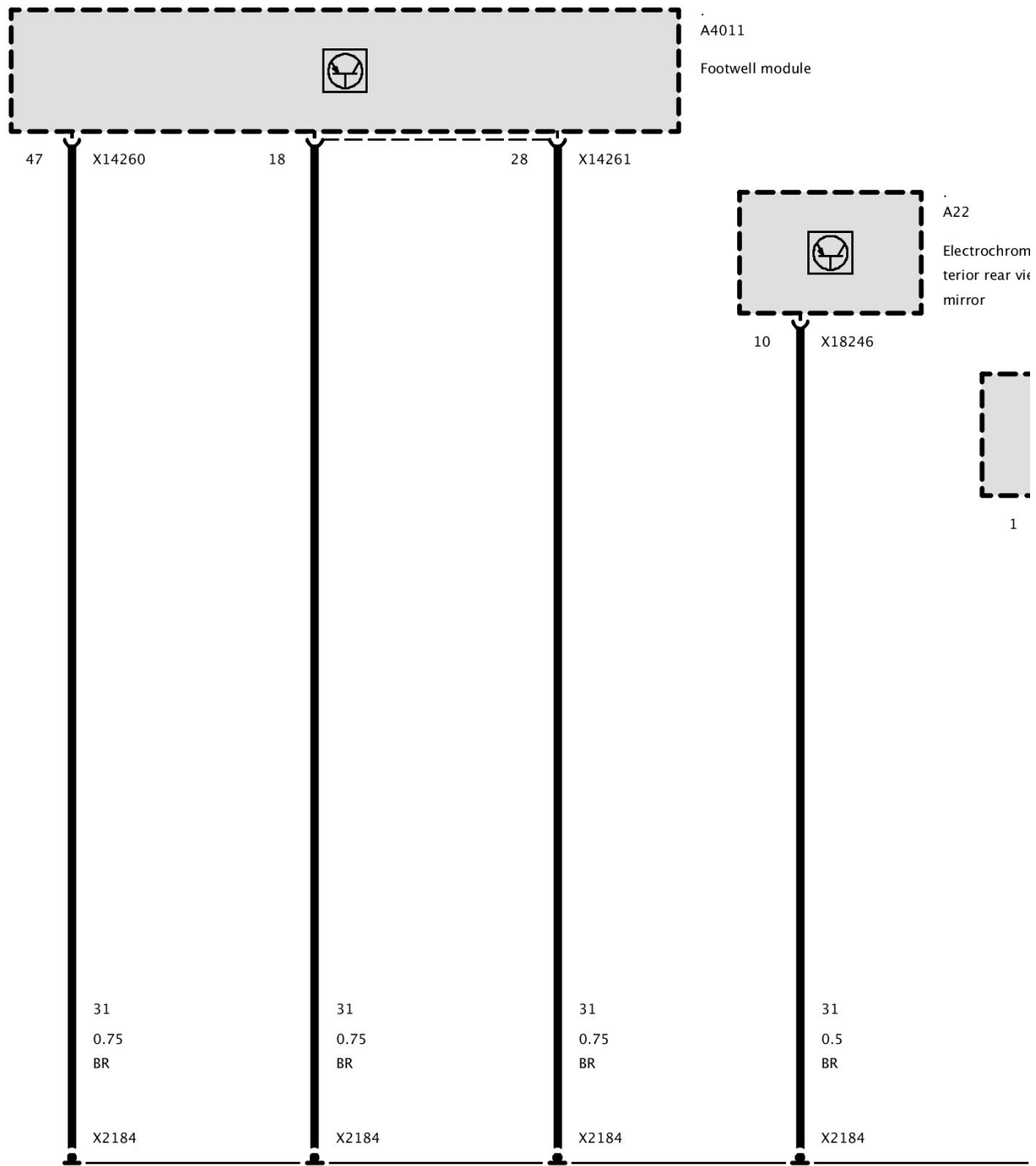


Part 3

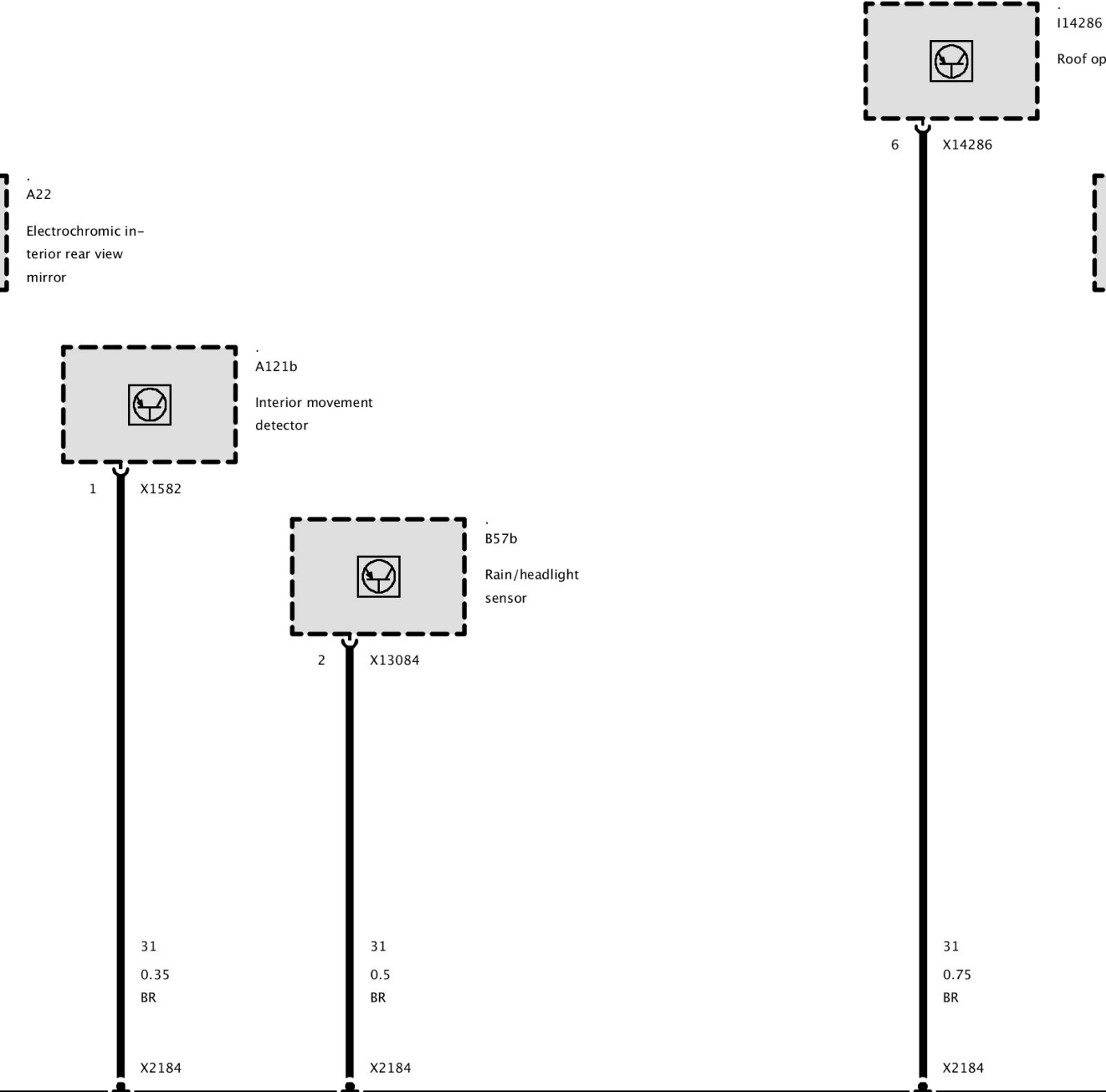


Part 4

**Part 5****X2184 No Adapter****X2184 No Adapter****Ground Connection X2184**

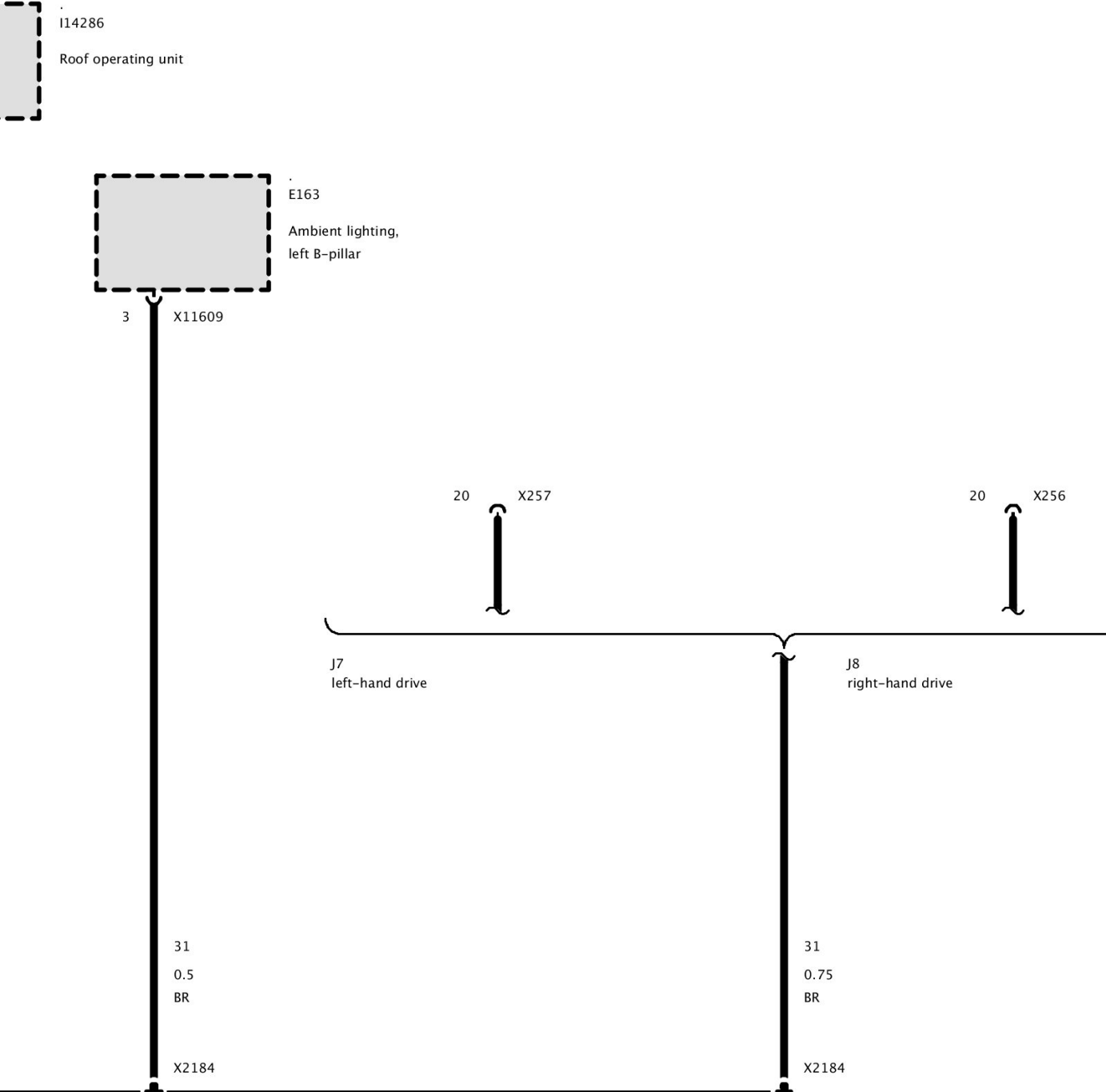


Part 1

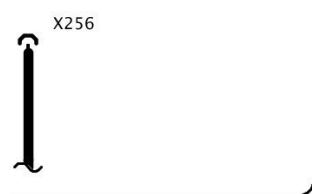


Part 2





Part 3

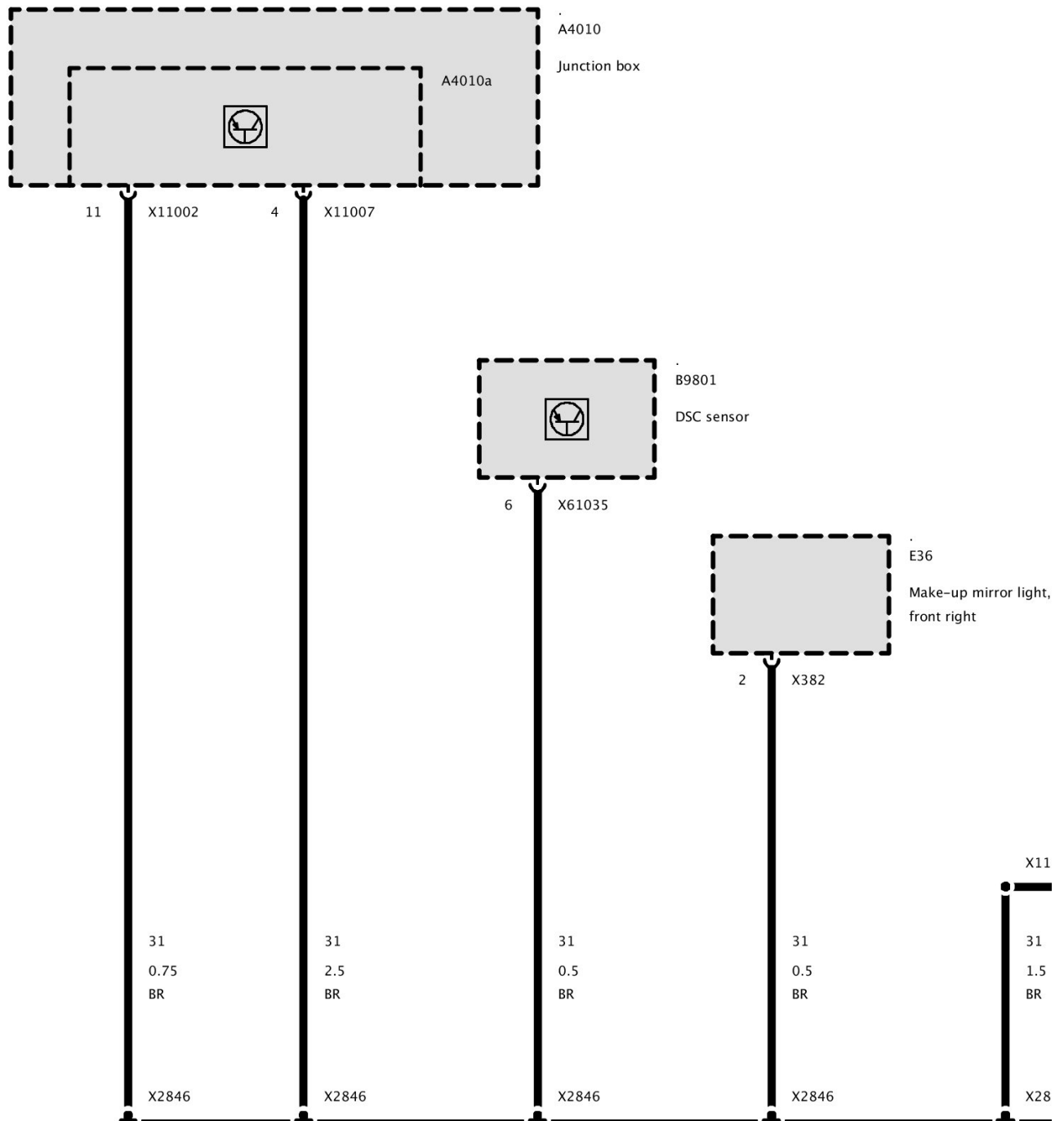


#### Part 4

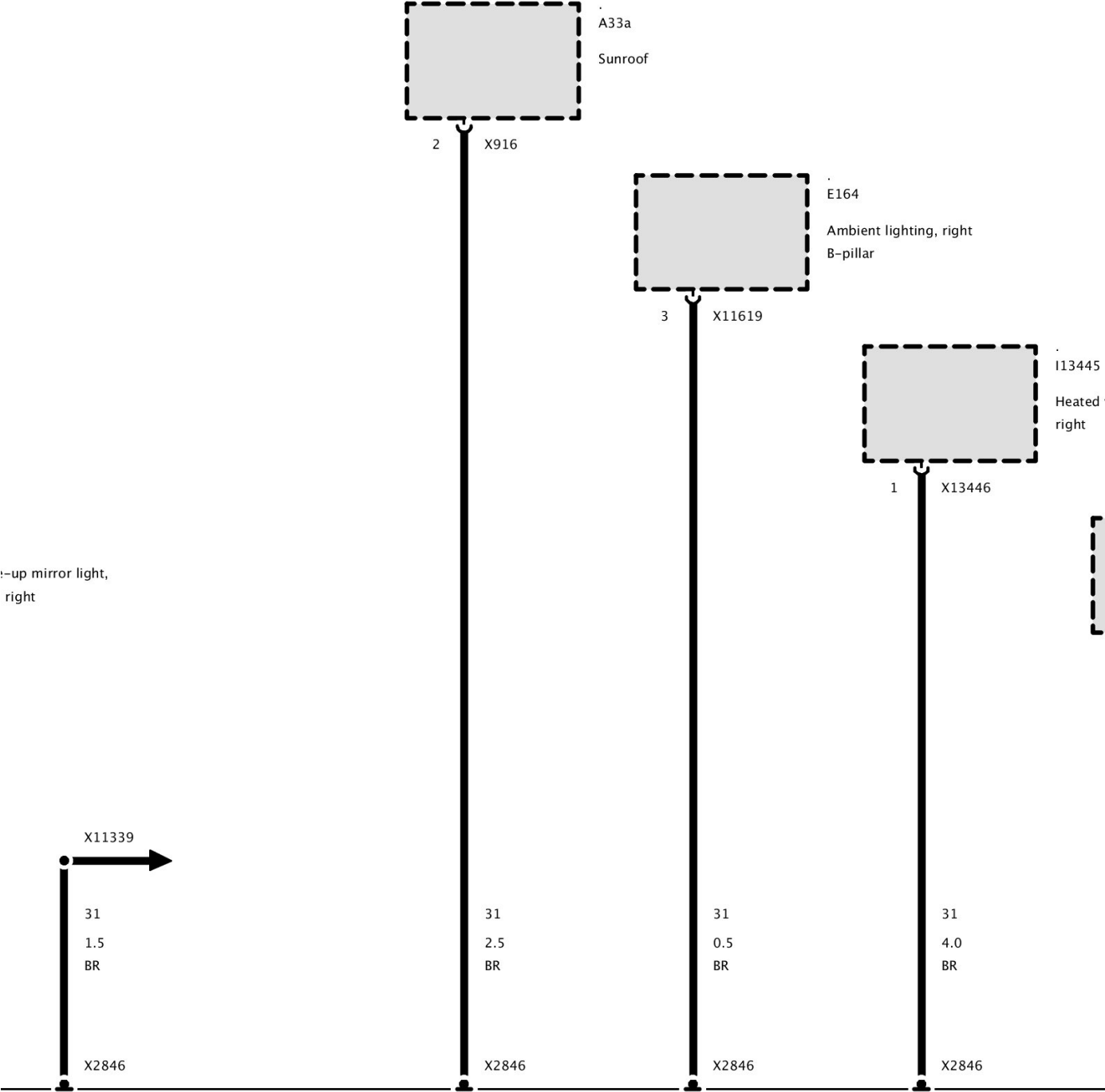
**X2846 No Adapter**

**X2846 No Adapter**

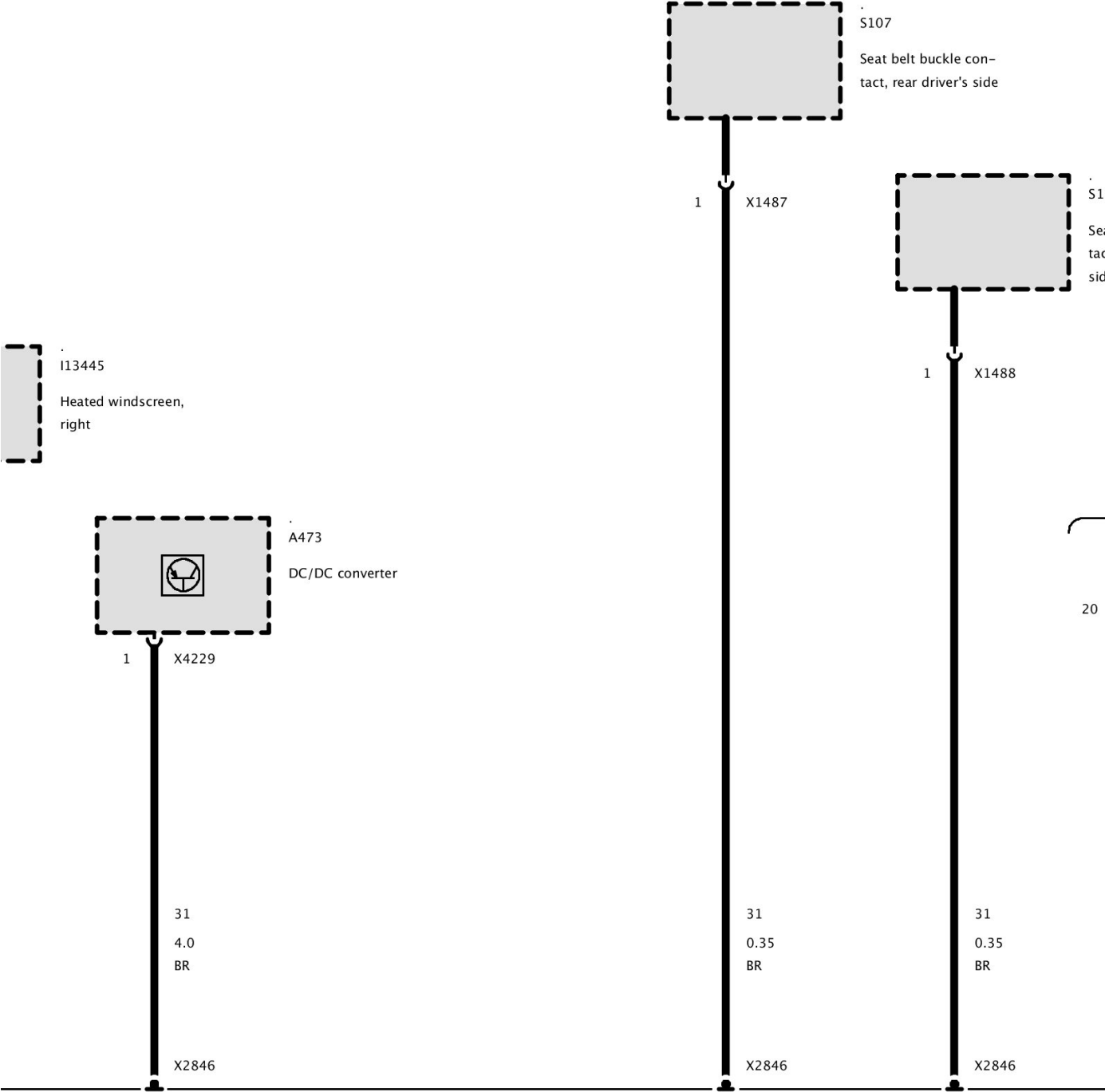
**Ground Connection X2846**



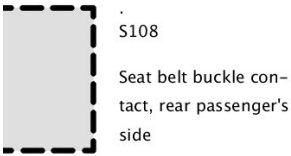
Part 1



Part 2

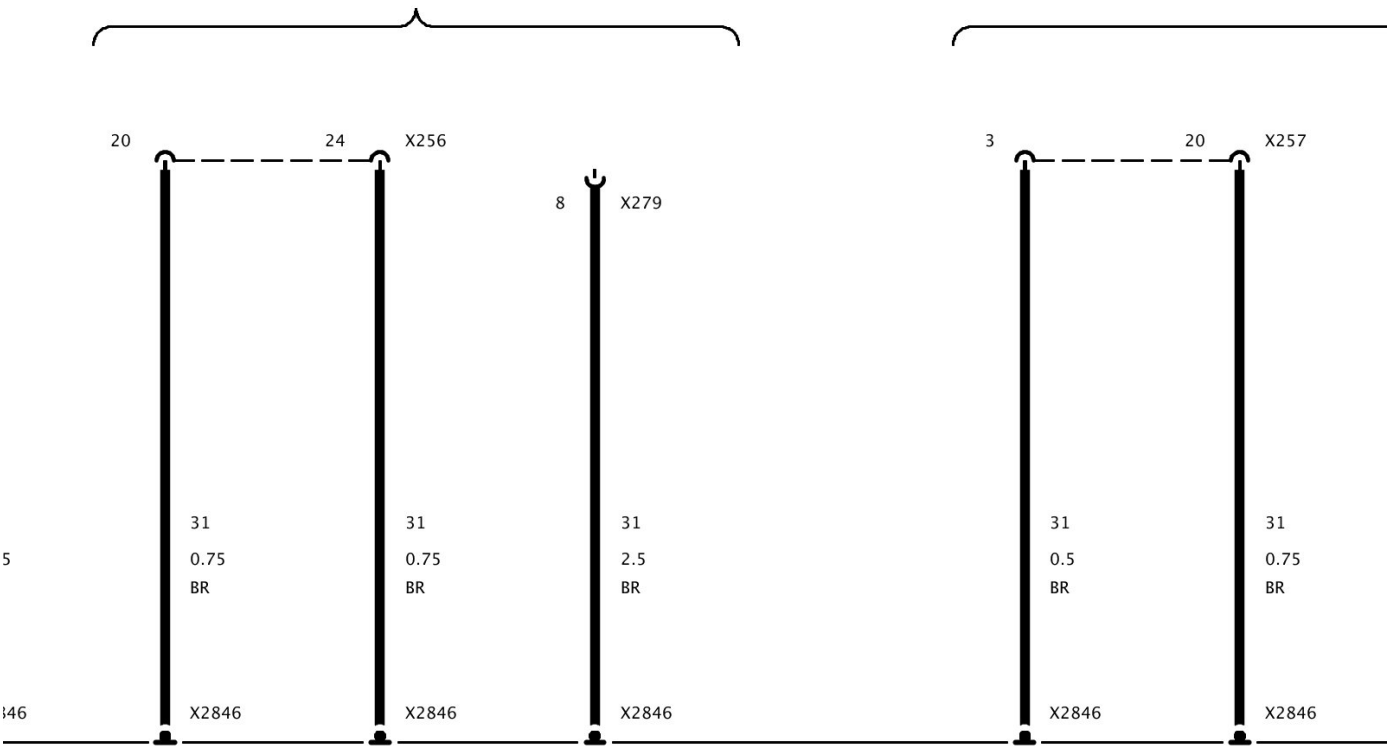


Part 3

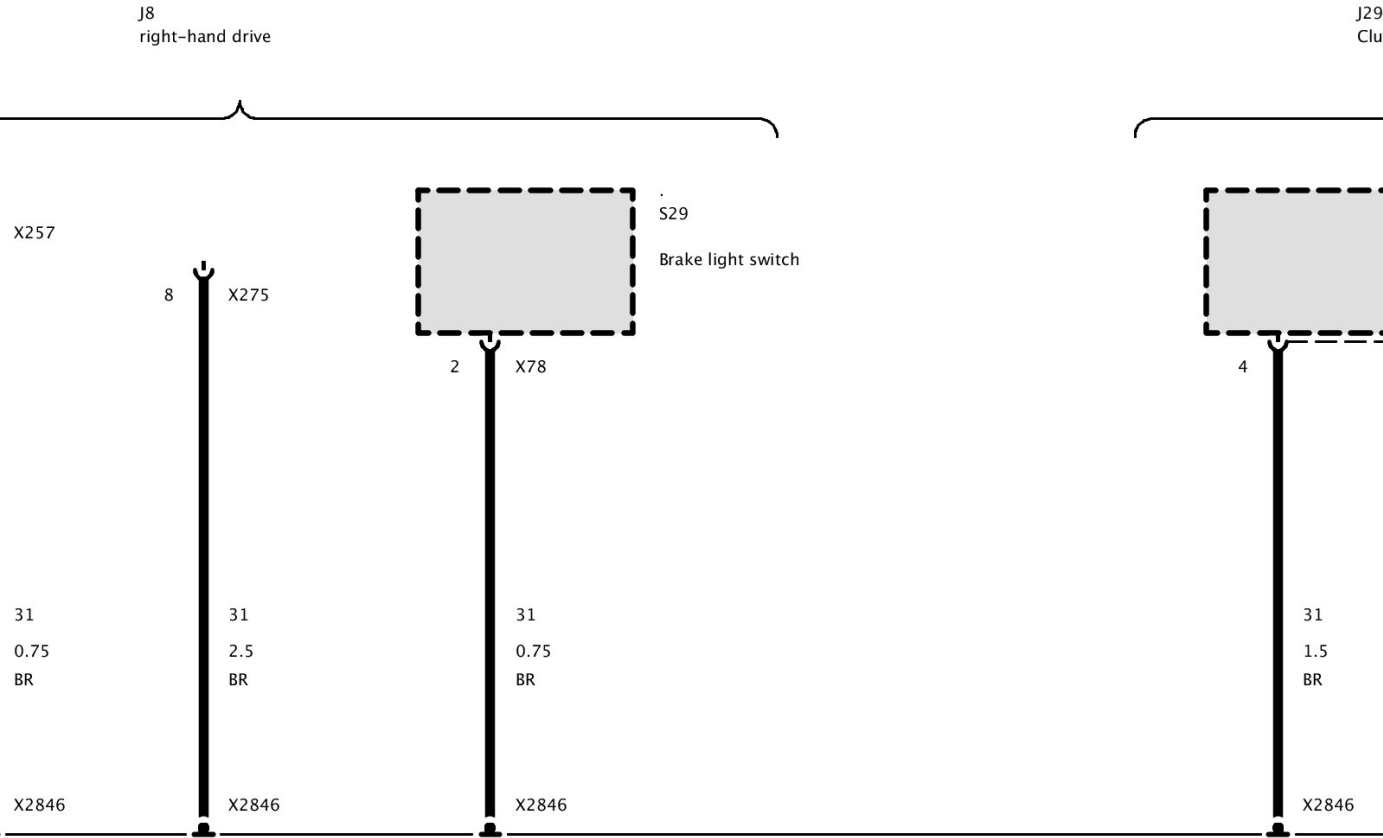


188

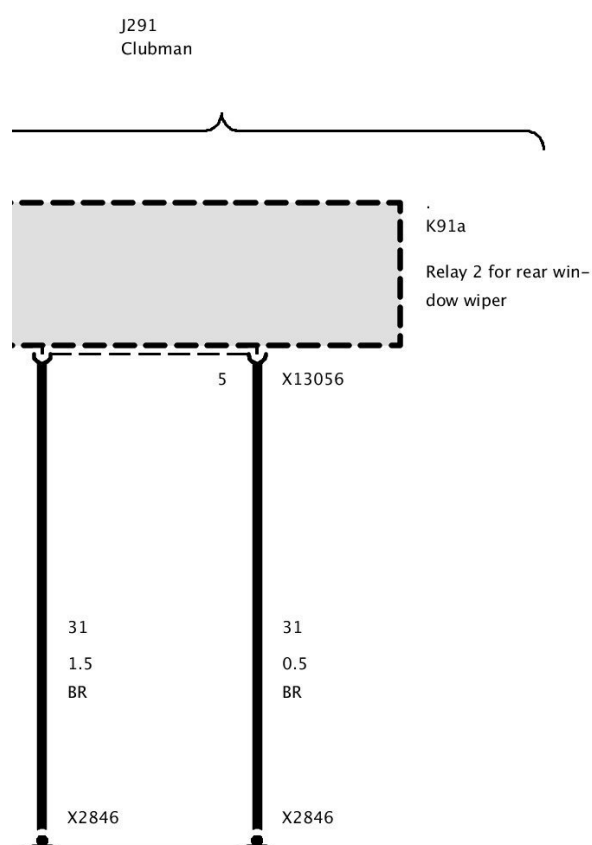
J7  
left-hand drive



Part 4



Part 5



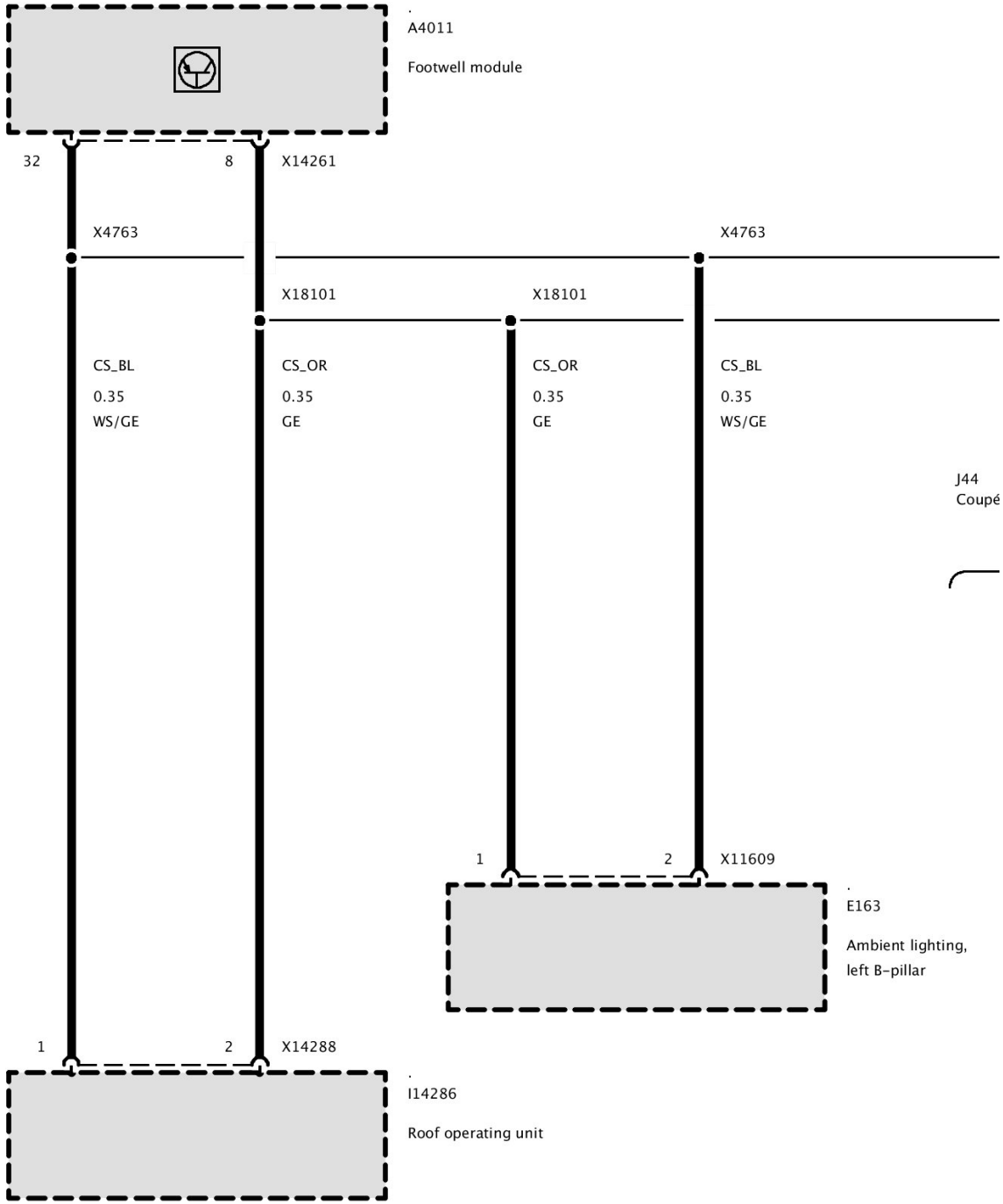
## Part 6

### X2859 No Adapter

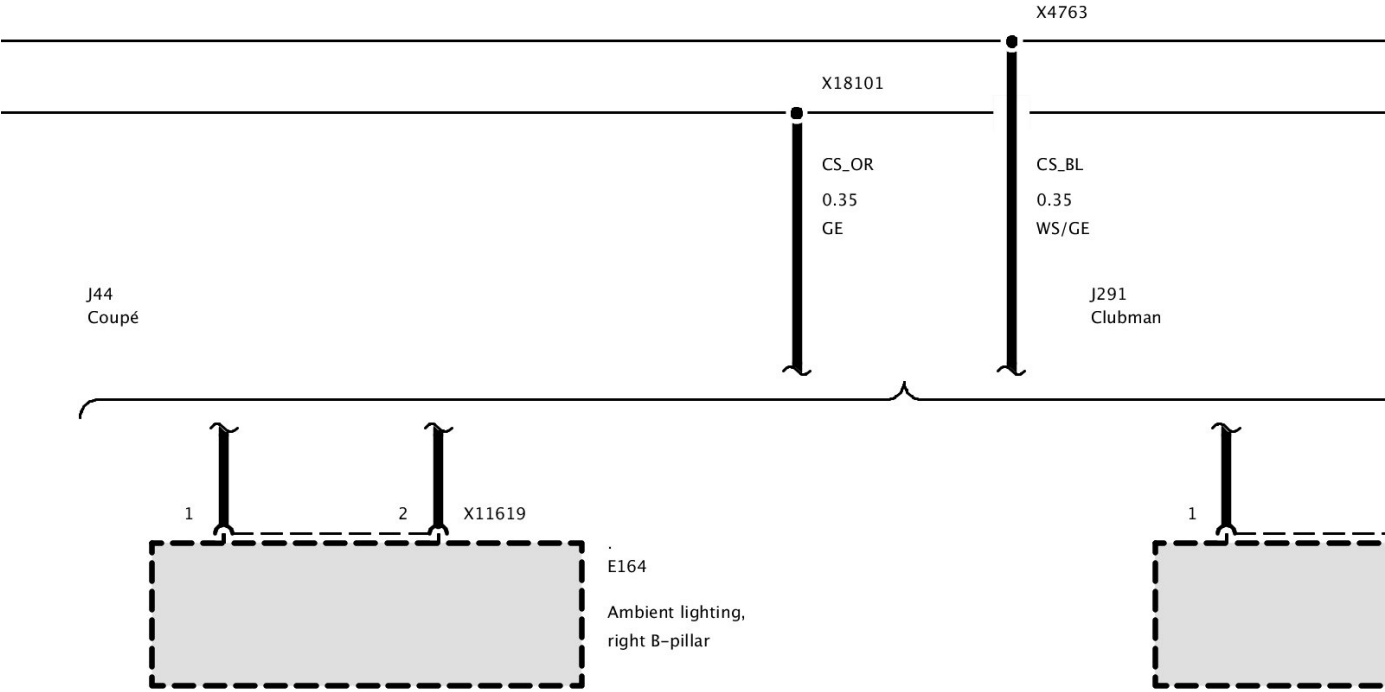
#### X2859 No Adapter

Connectors X4763, X18101, X2859, X1366, X01436, X1203

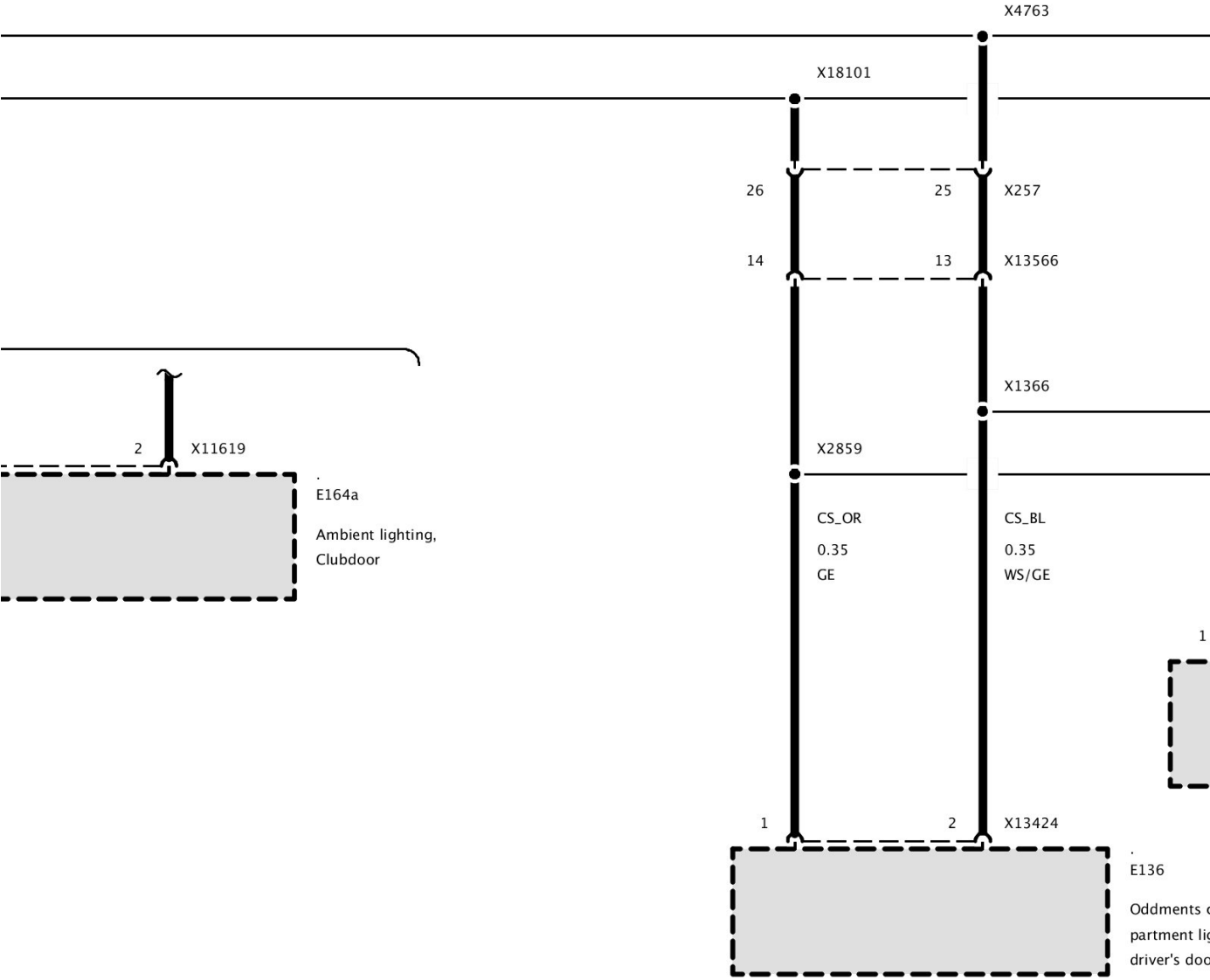




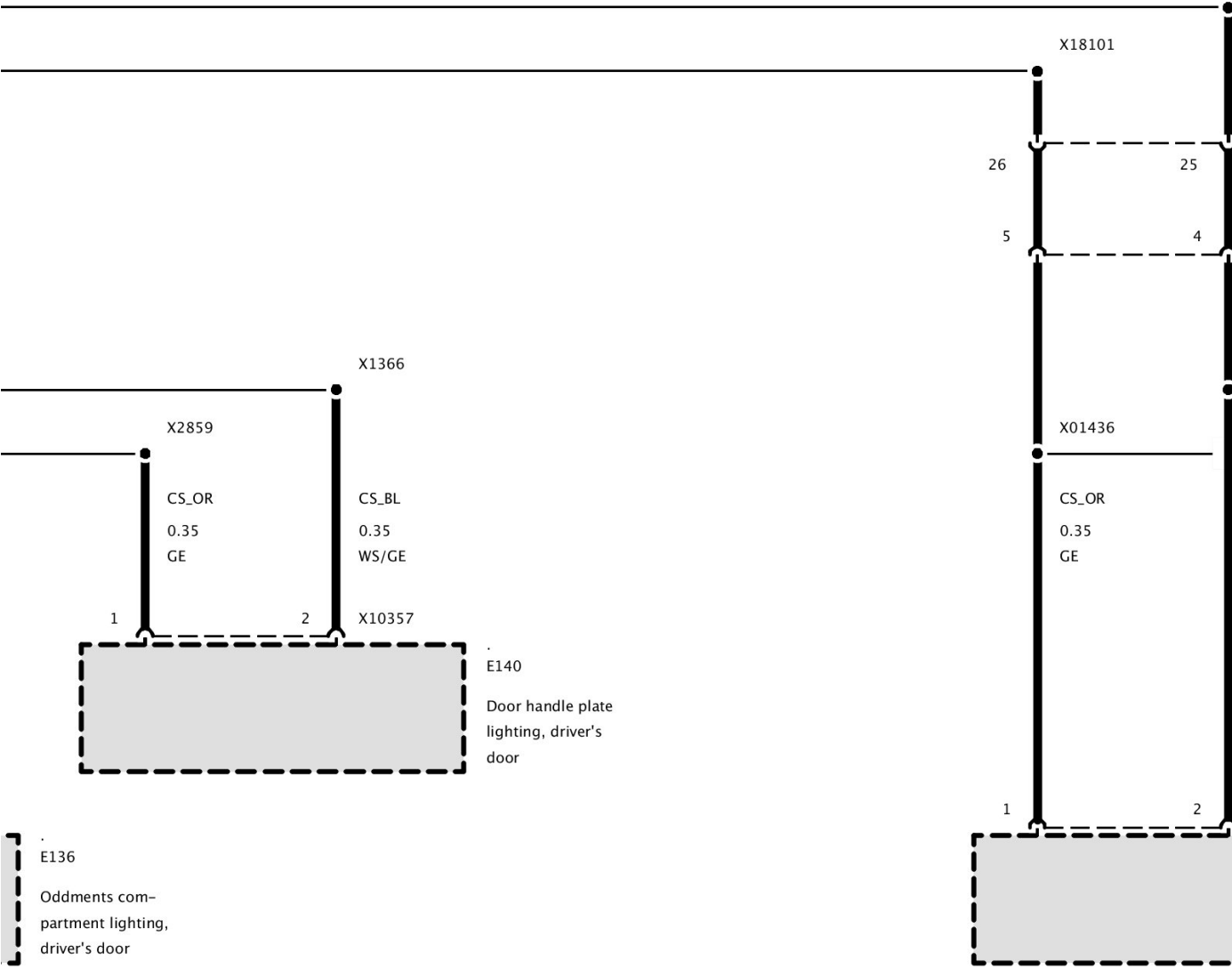
Part 1



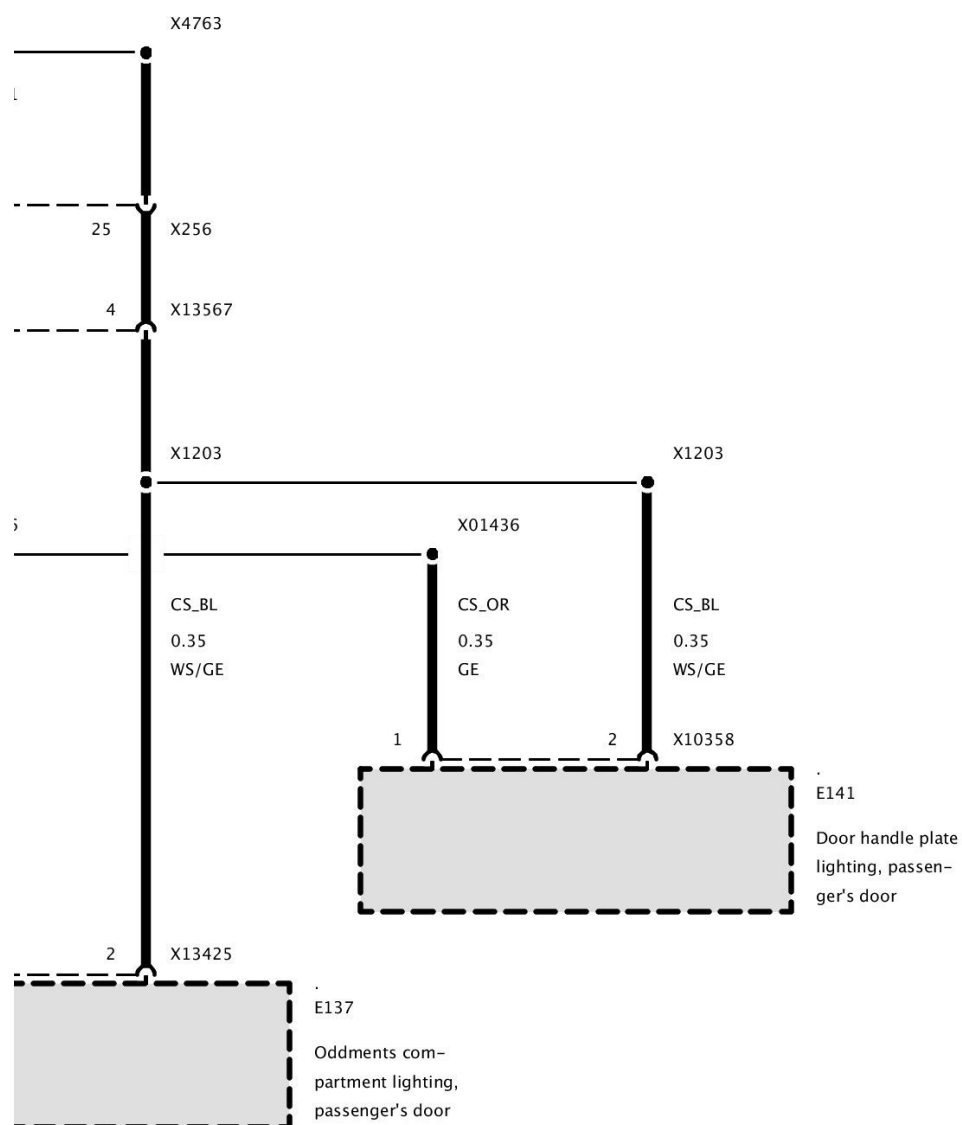
Part 2



Part 3



Part 4

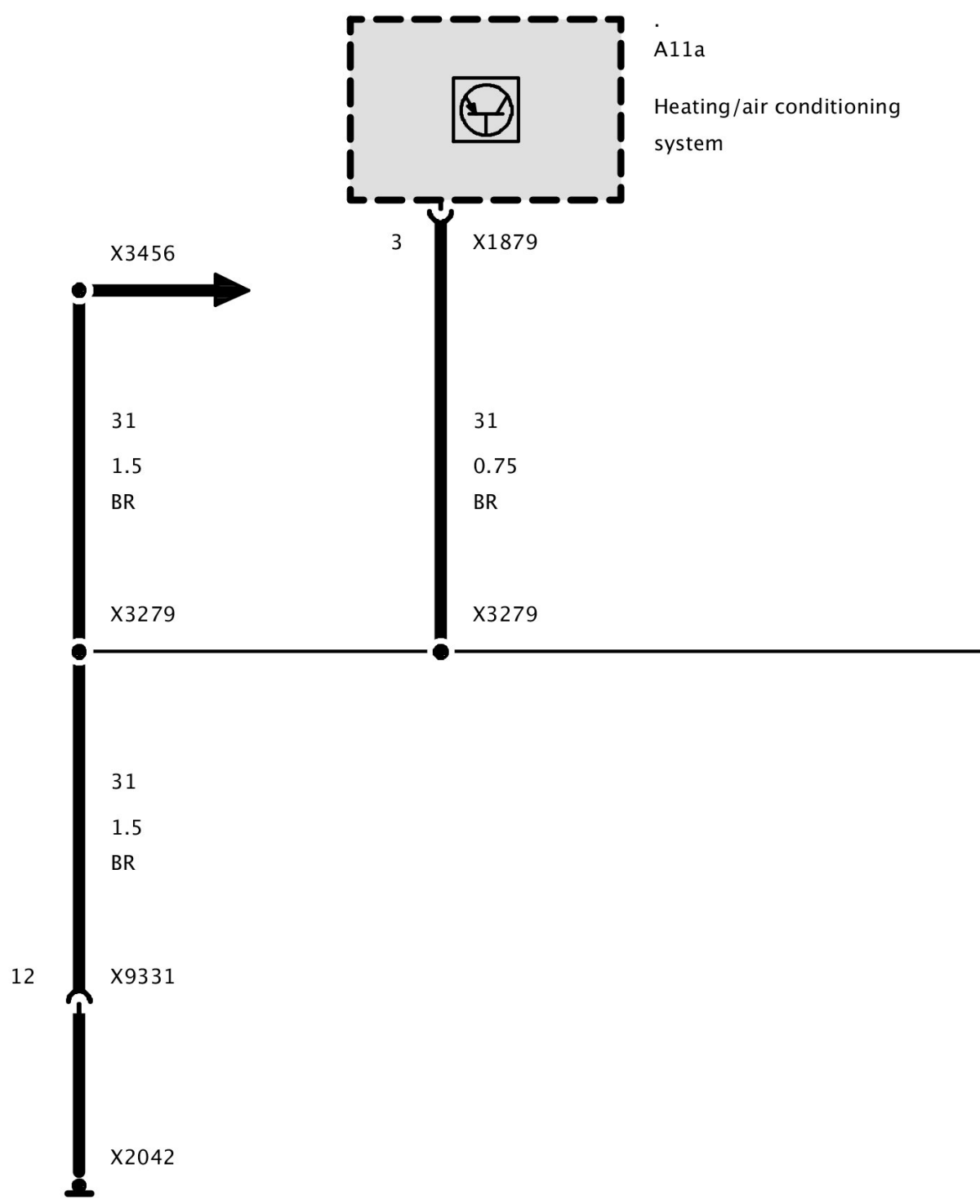


## Part 5

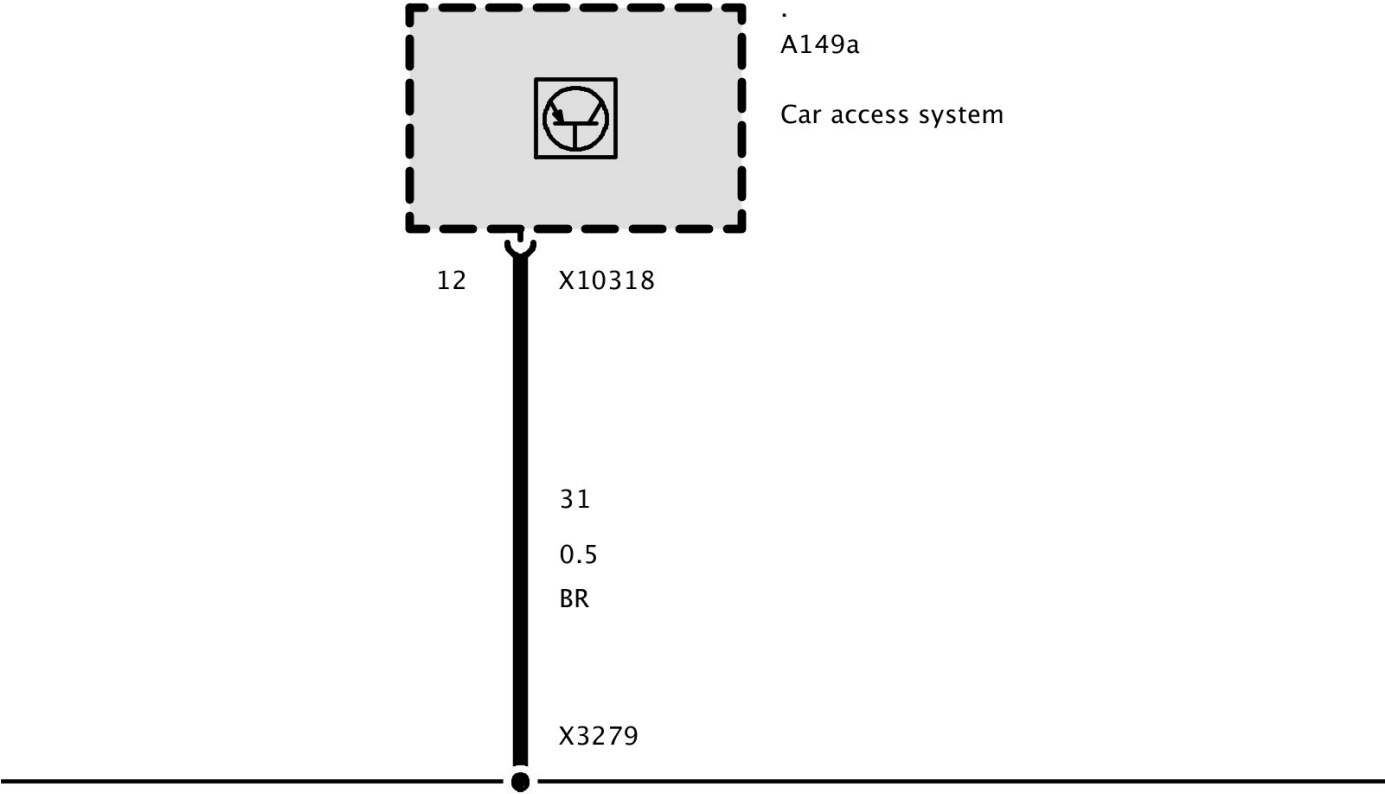
### X3279 No Adapter

### X3279 No Adapter

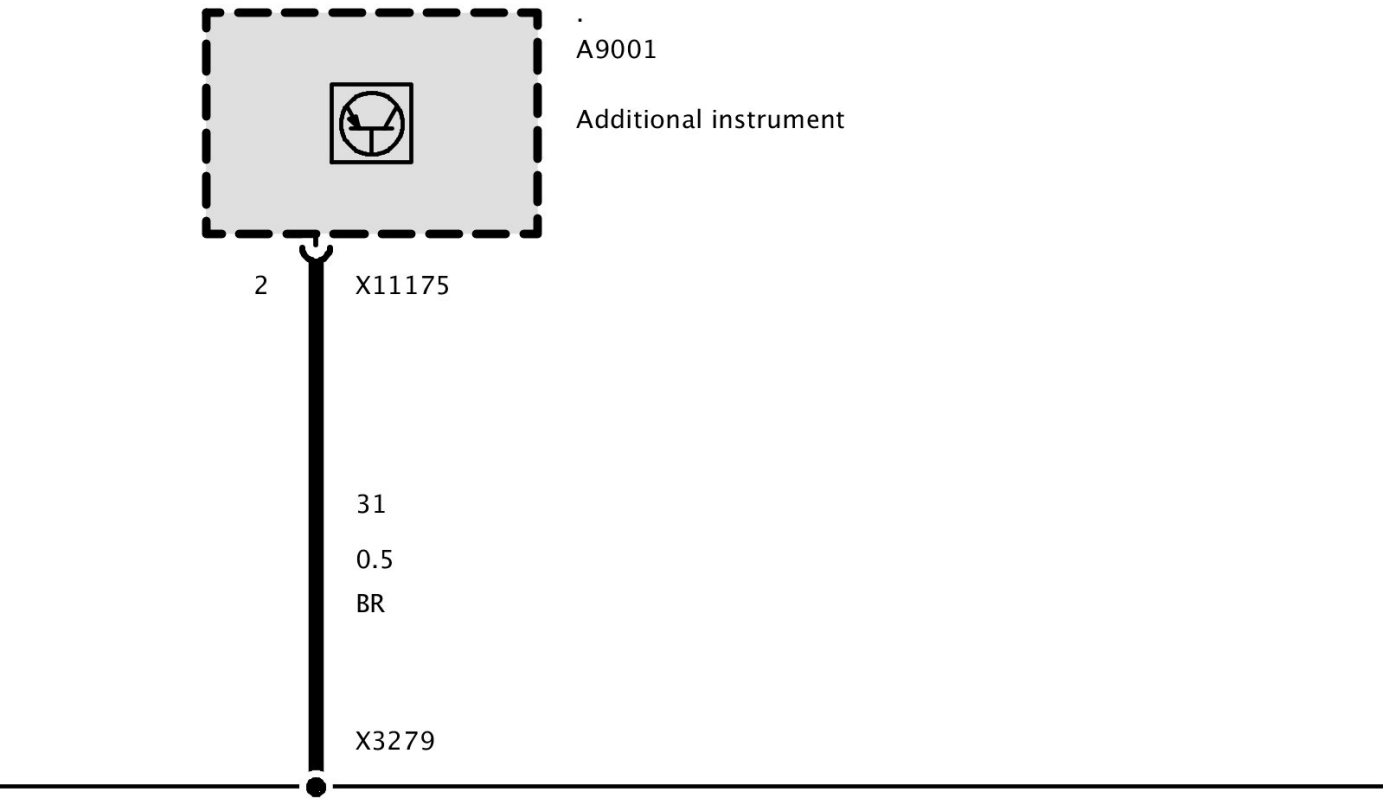
### Ground Connector X3279



Part 1

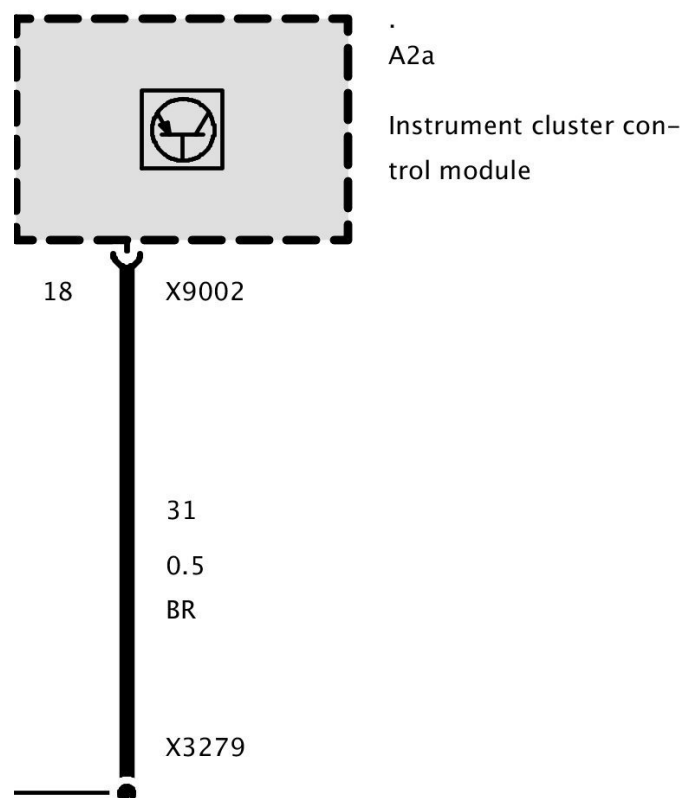


Part 2



Part 3



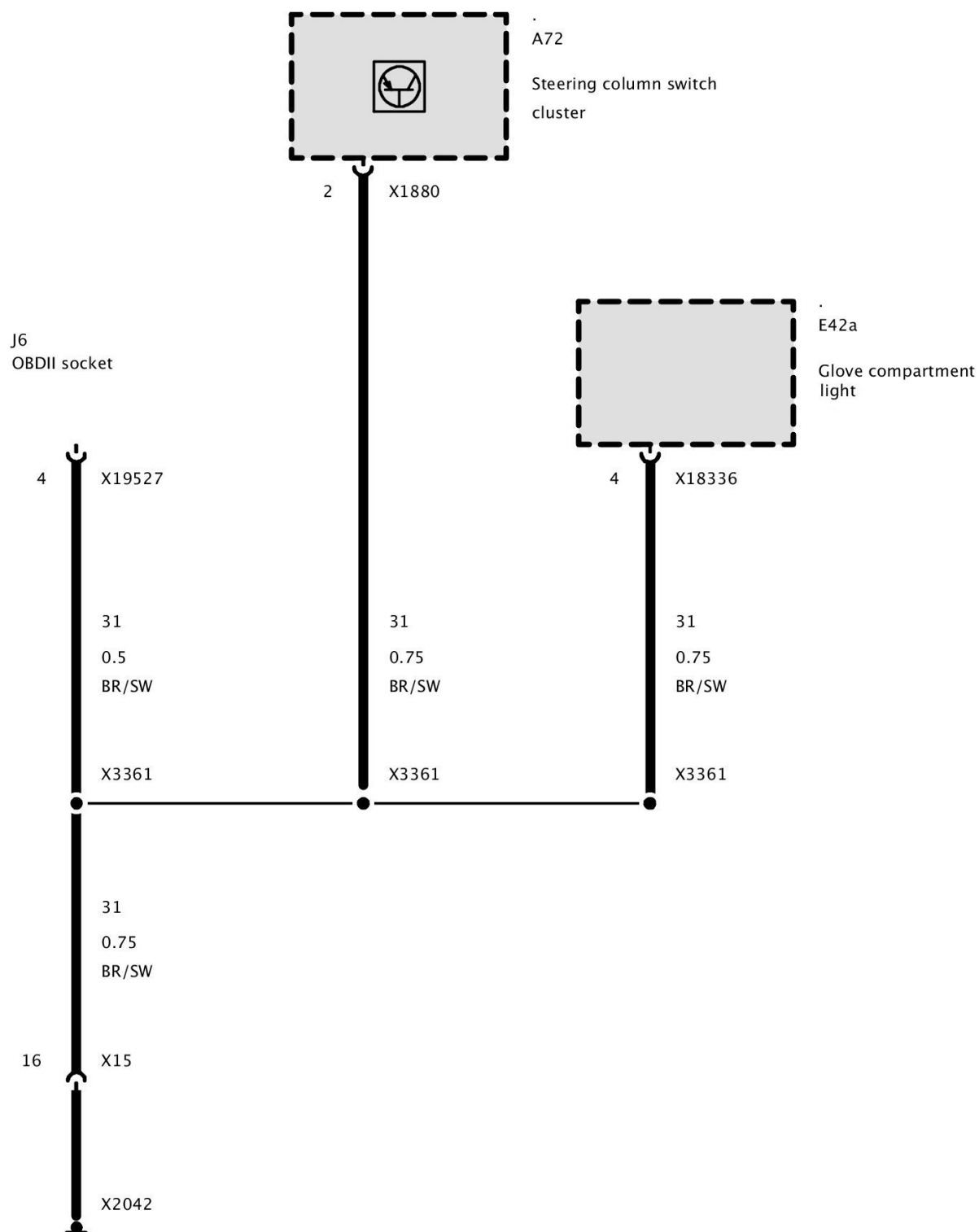


#### Part 4

**X3361 No Adapter**

**X3361 No Adapter**

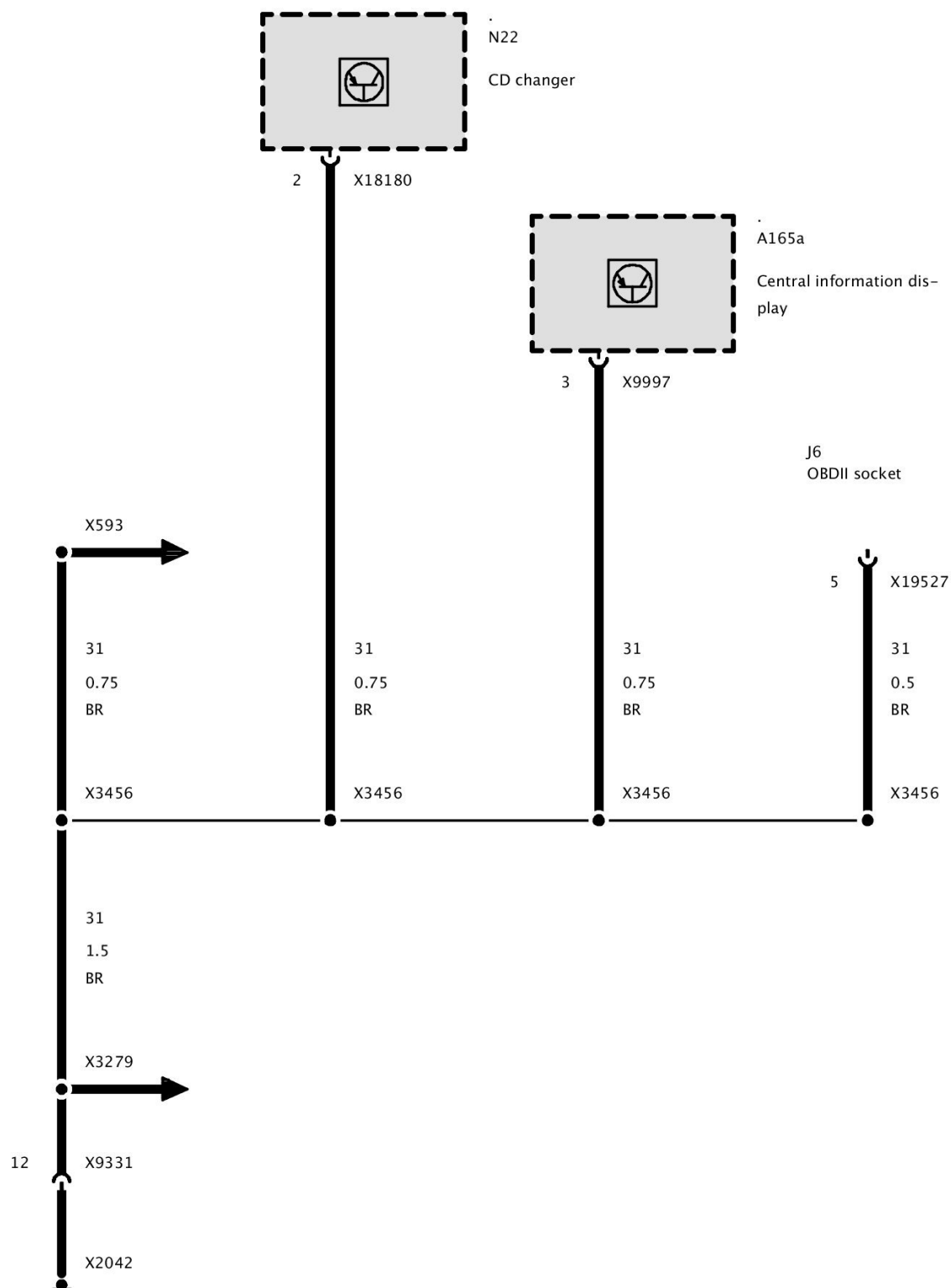
**Ground Connector X3361**



**X3456 No Adapter**

**X3456 No Adapter**

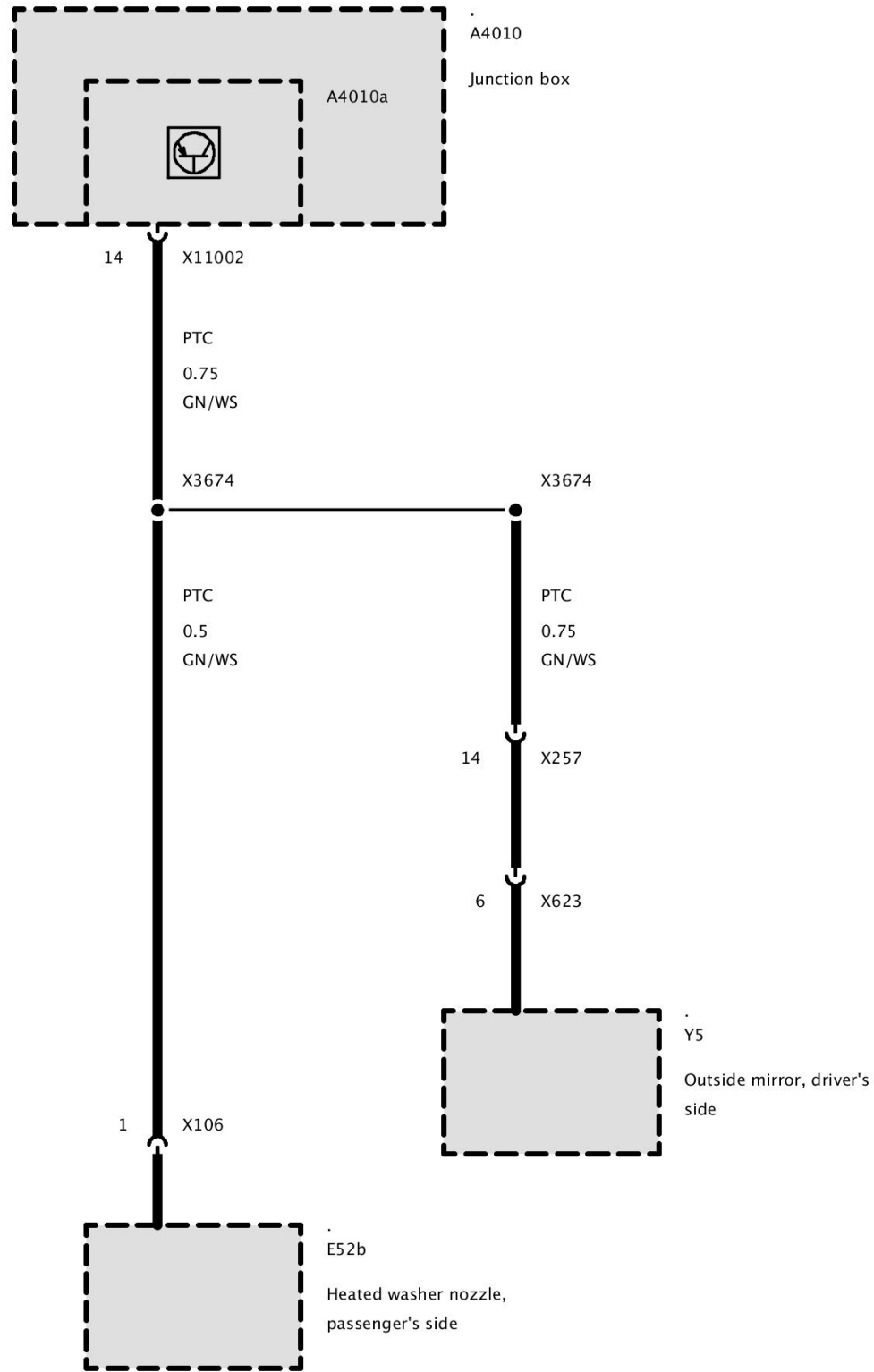
**Ground Connector X3456**



**X3674 No Adapter**

**X3674 No Adapter**

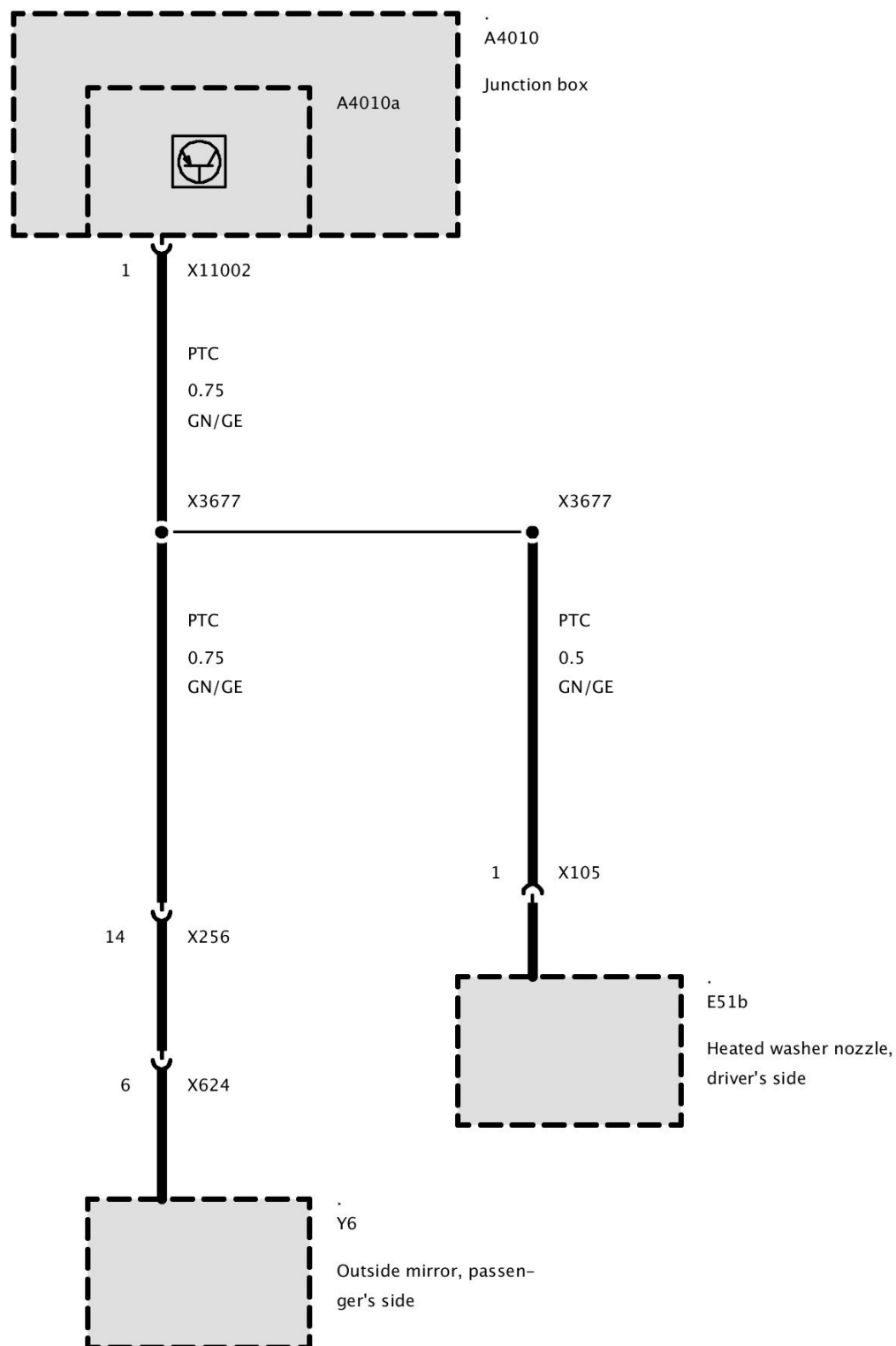
**Connector X3674**

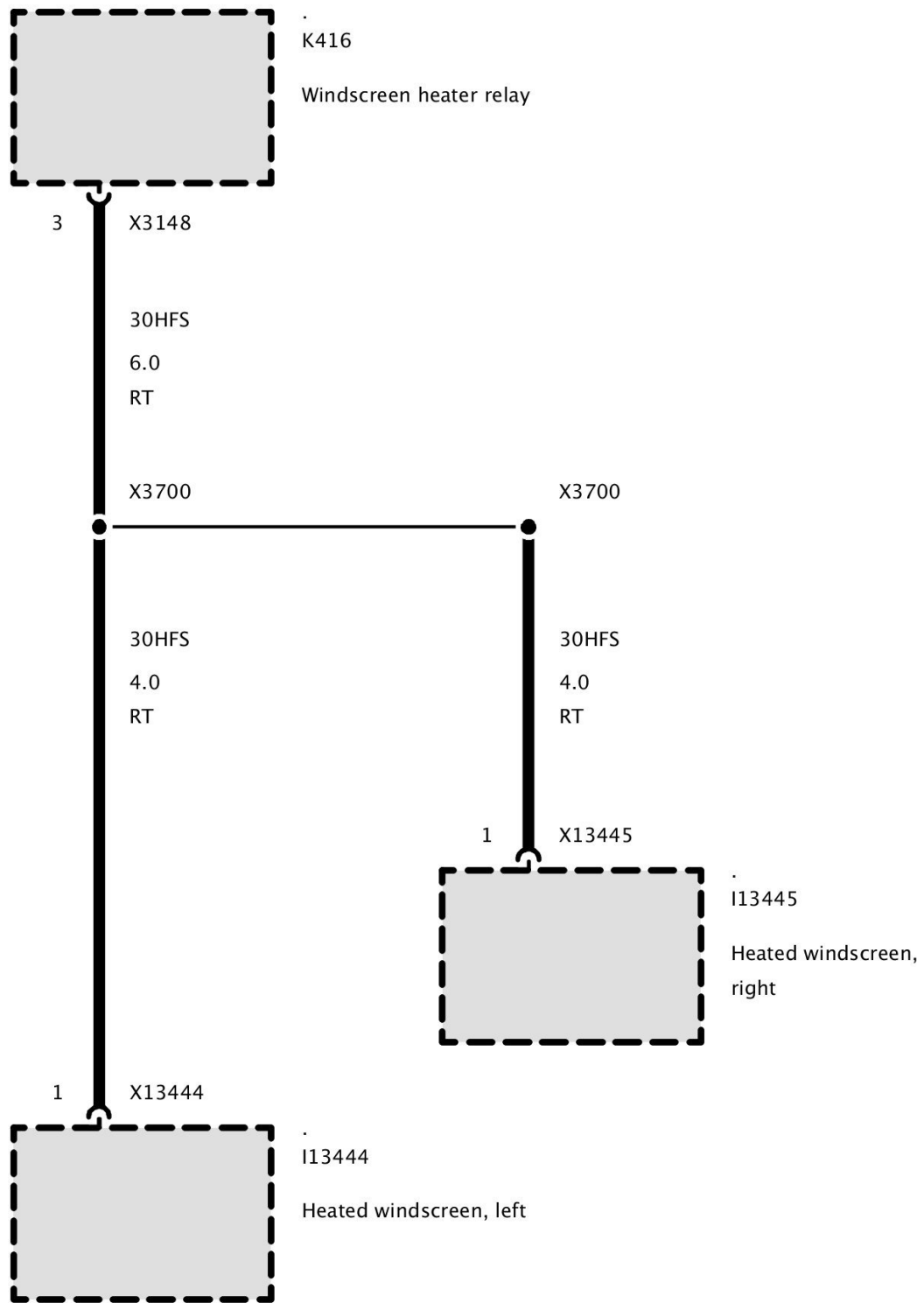


**X3677 No Adapter**

**X3677 No Adapter**

**Connector X3677**

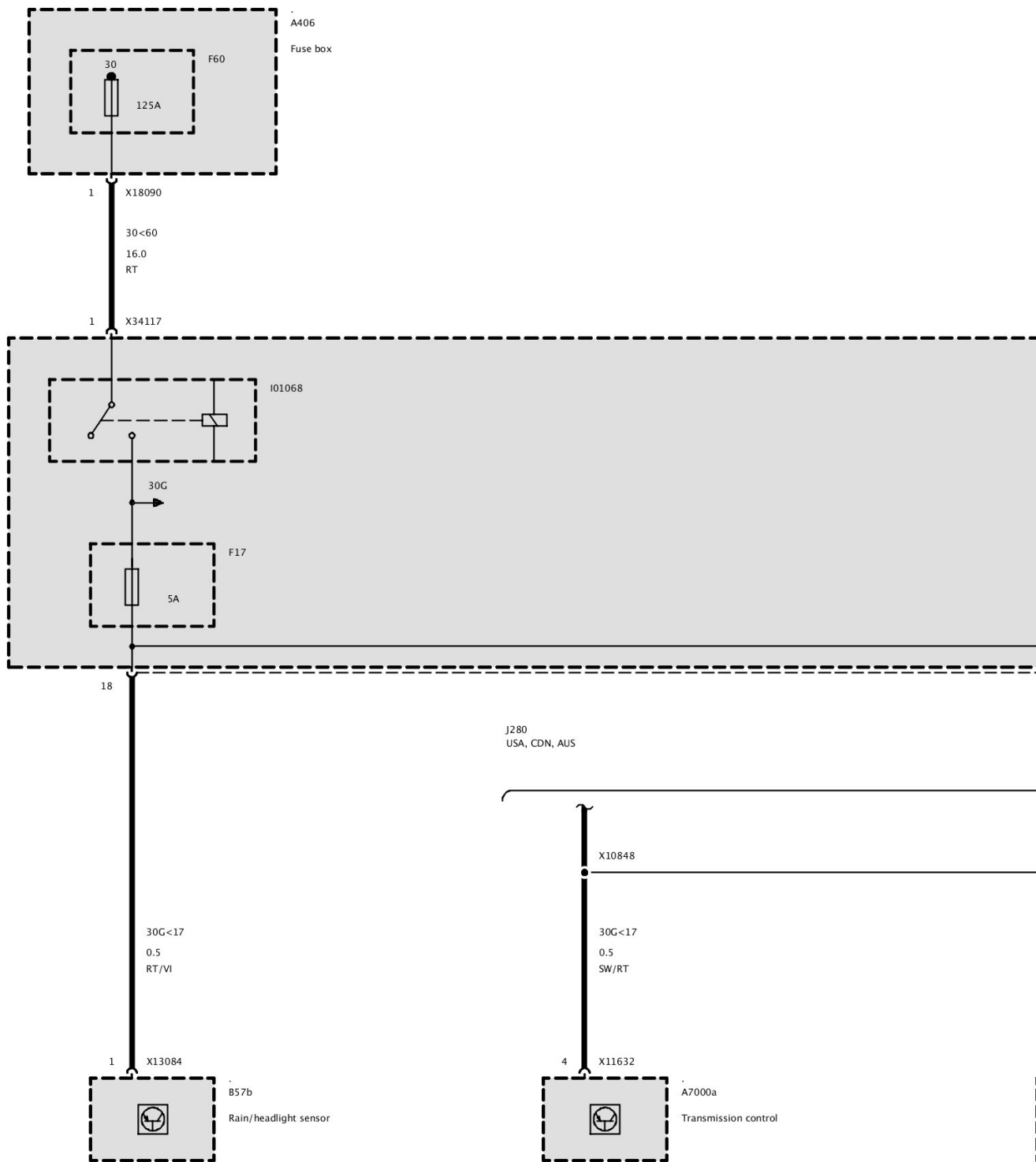
**X3700 No Adapter****X3700 No Adapter****Connector X3700**



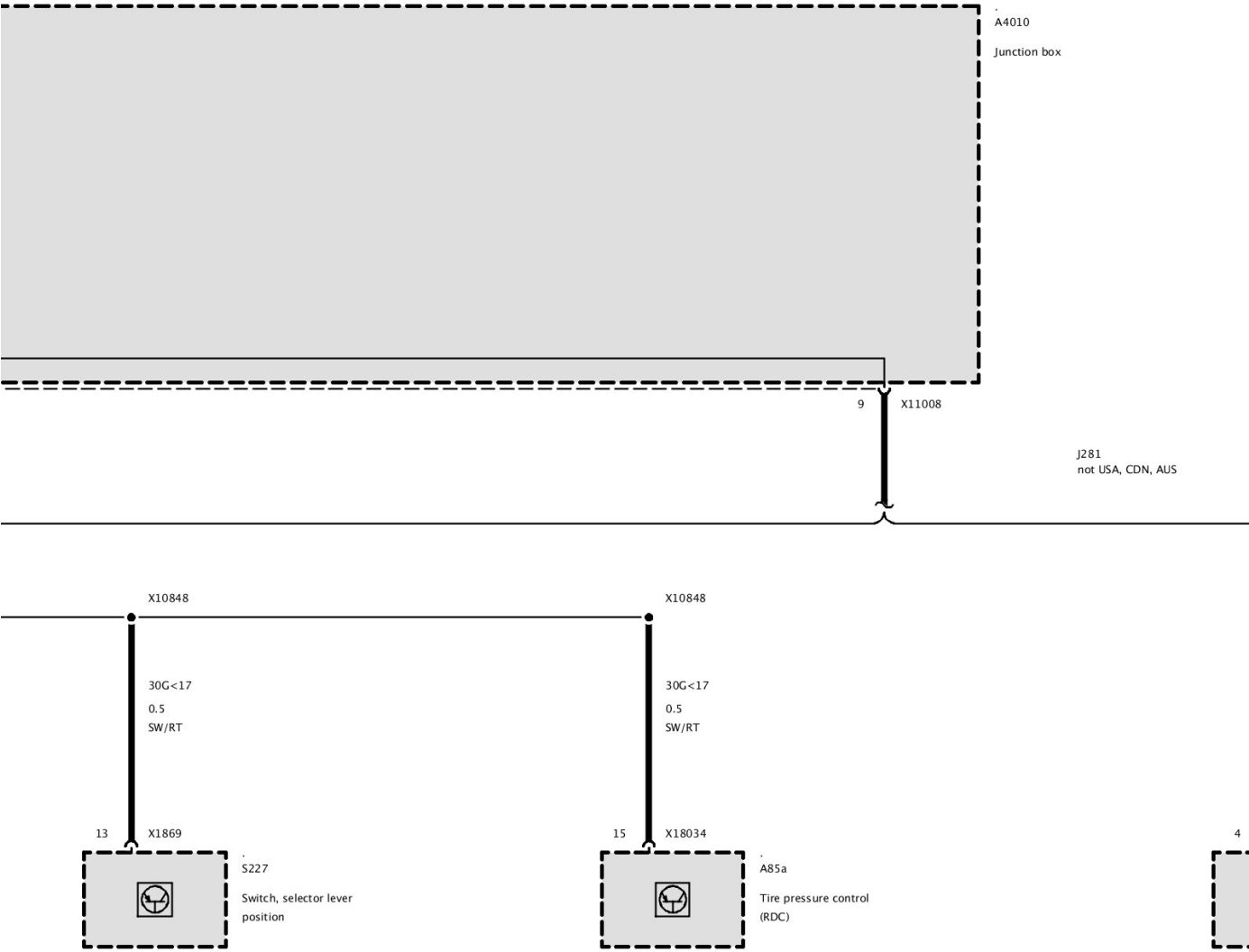
**X30113 No Adapter**

**X30113 No Adapter**

**Fuse F17**



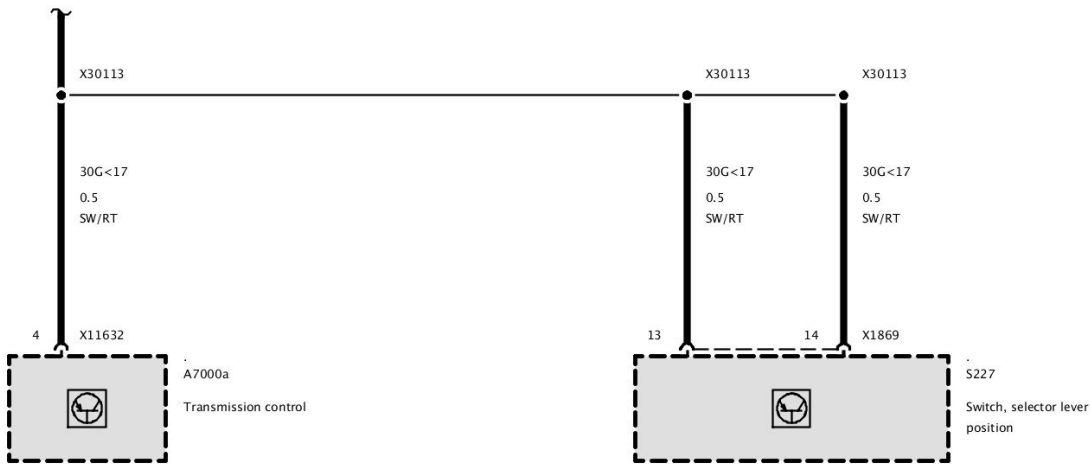
Part 1



Part 2



JS

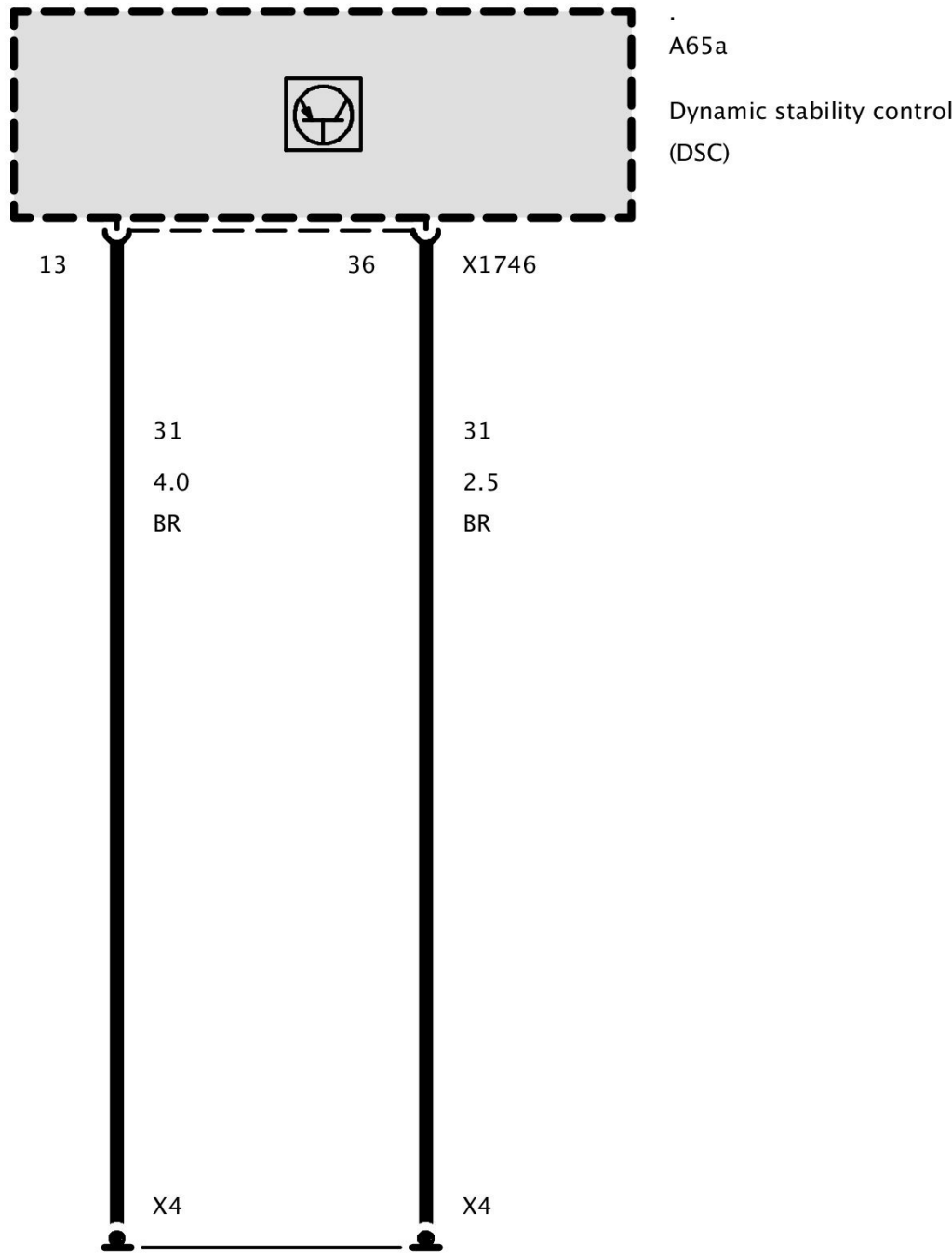


Part 3

X4 No Adapter

X4 No Adapter

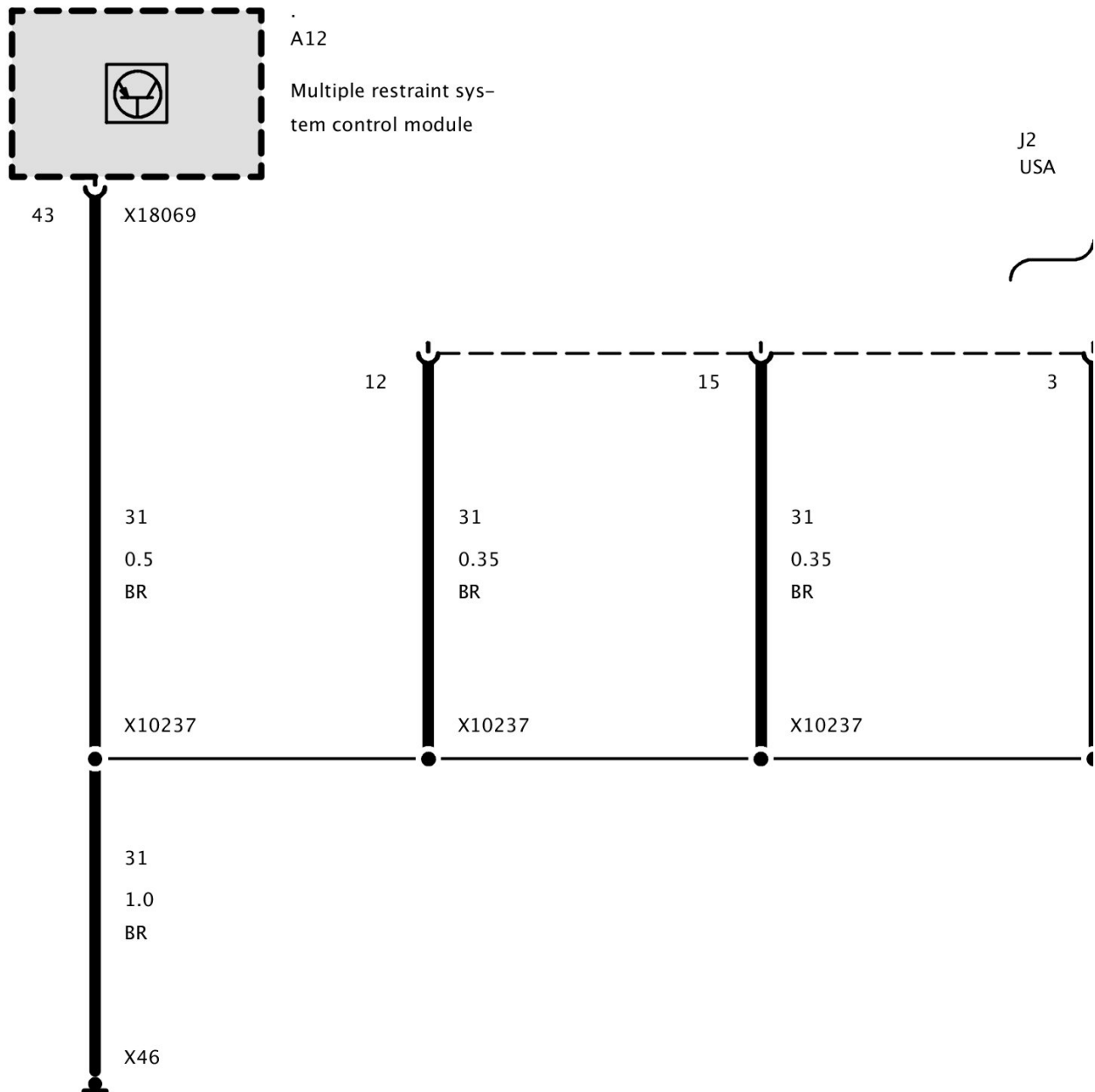
Ground Connection X4



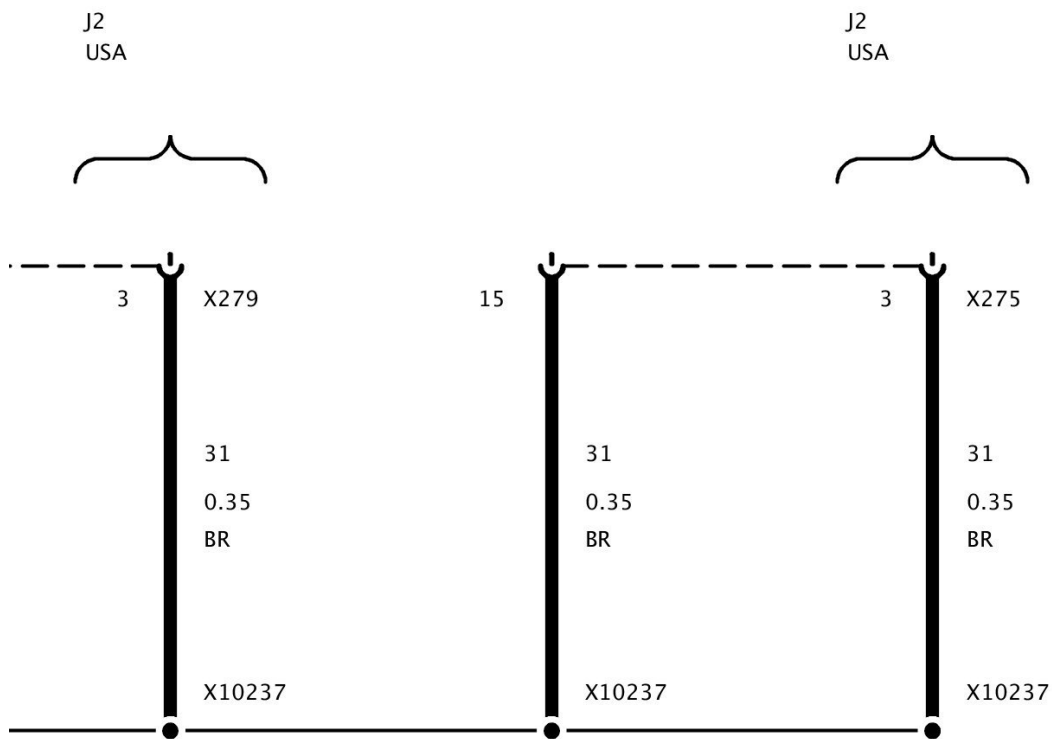
**X46 No Adapter**

**X46 No Adapter**

**Ground Connection X46, Connector X10237**



**Part 1**

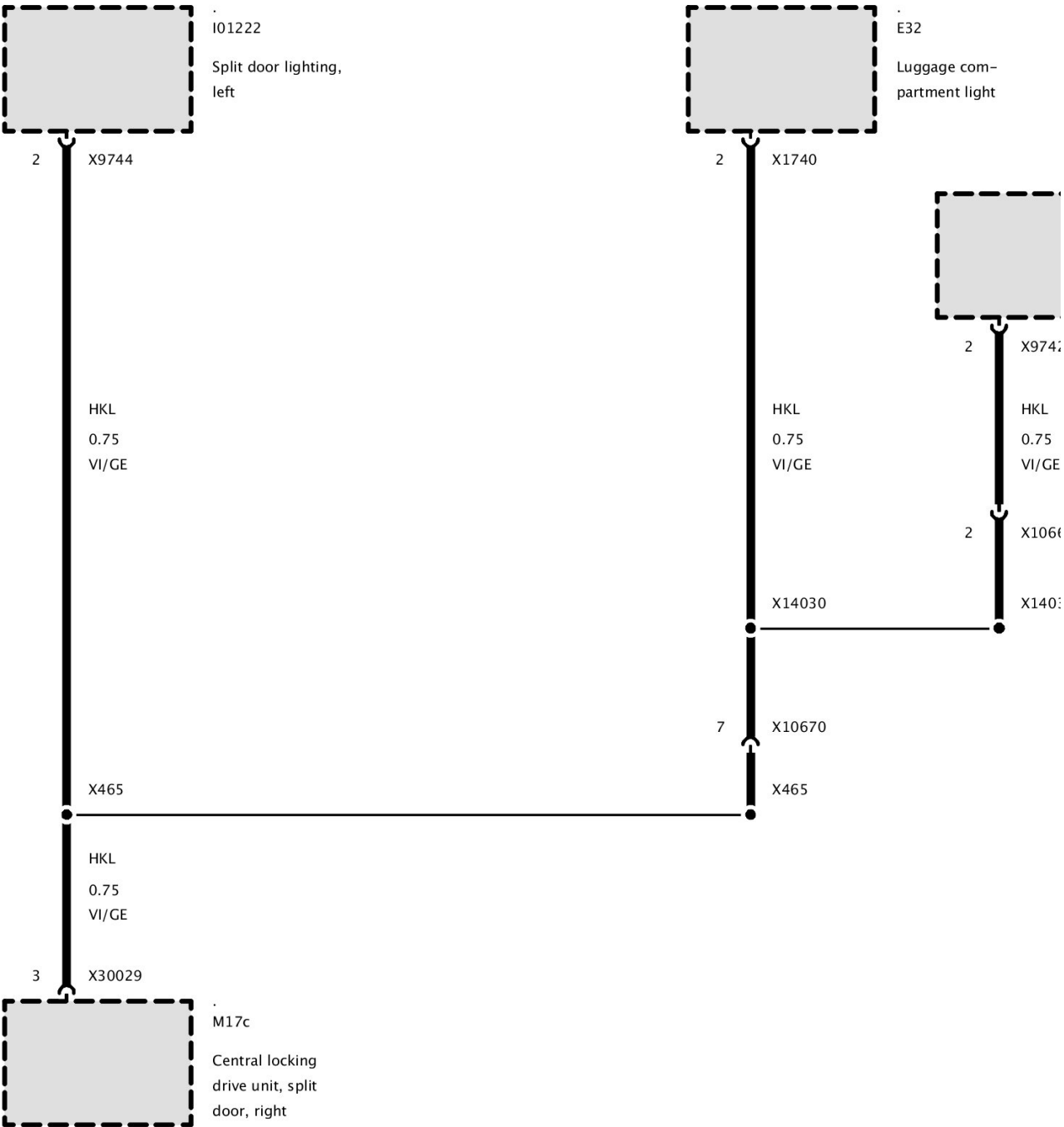


Part 2

**X465 No Adapter**

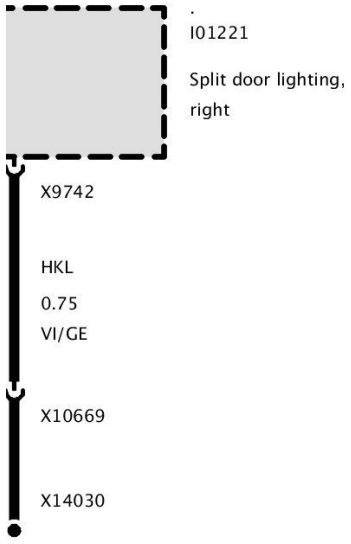
X465 No Adapter

Connector X465, X14030



Part 1

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t

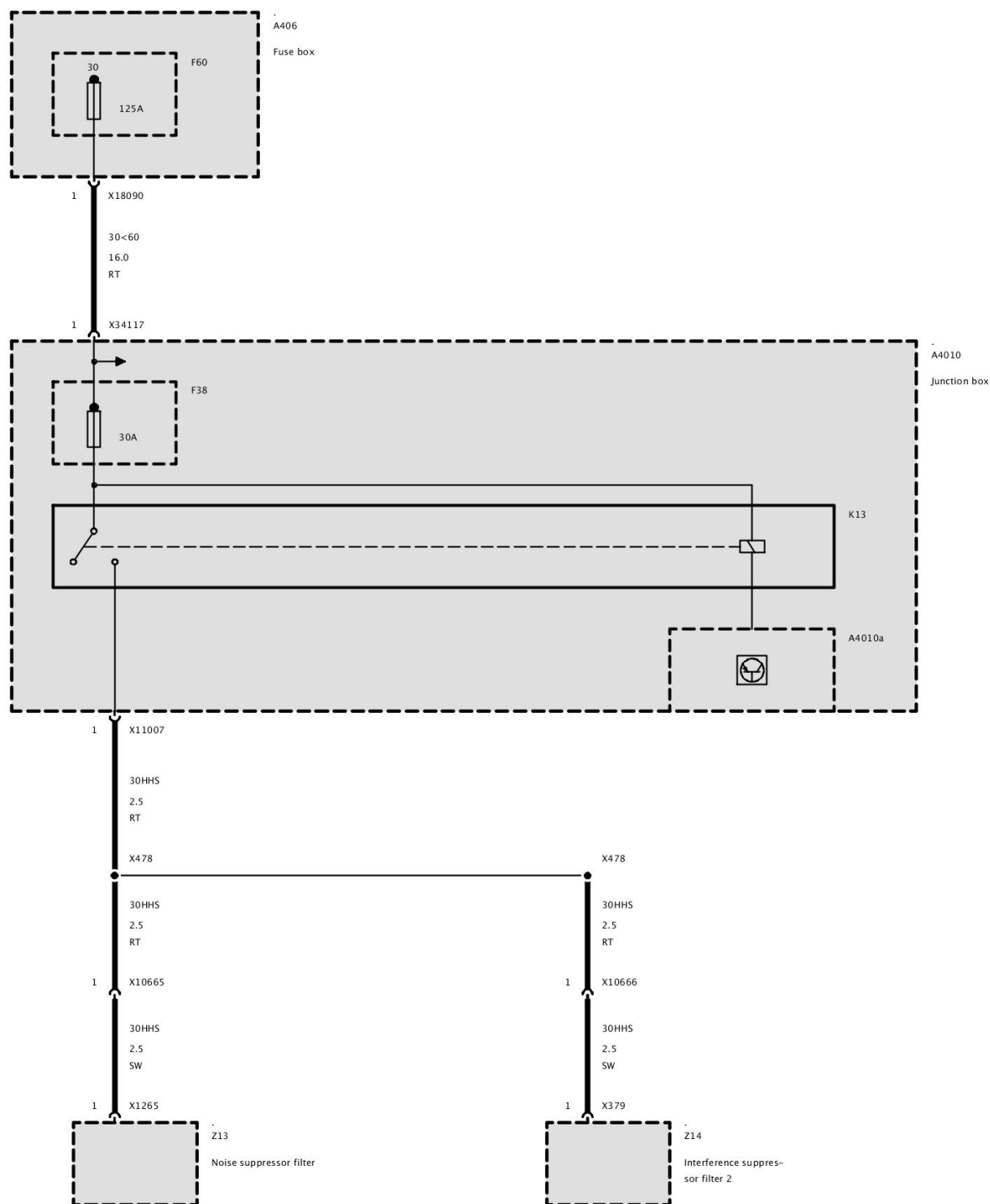


Part 2

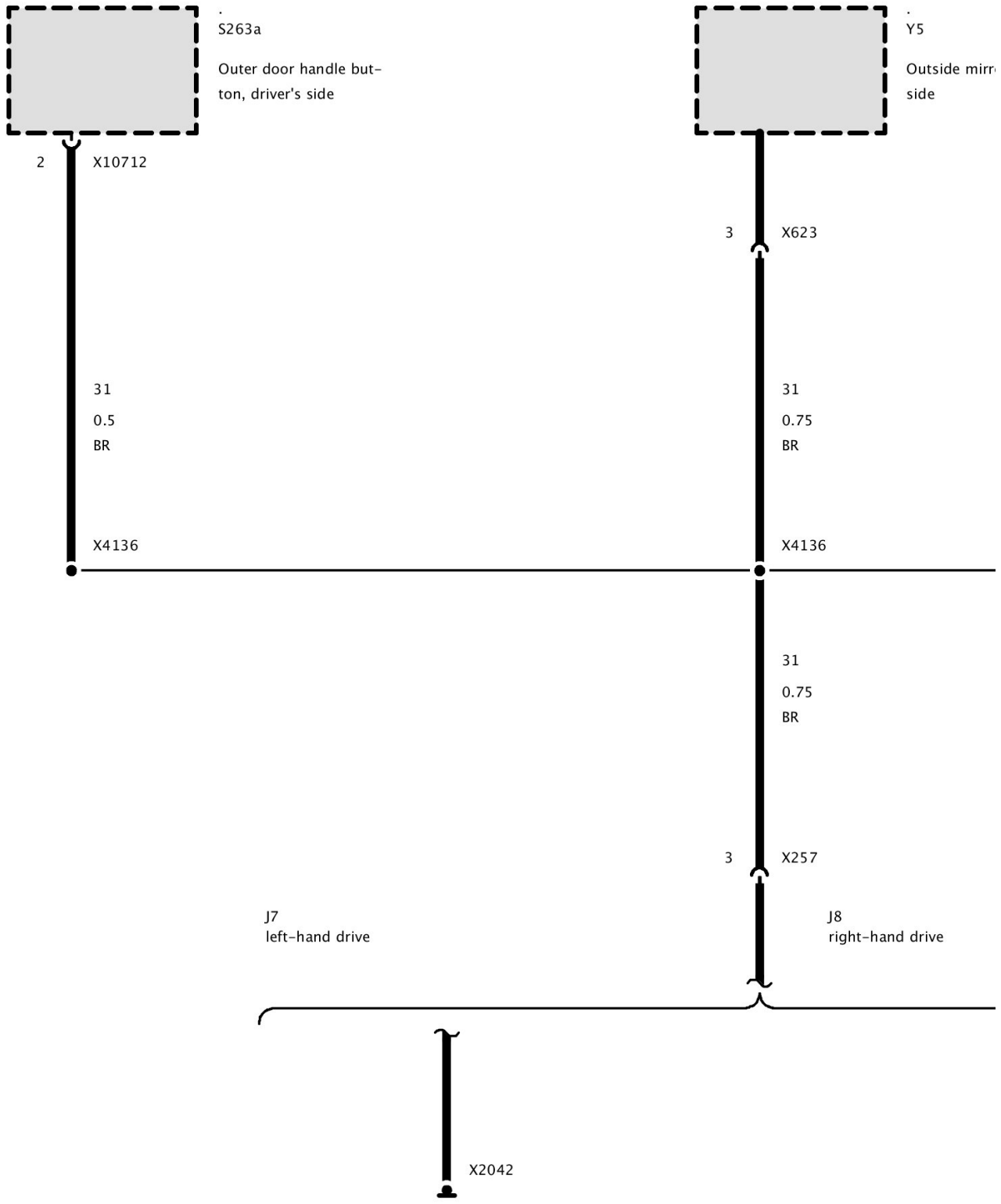
X478 No Adapter

X478 No Adapter

Fuse F38 (As of 03/08)

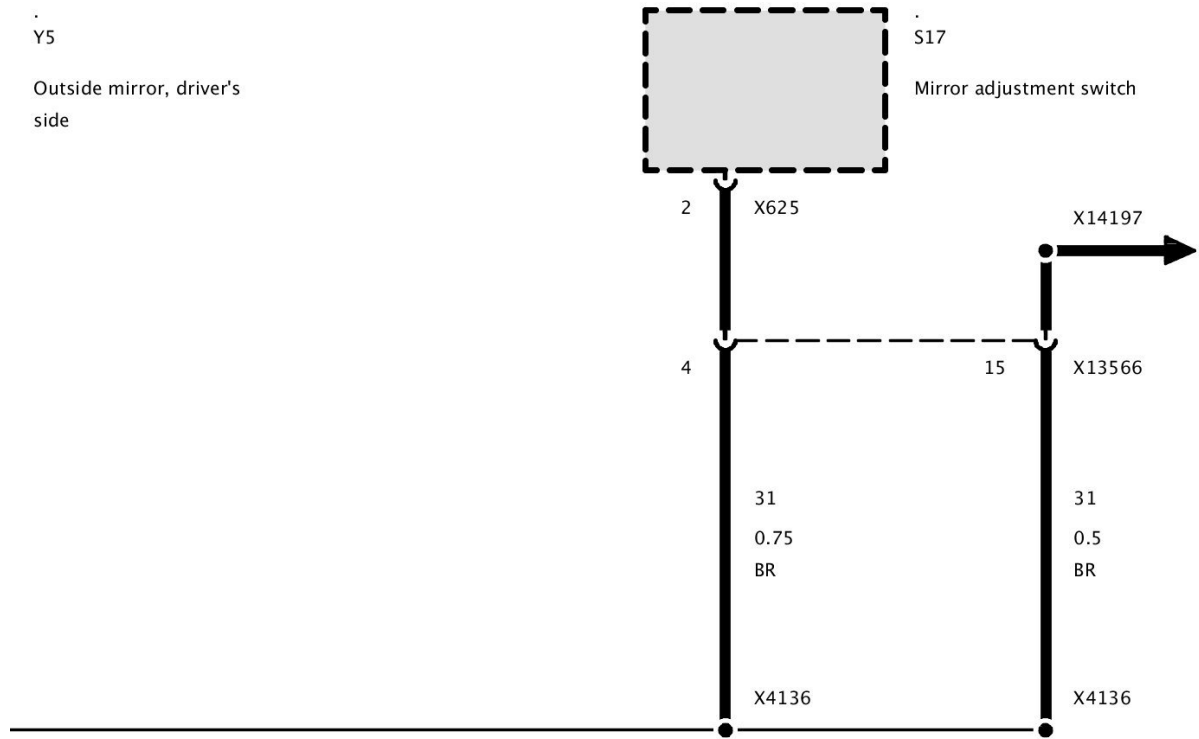


### Ground Connector X4136

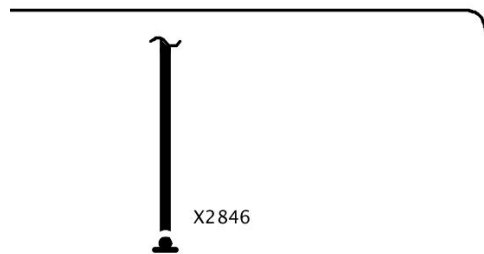


Part 1





nd drive

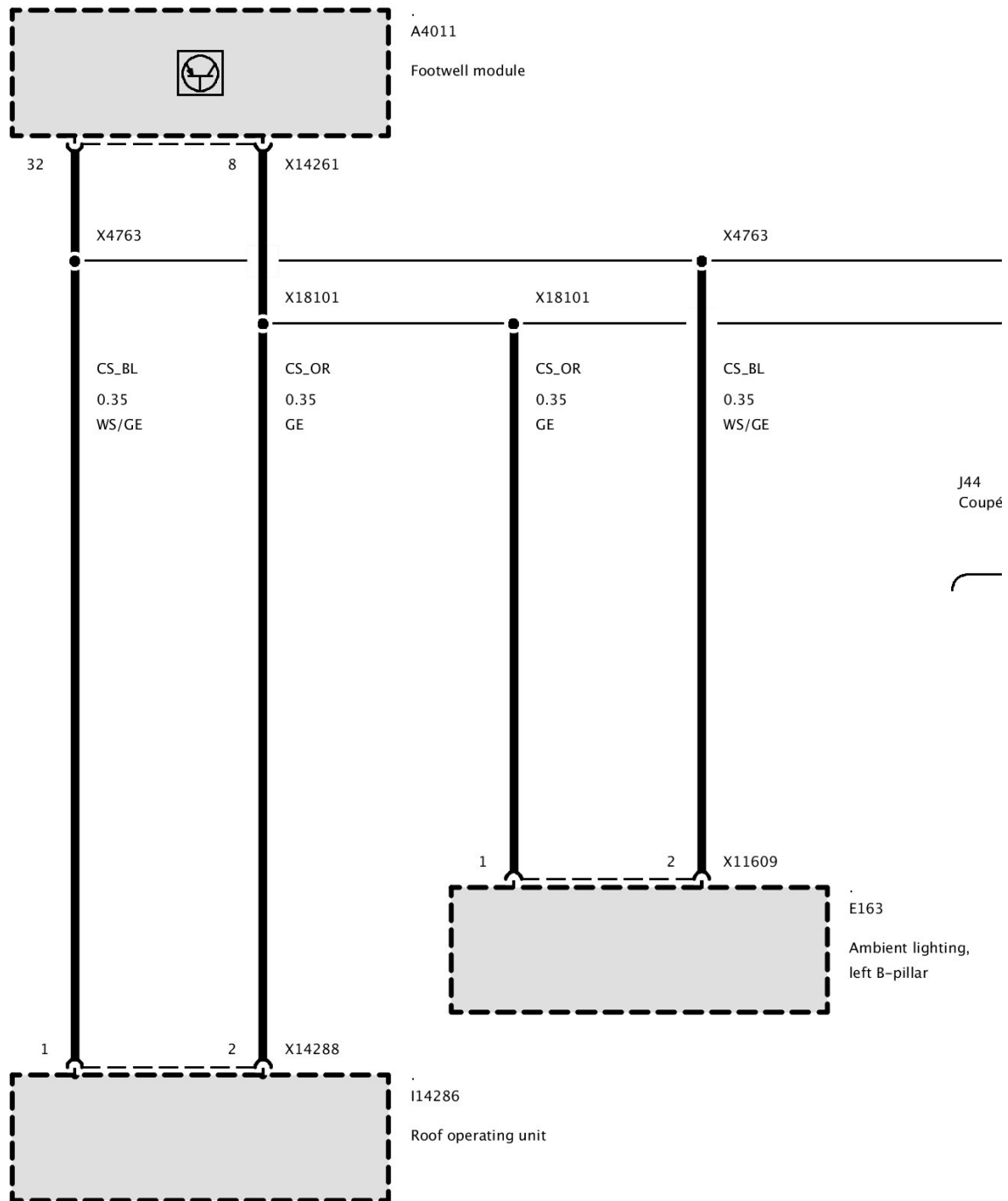


## Part 2

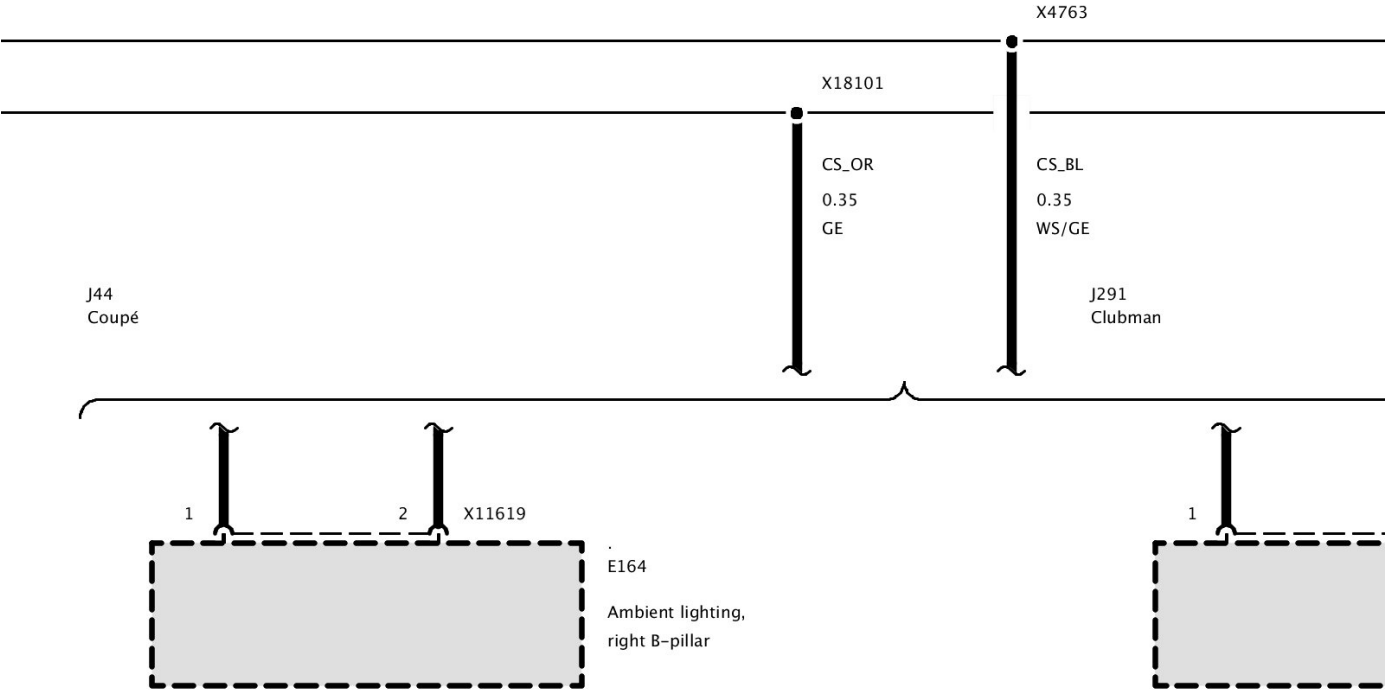
### X4763 No Adapter

#### X4763 No Adapter

Connectors X4763, X18101, X2859, X1366, X01436, X1203

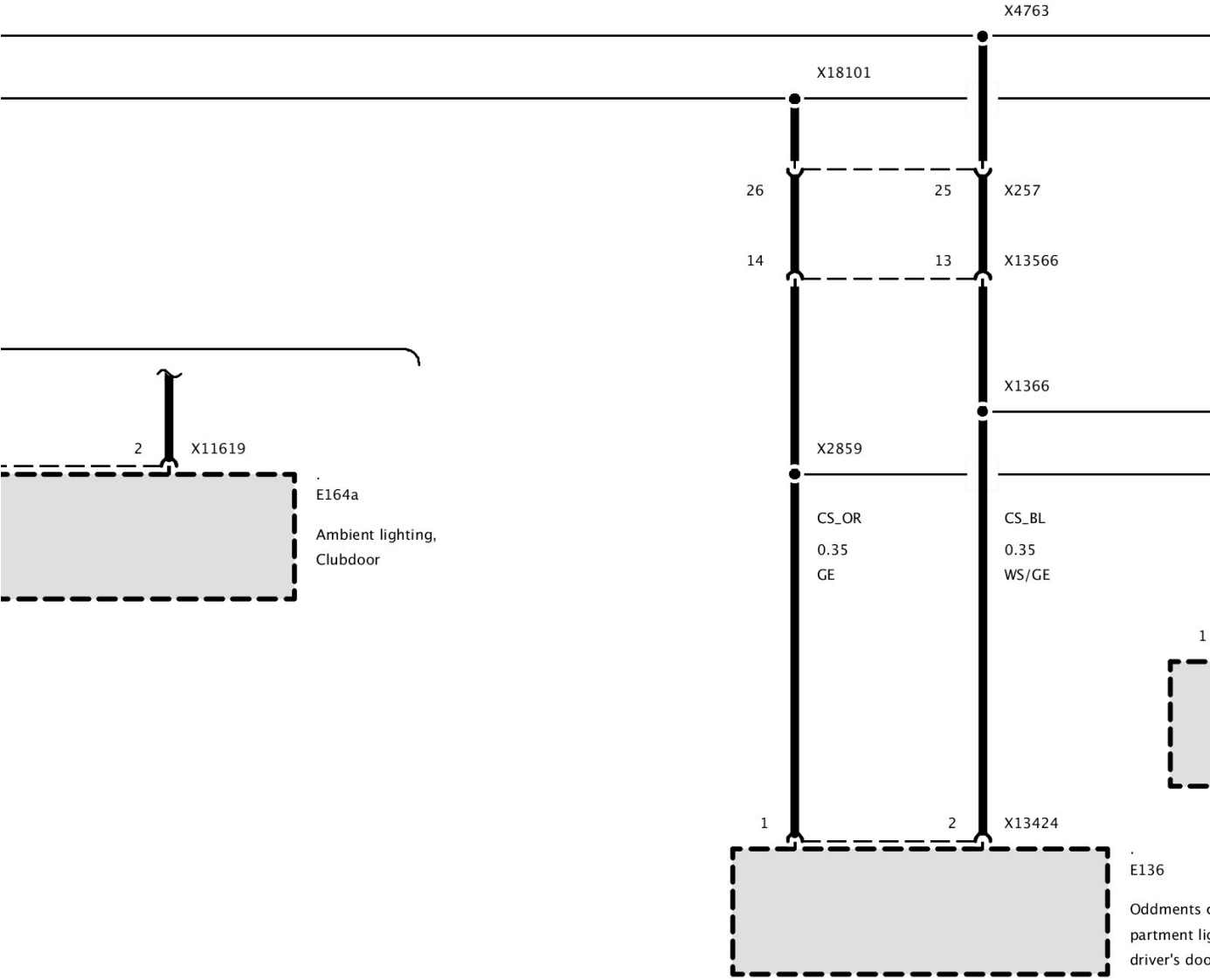


Part 1

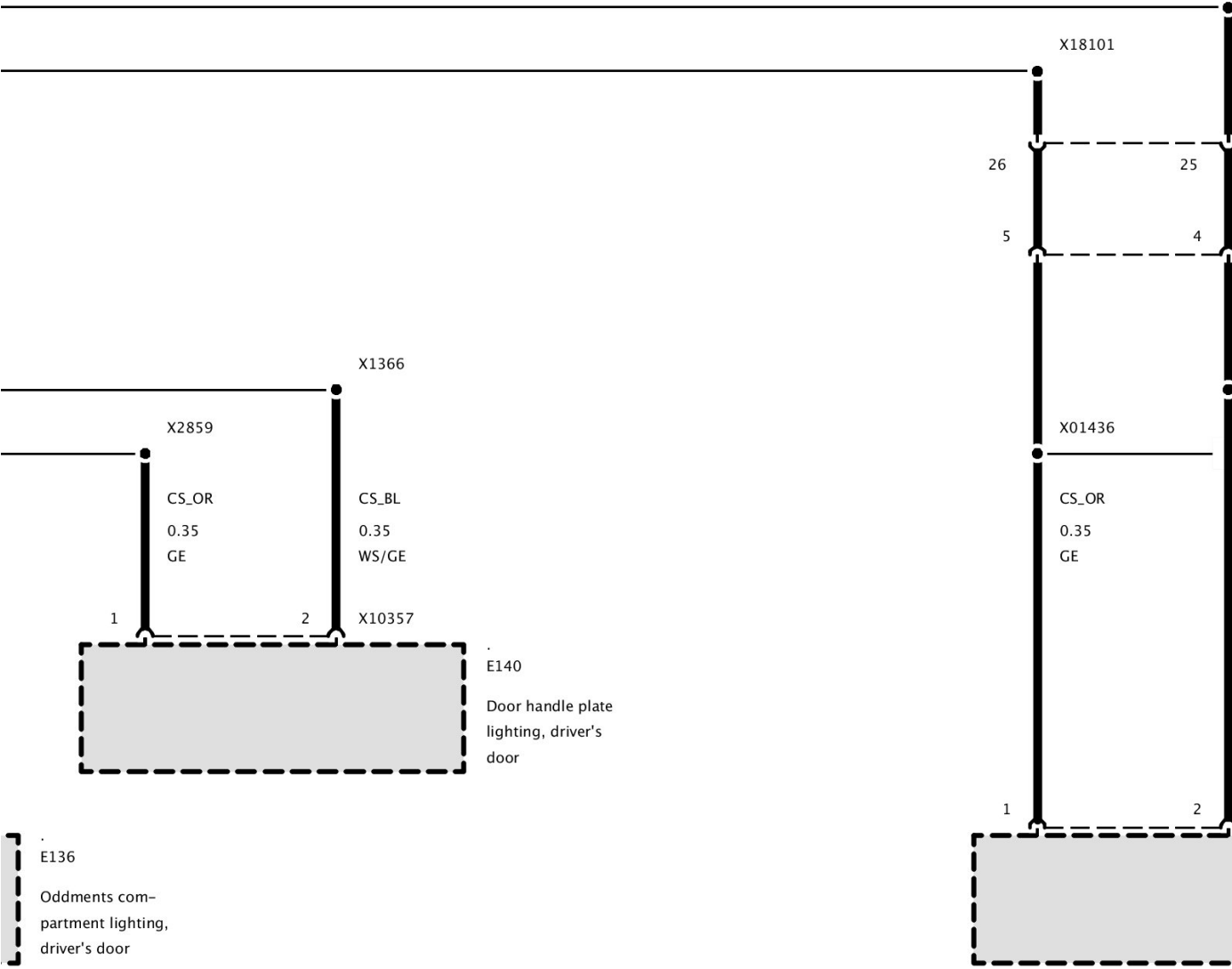


ient lighting,  
B-pillar

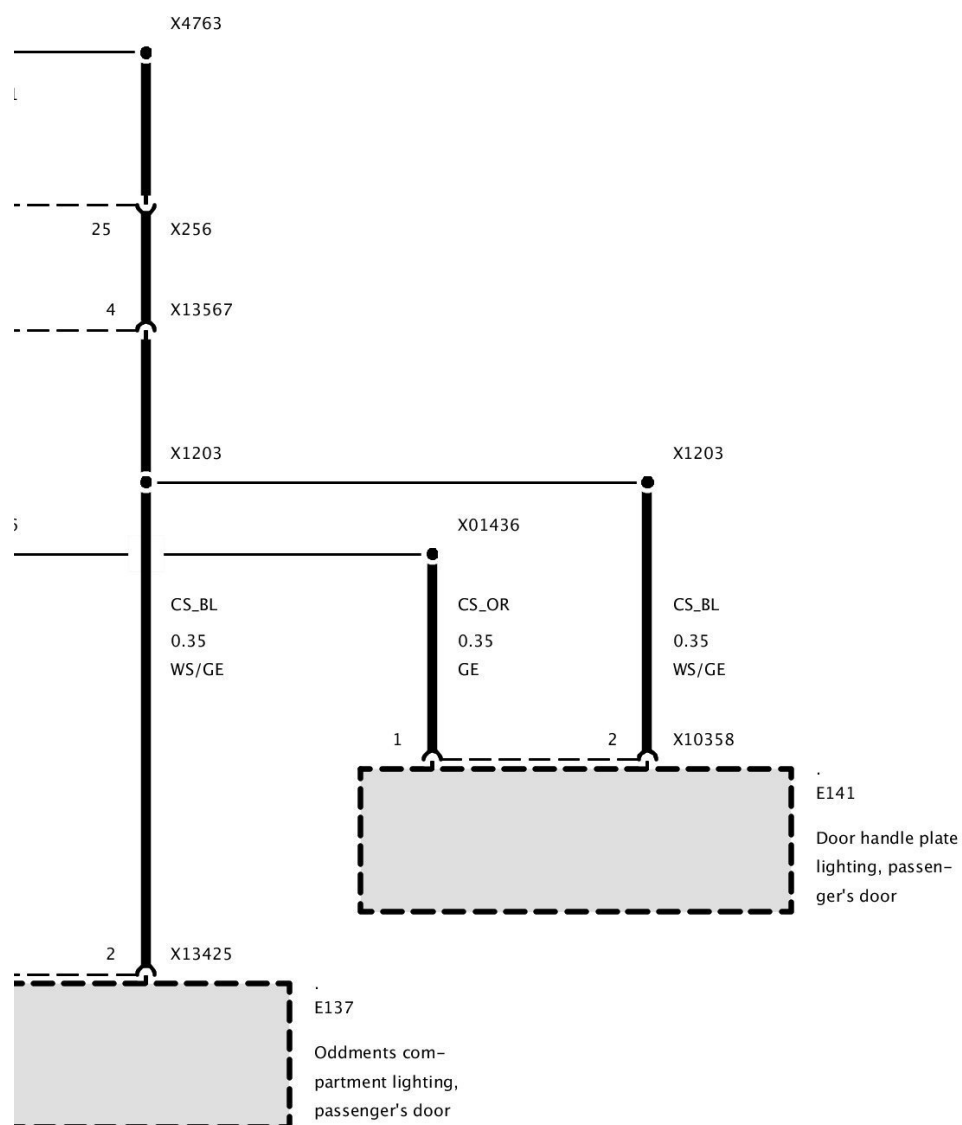
Part 2



Part 3



Part 4

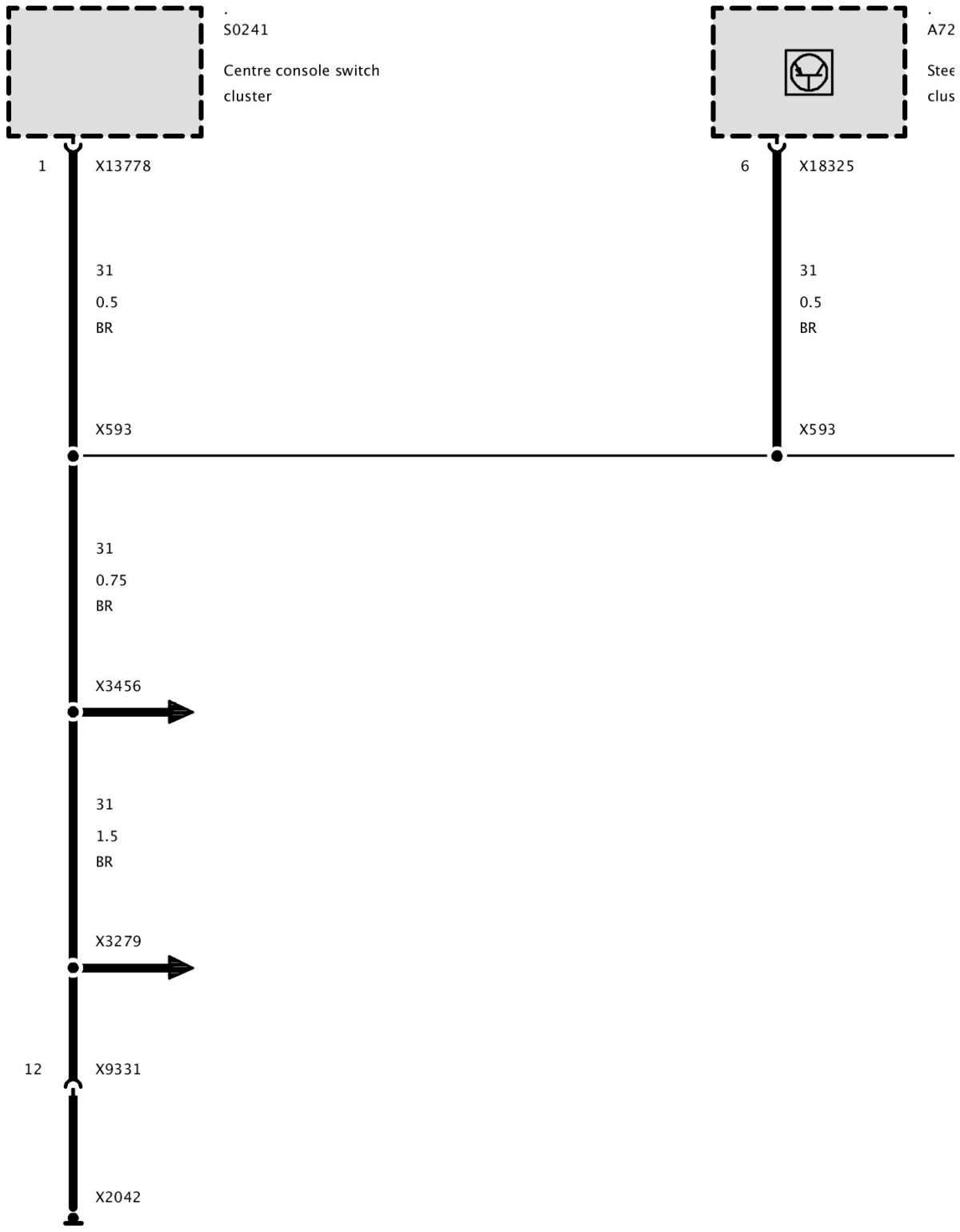


## Part 5

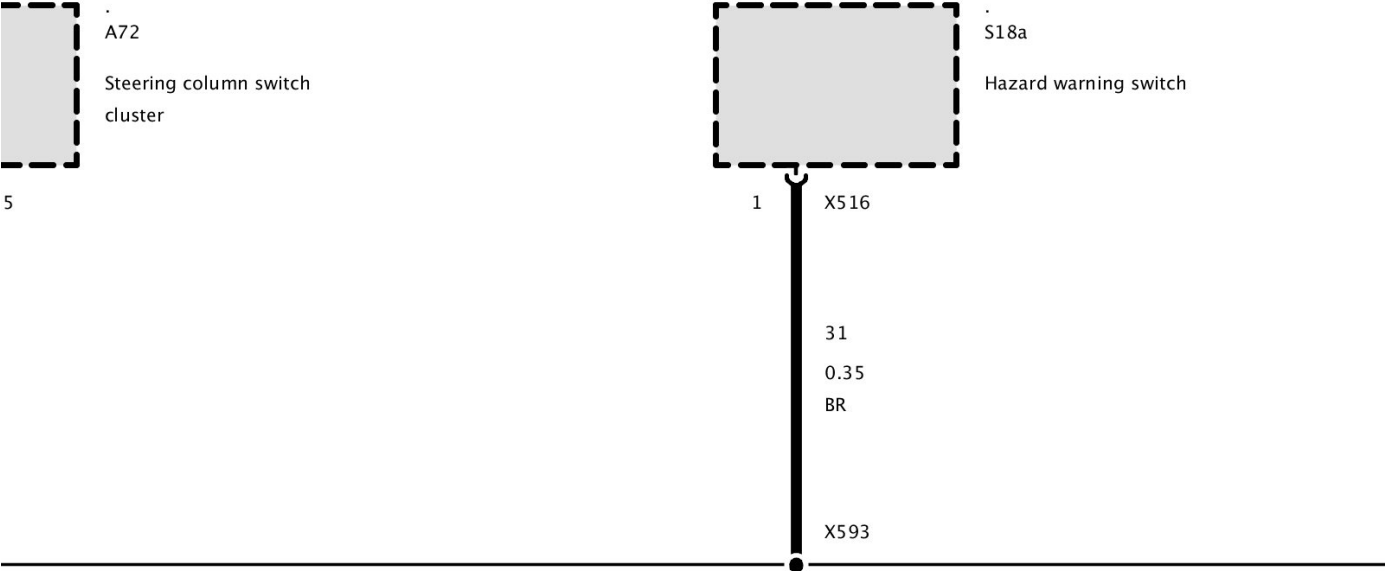
### Connectors From X5...

X593 No Adapter

Ground Connector X593

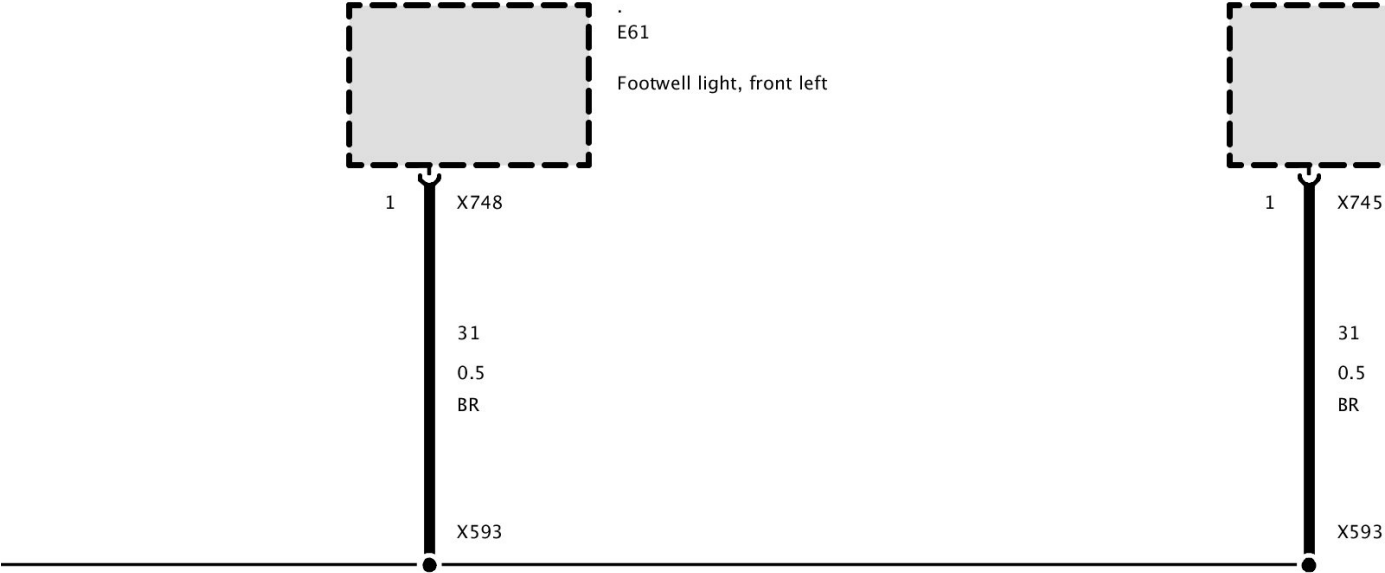


Part 1

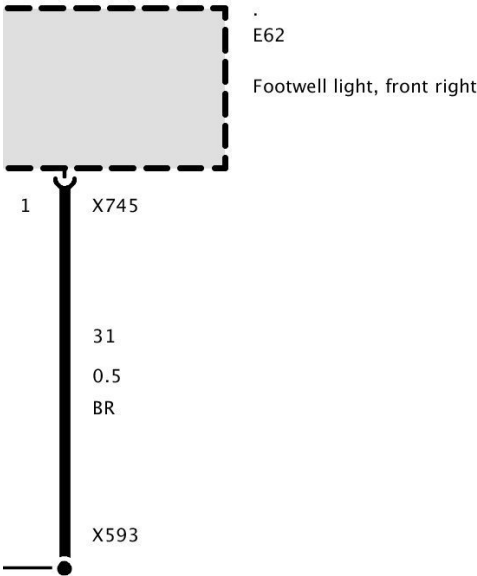


Part 2





Part 3

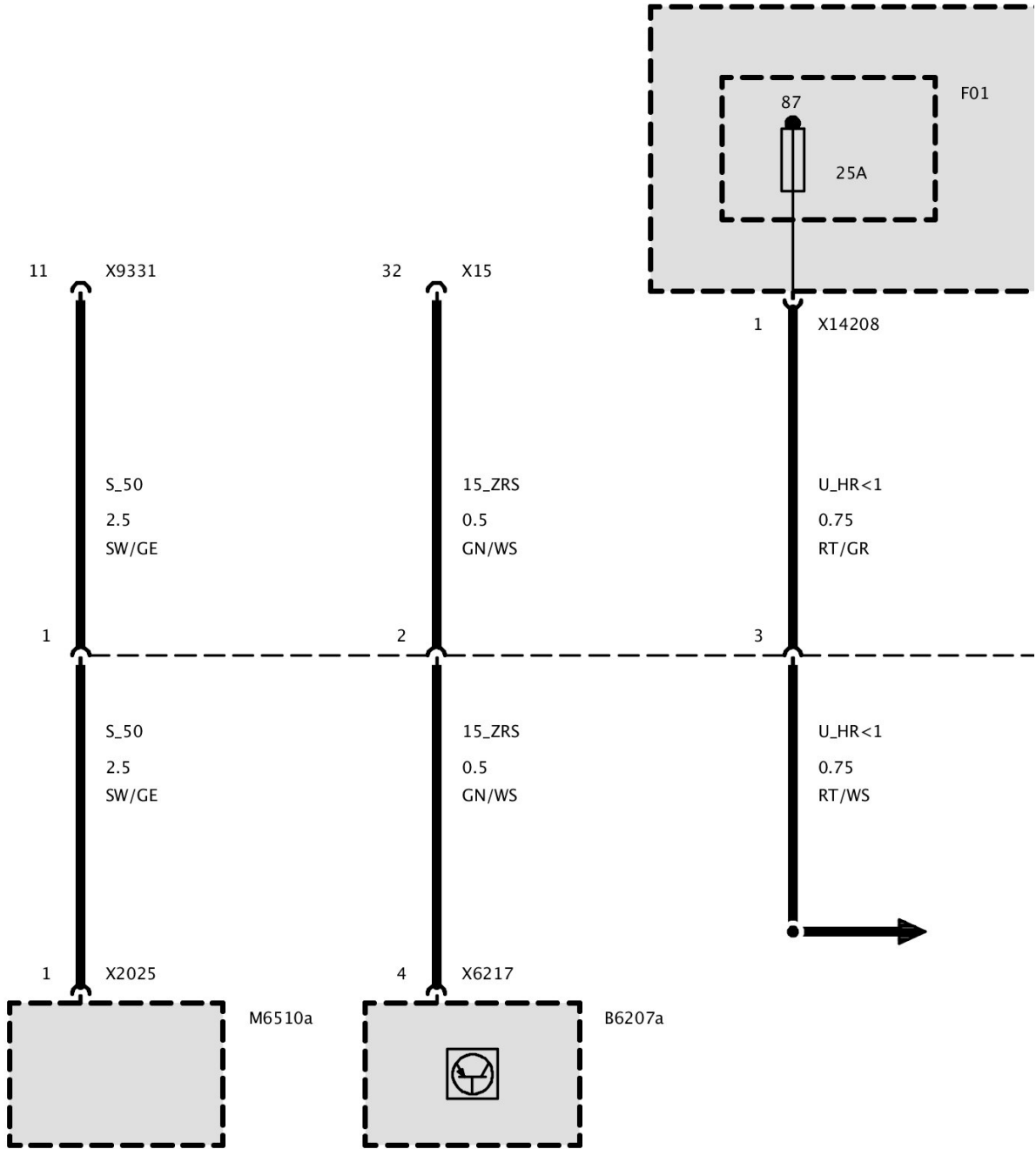


Part 4

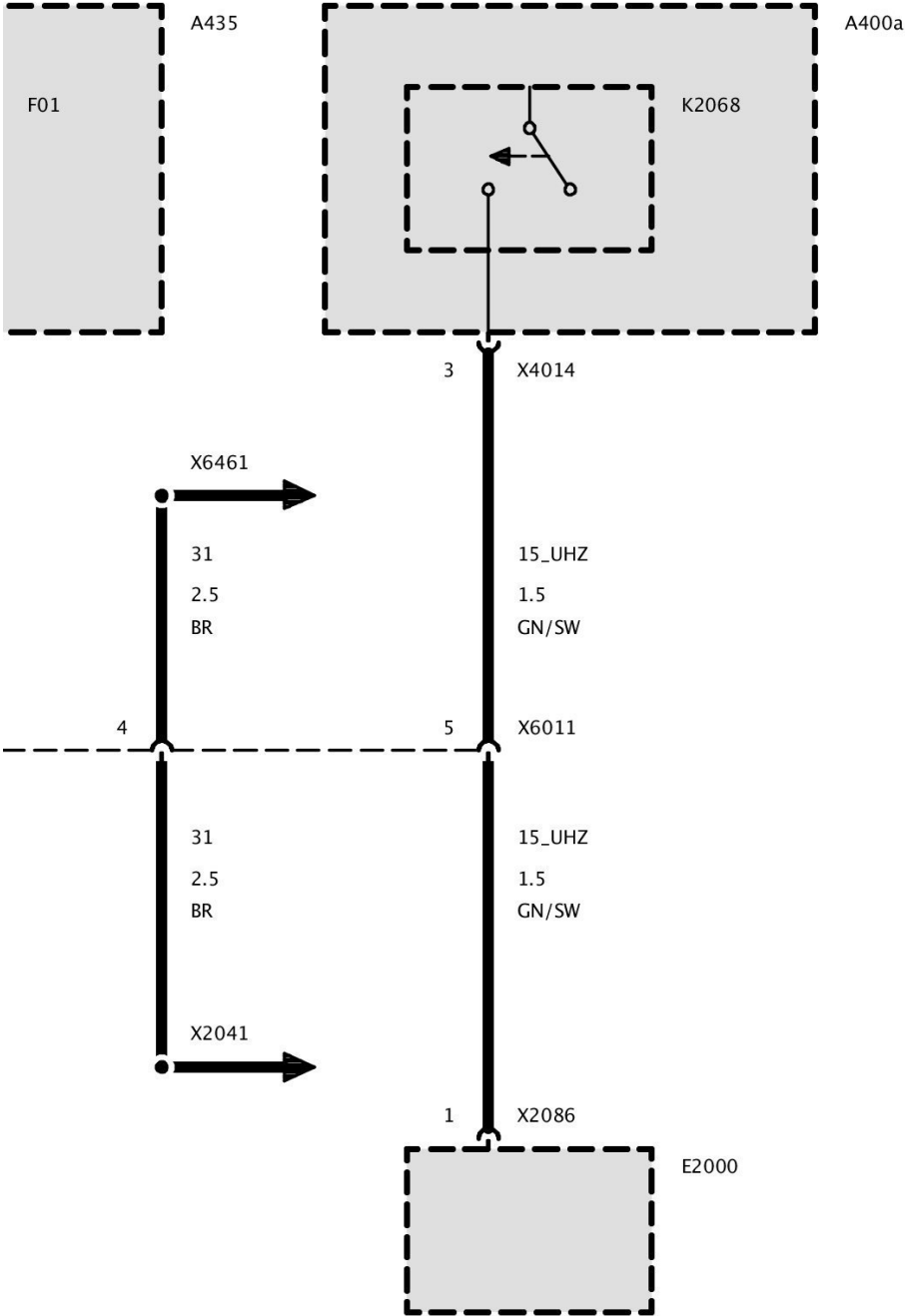
**X6011 Adapter 613390, Storage Location Y3 (Engine)**

**X6011 Adapter 613390, Storage Location Y3 (Engine)**

**Engine Connector IX6011**



Part 1

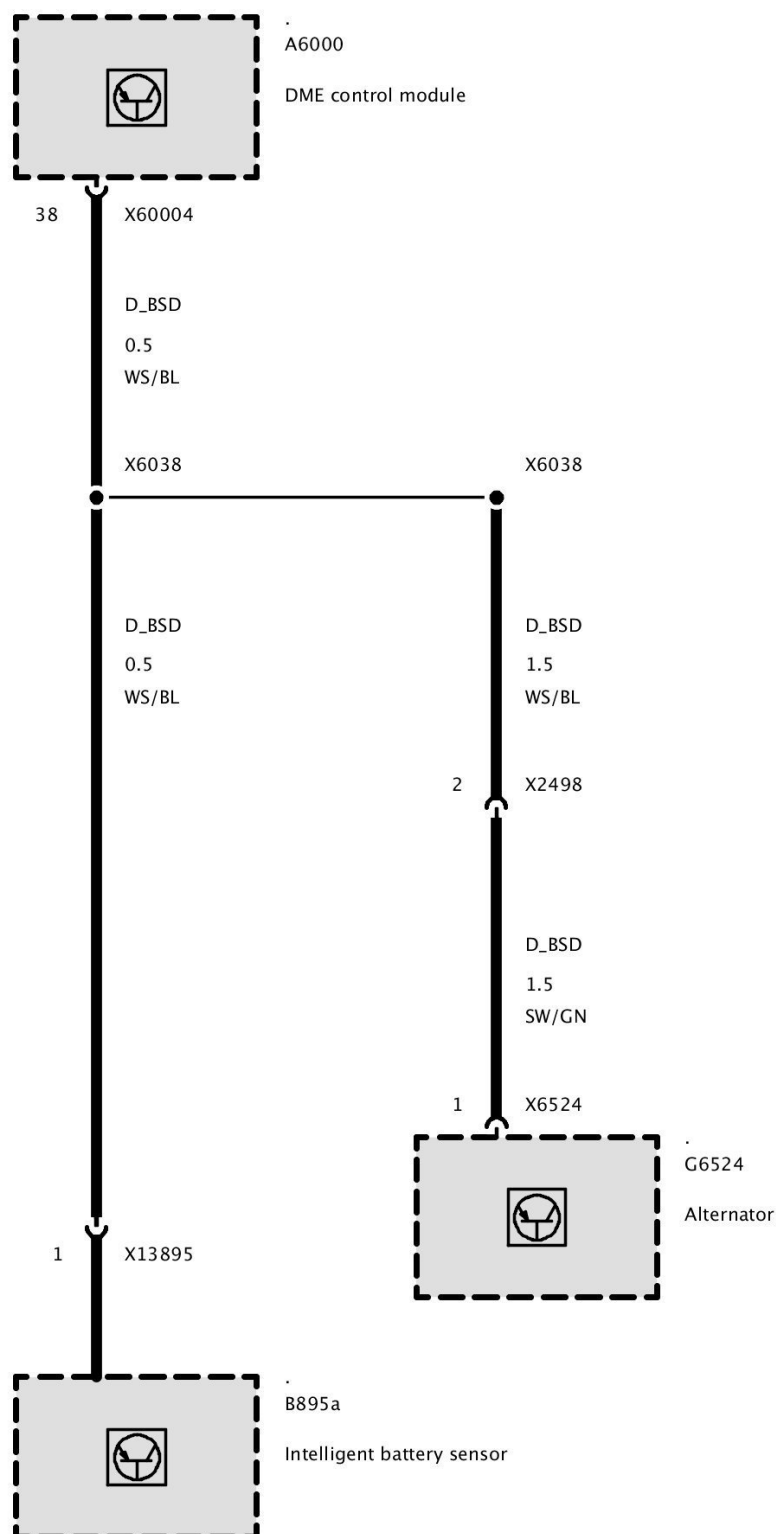


Part 2

**X6038 No Adapter**

**X6038 No Adapter**

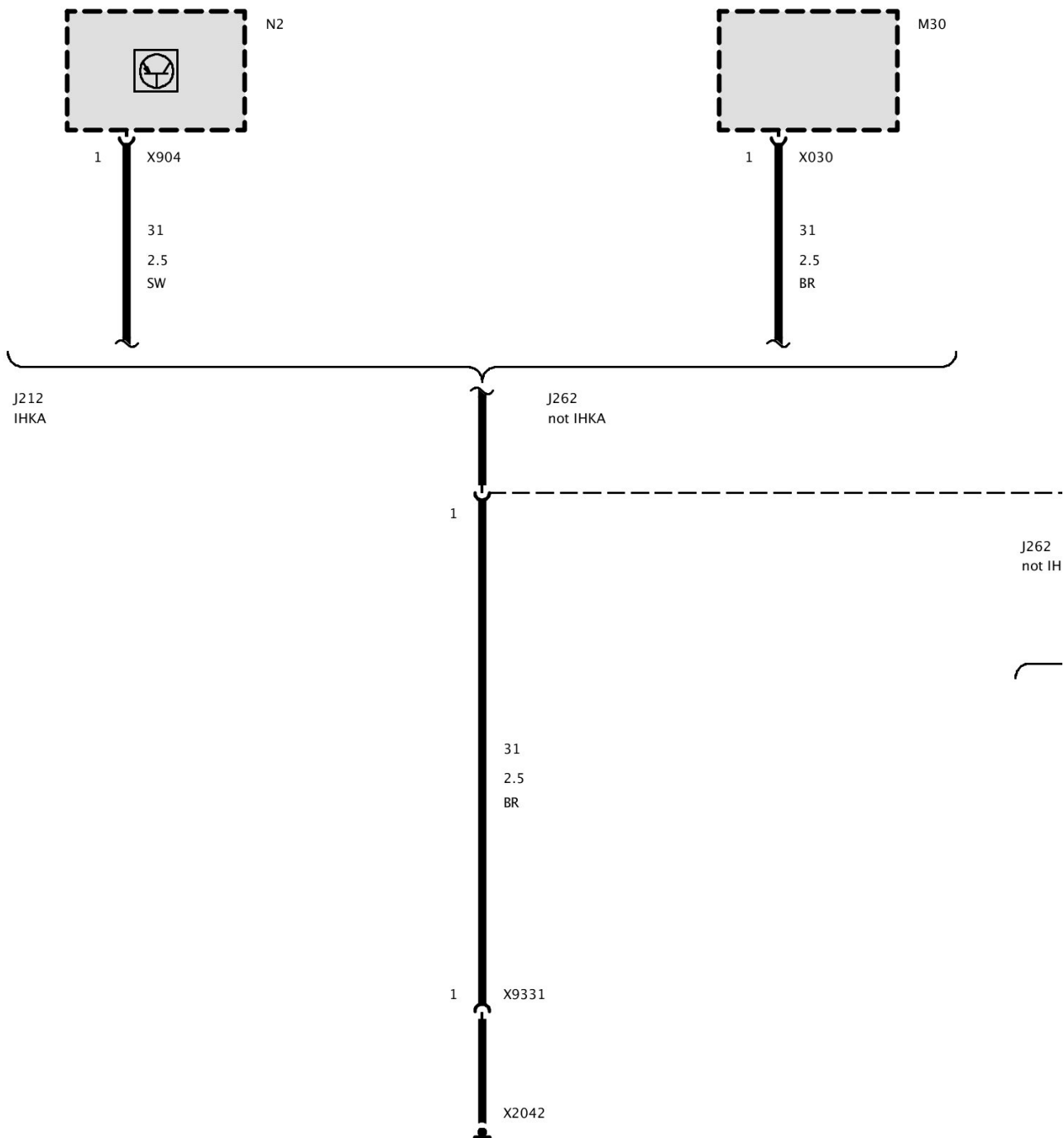
**Connector X6038**



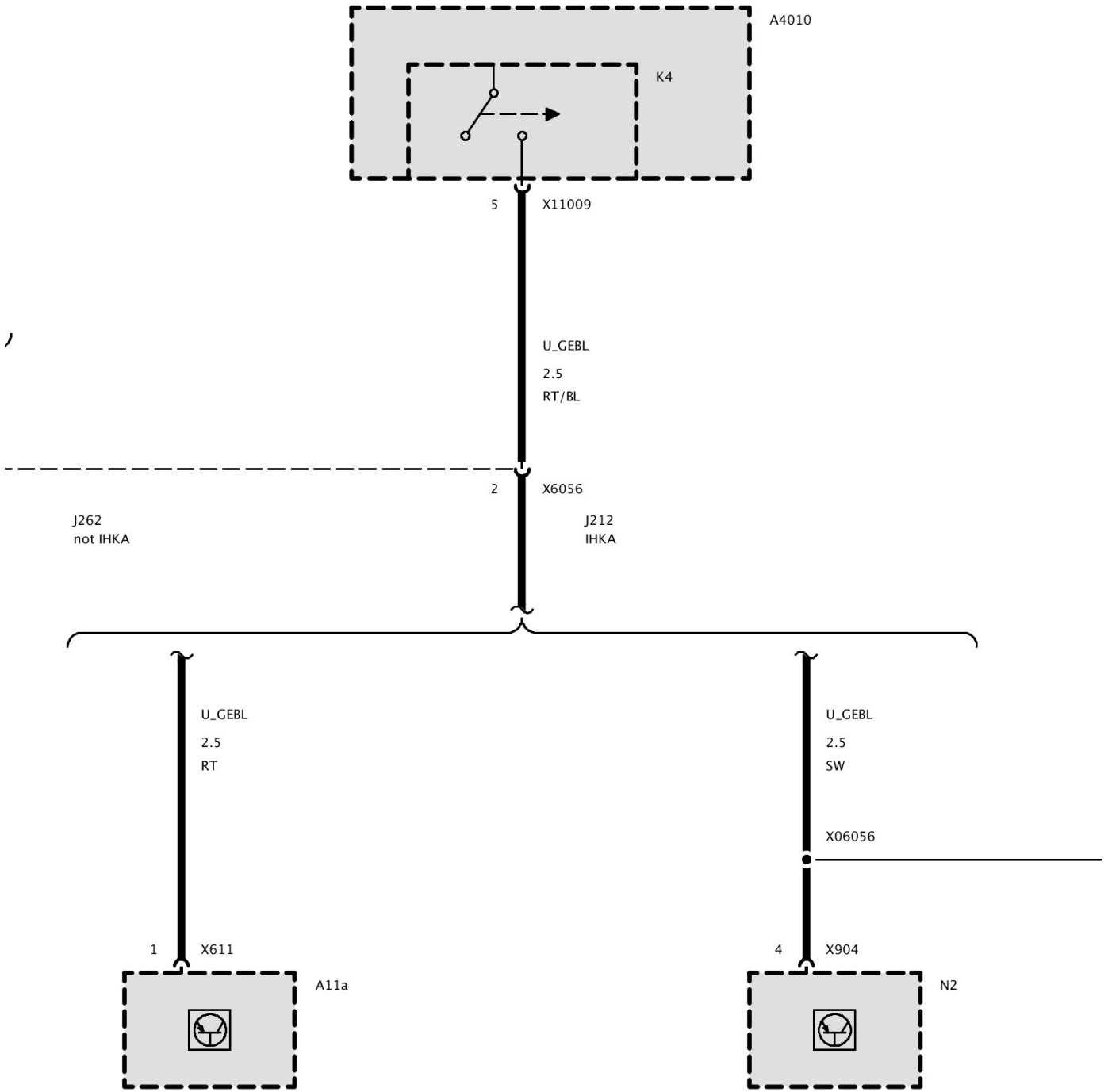
**X6056 Adapter 611466, Storage Location B113**

**X6056 Adapter 611466, Storage Location B113**

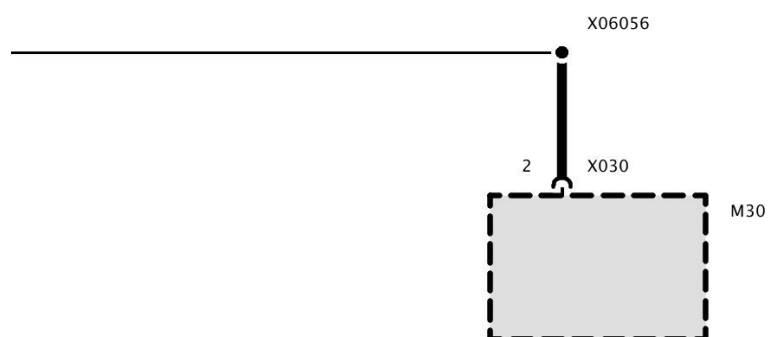
**Connector X6056**



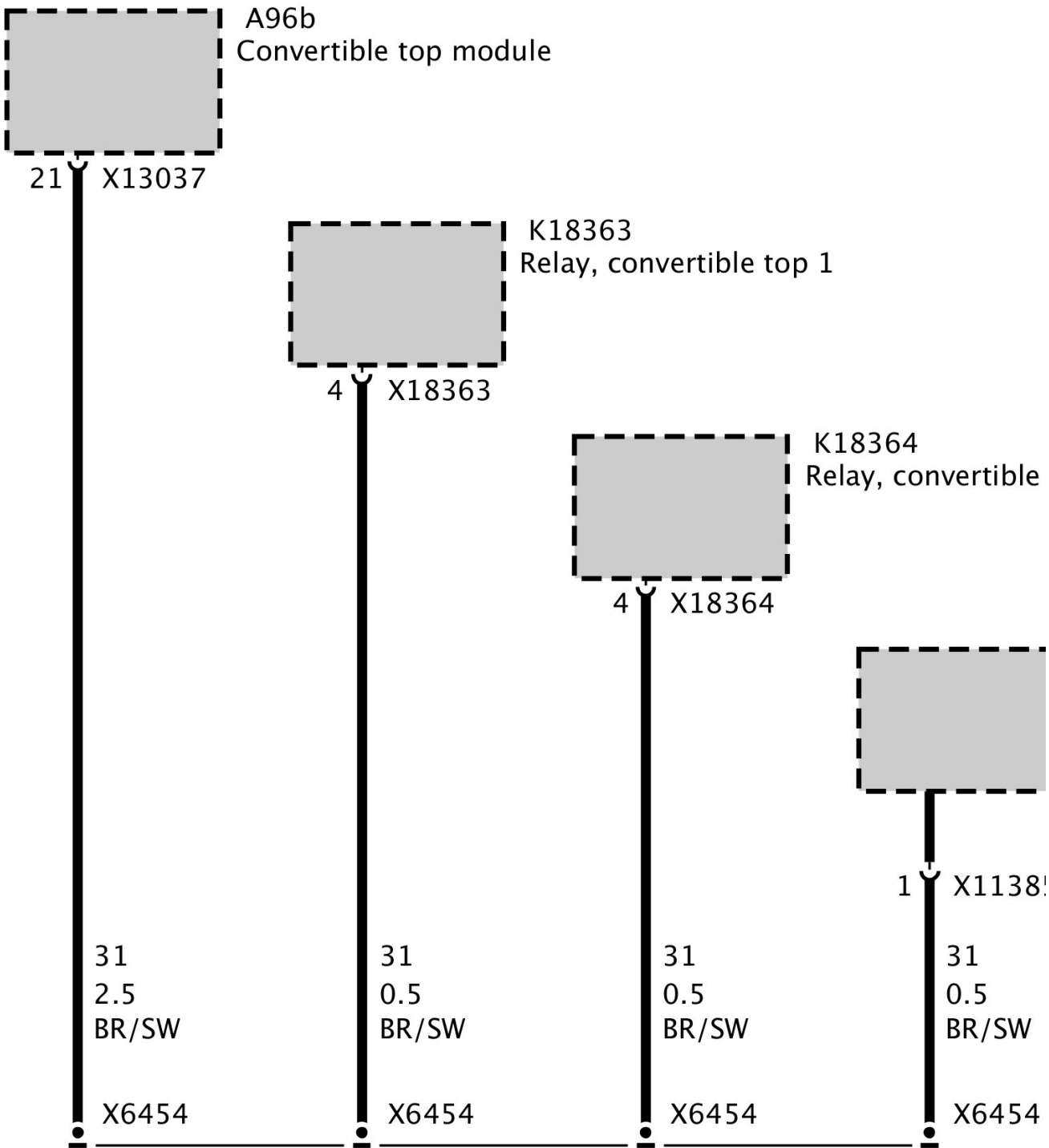
Part 1



Part 2

**Part 3****X6454 No Adapter****X6454 No Adapter****Ground X6454 (As of 12/08)**

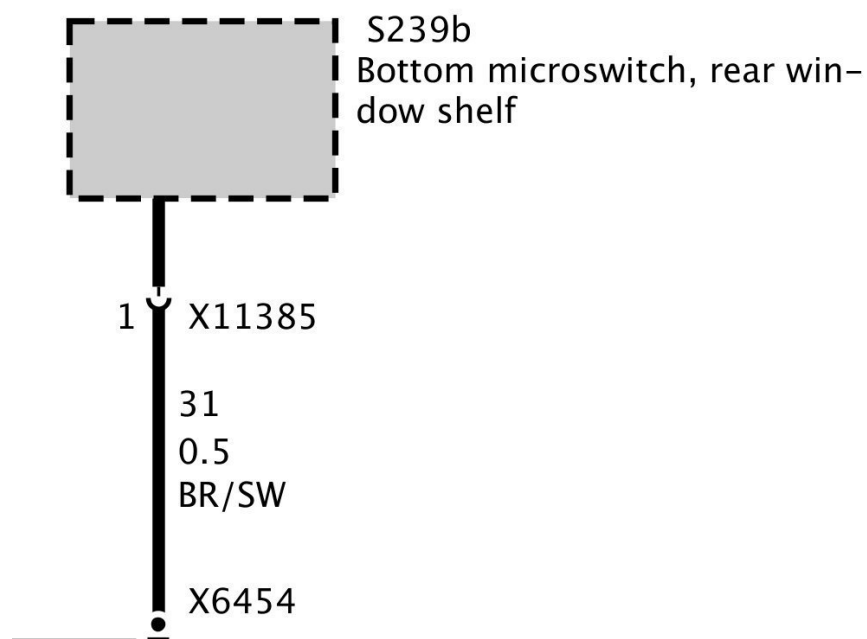


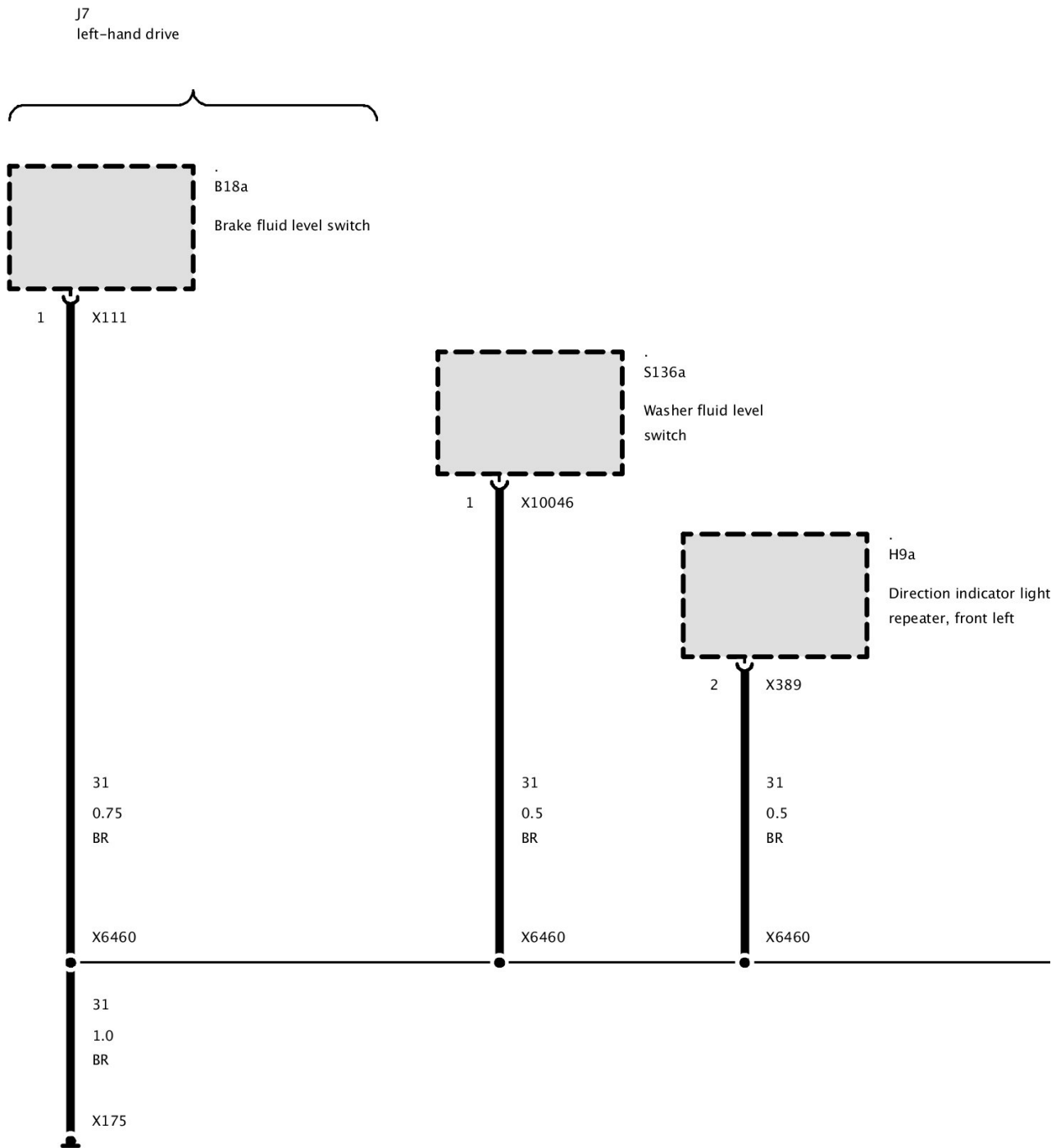


Part 1

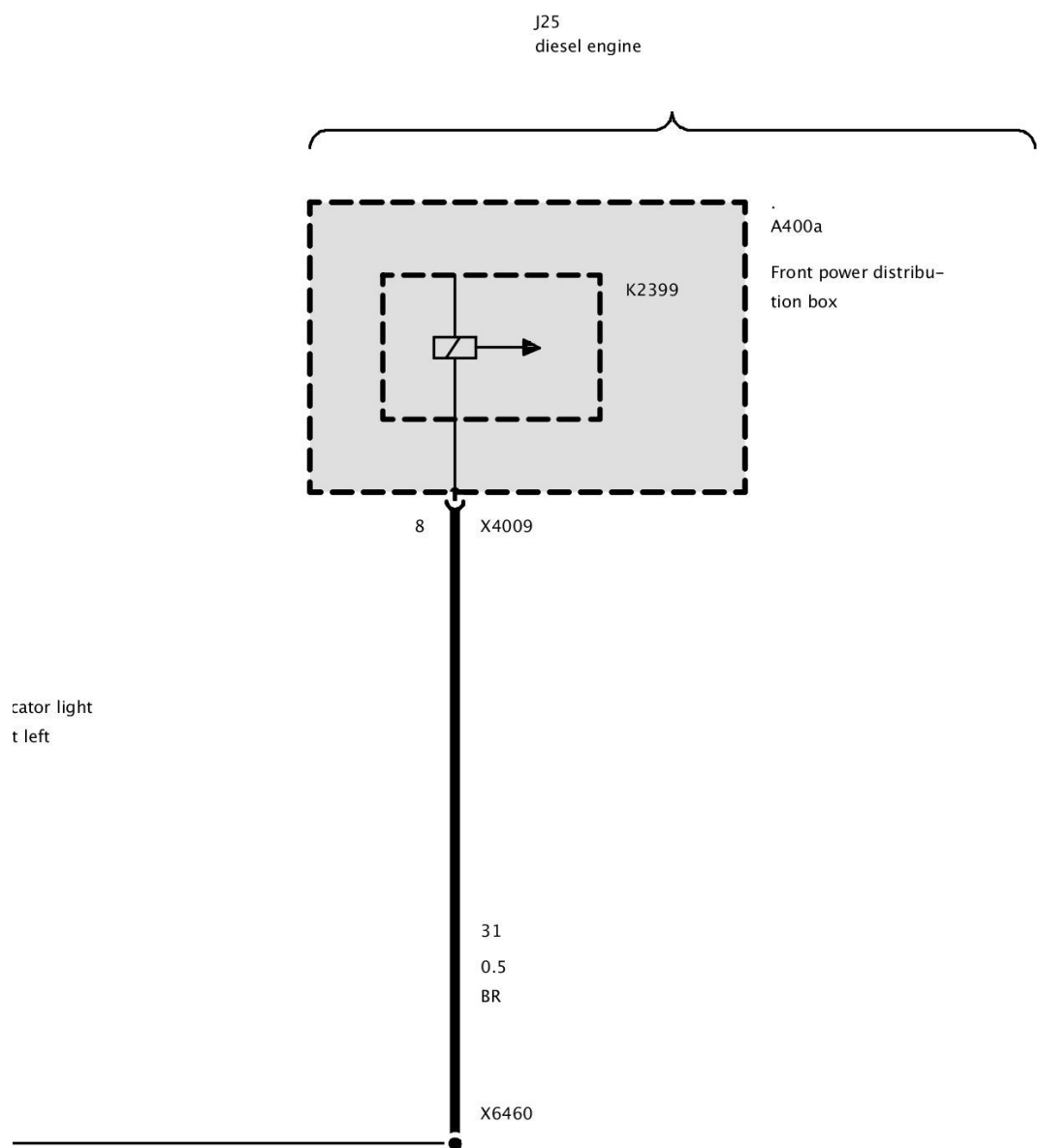
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Relay, convertible top 2

**Part 2****X6460 No Adapter****X6460 No Adapter****Ground Connector X6460**



Part 1



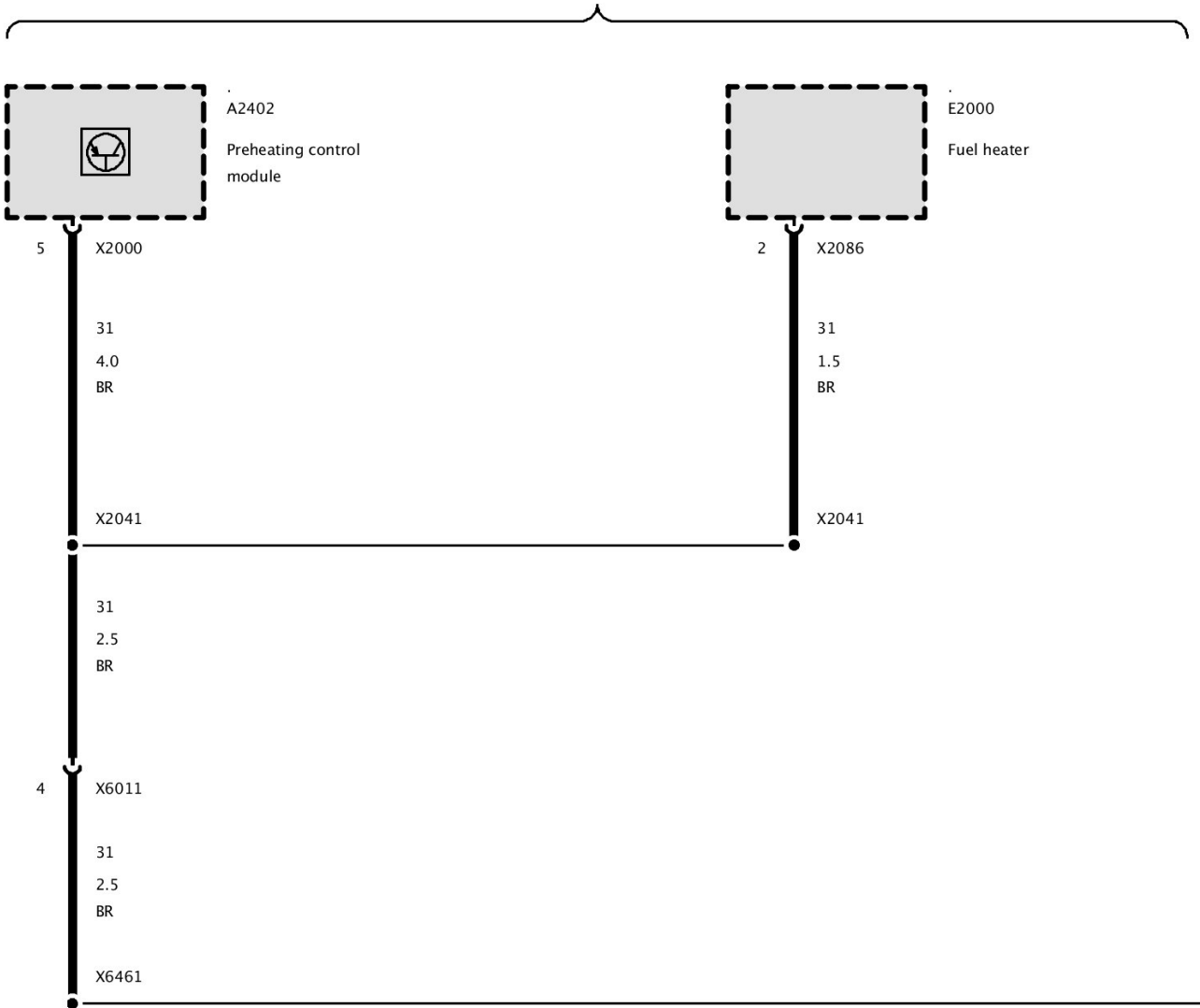
Part 2

X6461 No Adapter

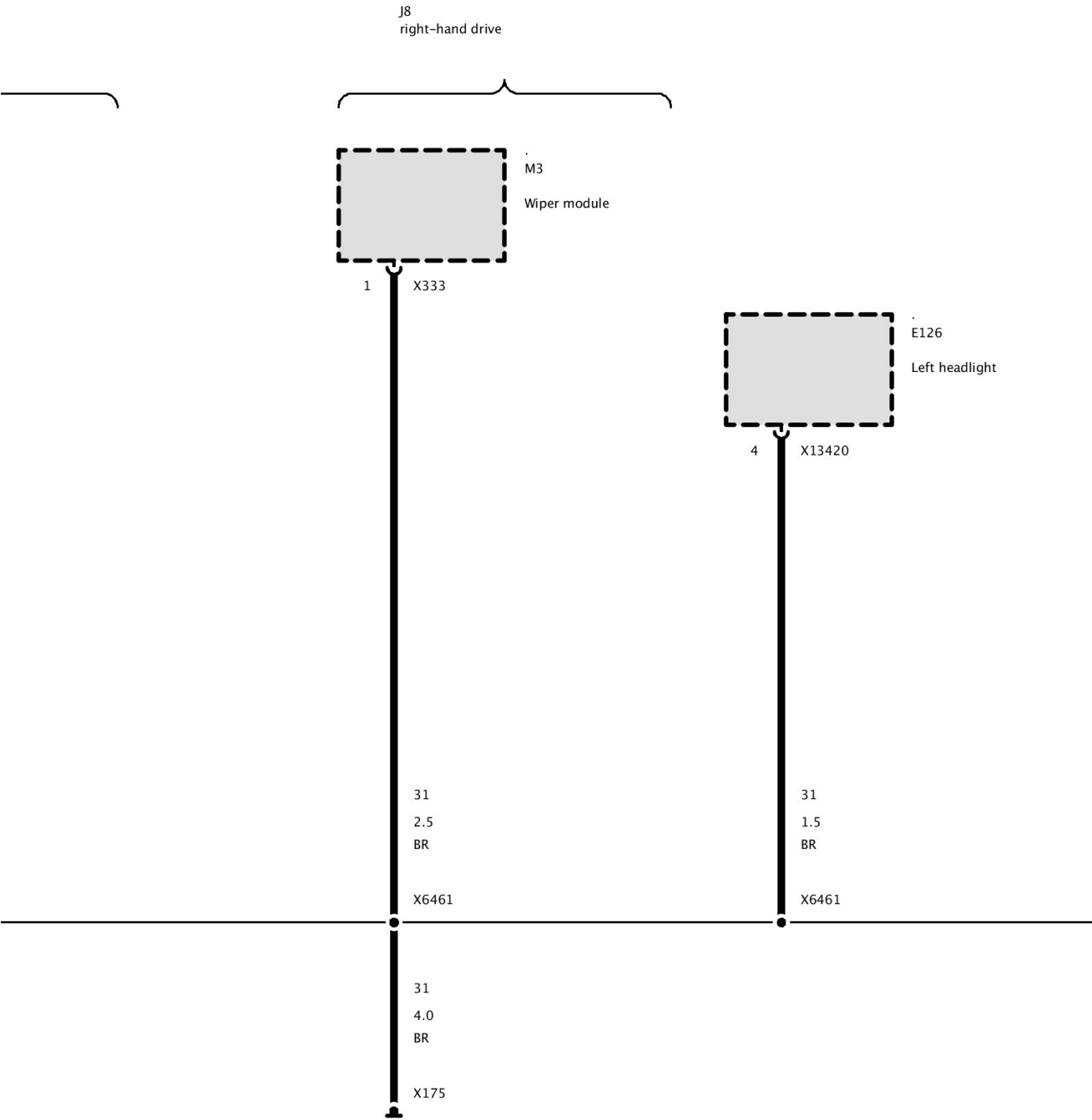
X6461 No Adapter

Ground Connector X6461, X2041

J25  
diesel engine

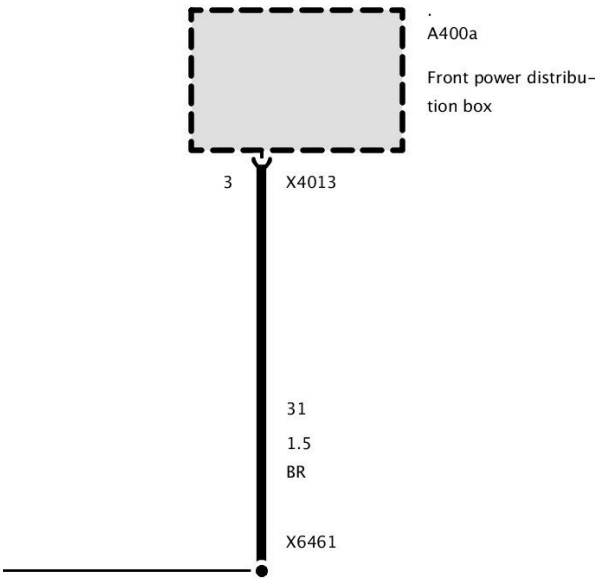


Part 1



Part 2

light

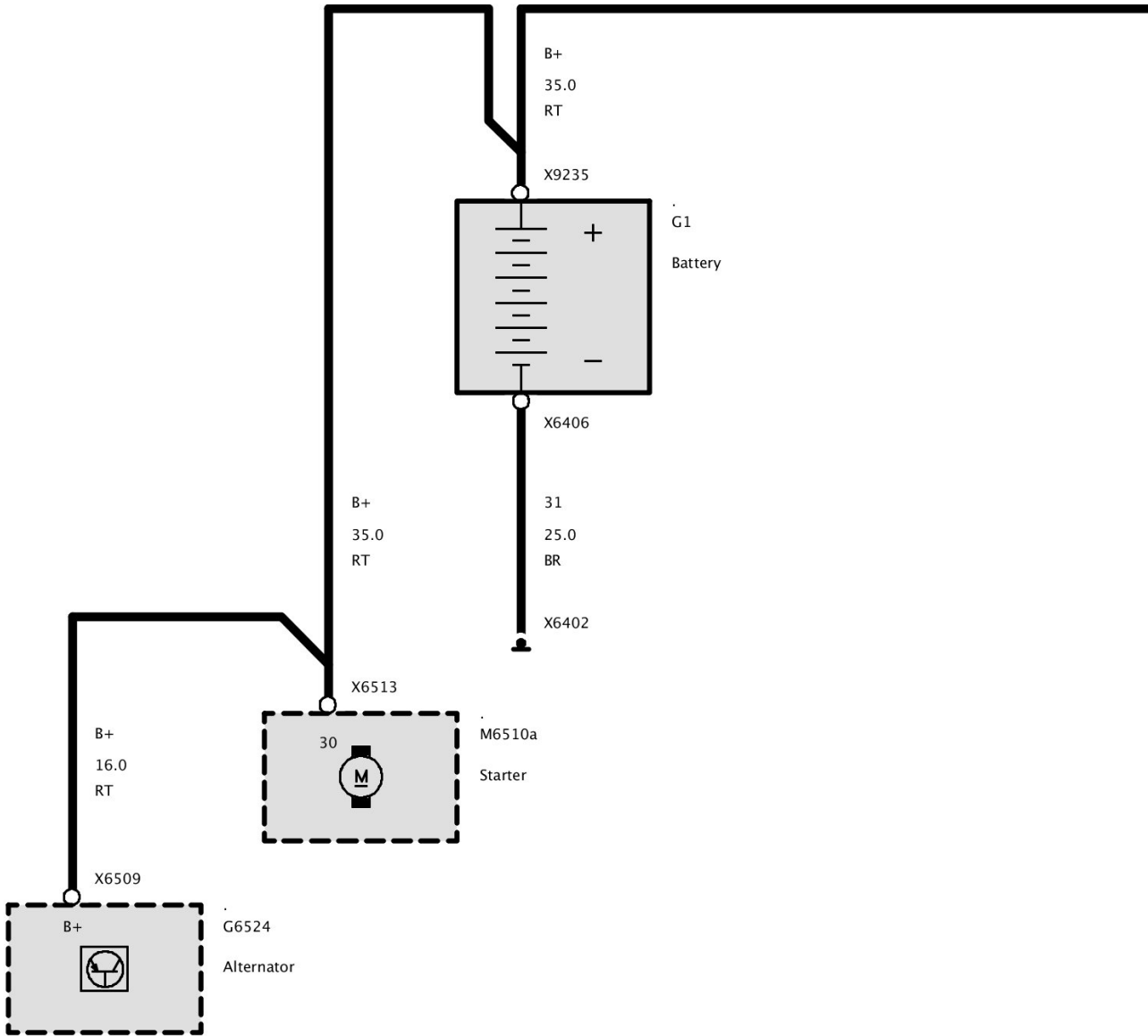


Part 3

X6816 No Adapter

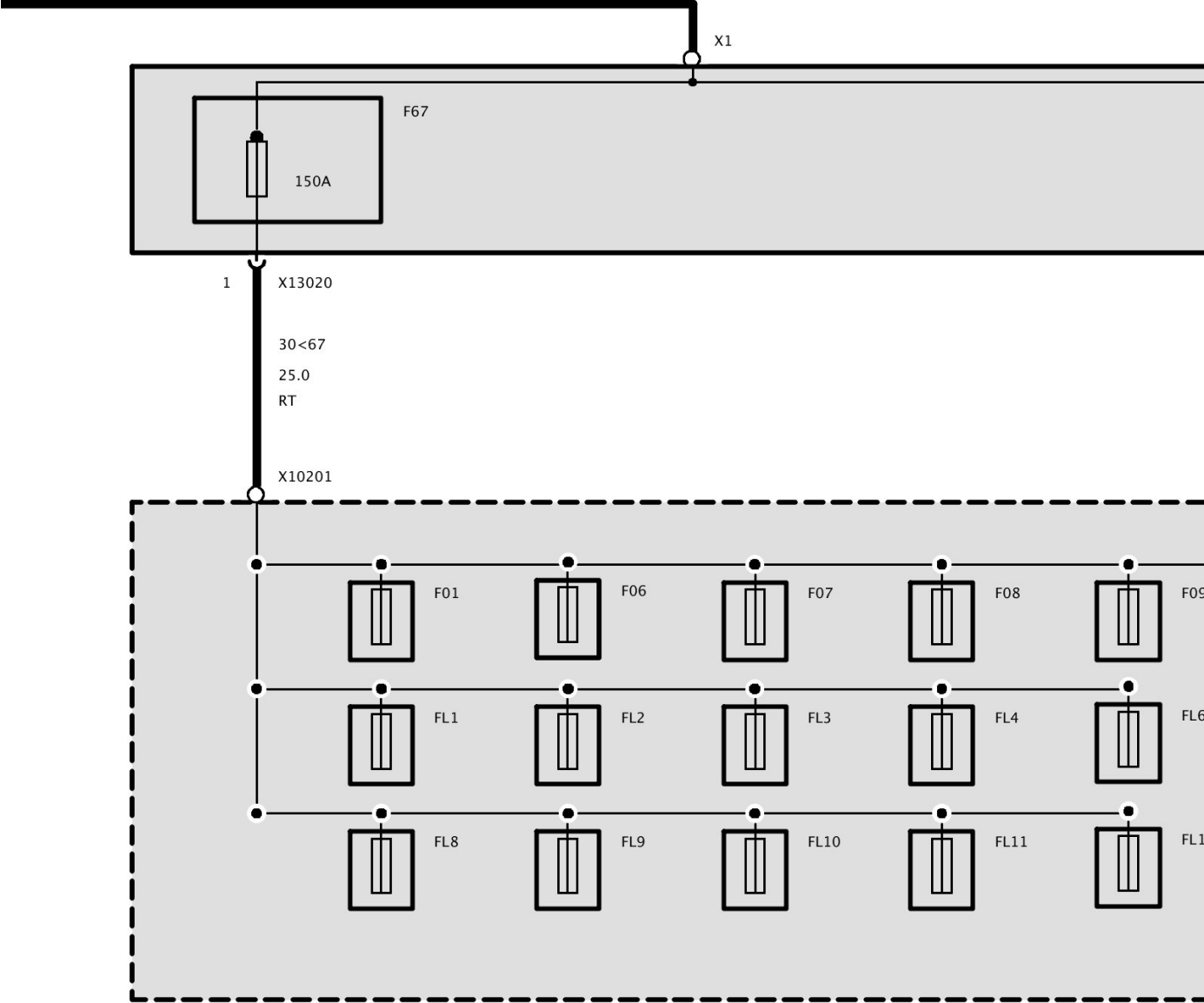
X6816 No Adapter

Fuse Supply, Terminal 30 (Engine)

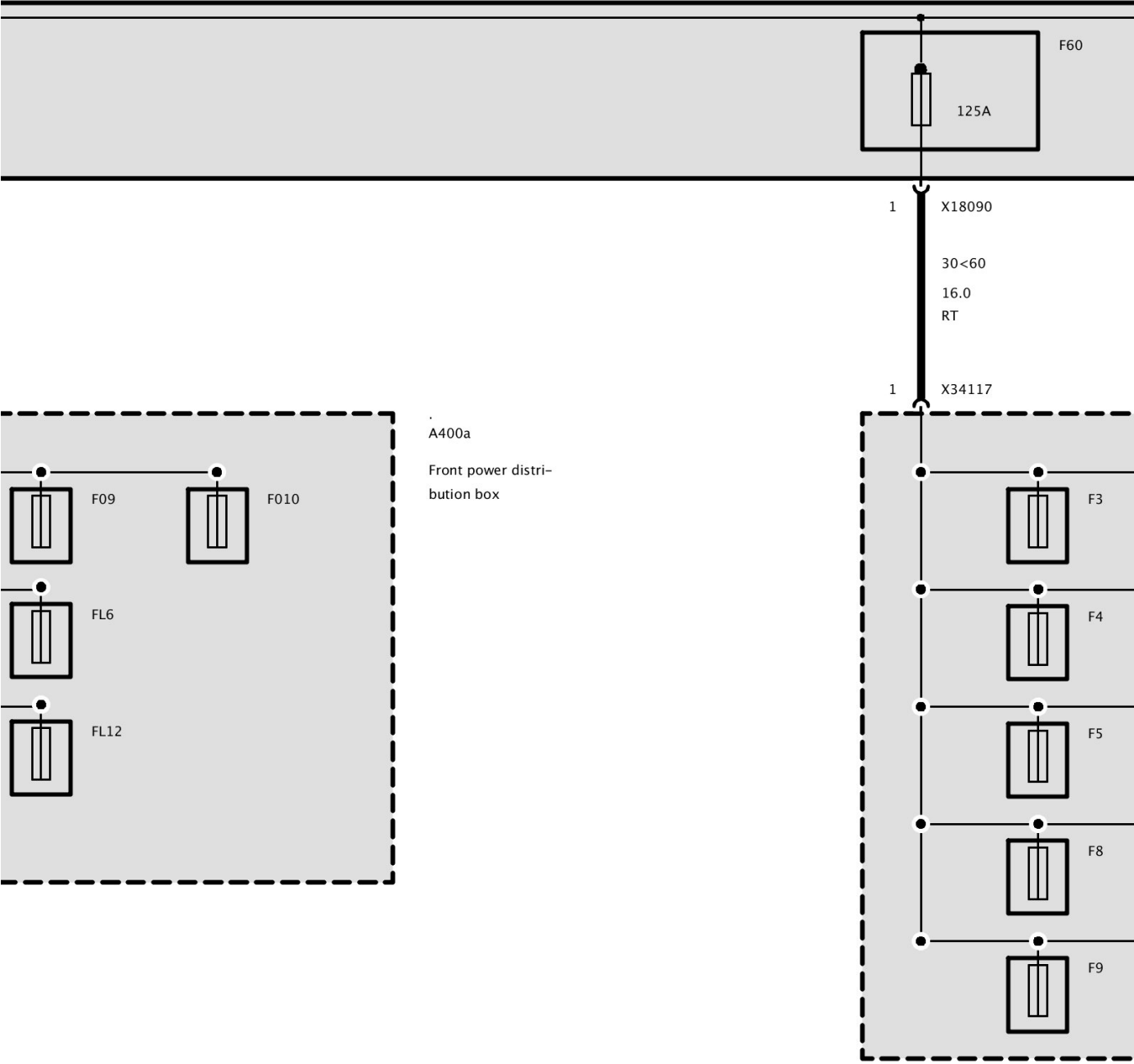


Part 1

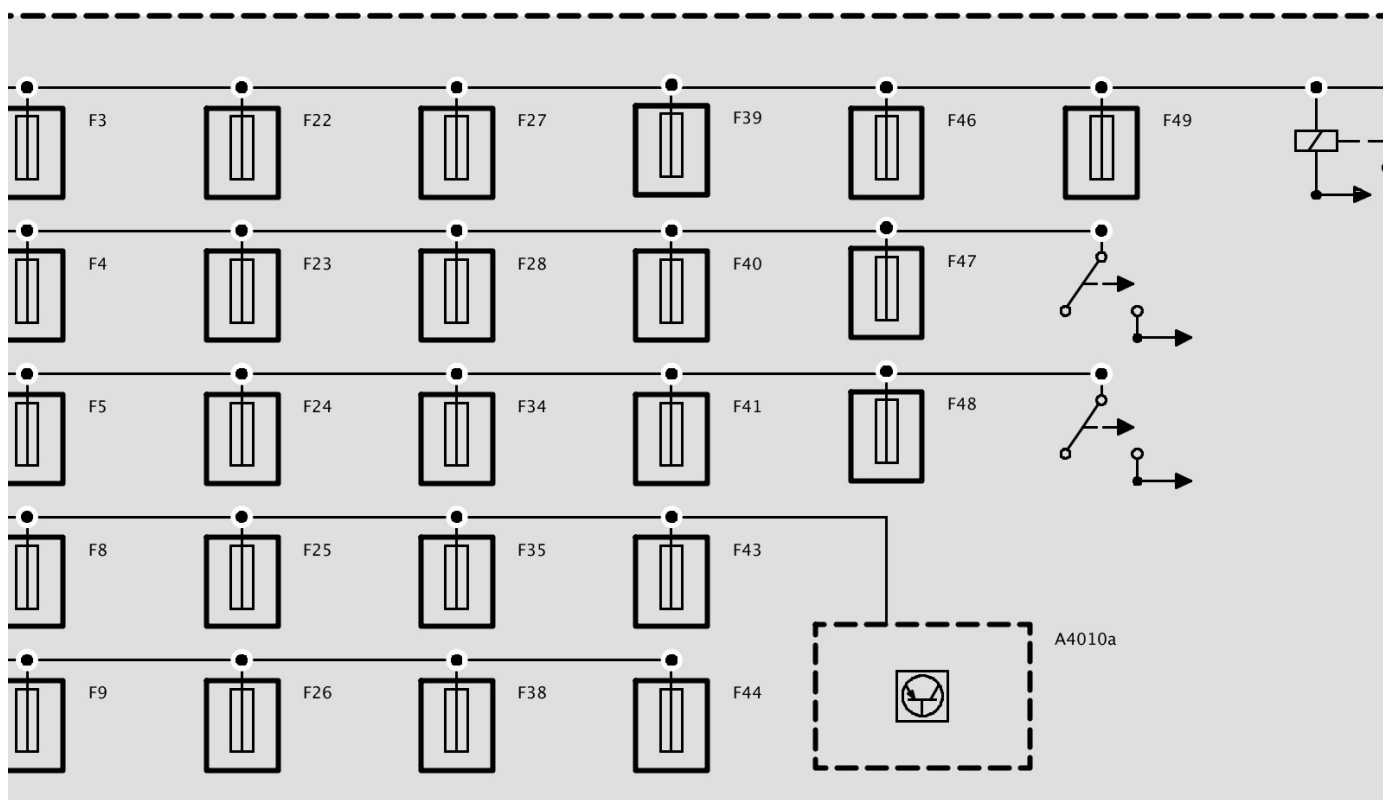




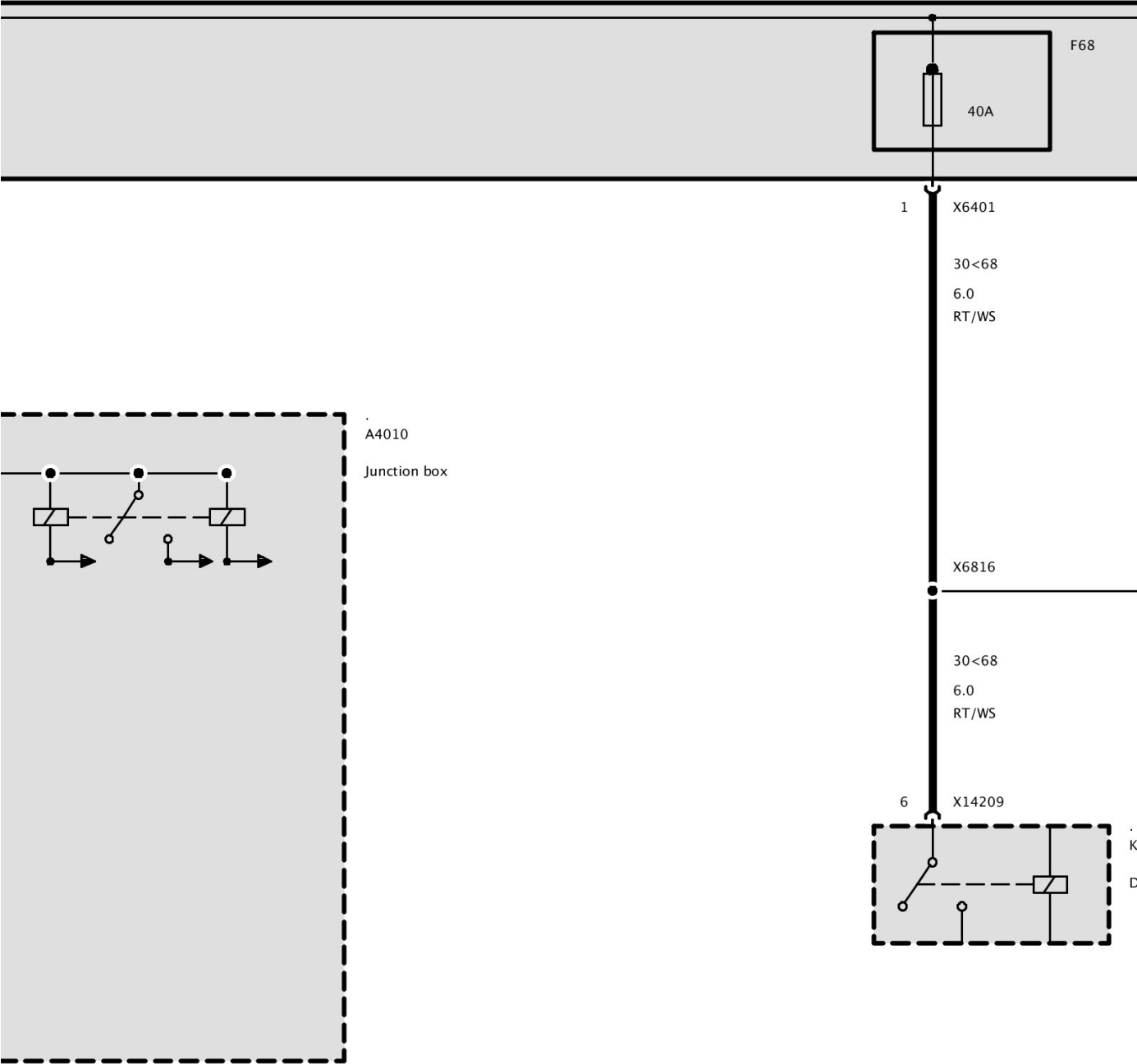
Part 2



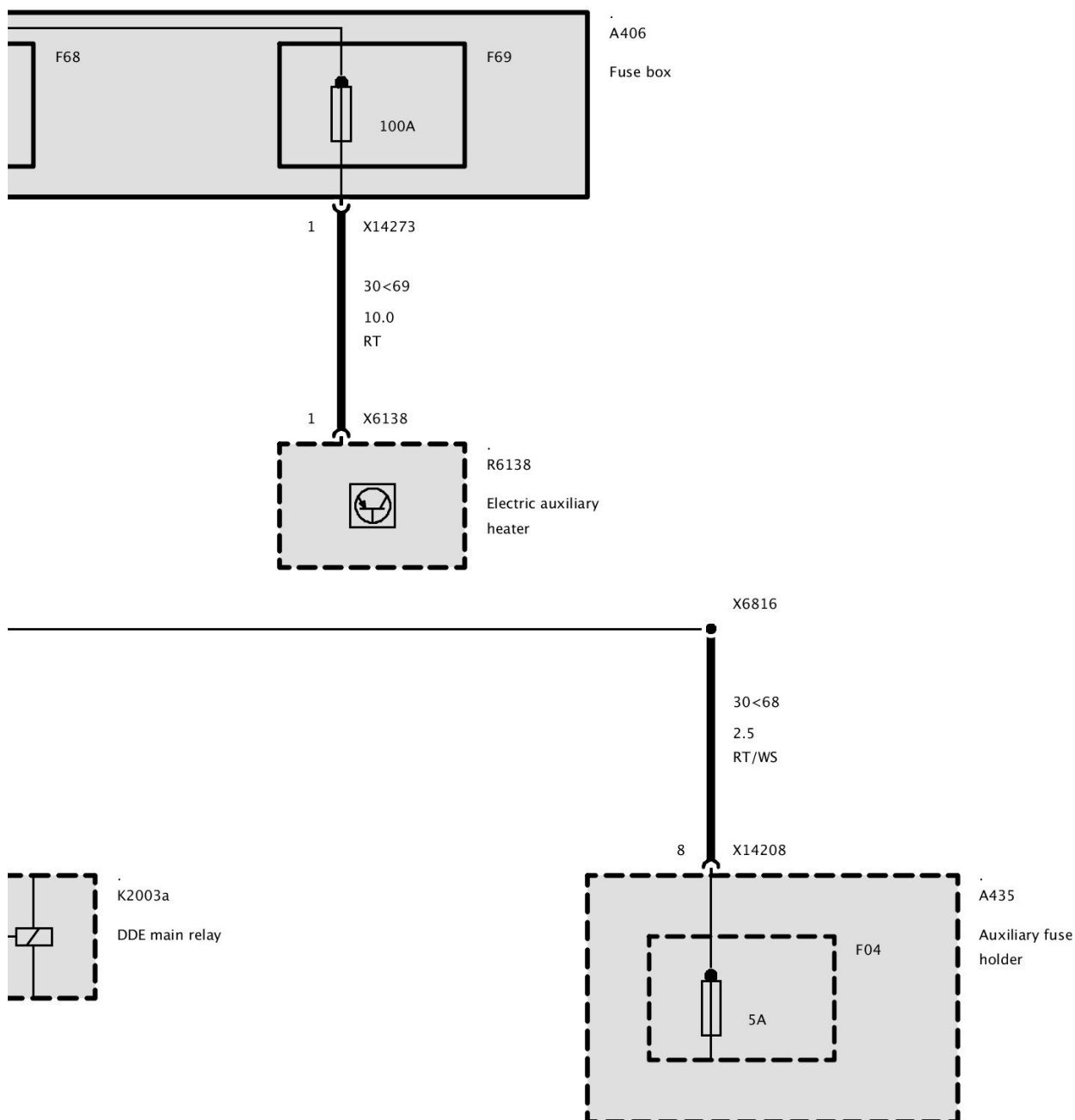
Part 3



#### Part 4



Part 5

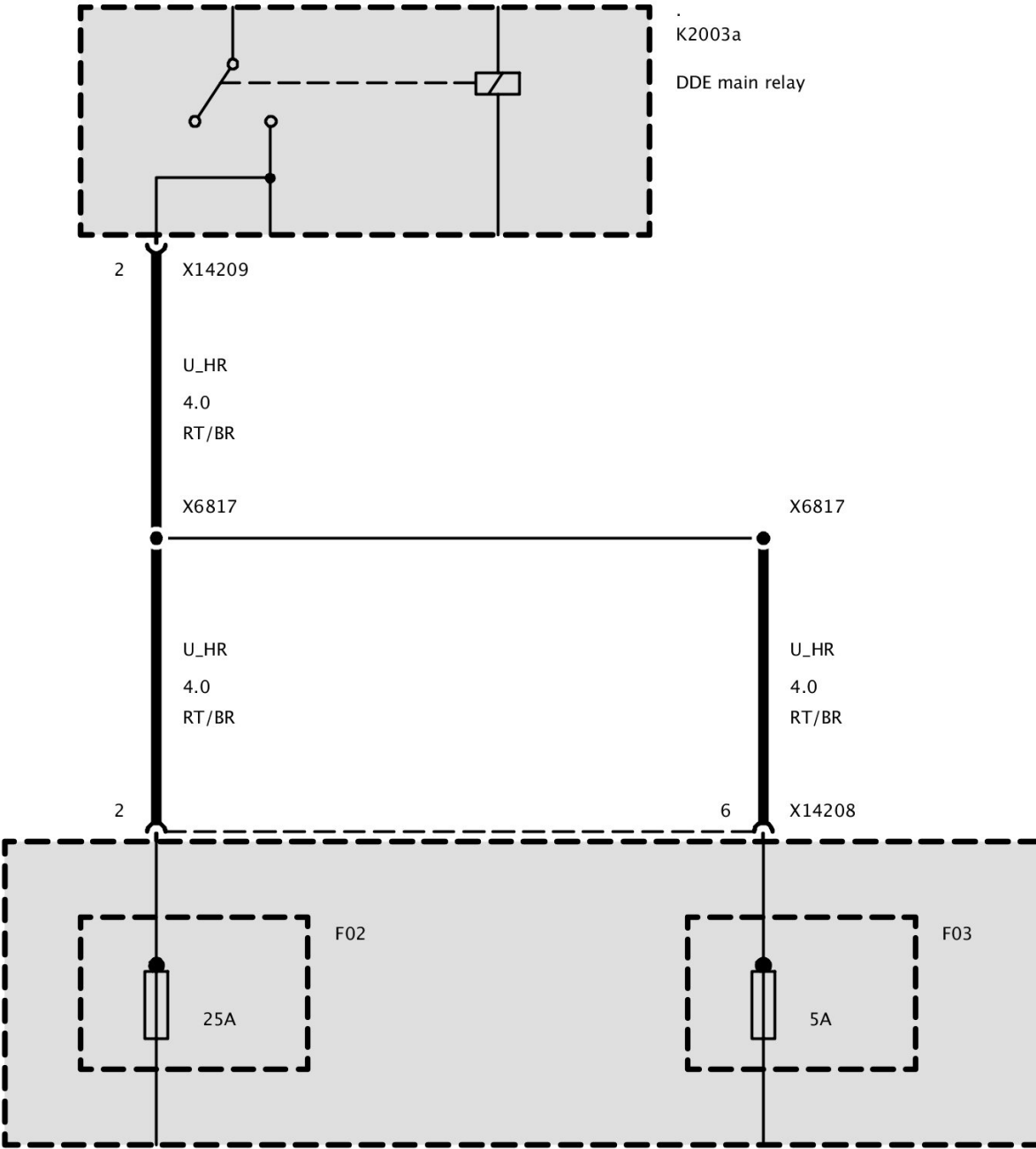


## Part 6

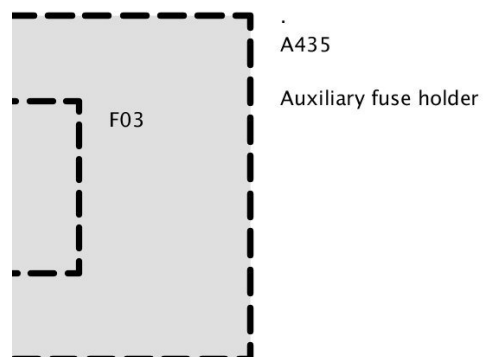
### X6817 No Adapter

### X6817 No Adapter

### Connector X6817



Part 1

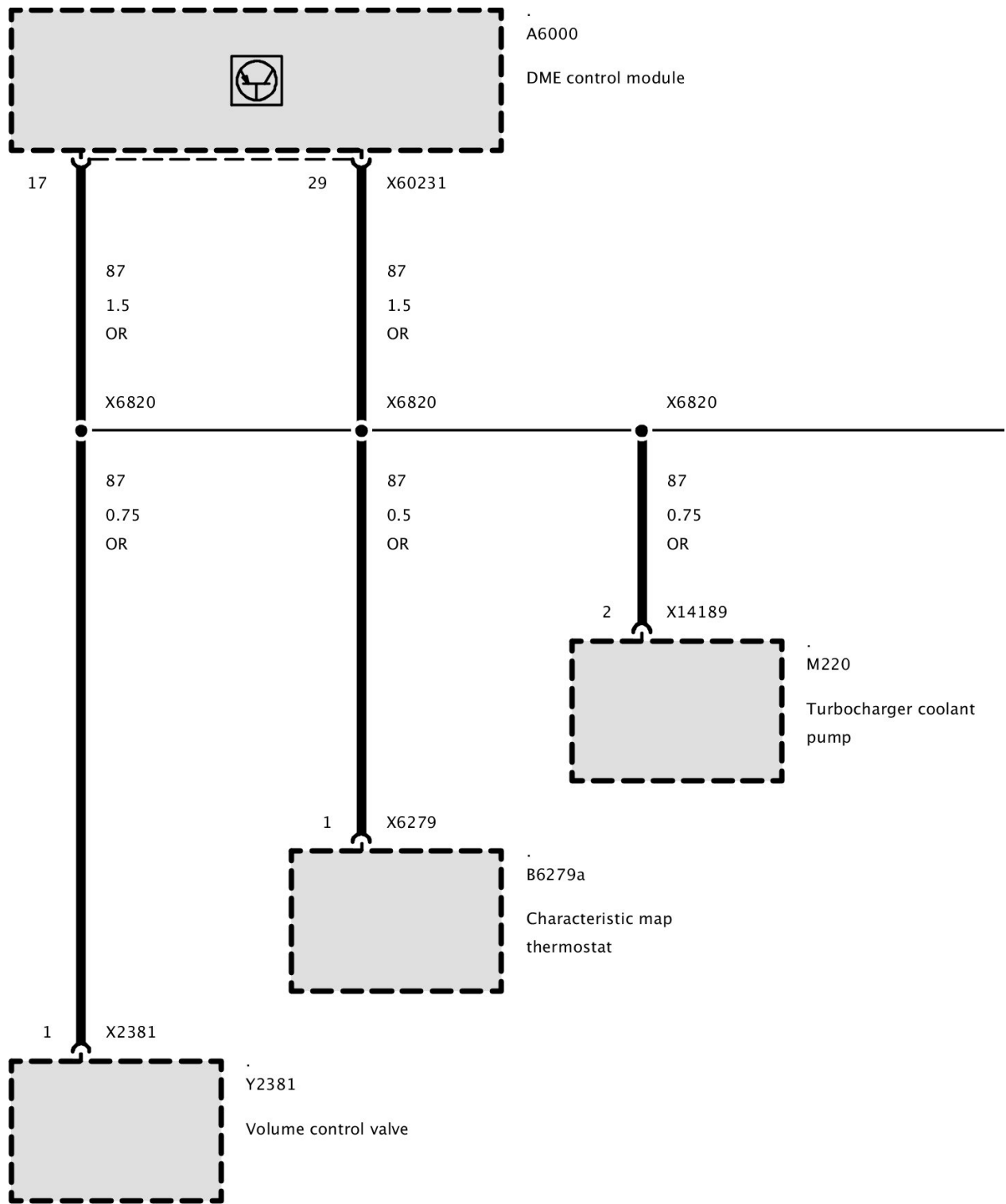


## Part 2

### X6820 No Adapter

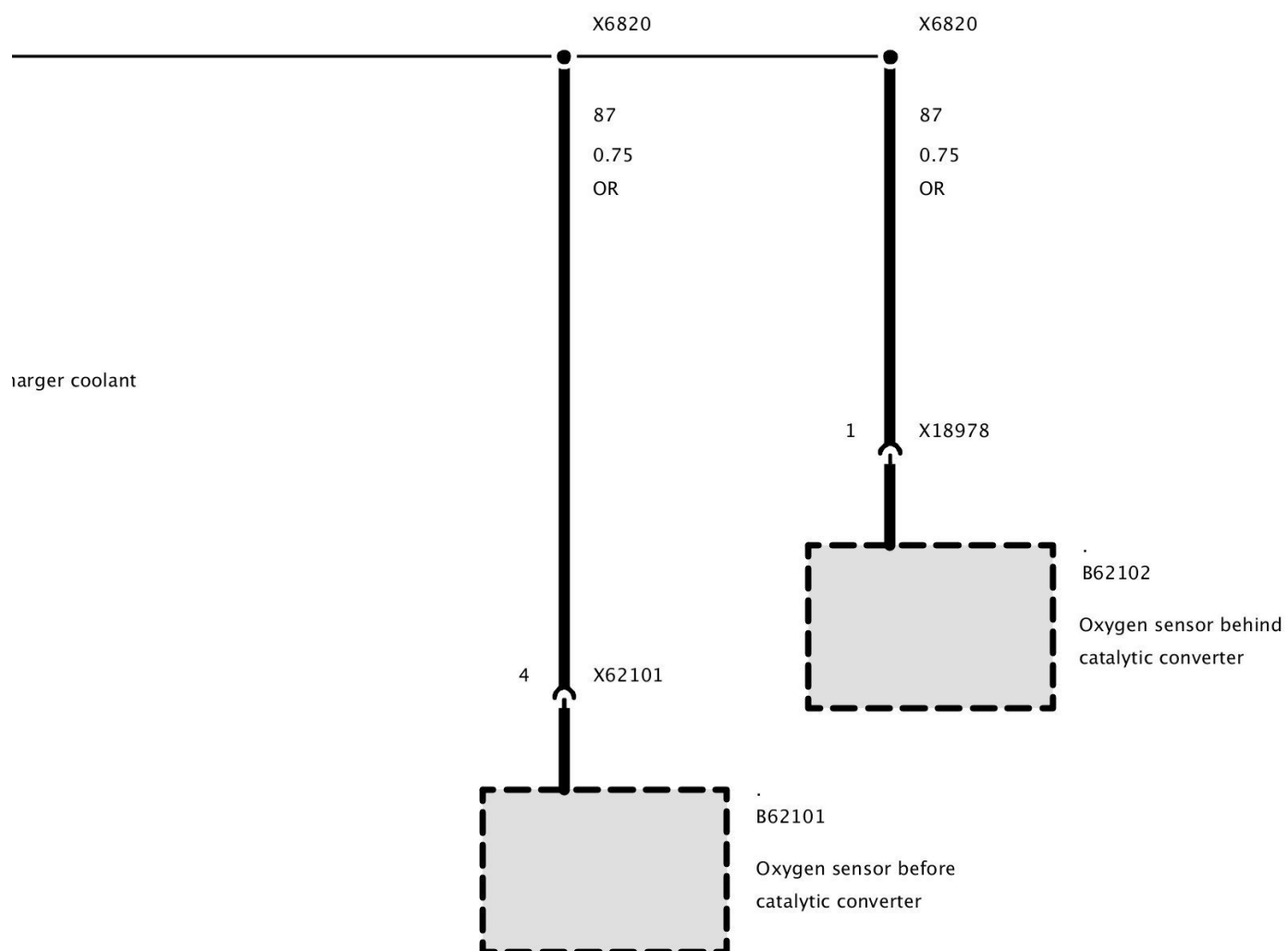
X6820 No Adapter

Connector X6820 (N14 Engine)



Part 1



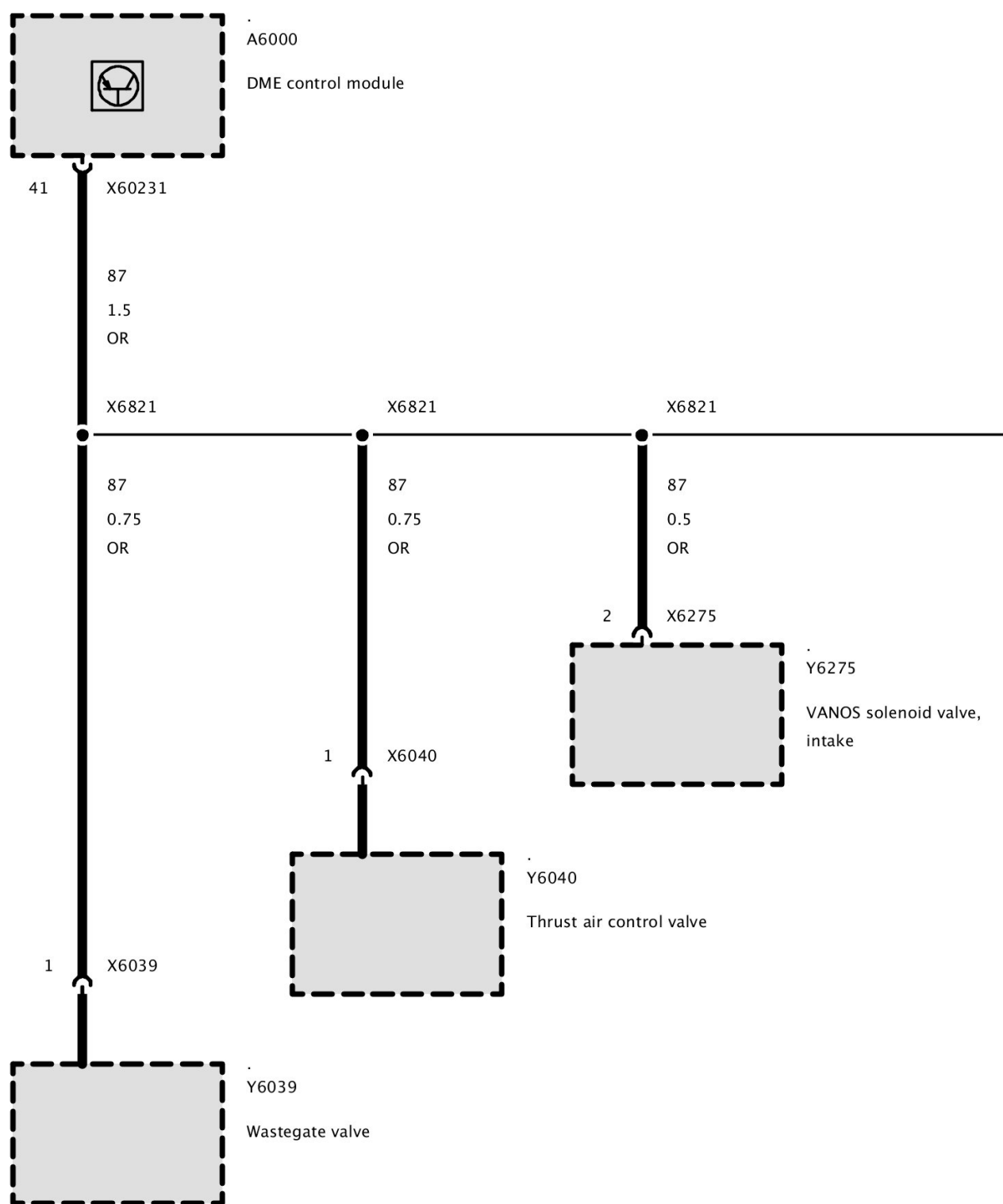


Part 2

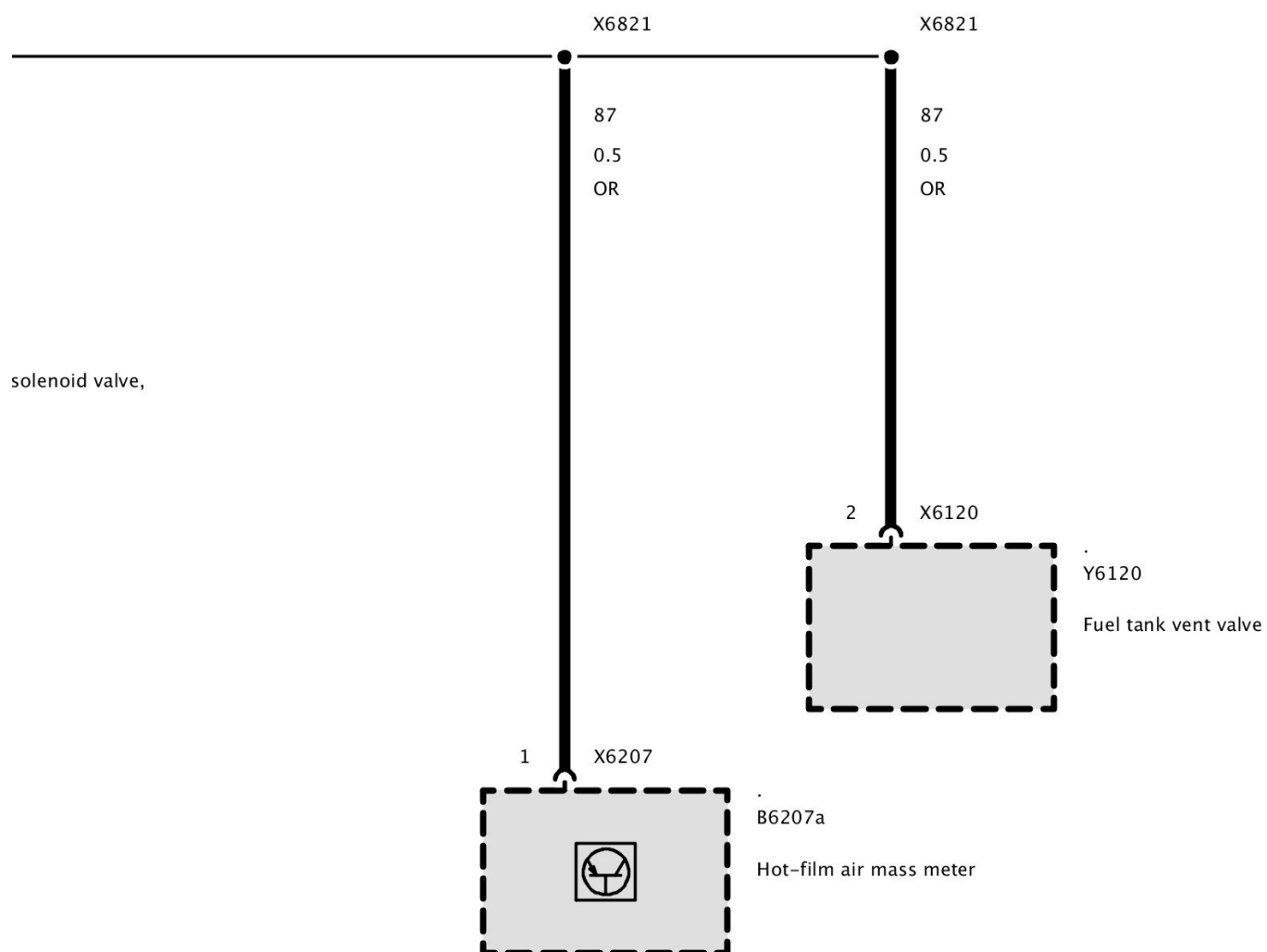
**X6821 No Adapter**

**X6821 No Adapter**

**Connector X6821**



Part 1

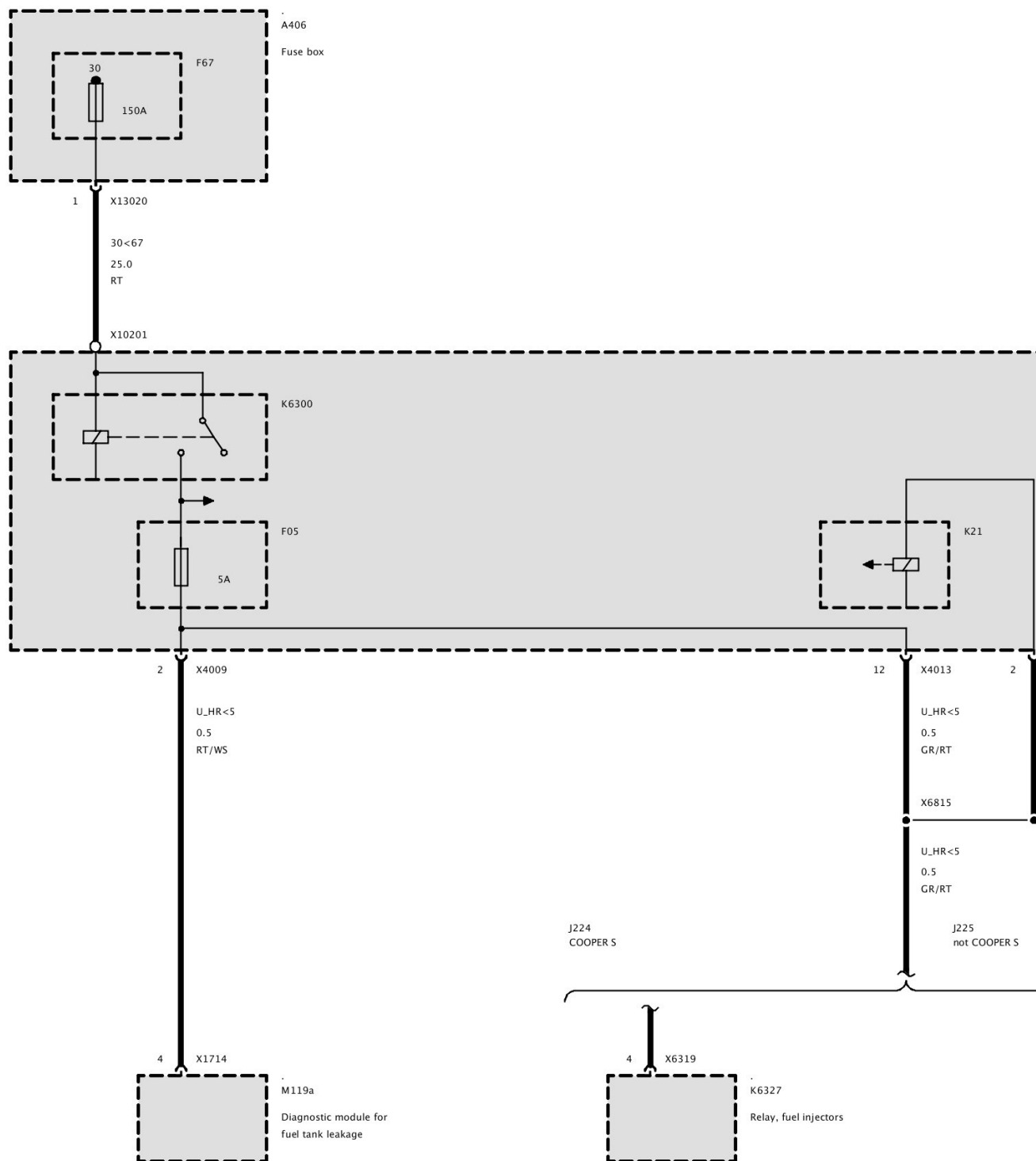


## Part 2

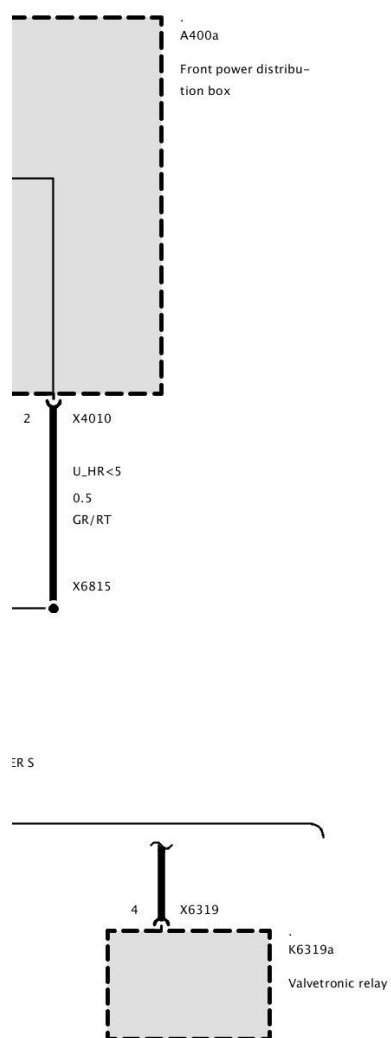
**X6851 No Adapter**

**X6851 No Adapter**

**Fuse F05**



jmoraflores@hotmail.cl



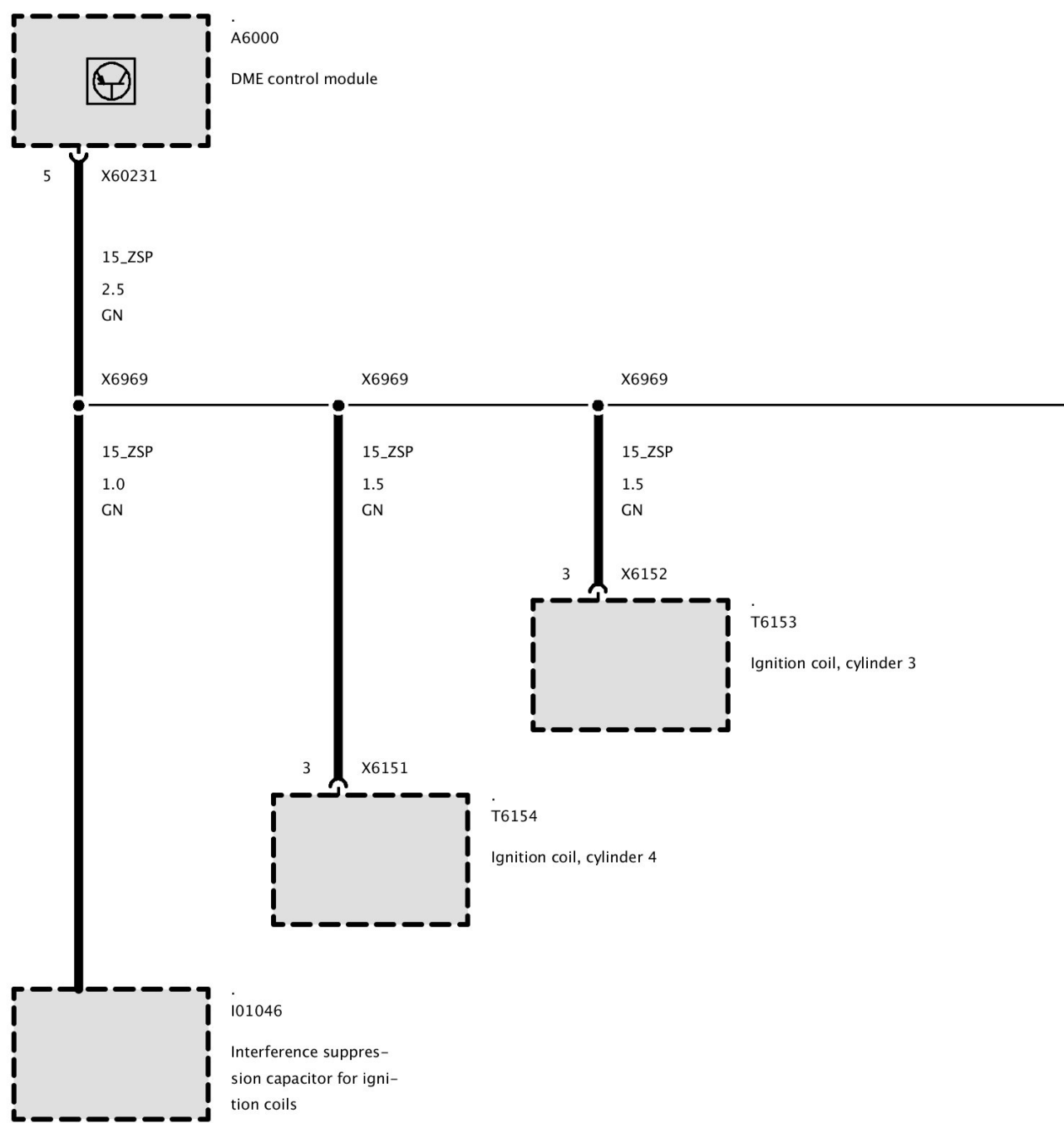
ER 5

## Part 2

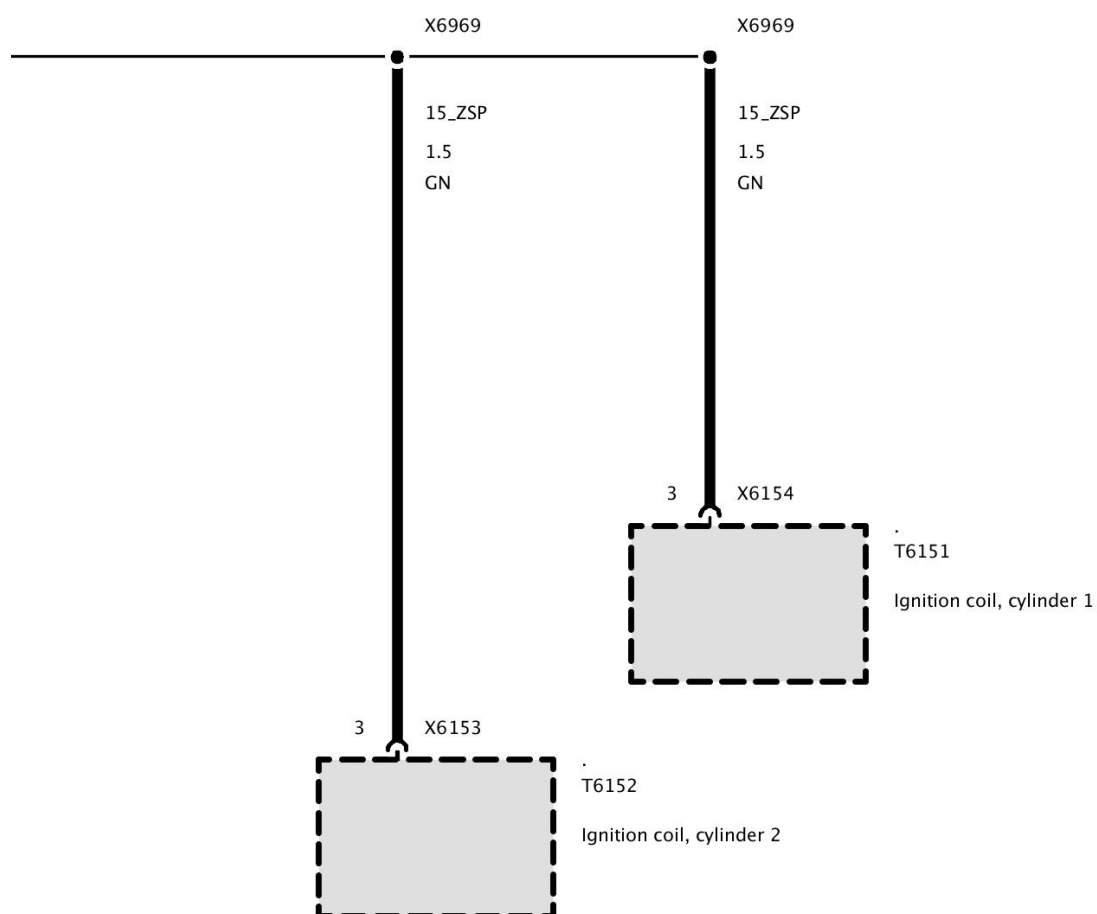
### X6969 No Adapter

### X6969 No Adapter

### Connector X6969 (N14 Engine)



Part 1

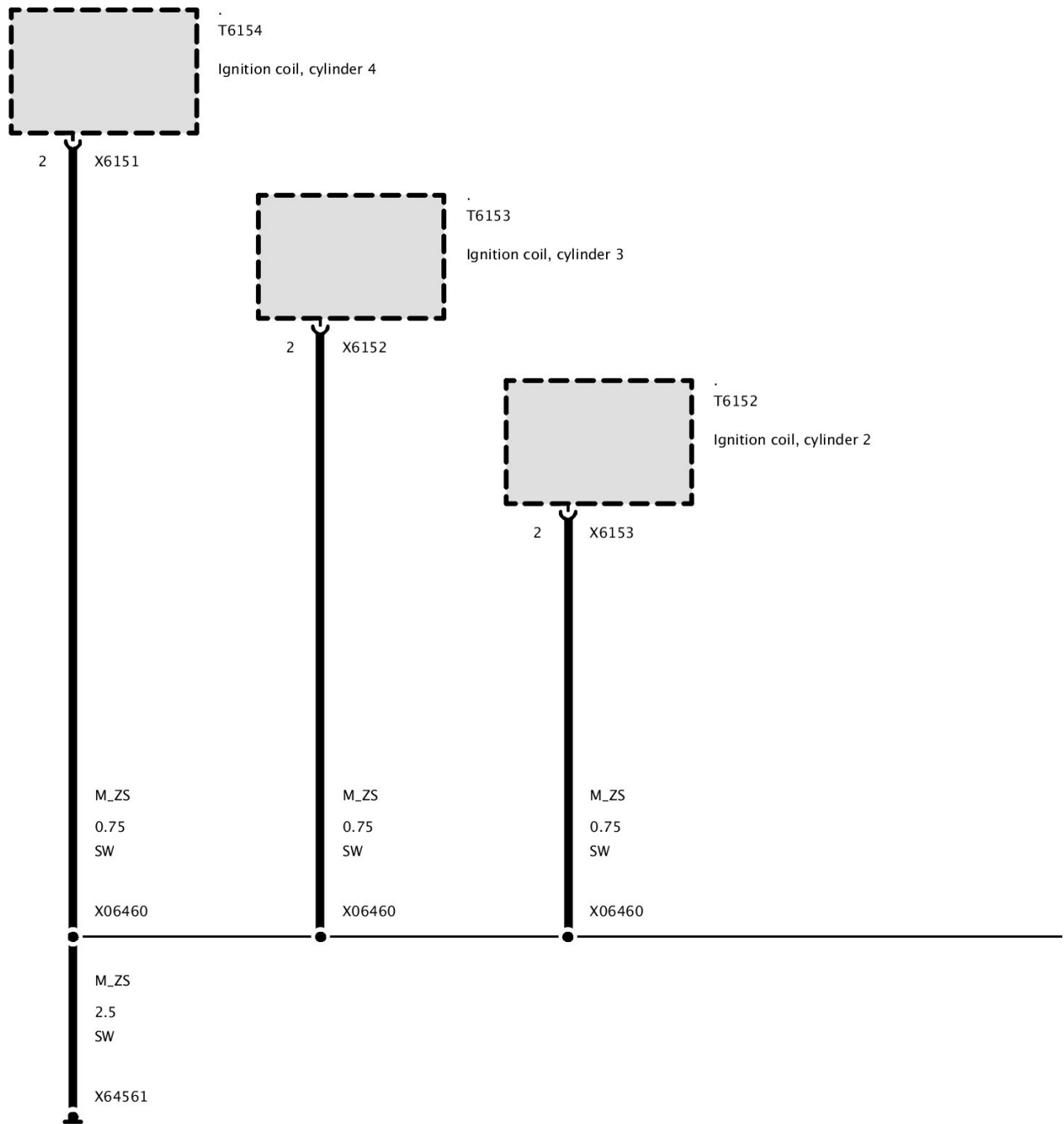


## Part 2

### X64561 No Adapter

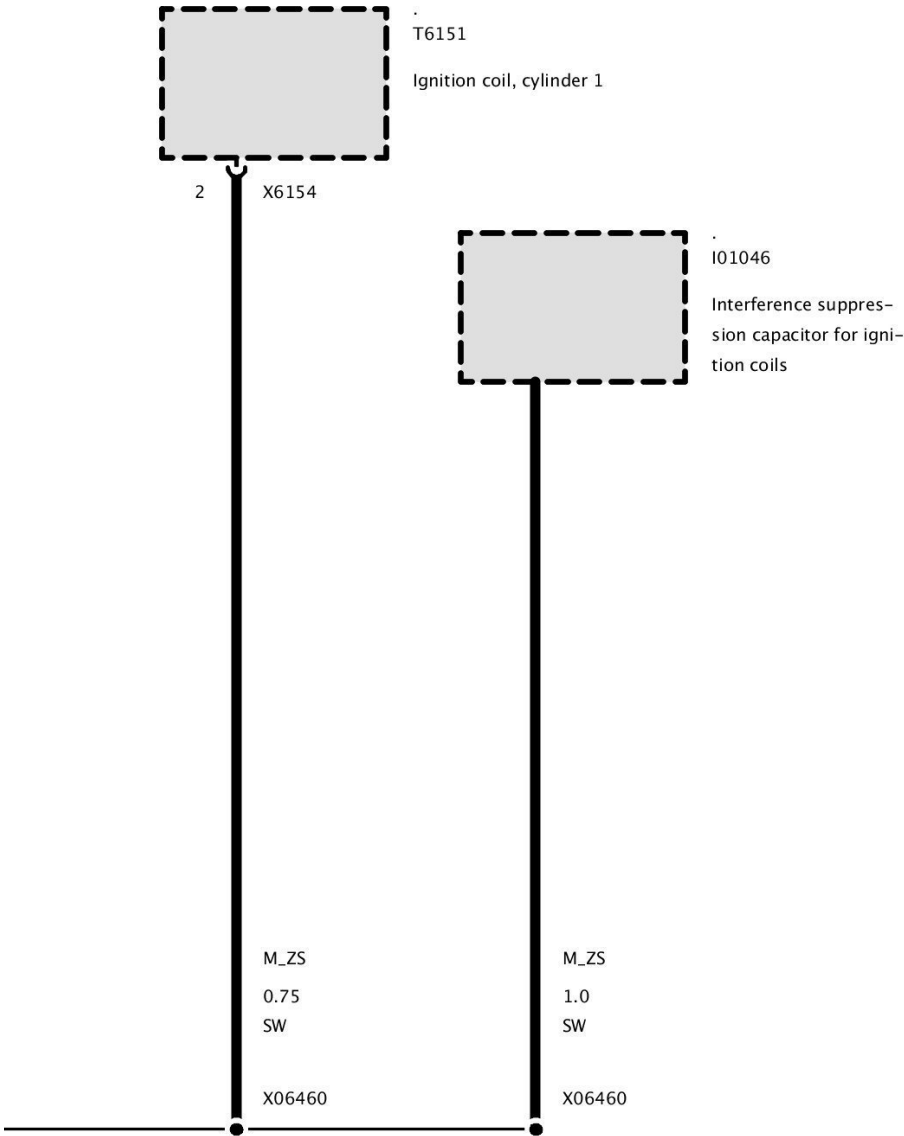
#### X64561 No Adapter

Ground Connector X06460, Ground Terminal X64561



Part 1



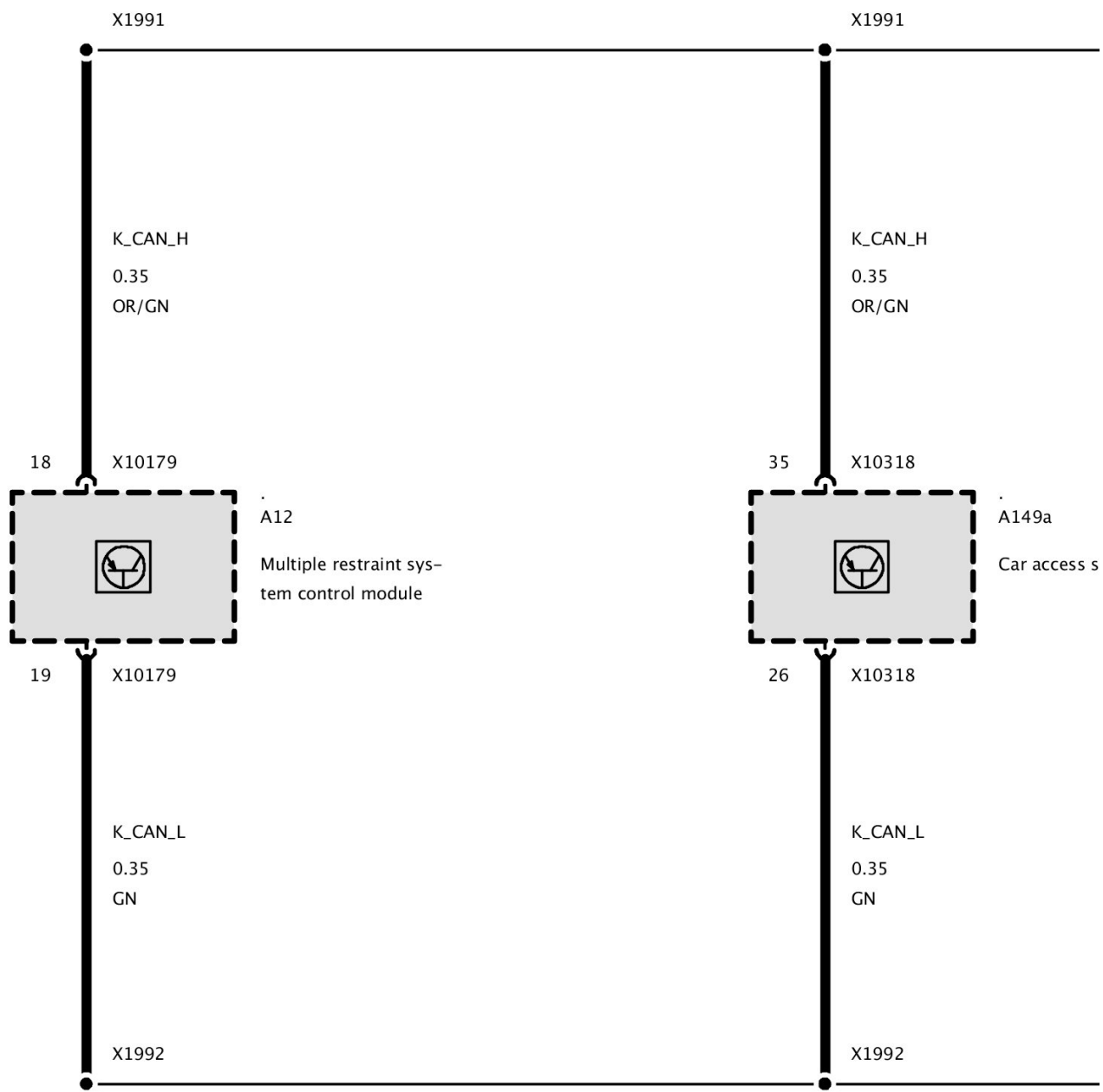


Part 2

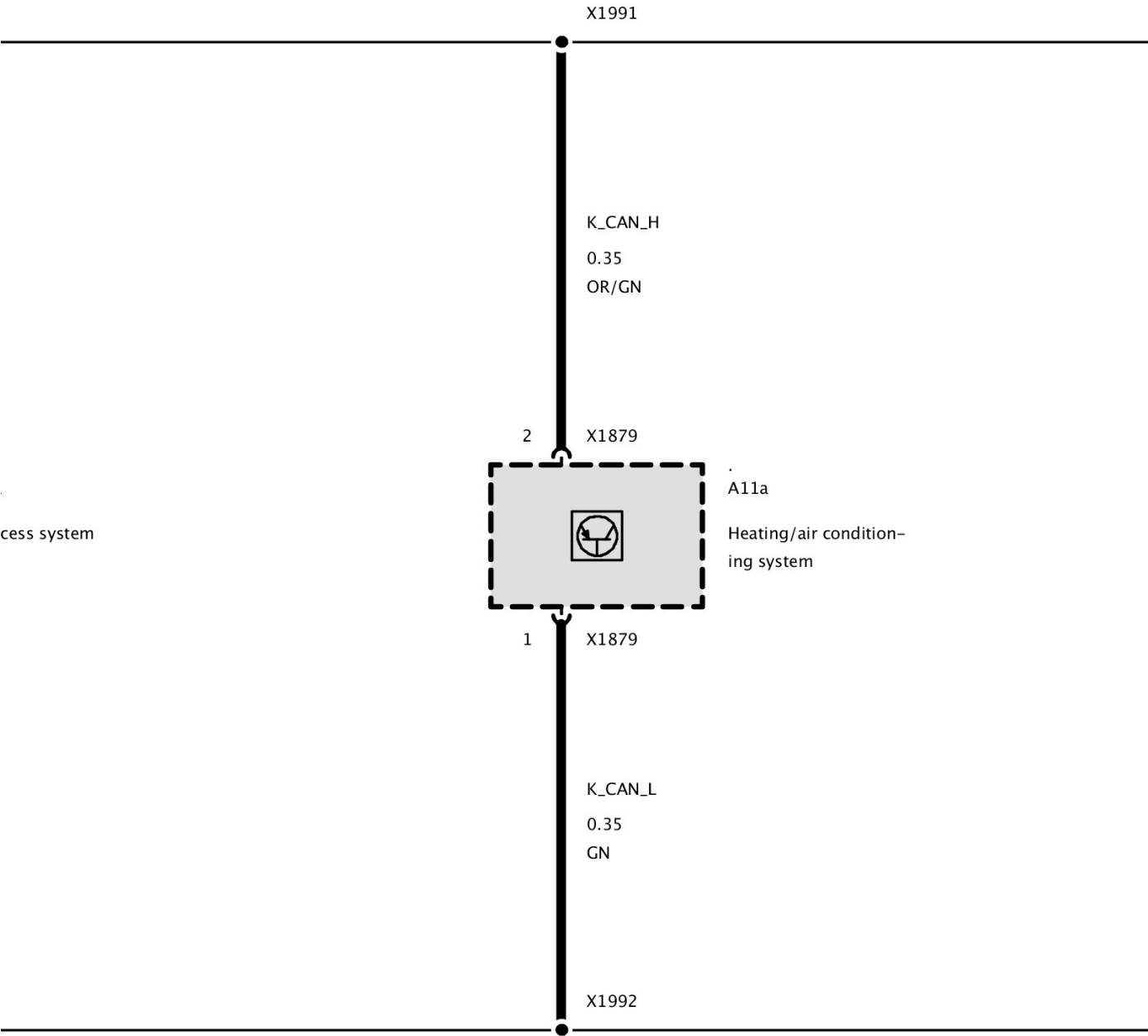
Connector, CAN bus (as of 08/07 up to 12/08)

X8090 No Adapter

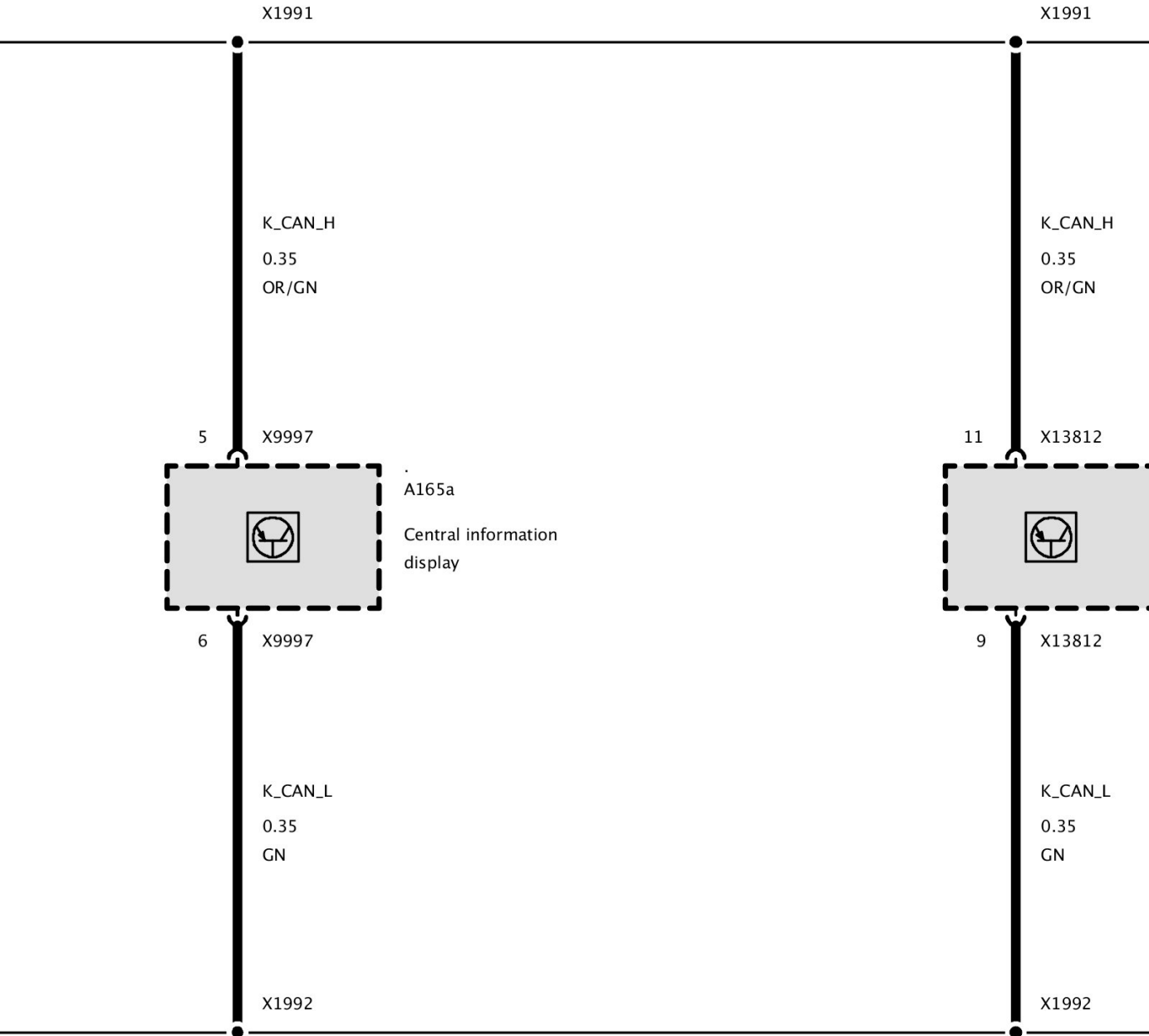
Connector, CAN bus (as of 08/07 up to 12/08)



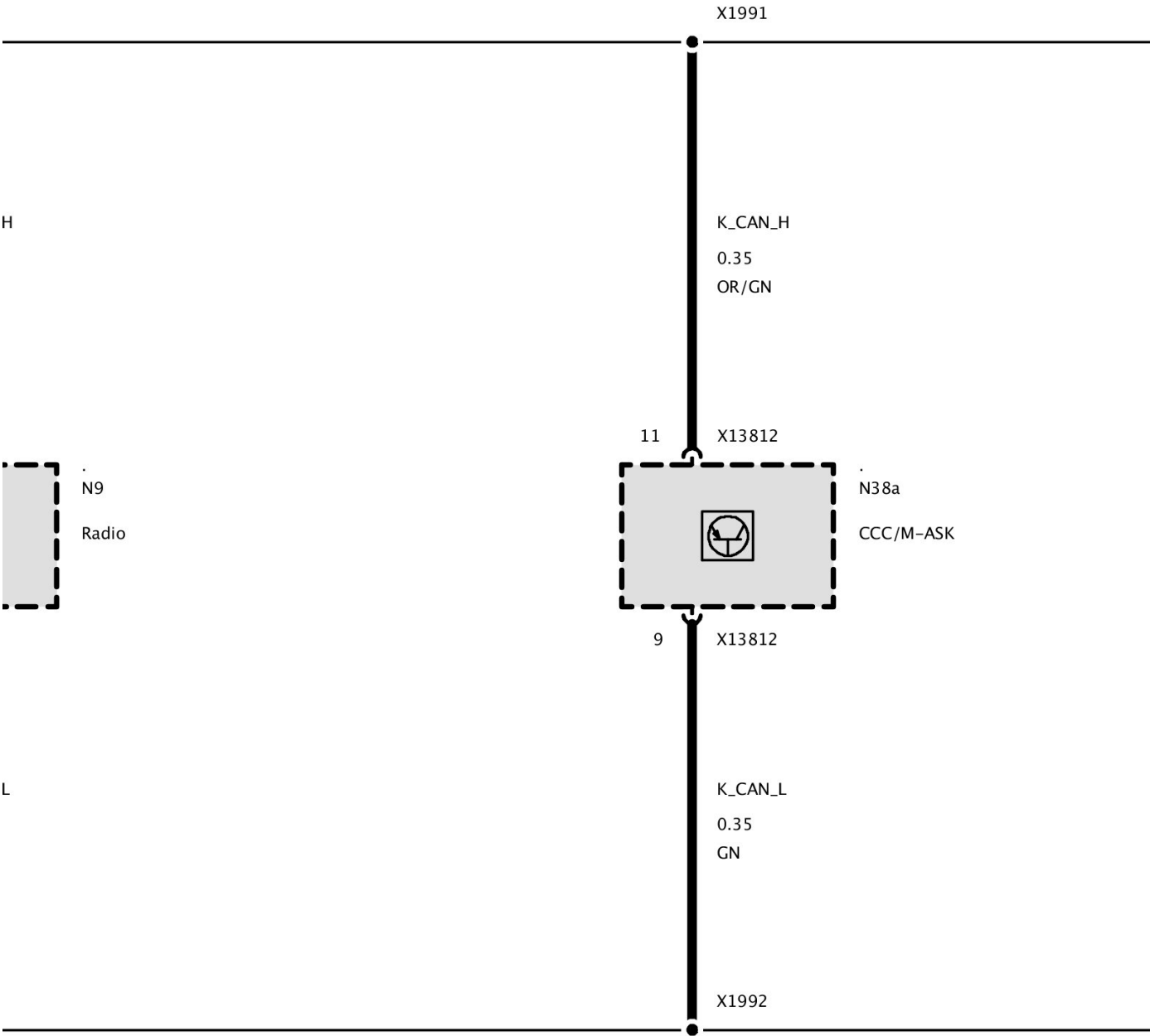
Part 1



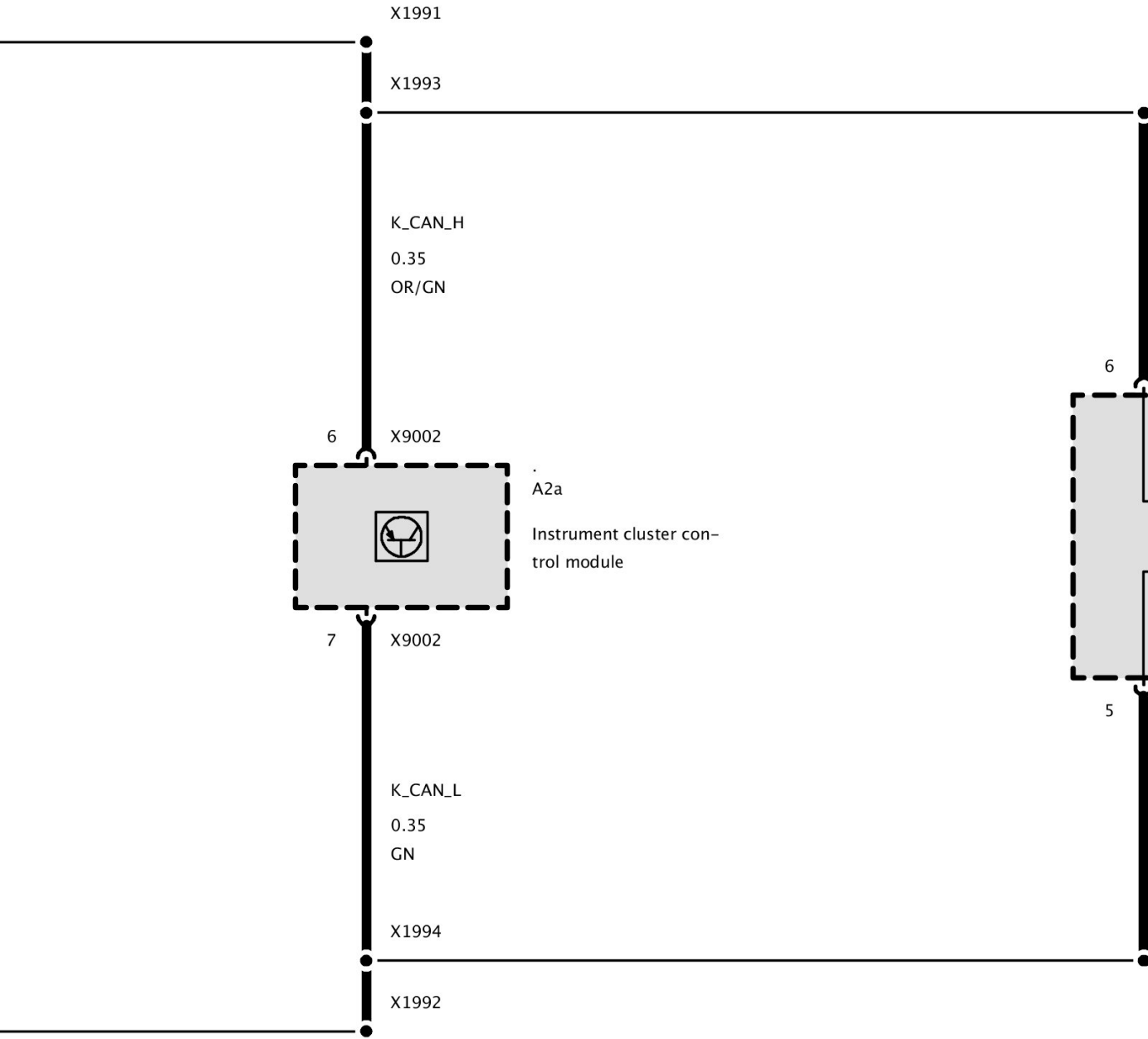
Part 2



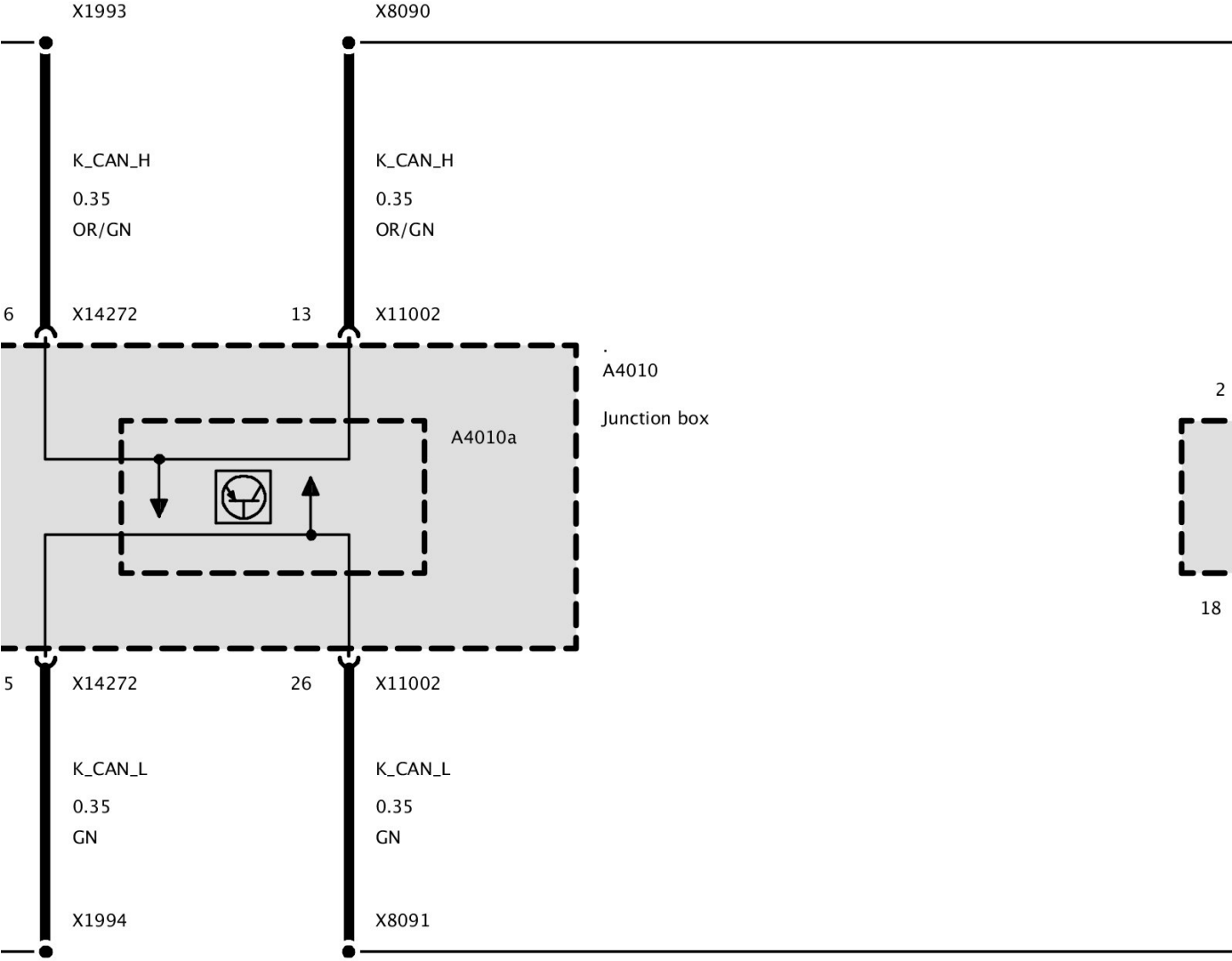
Part 3



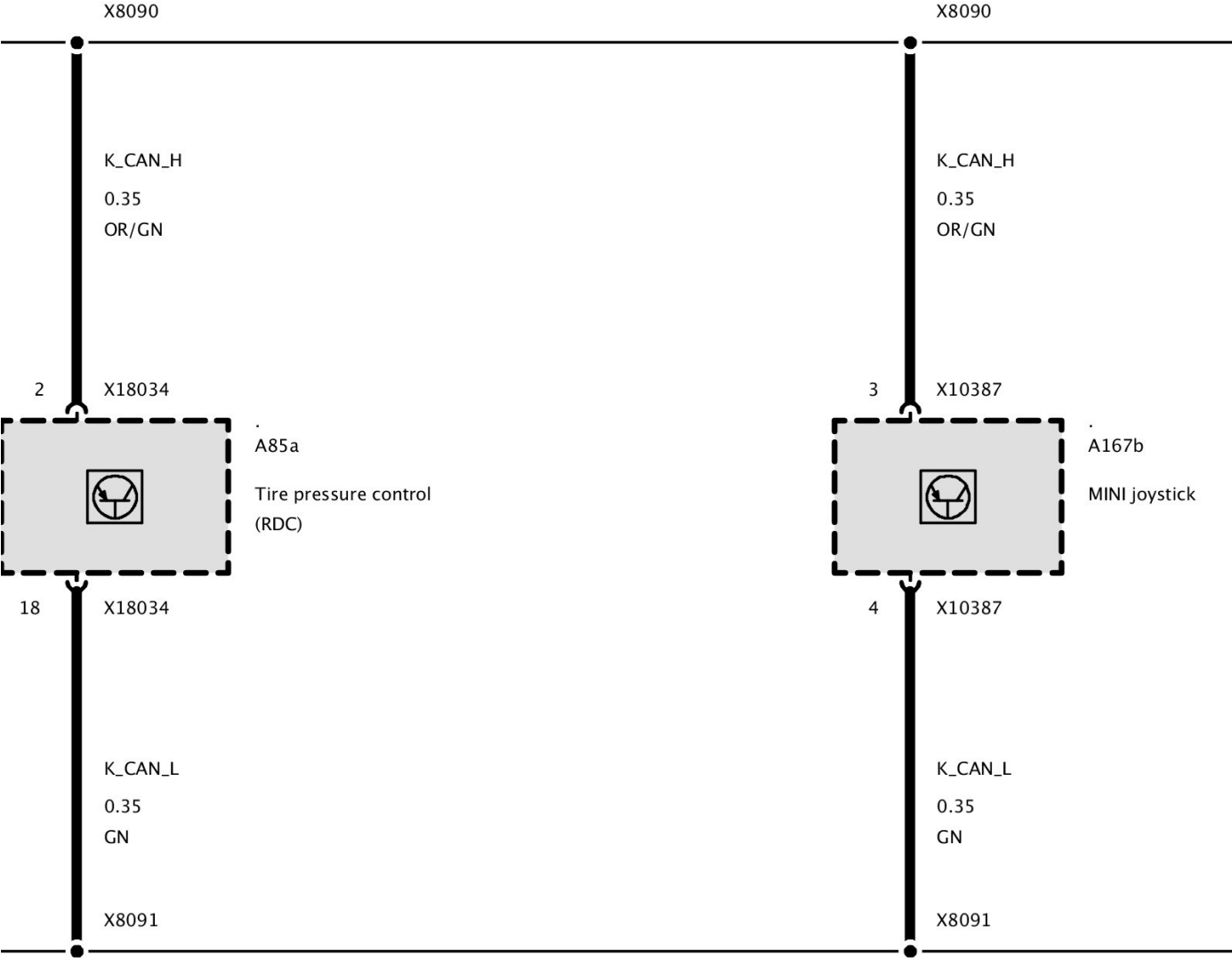
Part 4



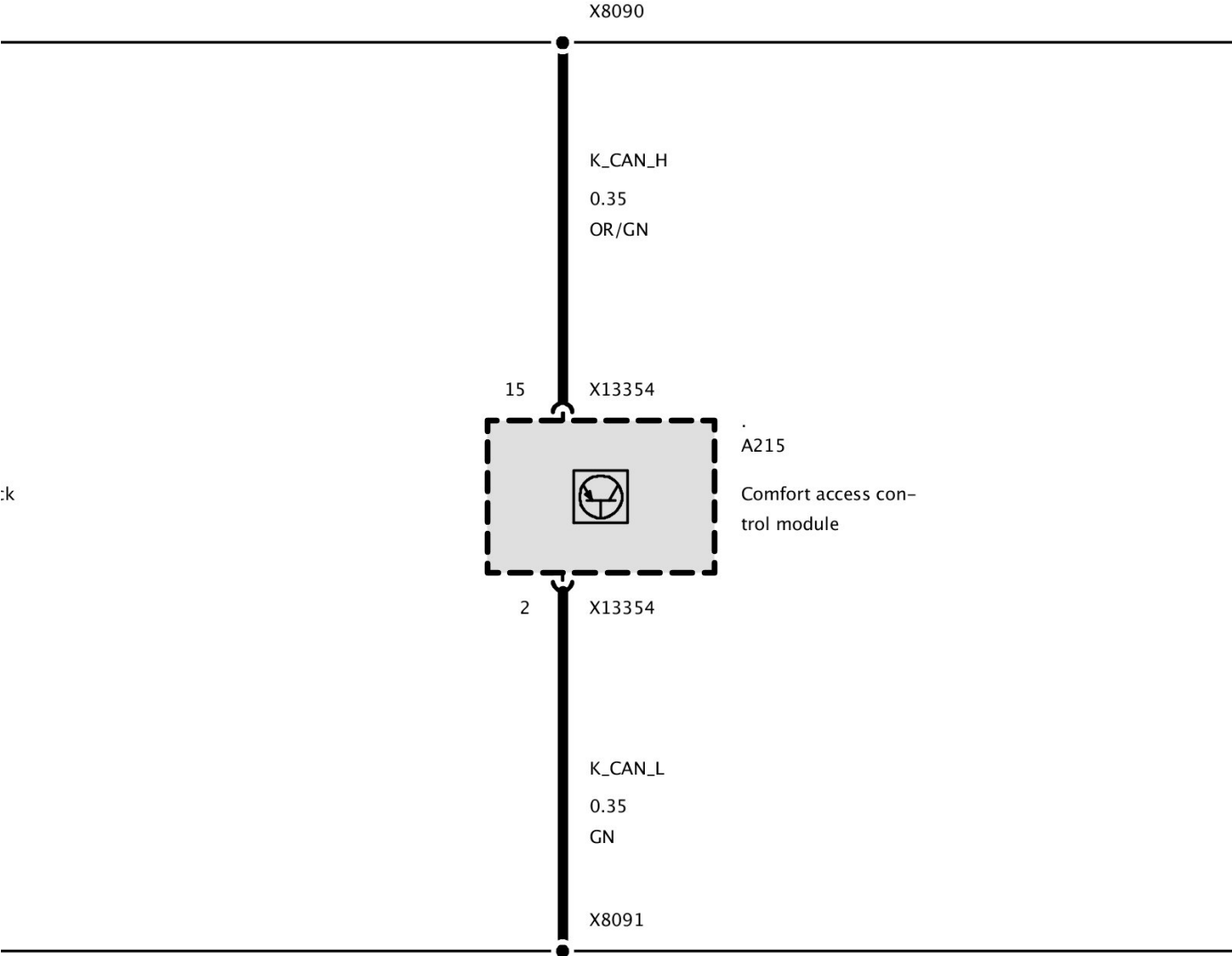
Part 5



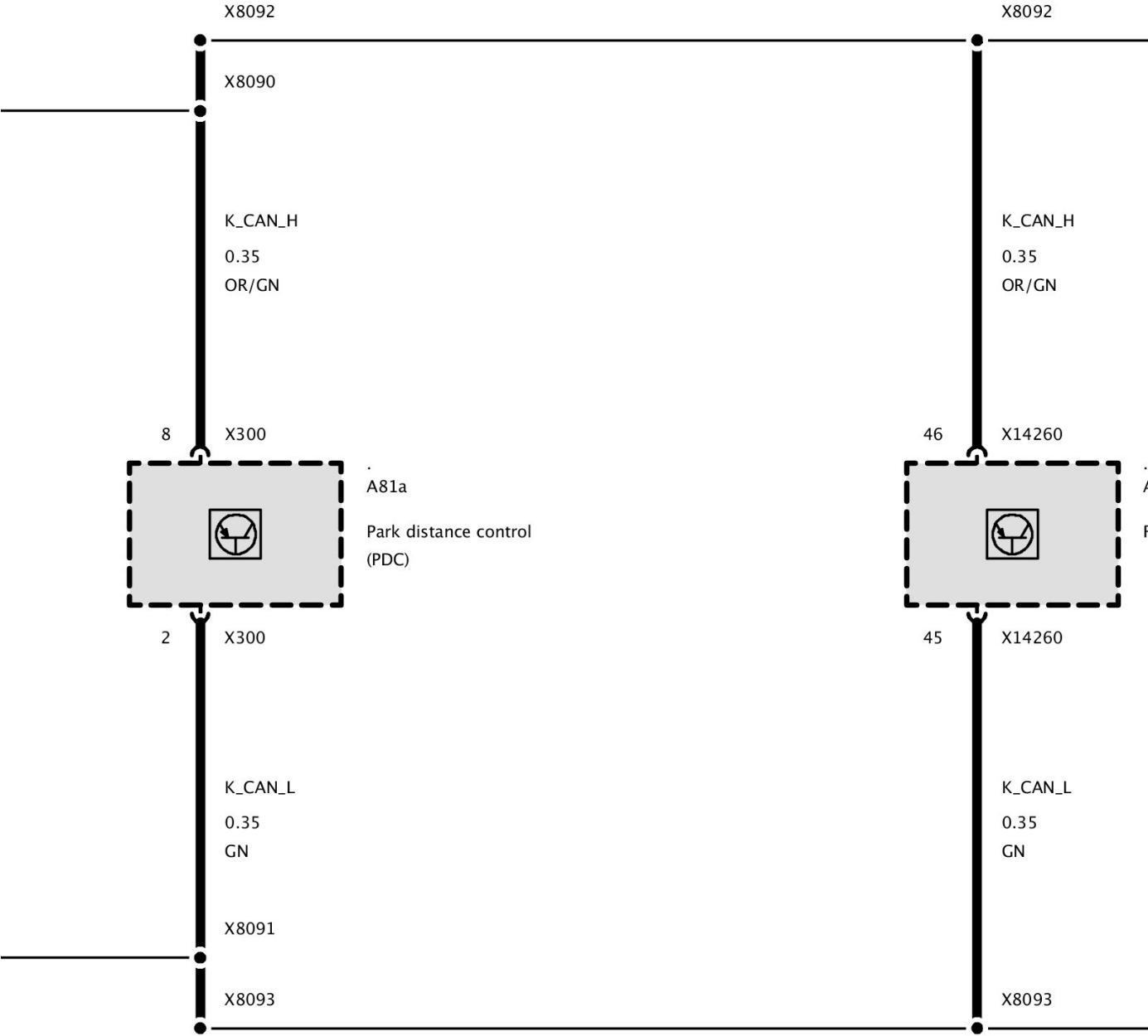
Part 6



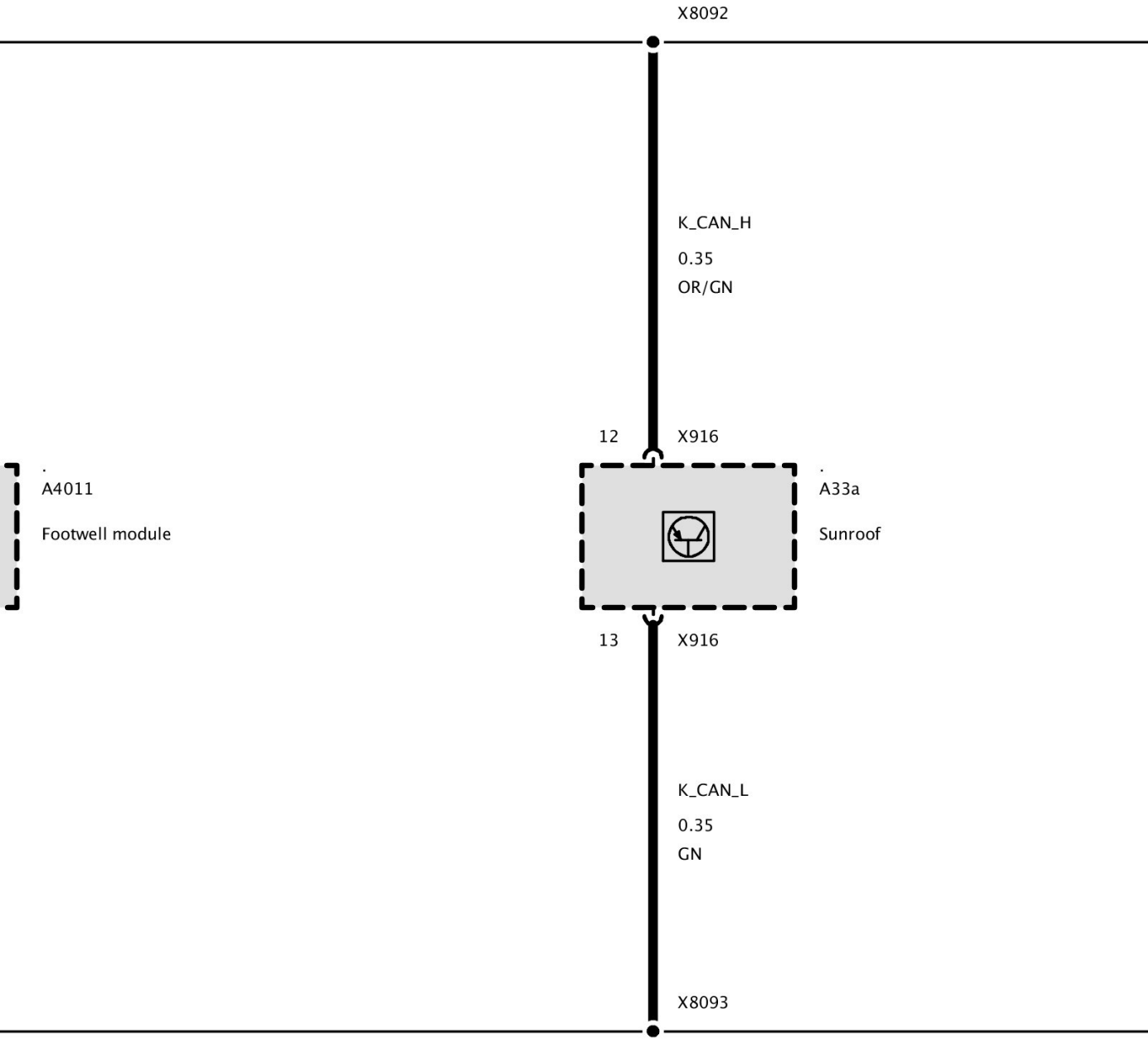




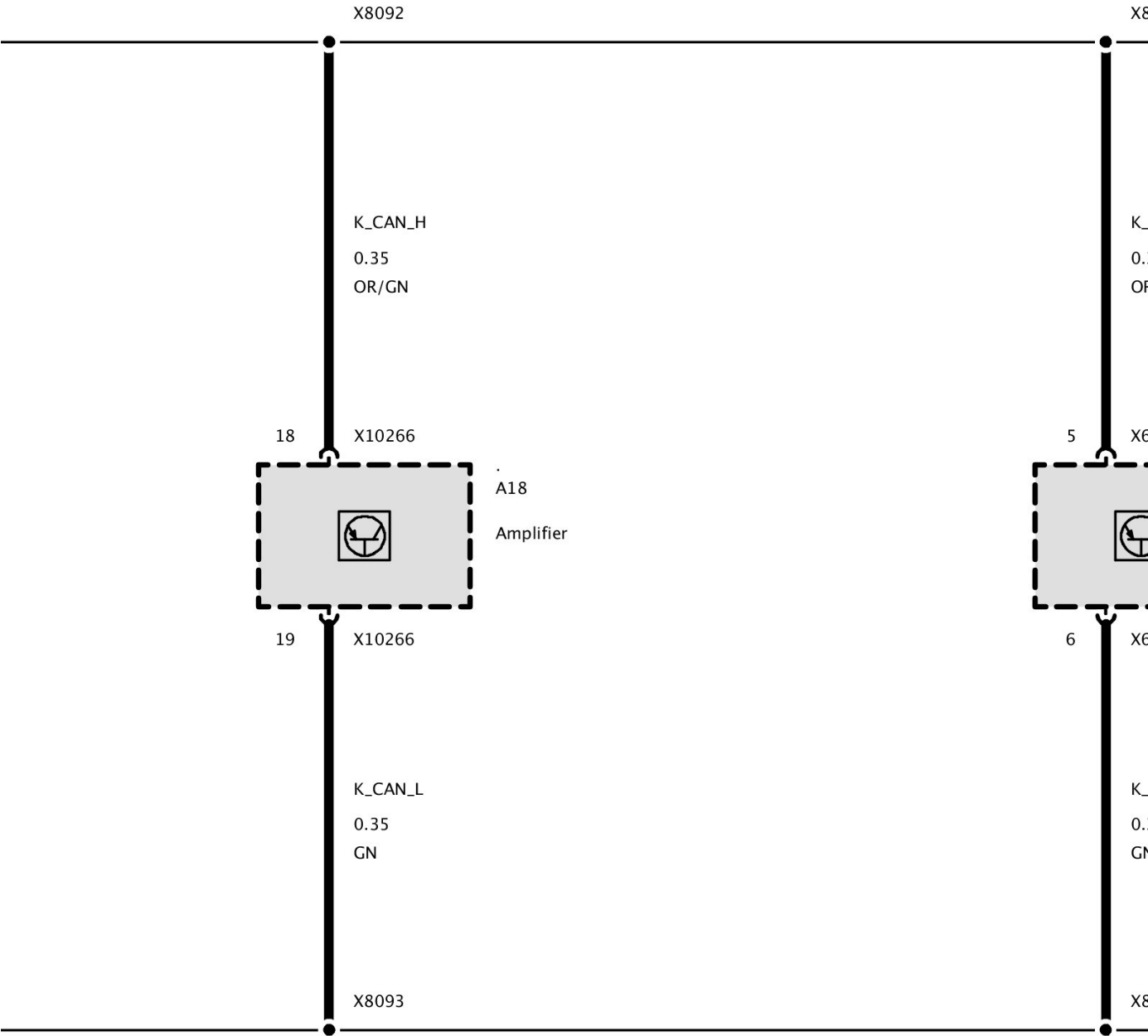
Part 8



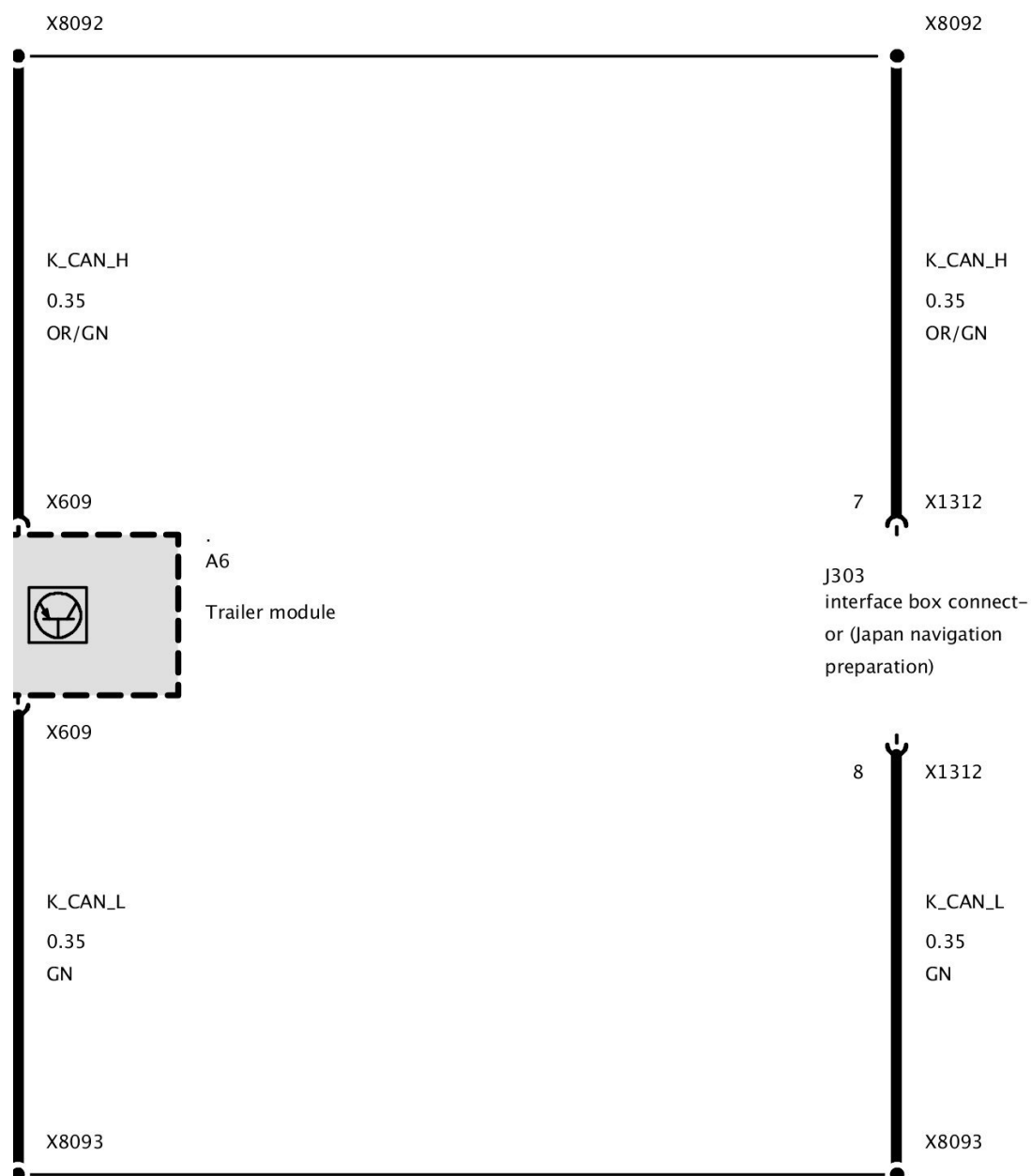
Part 9



Part 10



Part 11

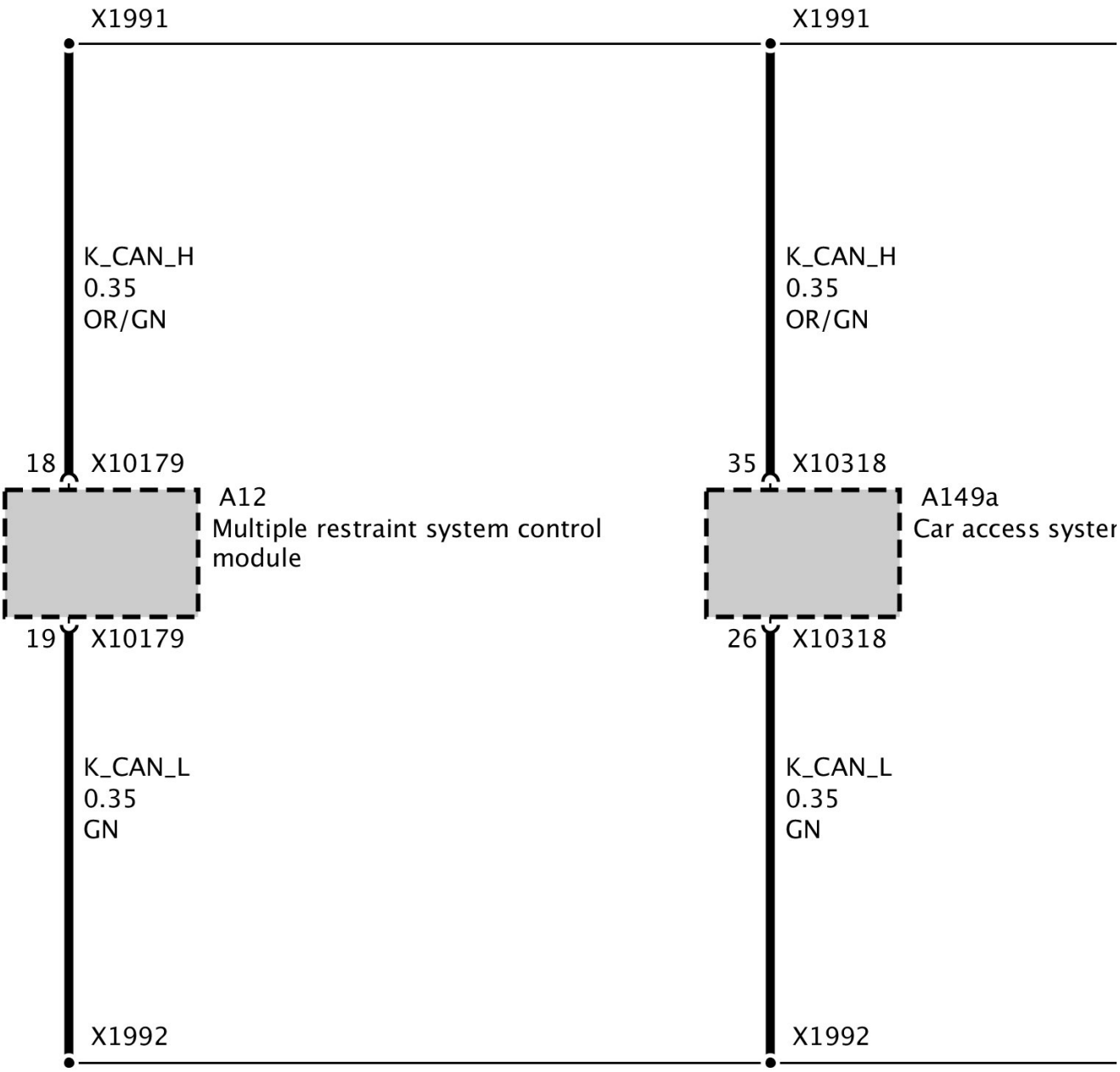


## Part 12

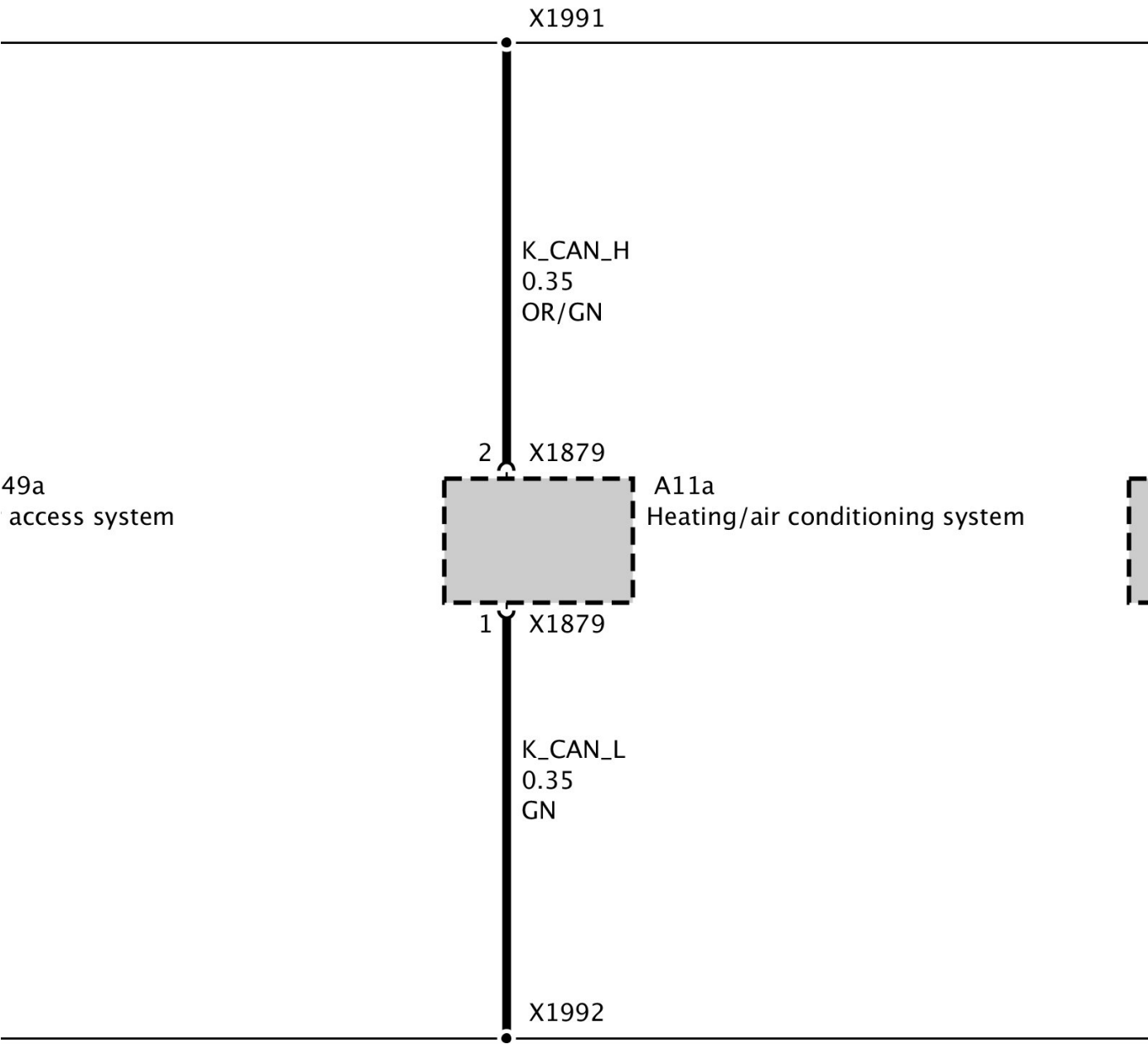
### Connector, CAN bus (as of 12/08)

X8090 No Adapter

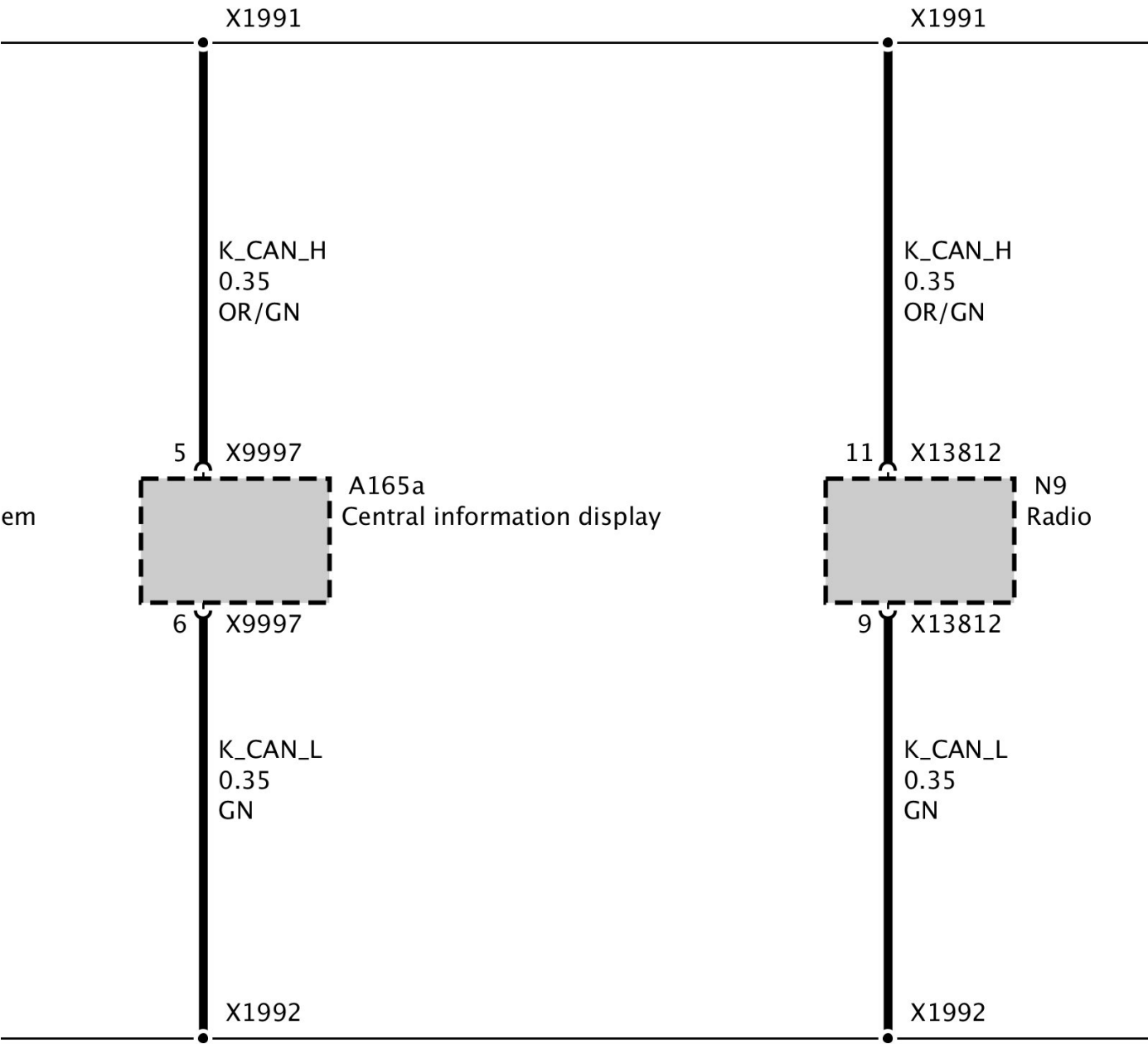
Connector, CAN bus (as of 12/08)



Part 1

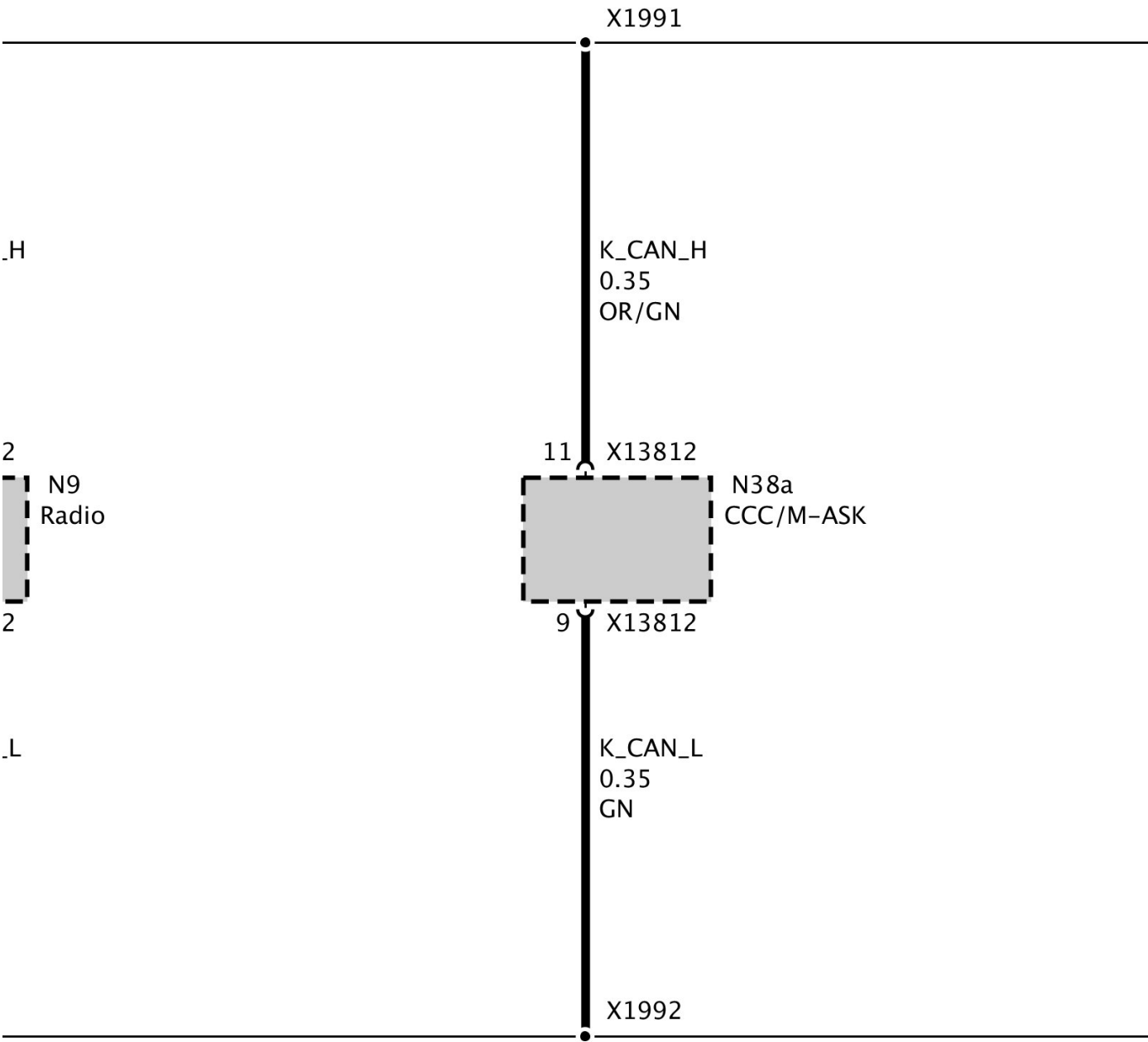


Part 2

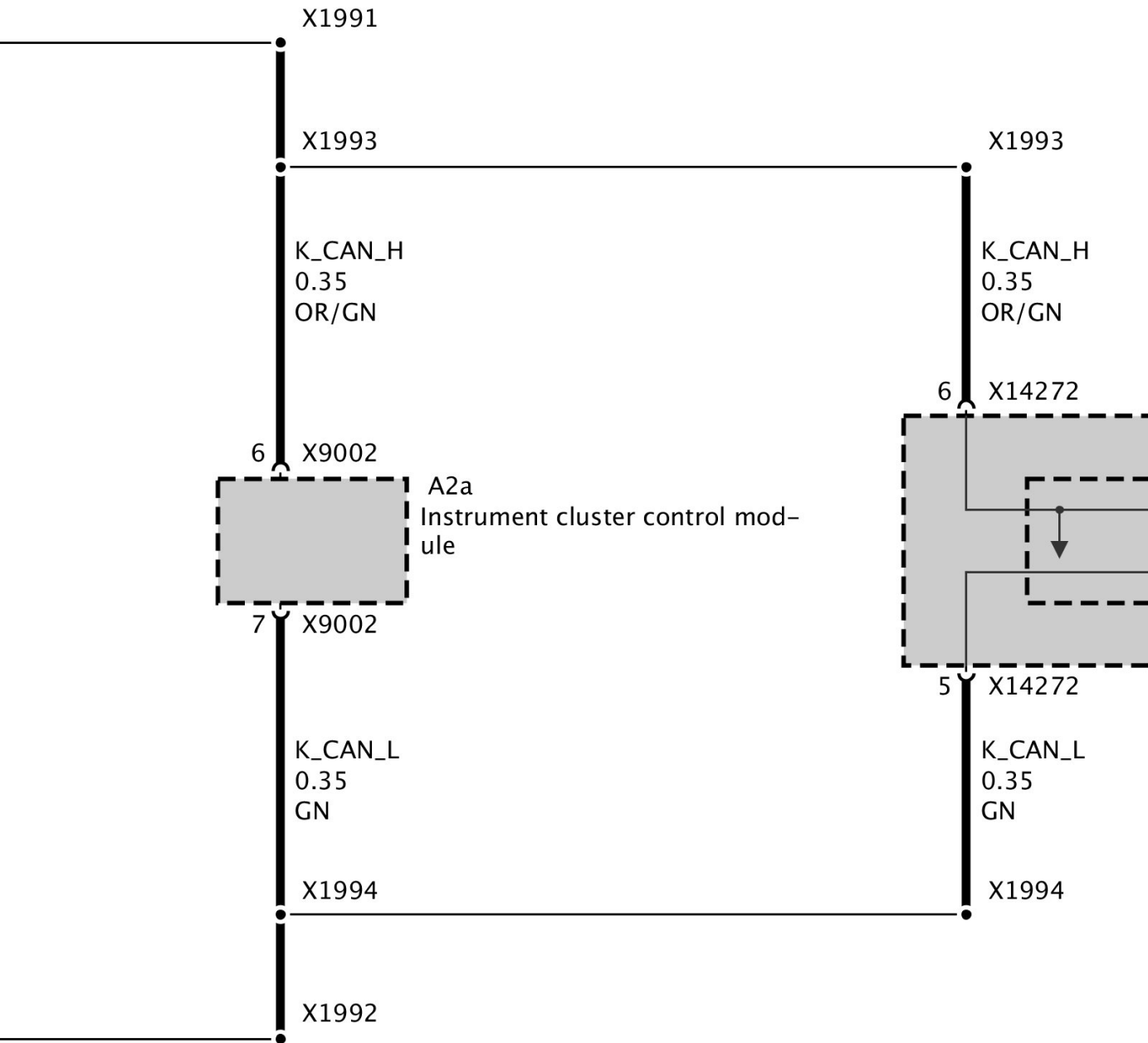


Part 3

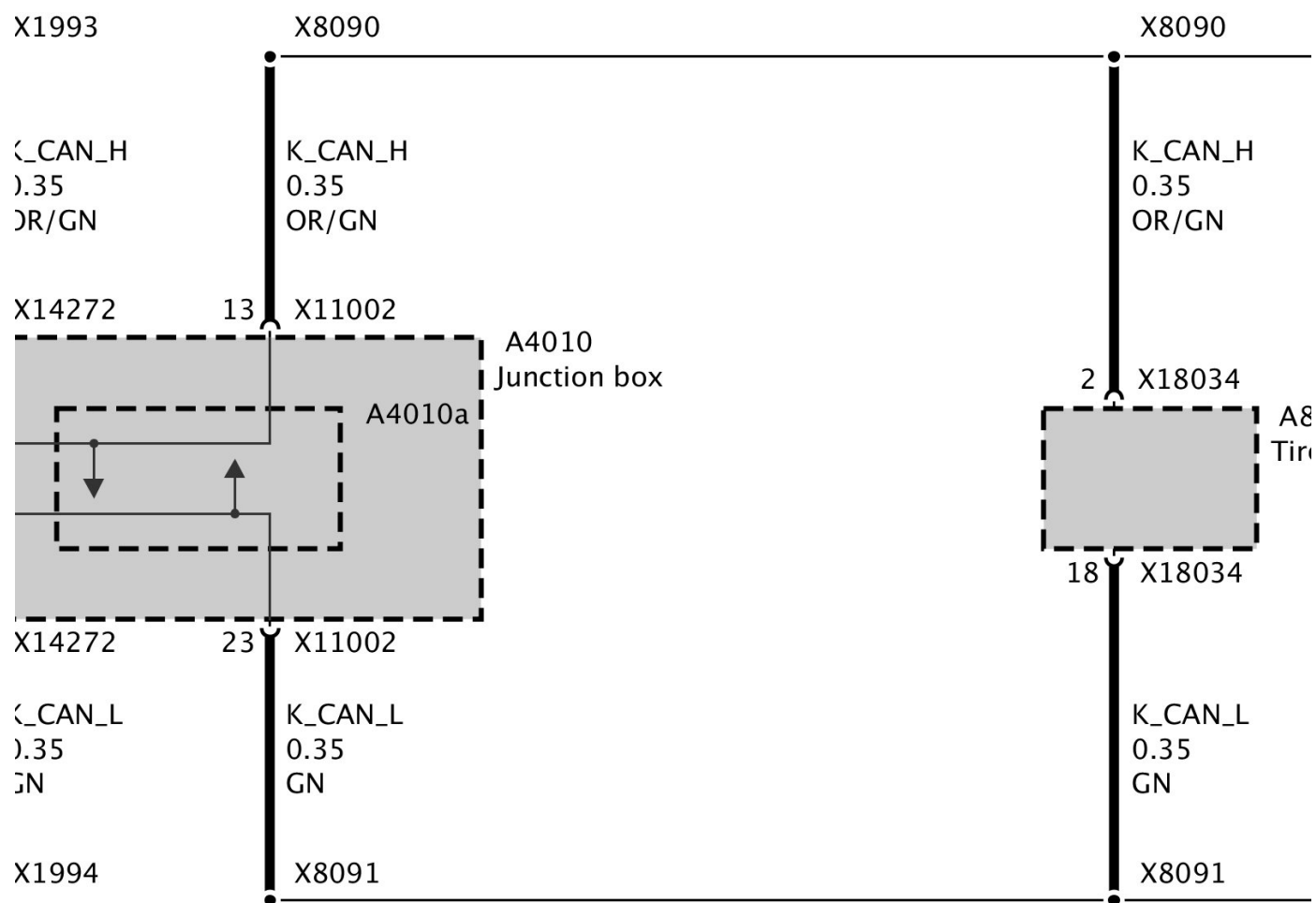


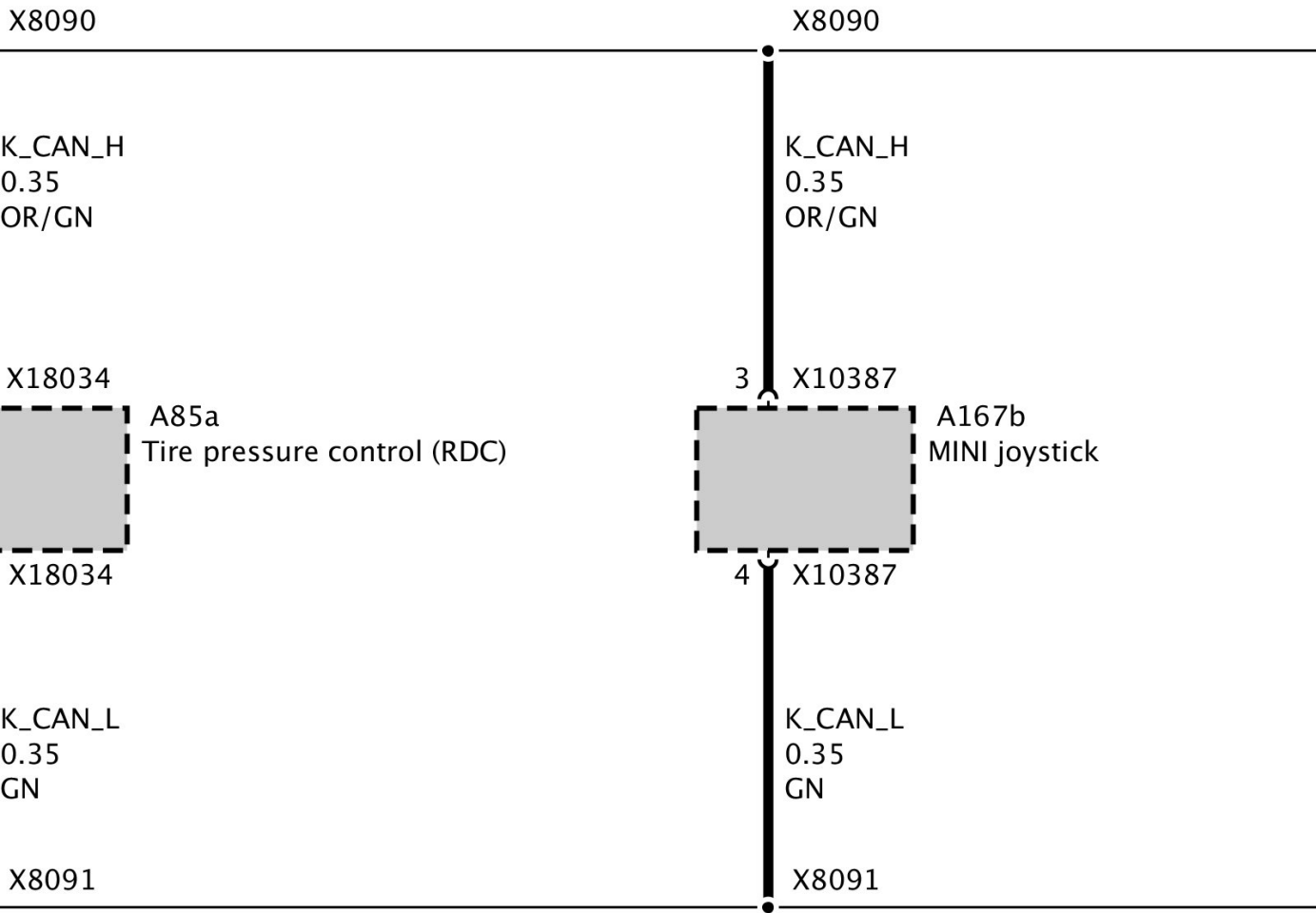


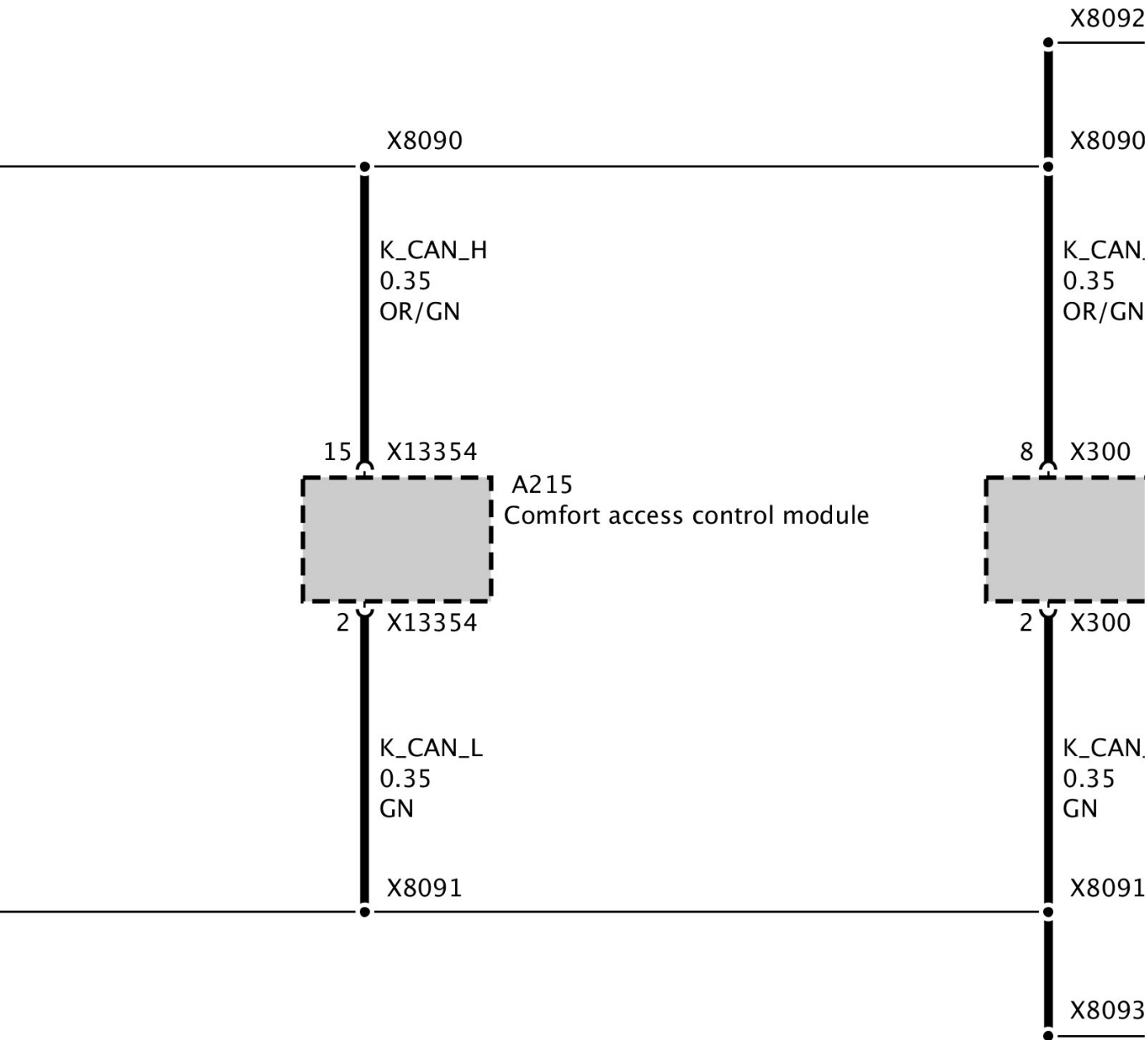
Part 4



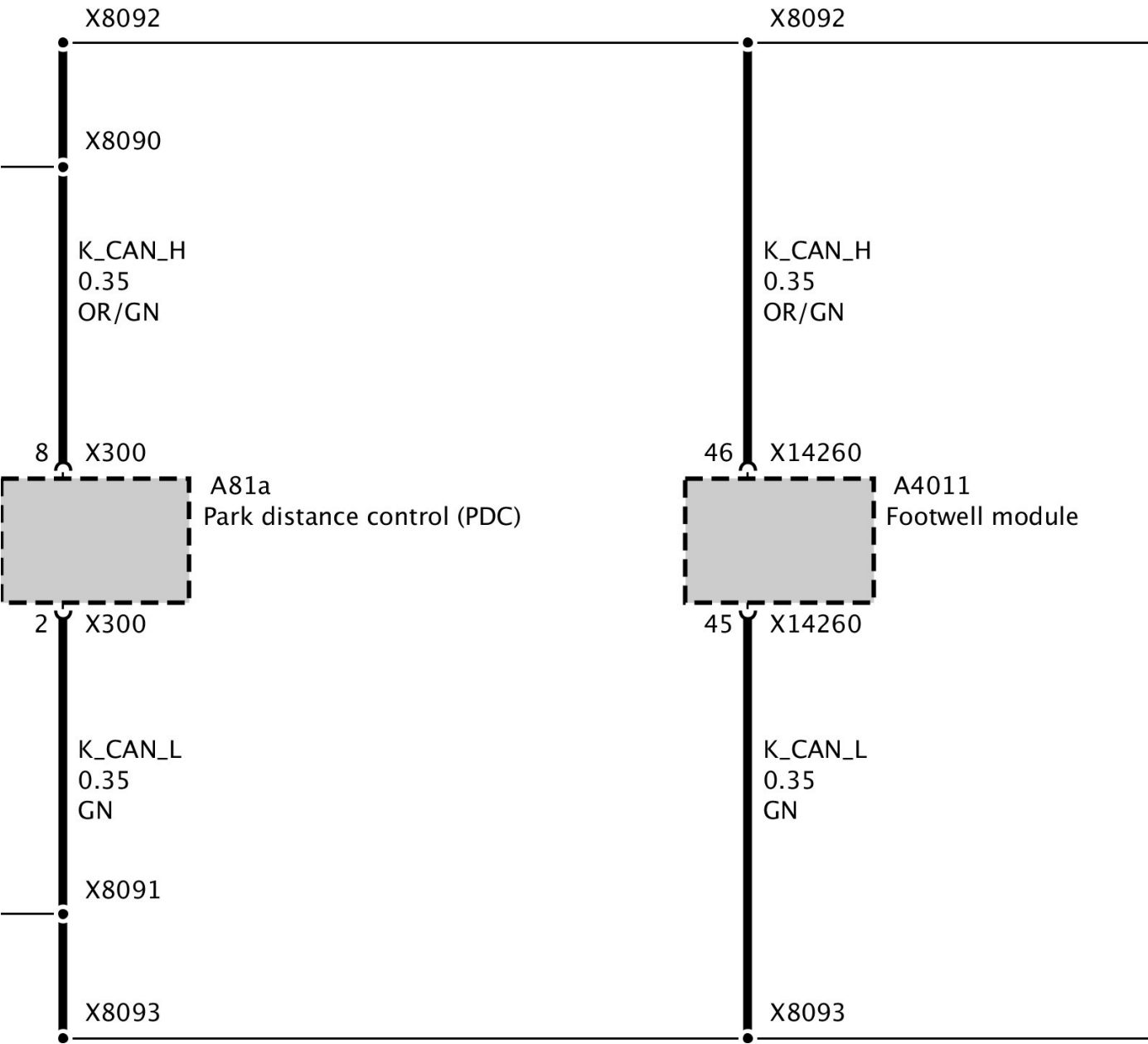
Part 5

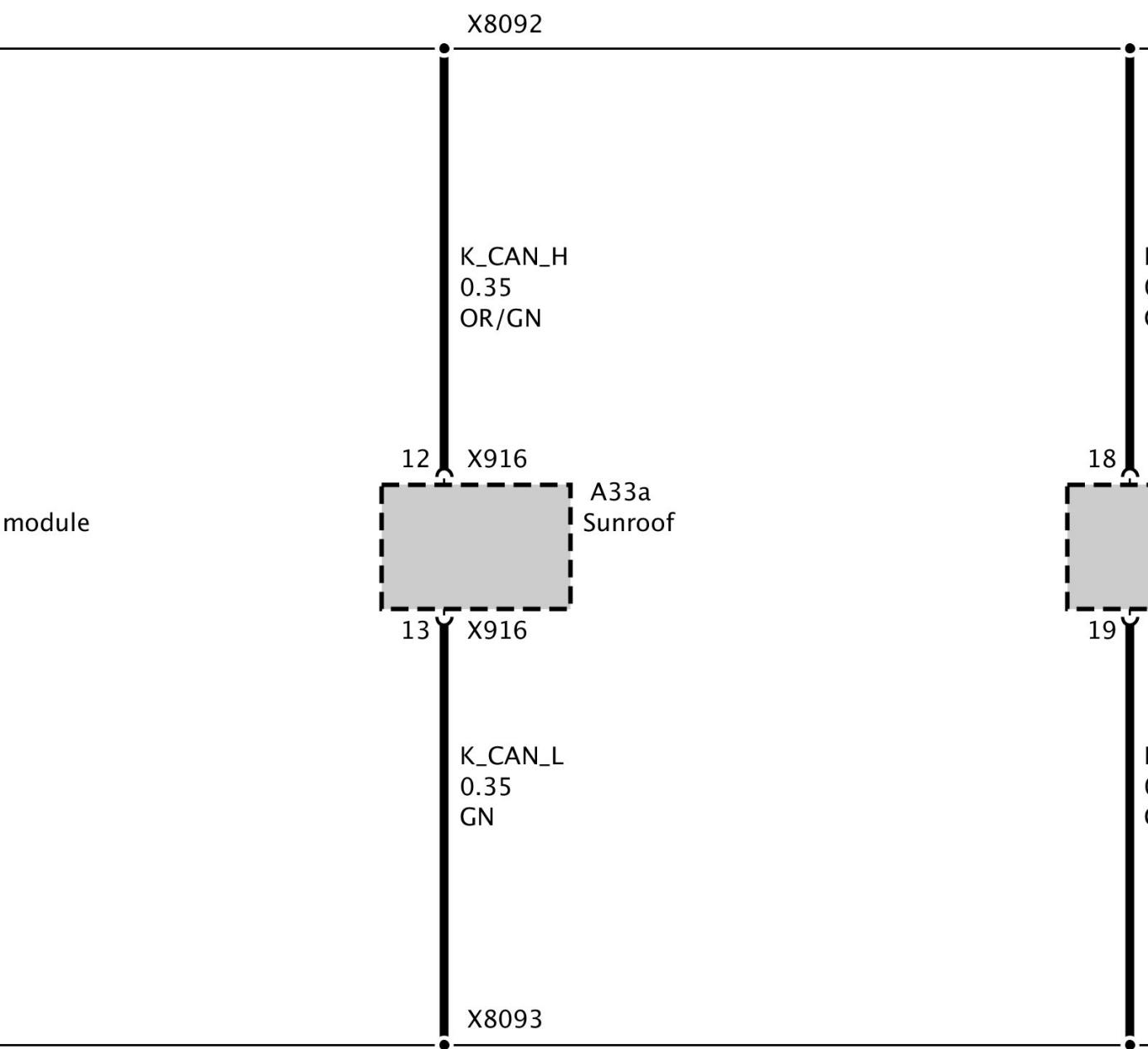


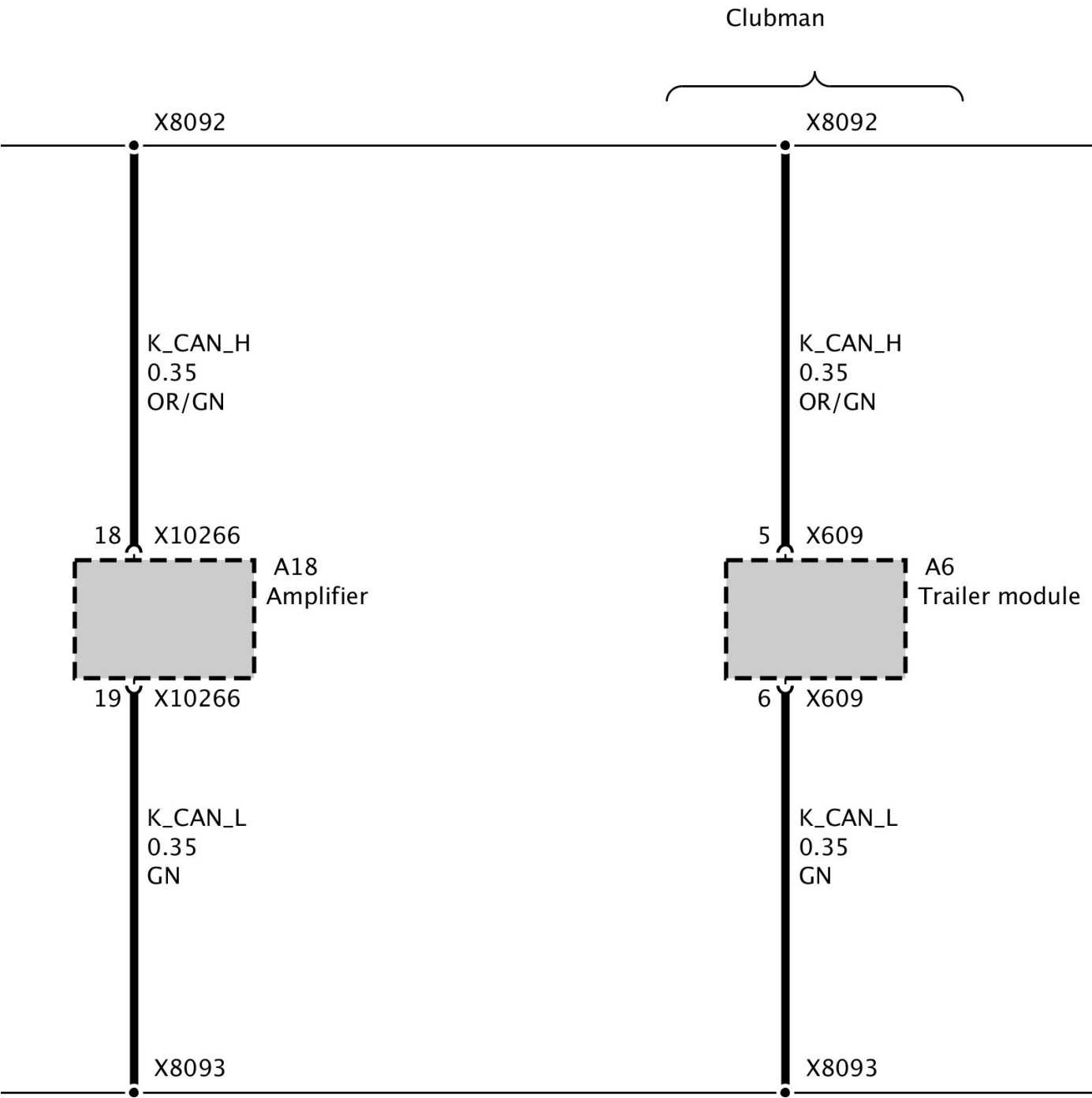




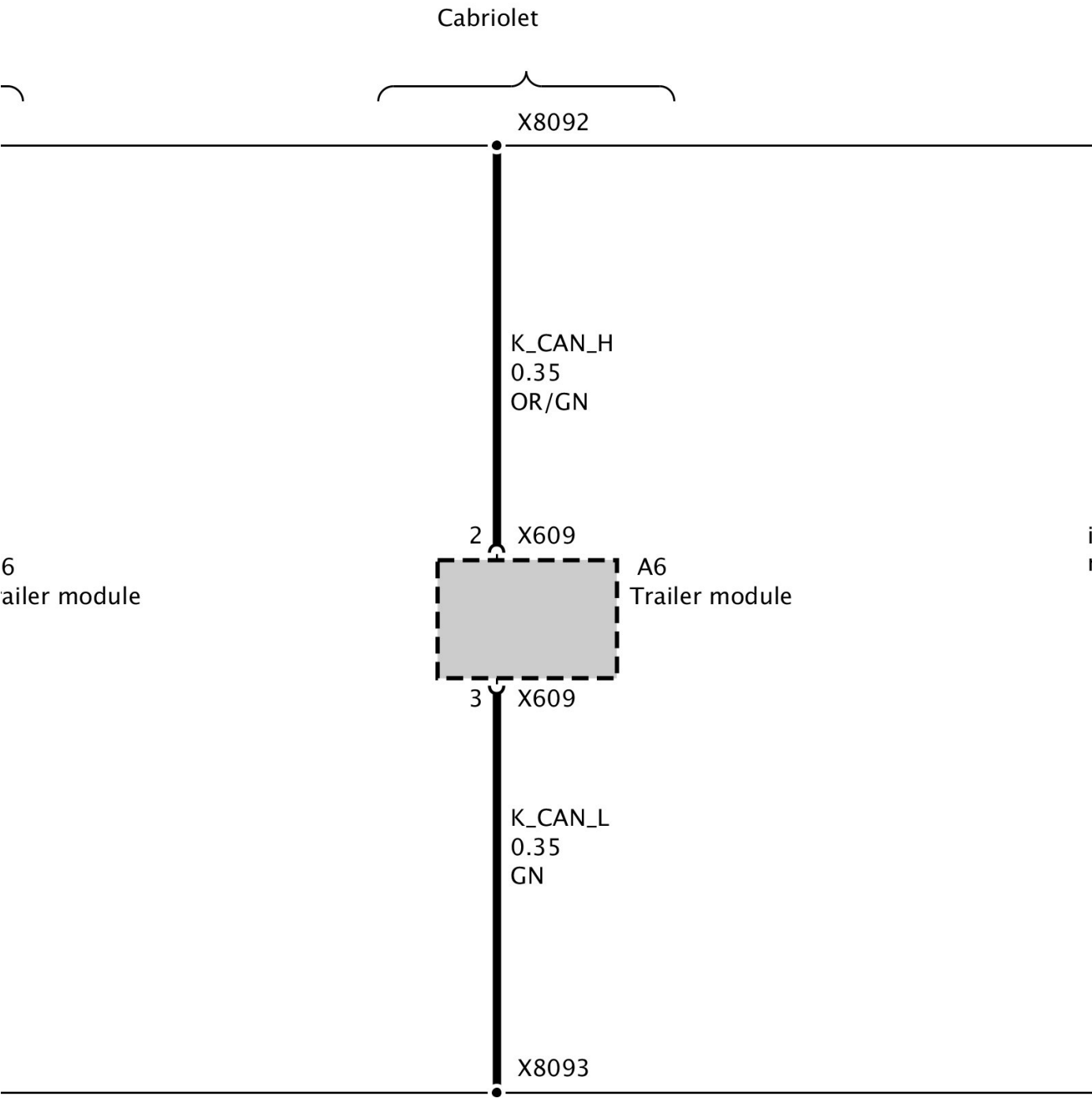
Part 8

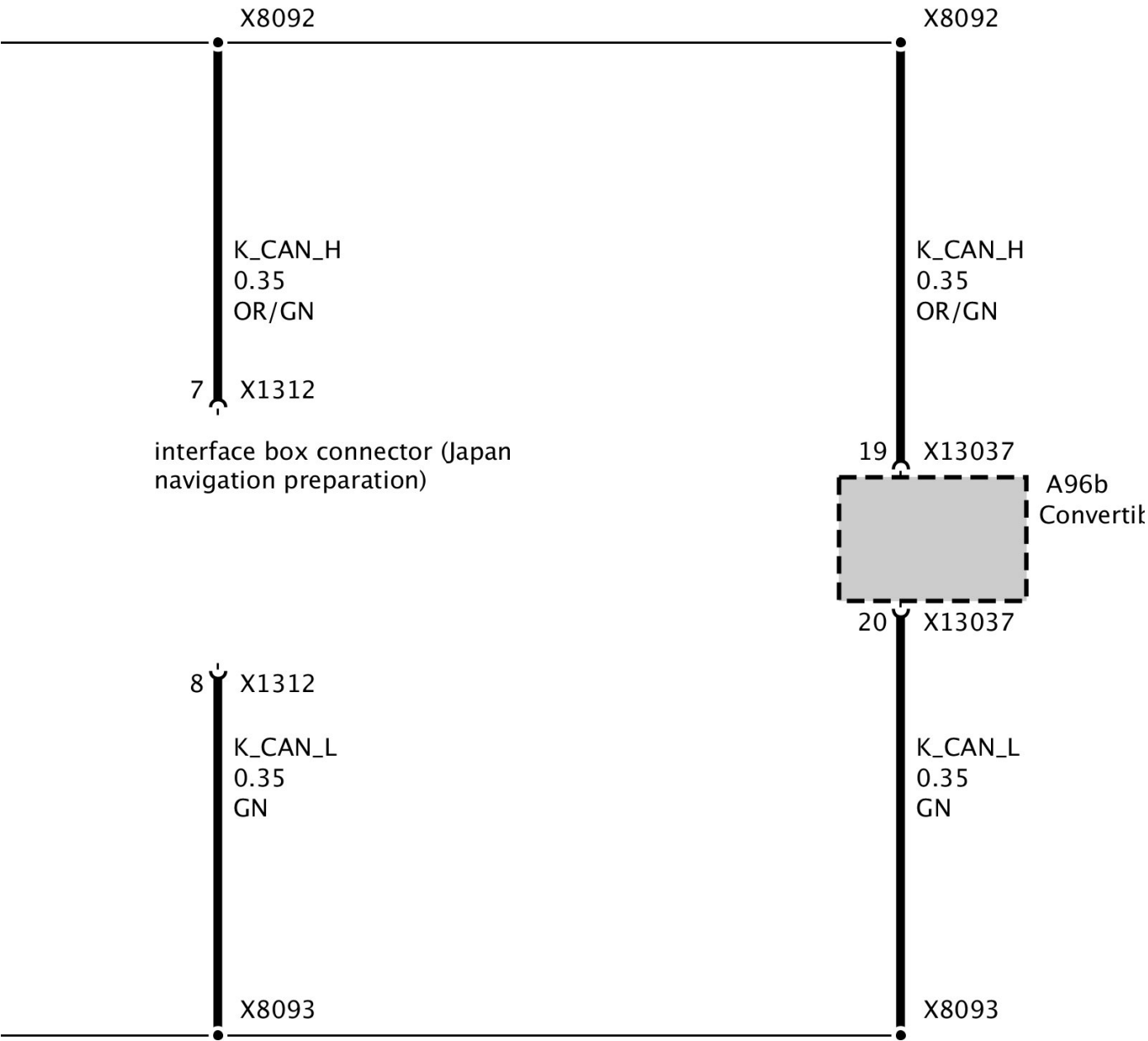












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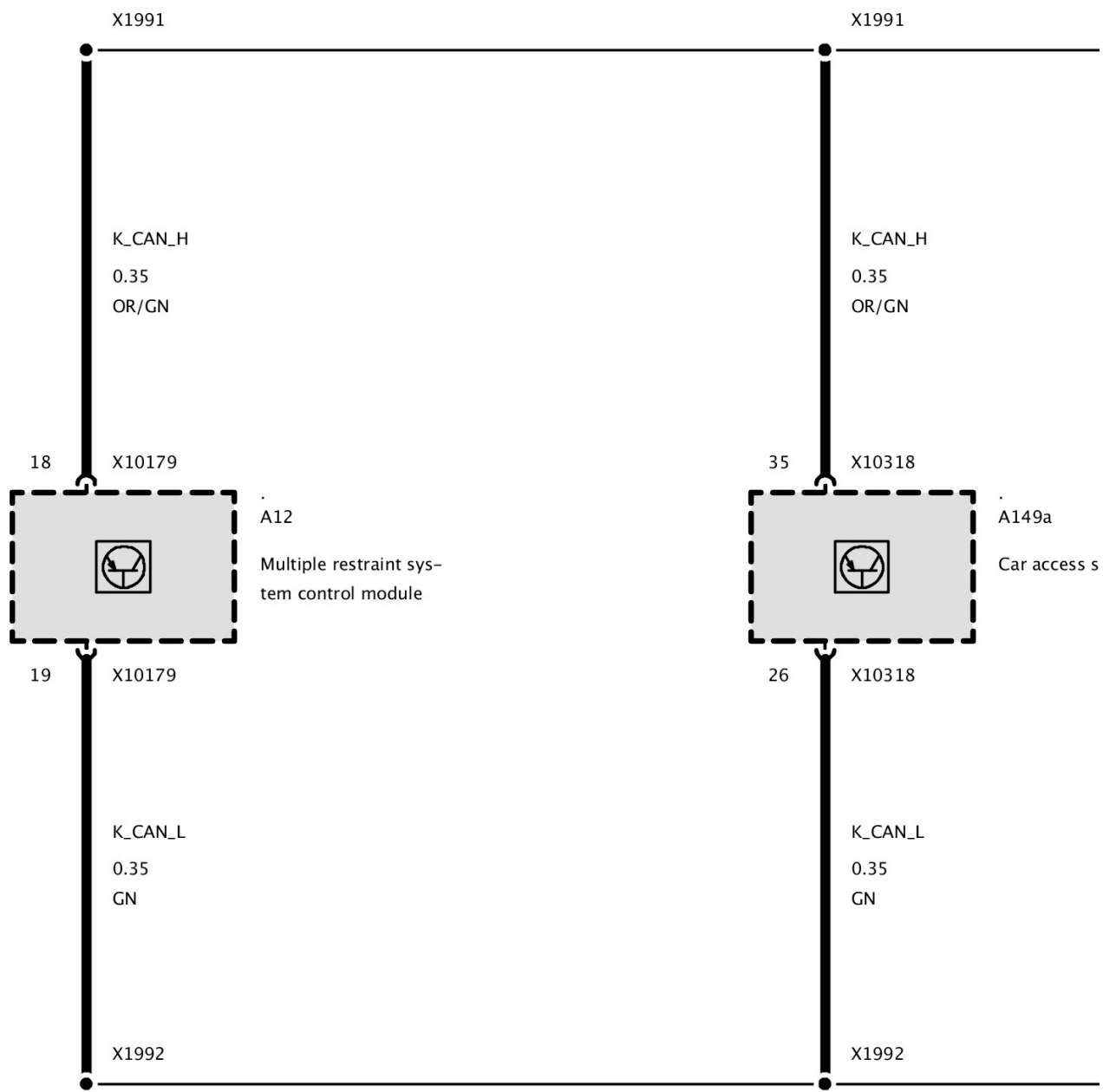
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#### Part 14

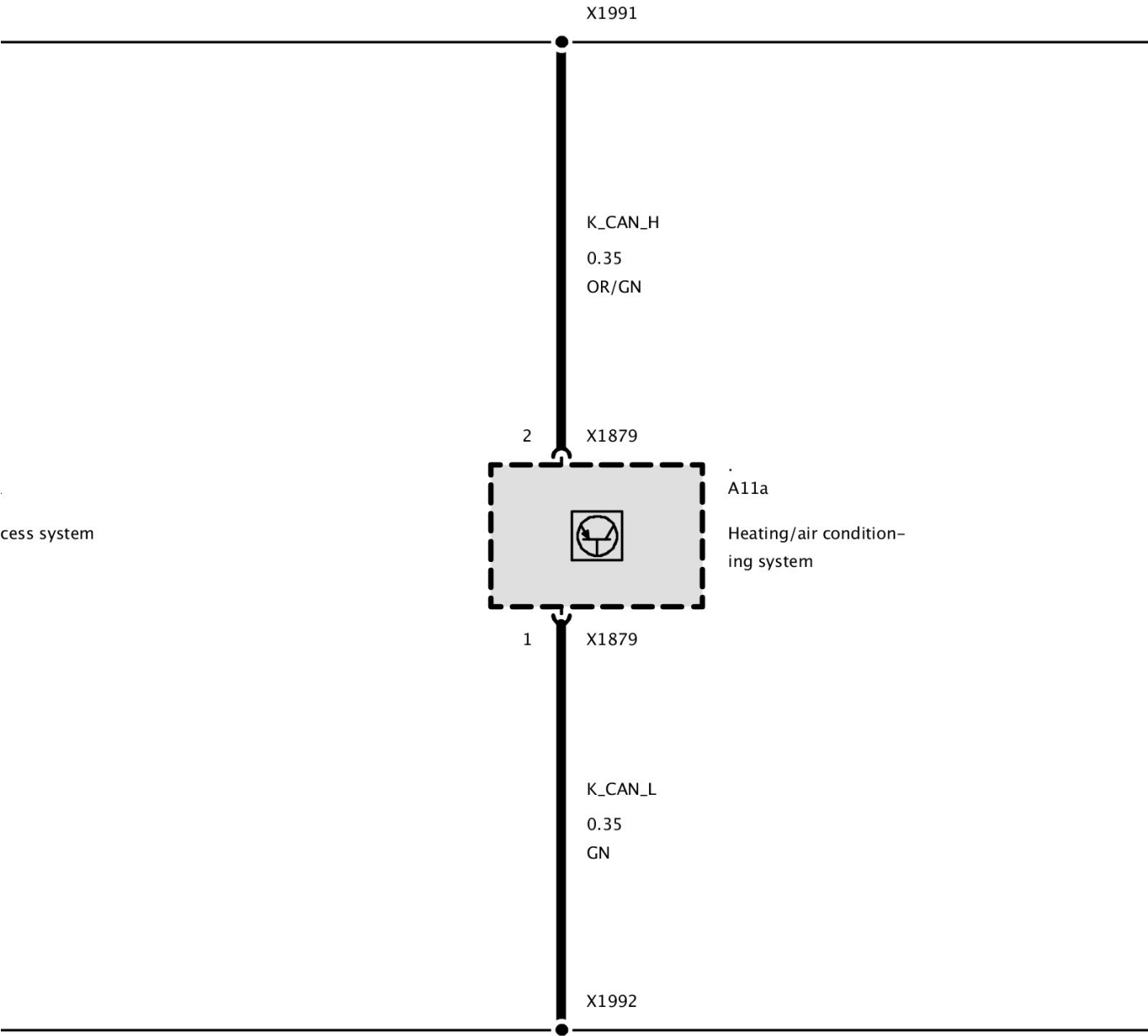
**Connector, CAN bus (as of 08/07 up to 12/08)**

**X8091 No Adapter**

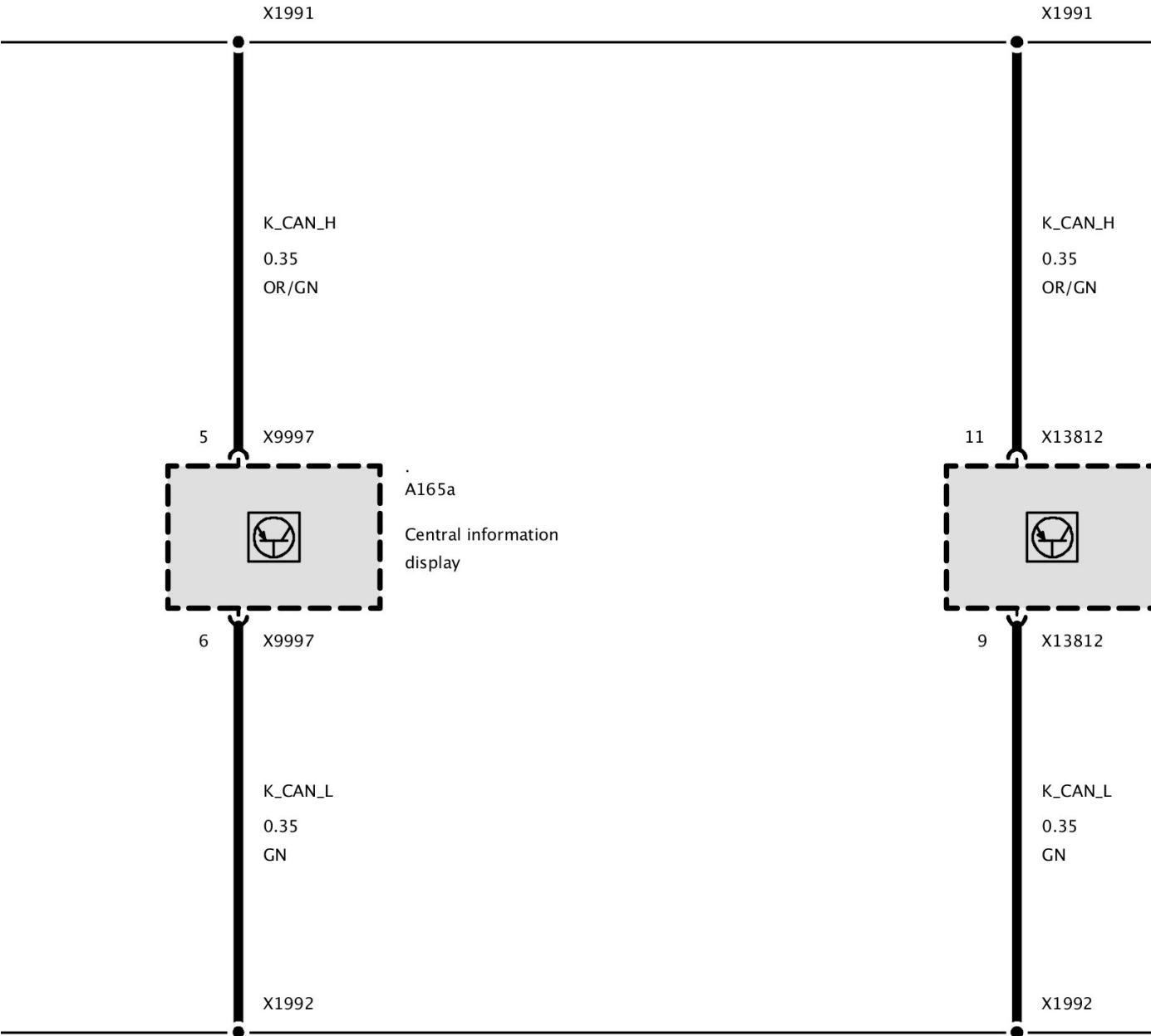
**Connector, CAN bus (as of 08/07 up to 12/08)**



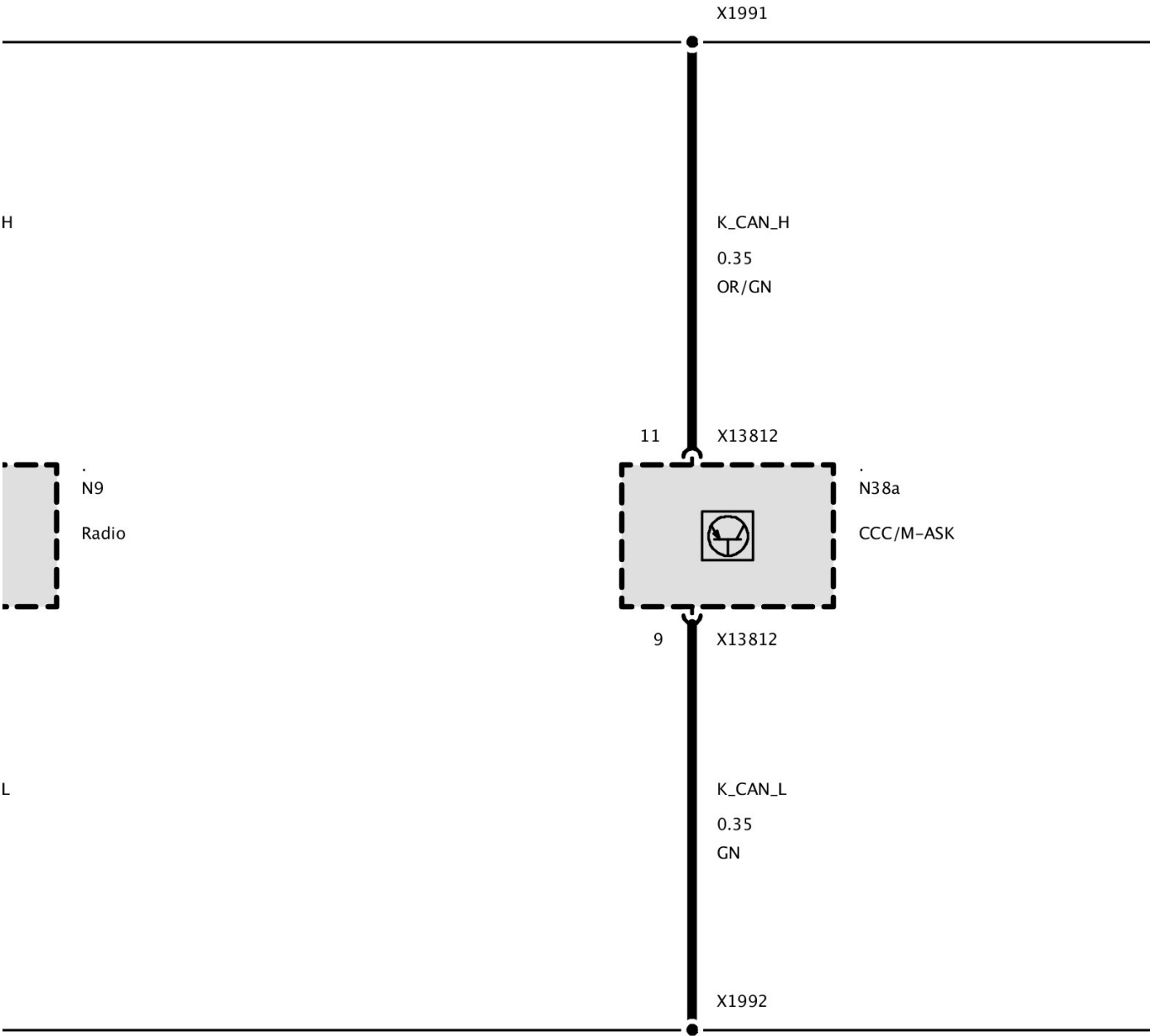
Part 1



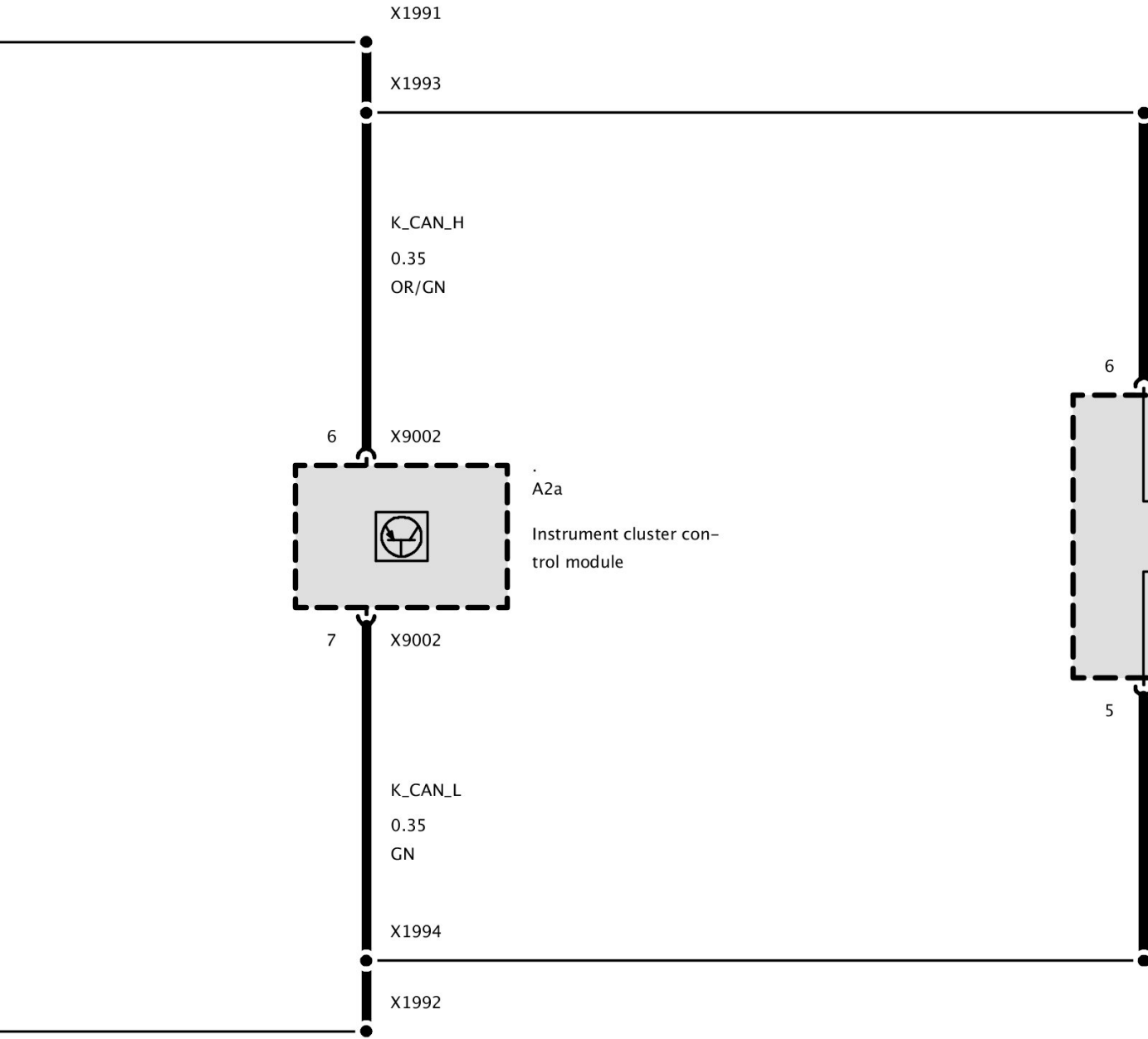
Part 2



Part 3

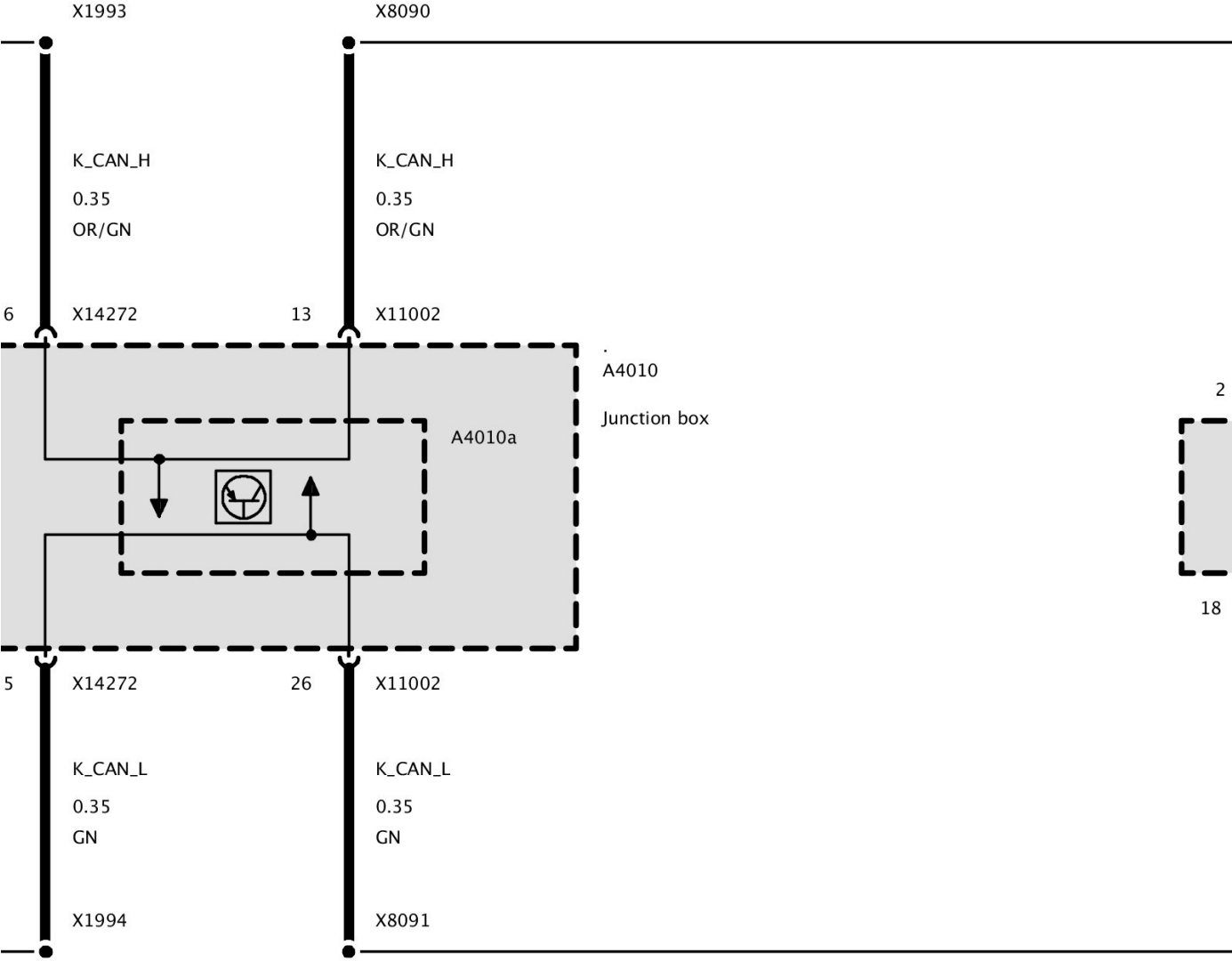


Part 4

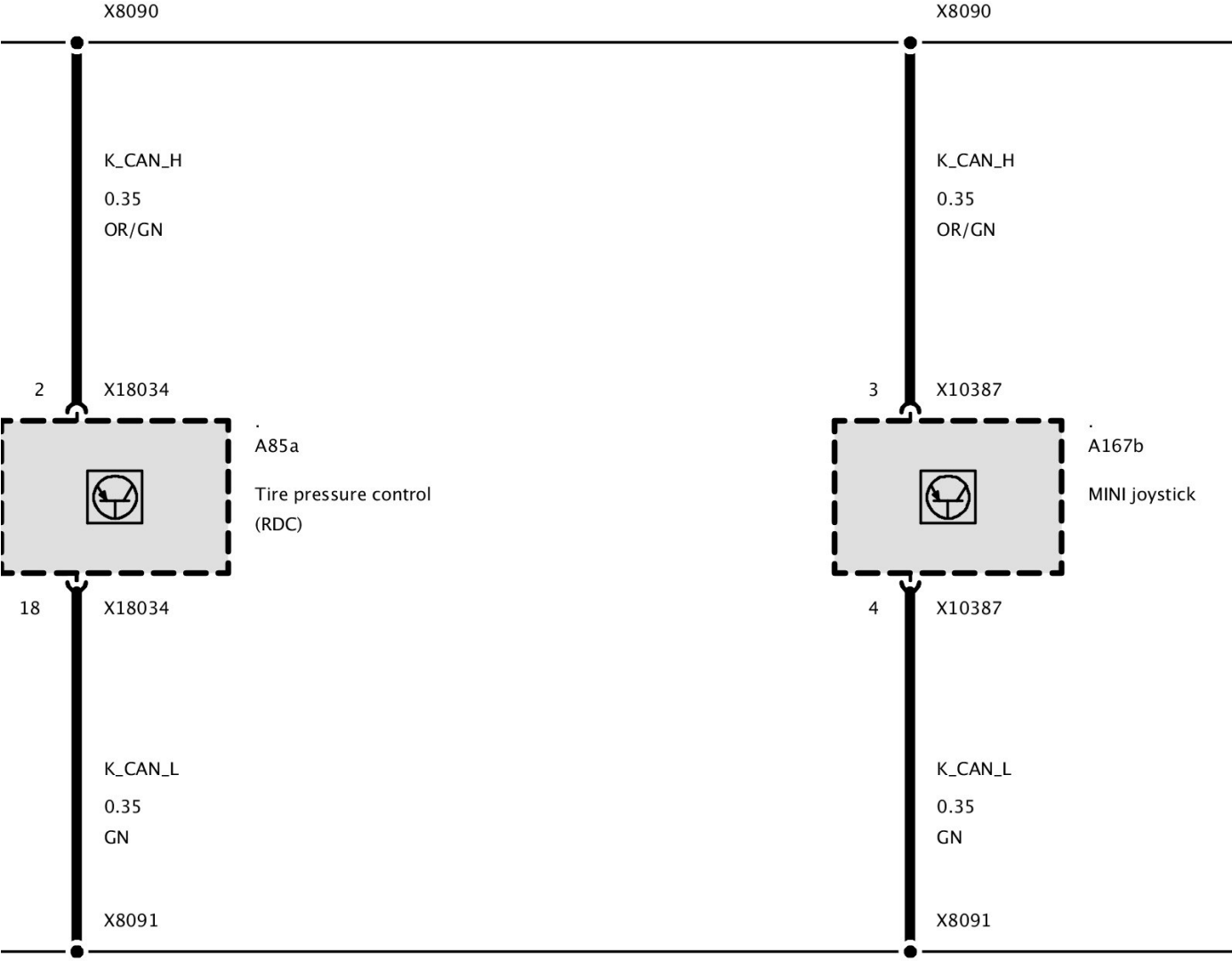


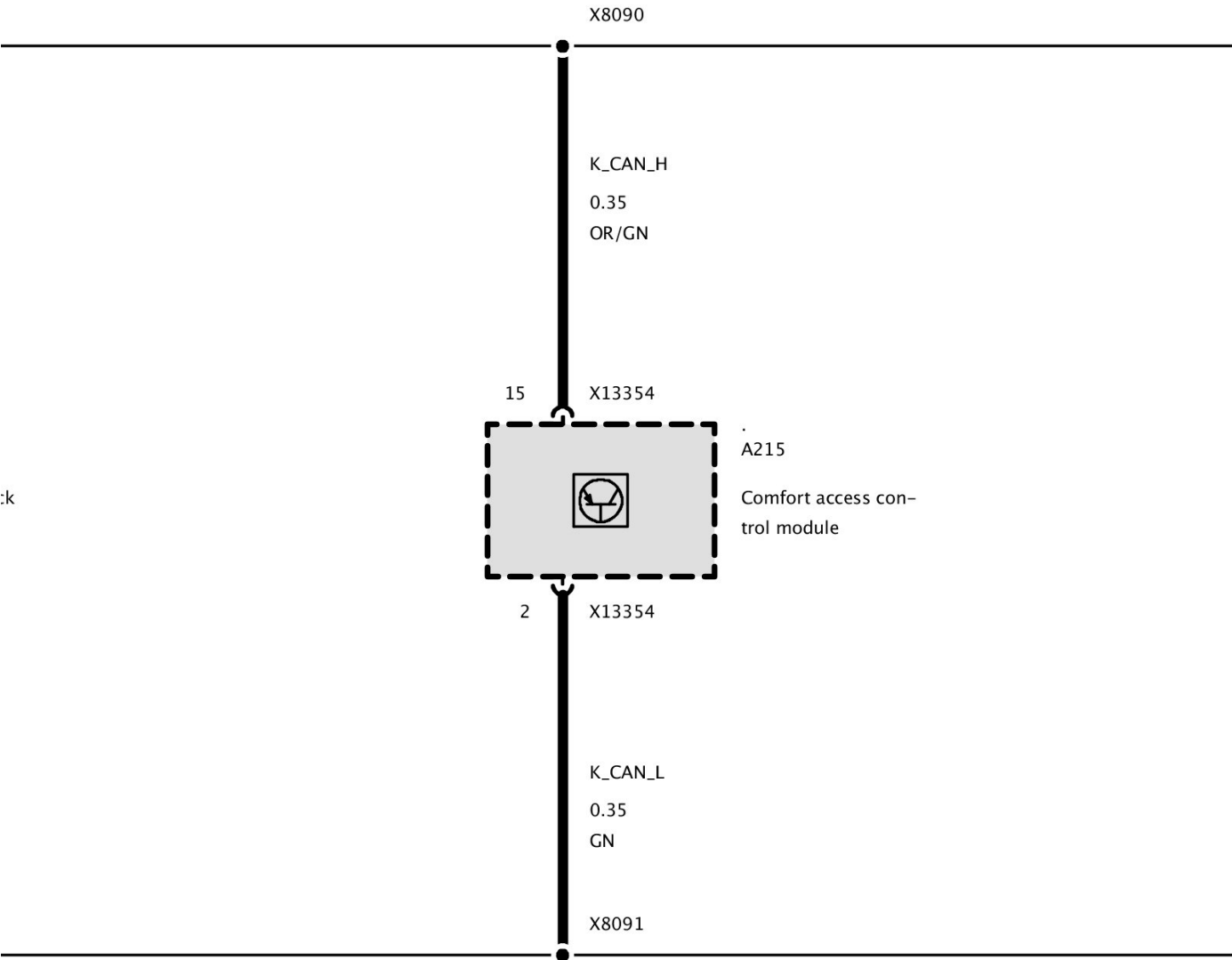
Part 5



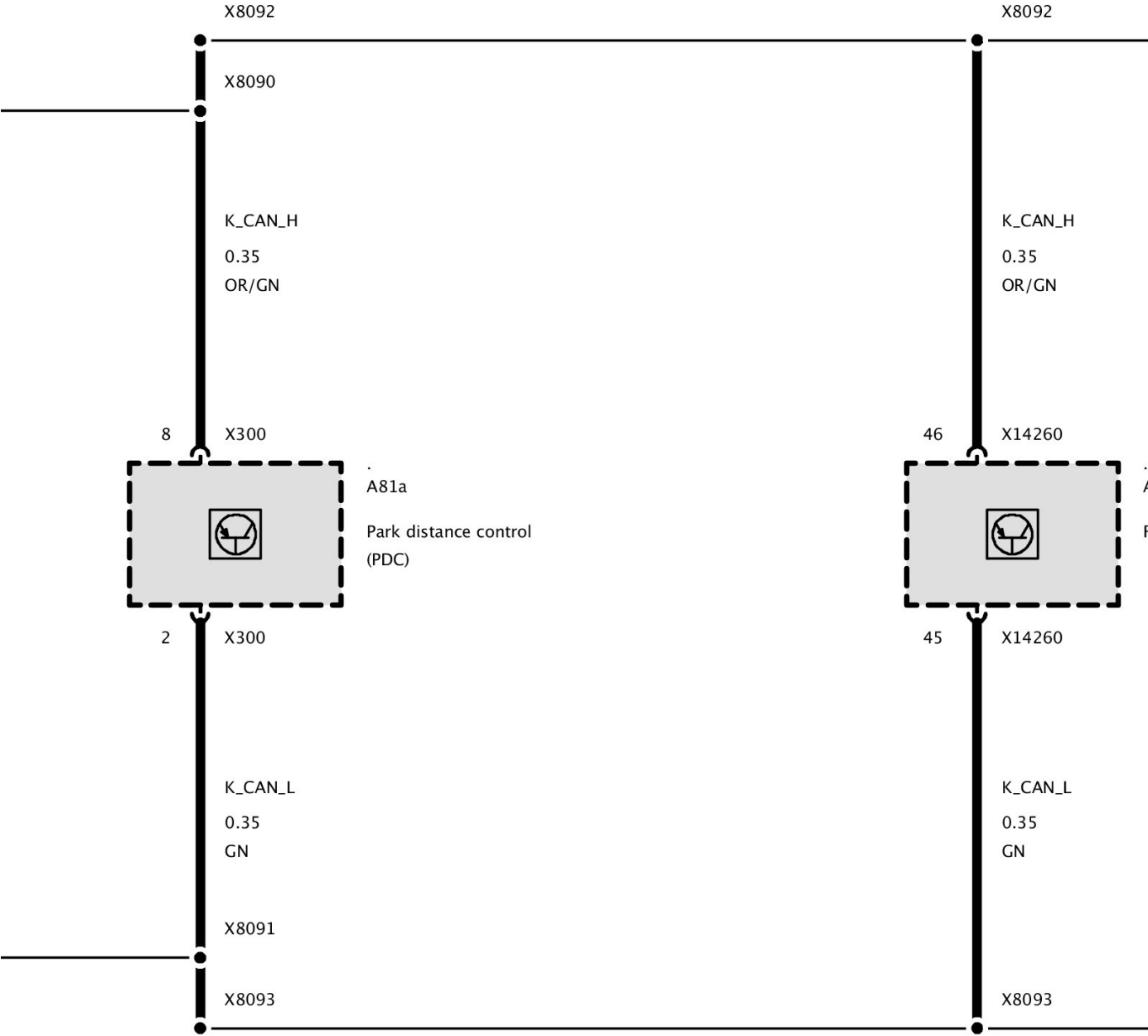


Part 6

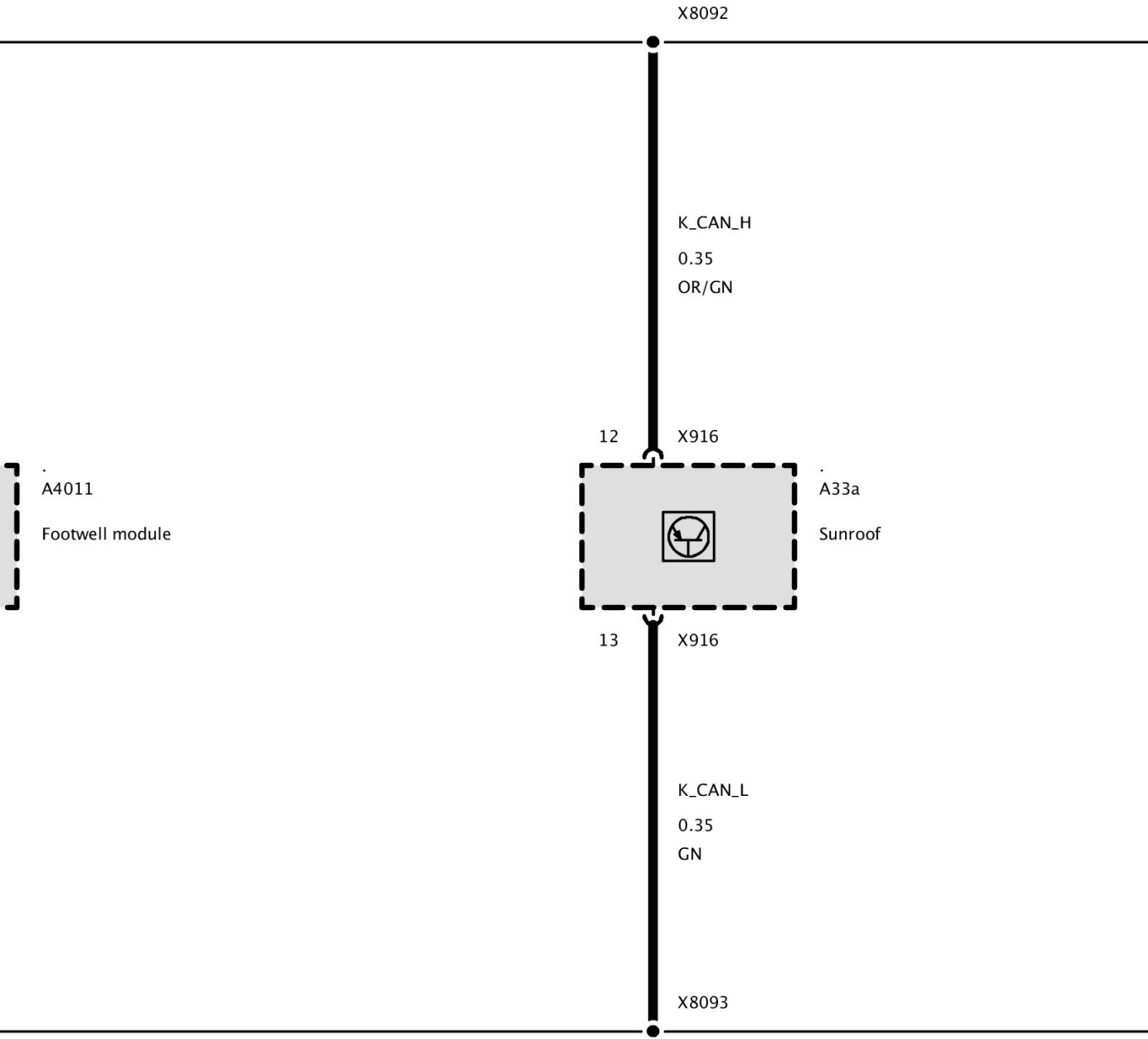




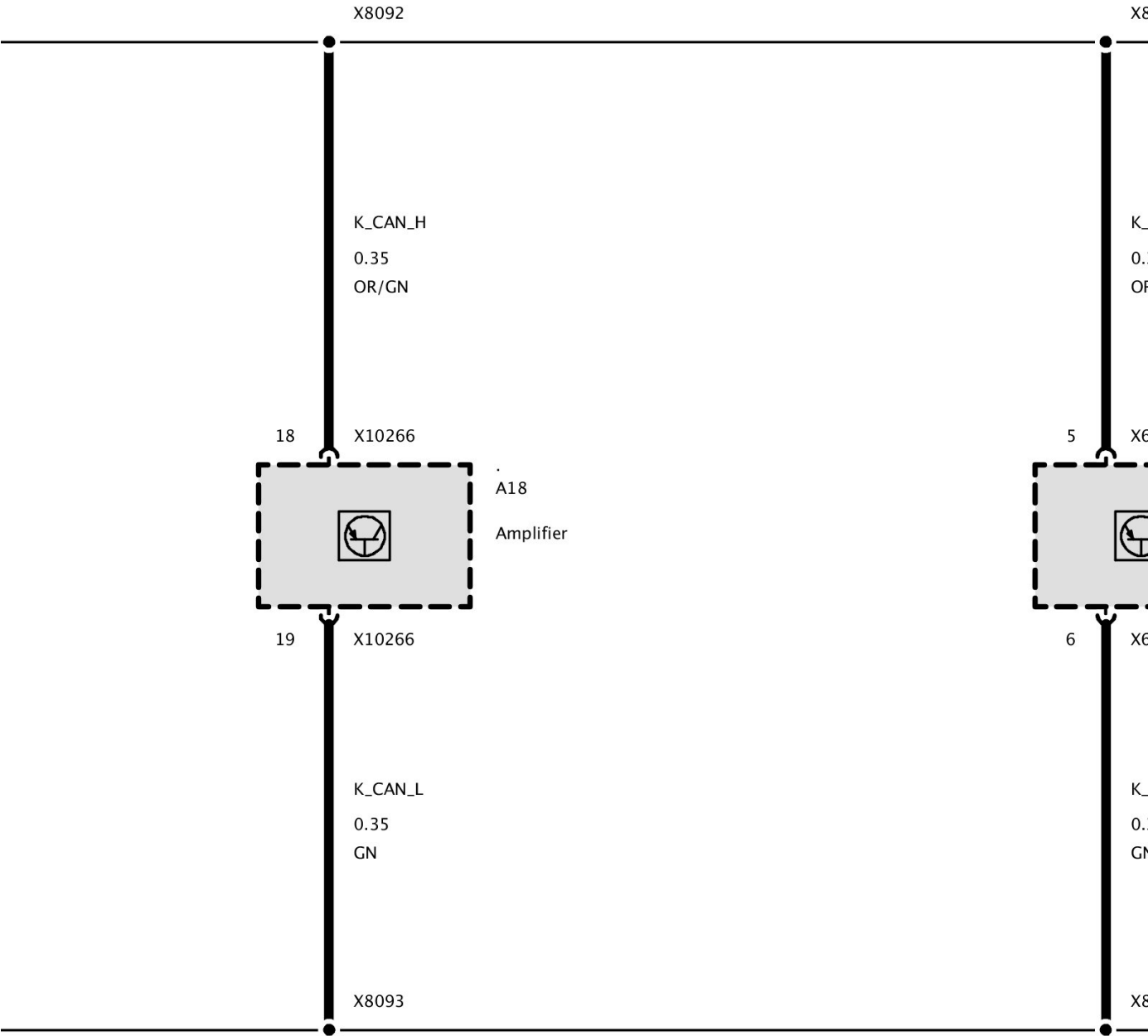
Part 8

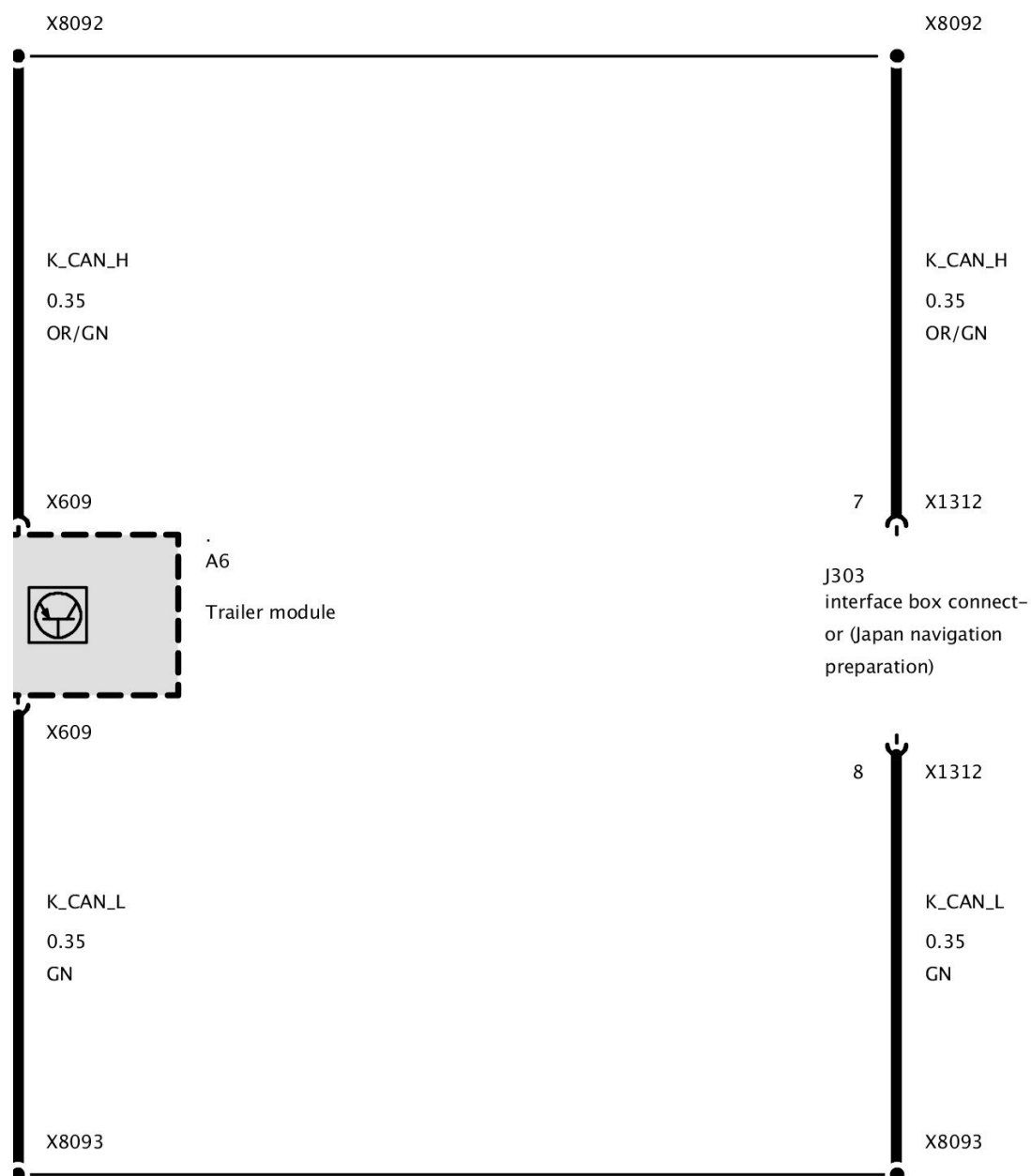


Part 9



Part 10



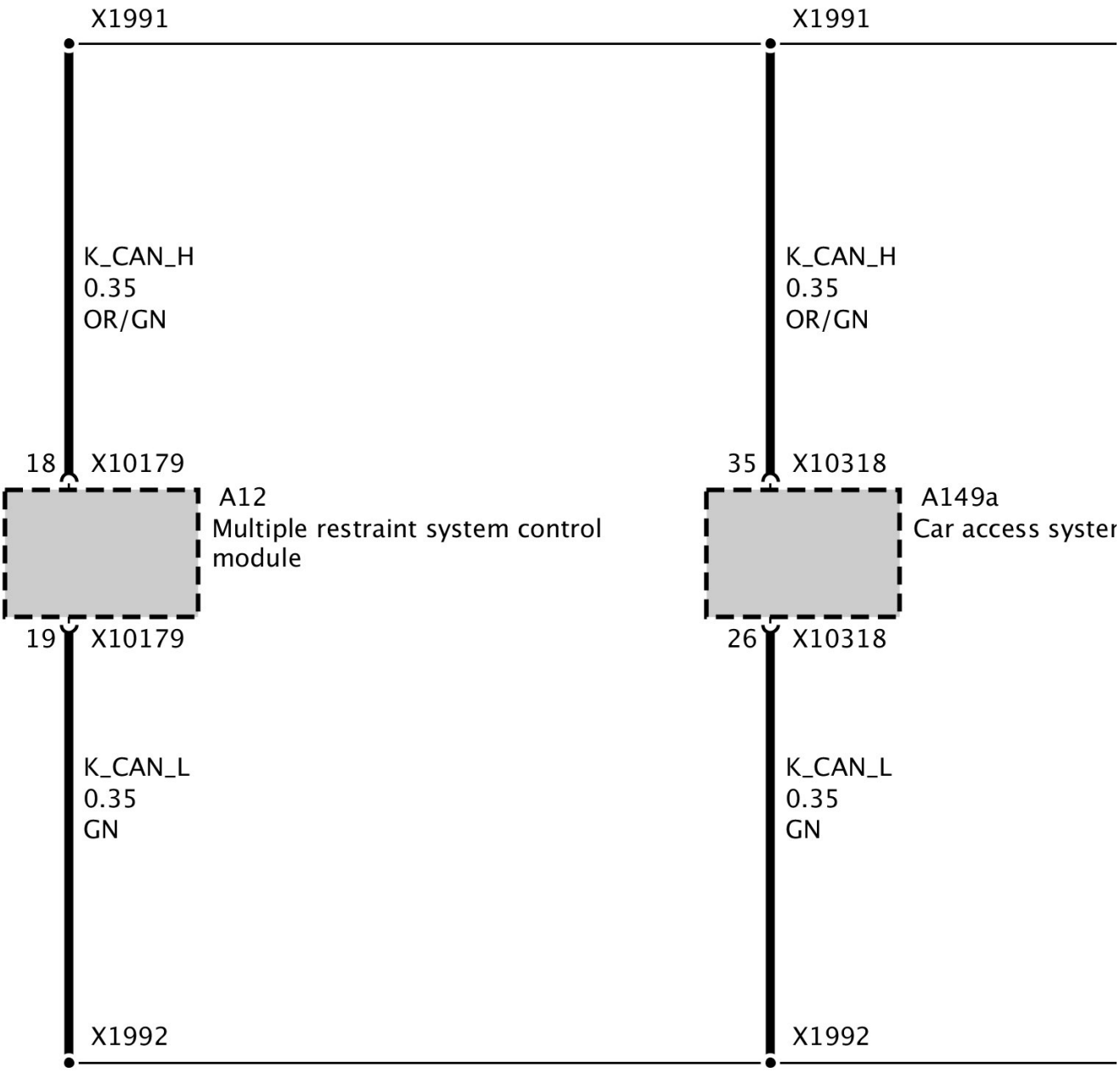


## Part 12

### Connector, CAN Bus (As of 12/08)

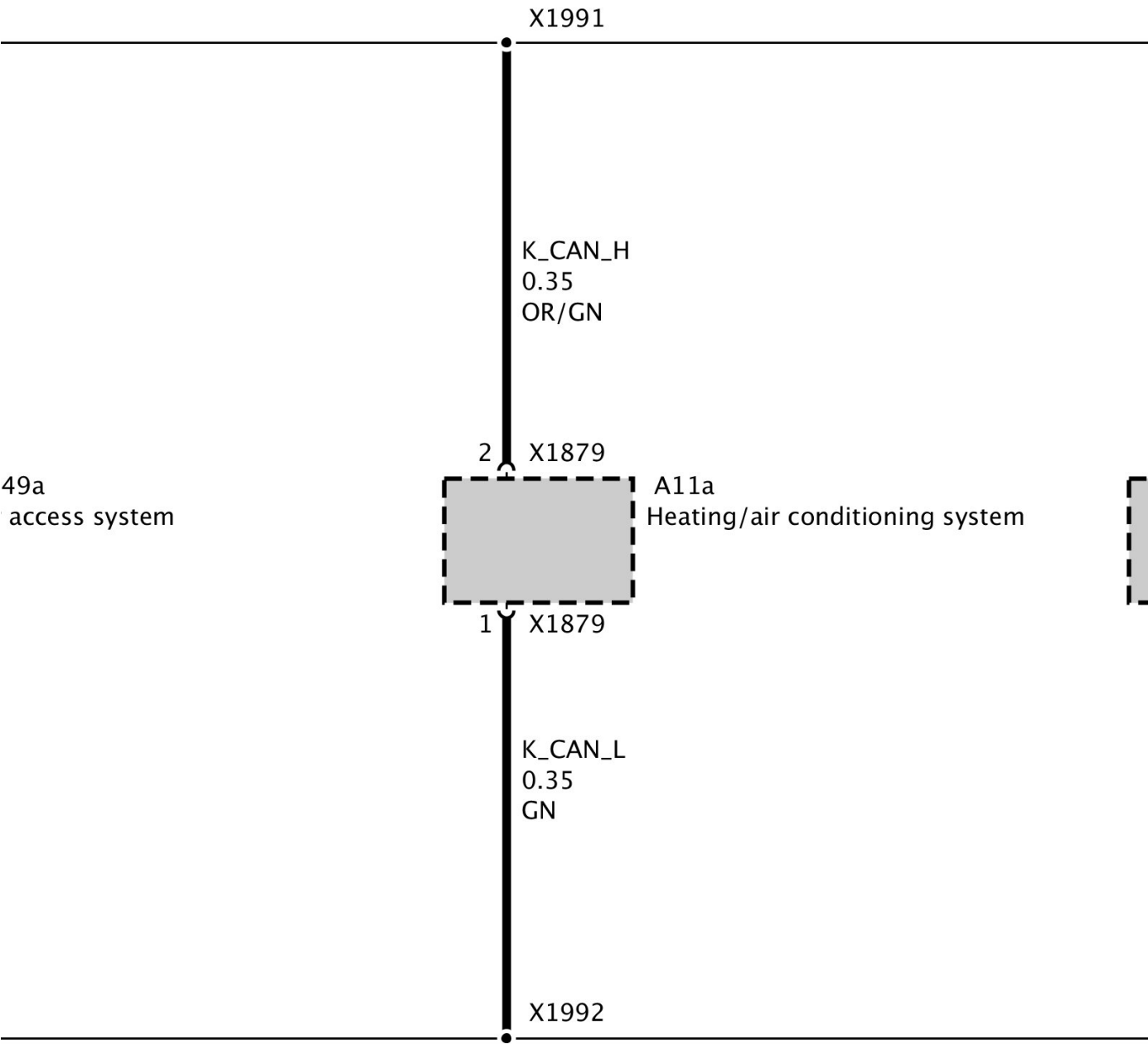
X8091 No Adapter

Connector, CAN bus (as of 12/08)

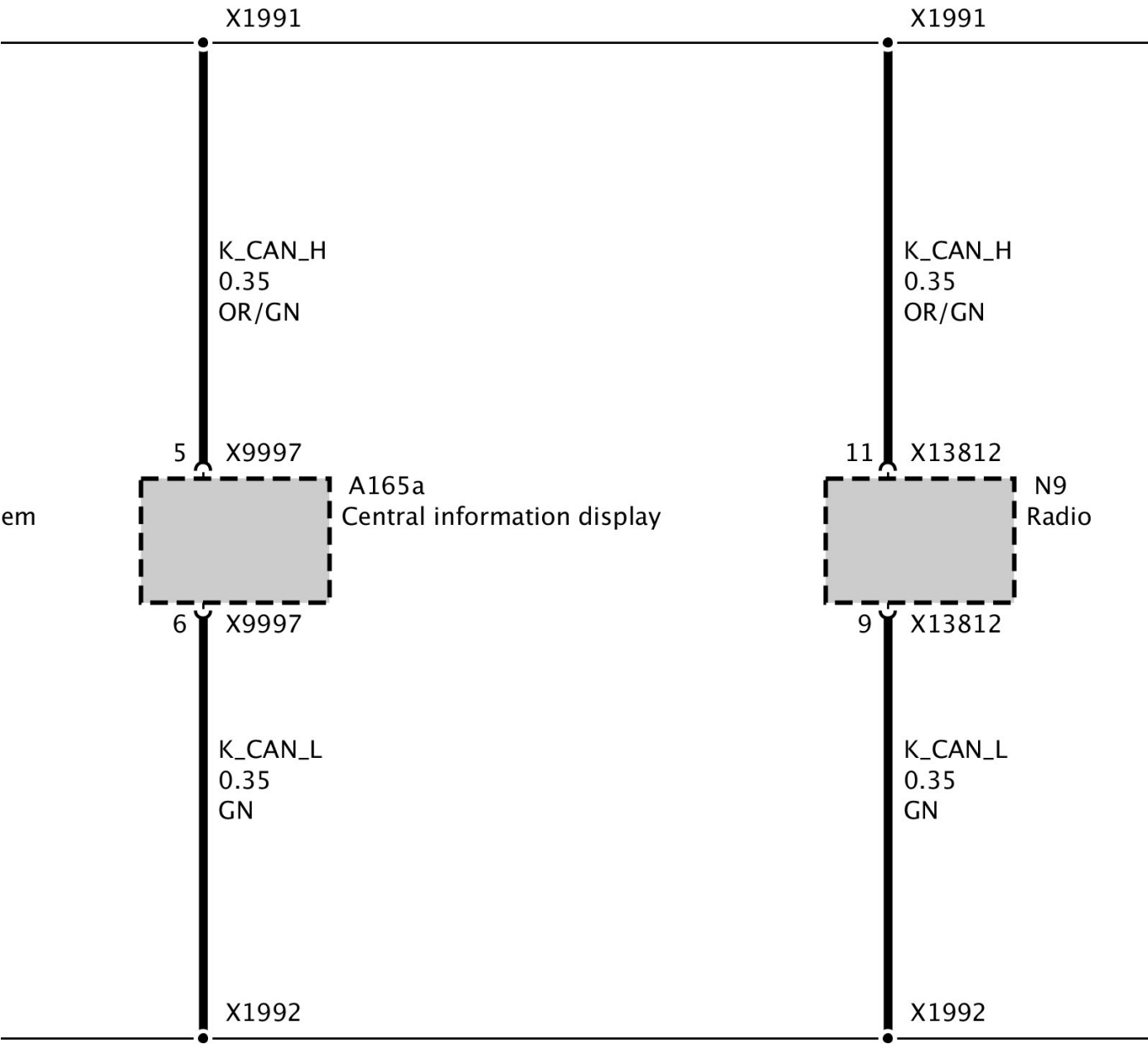


Part 1

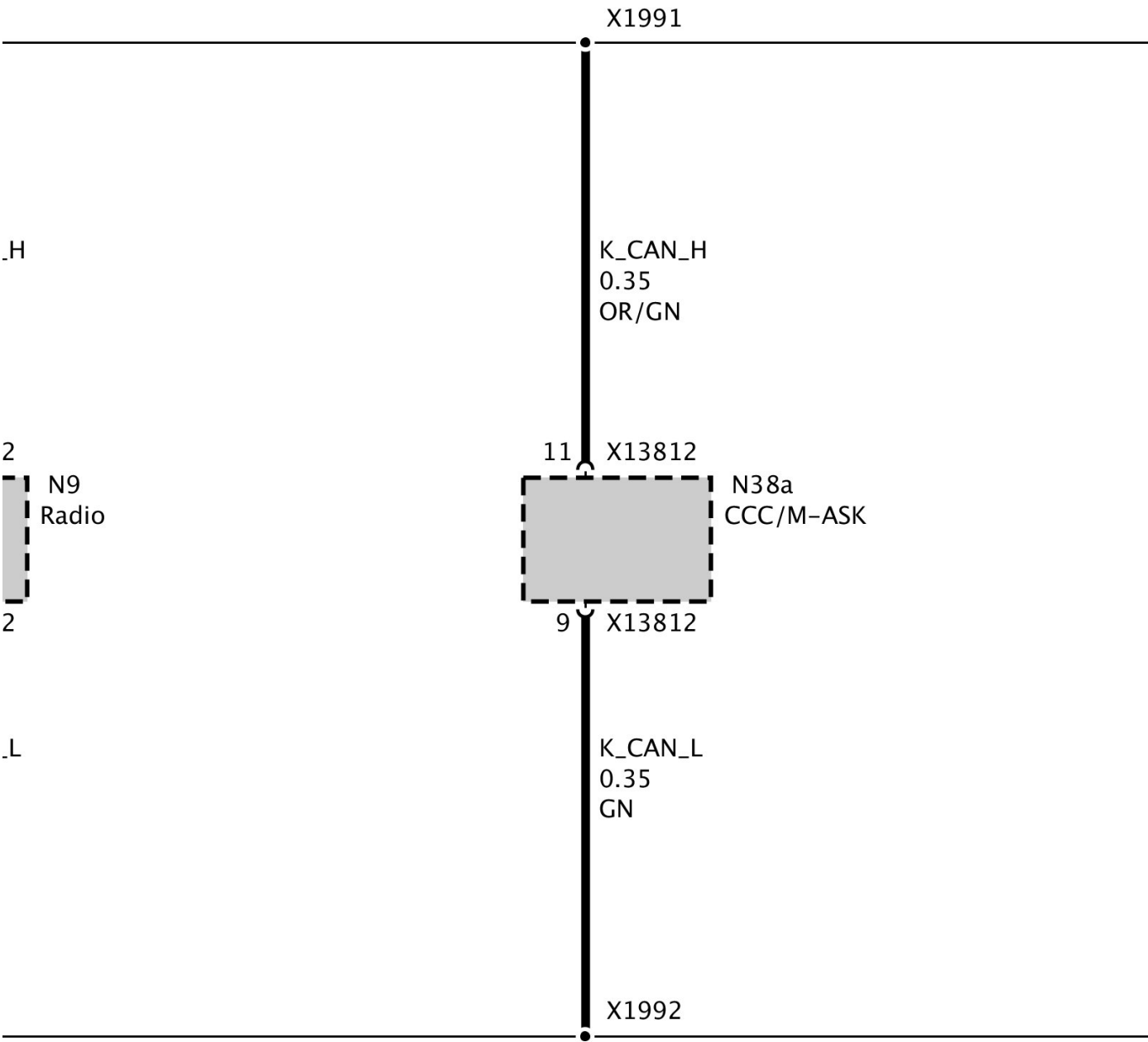




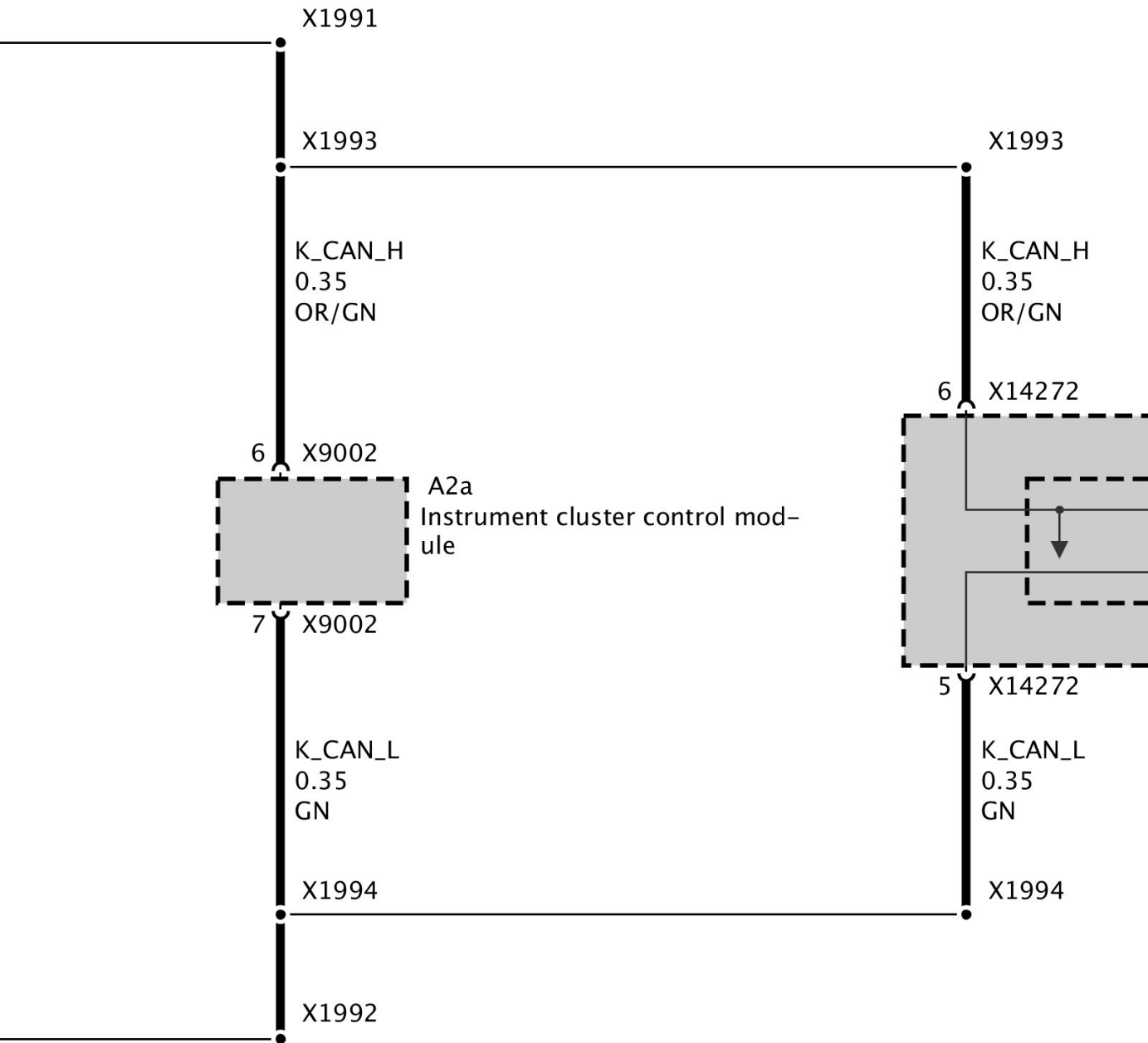
Part 2

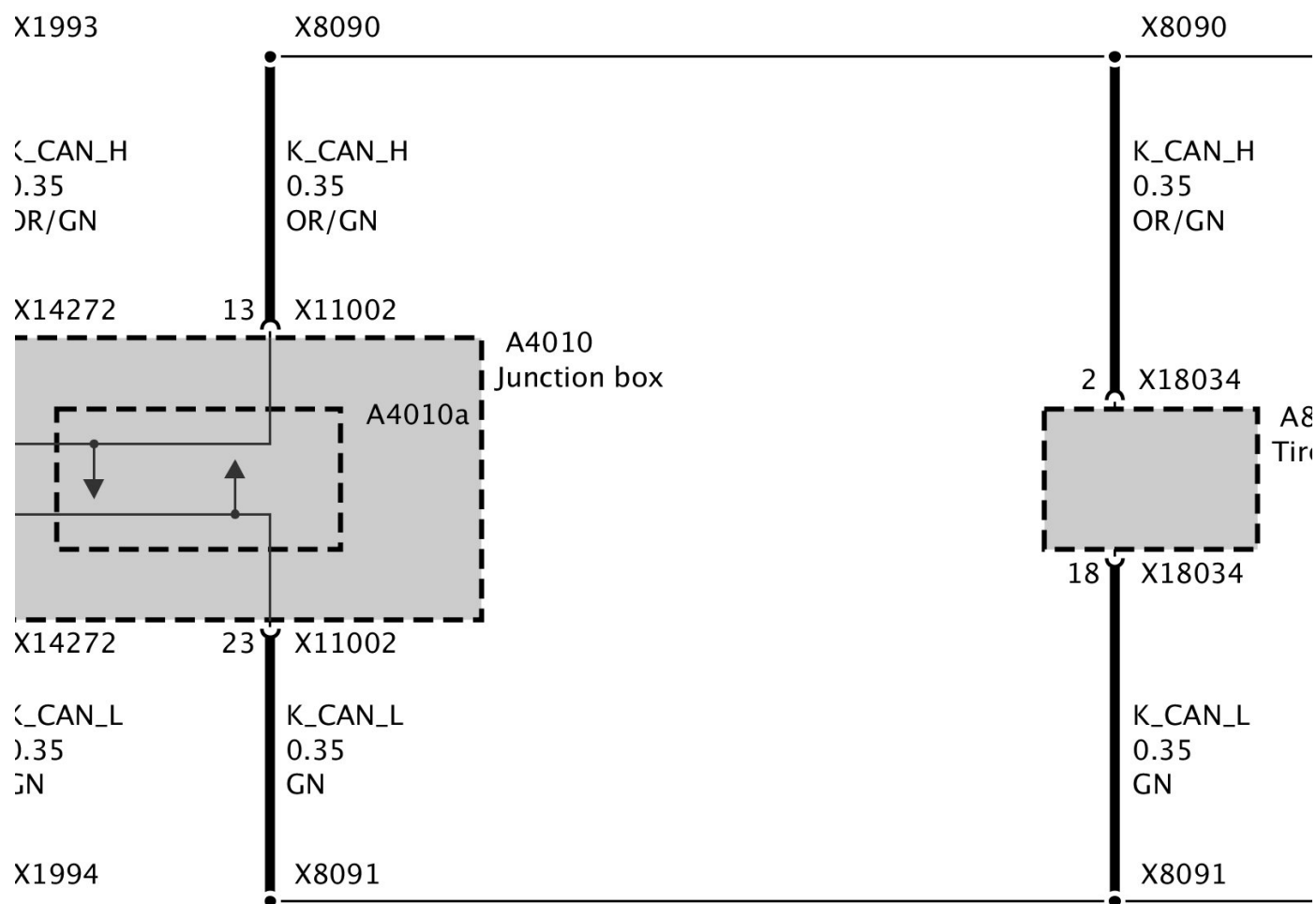


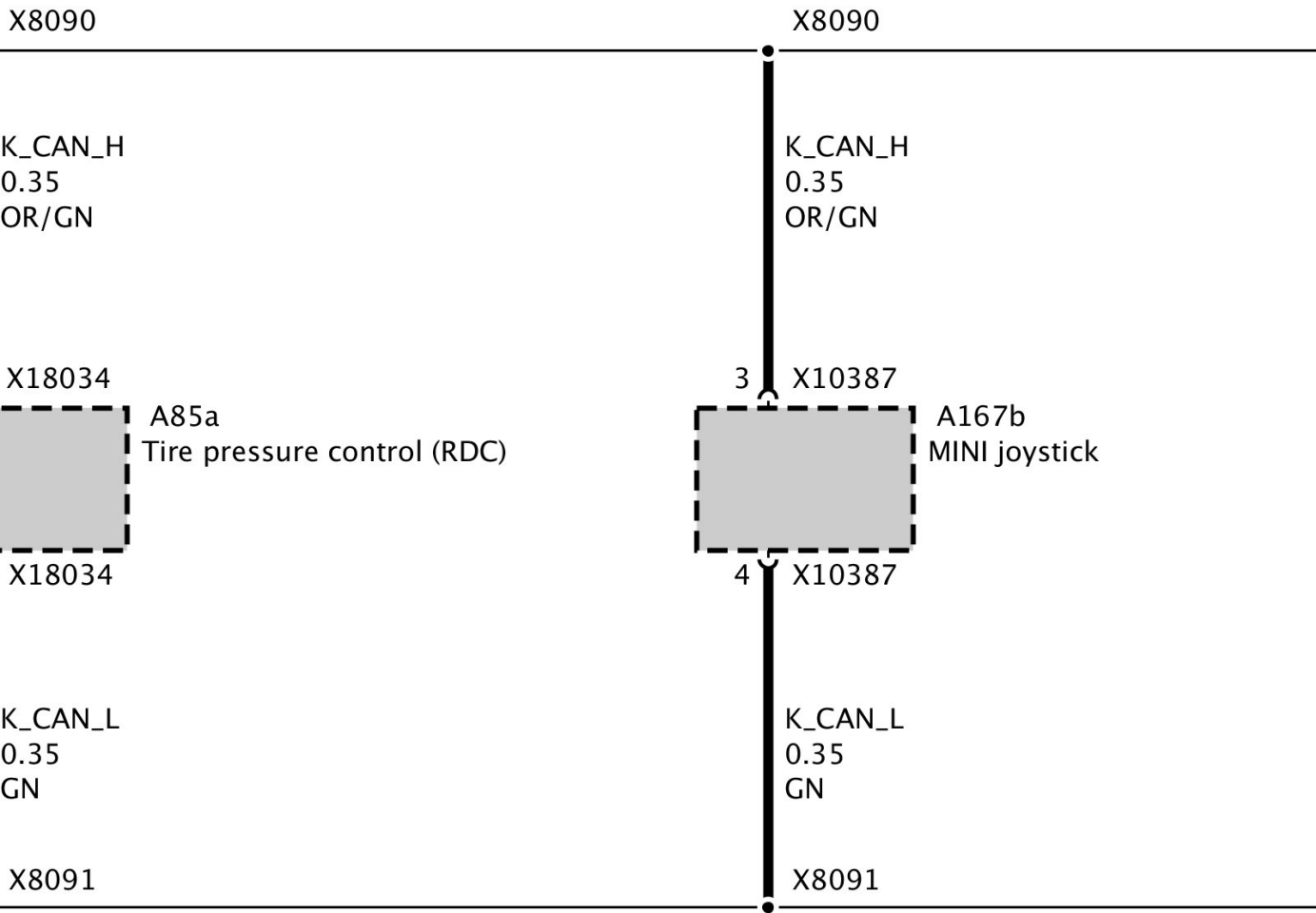
Part 3

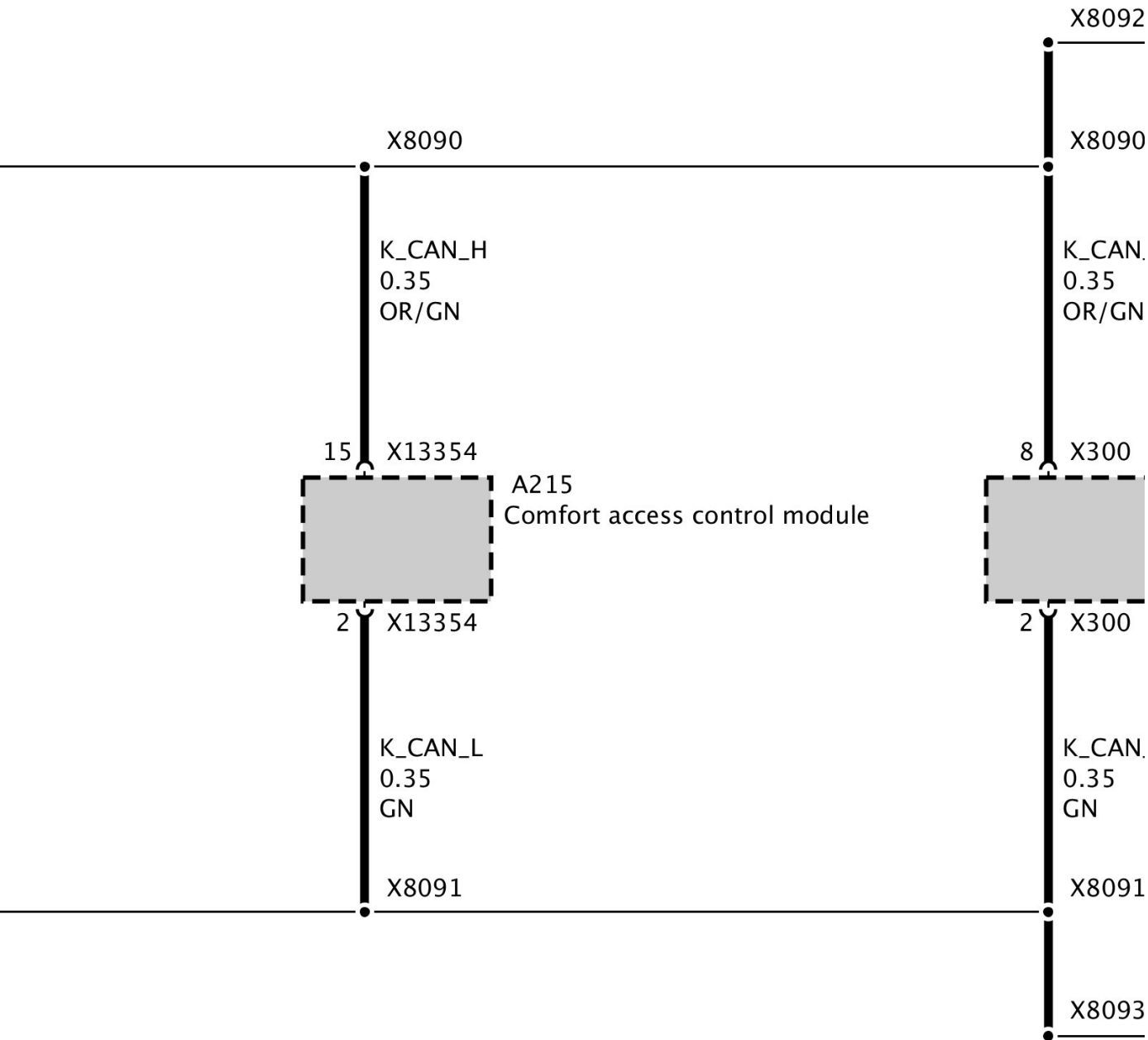


Part 4

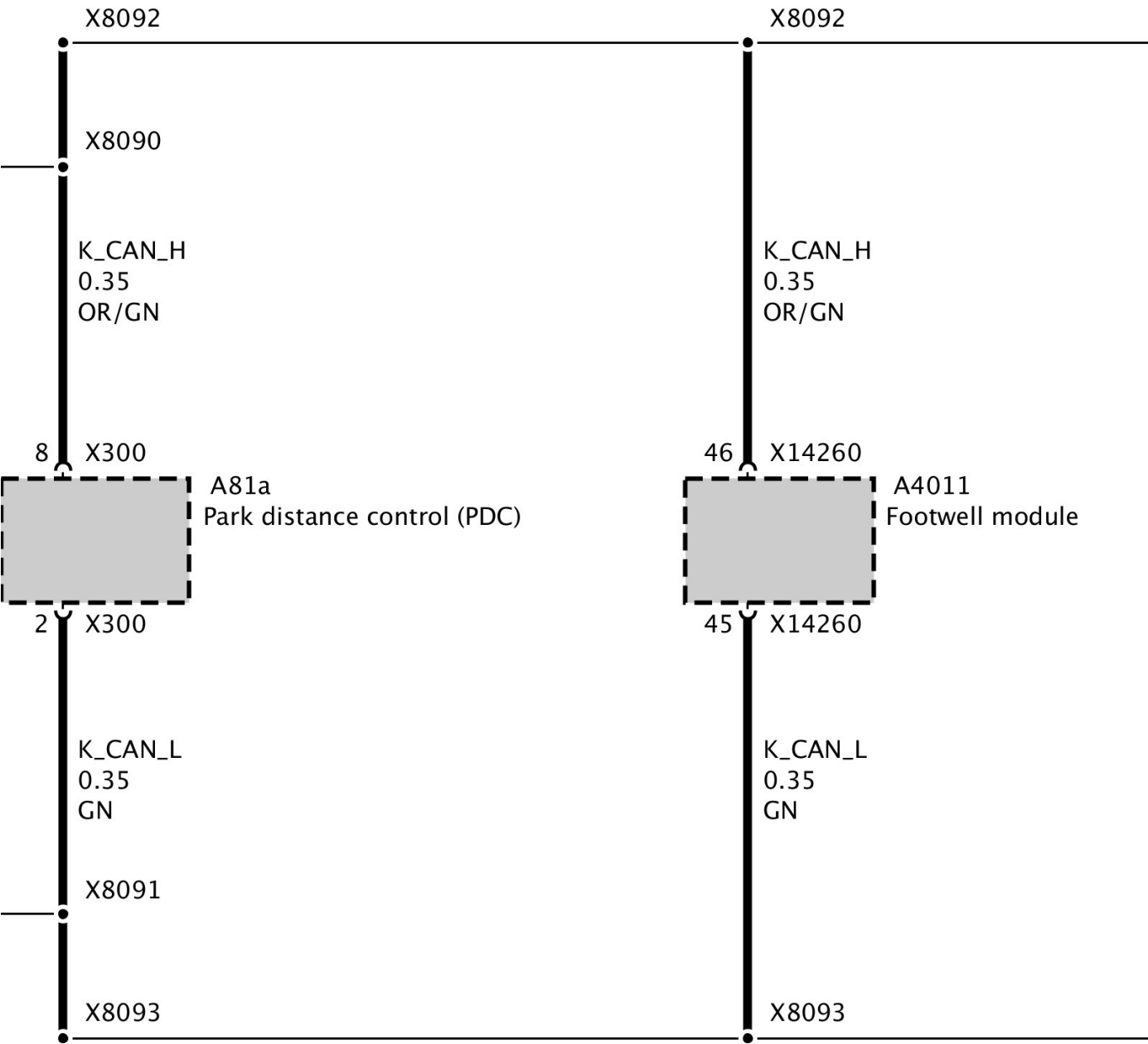




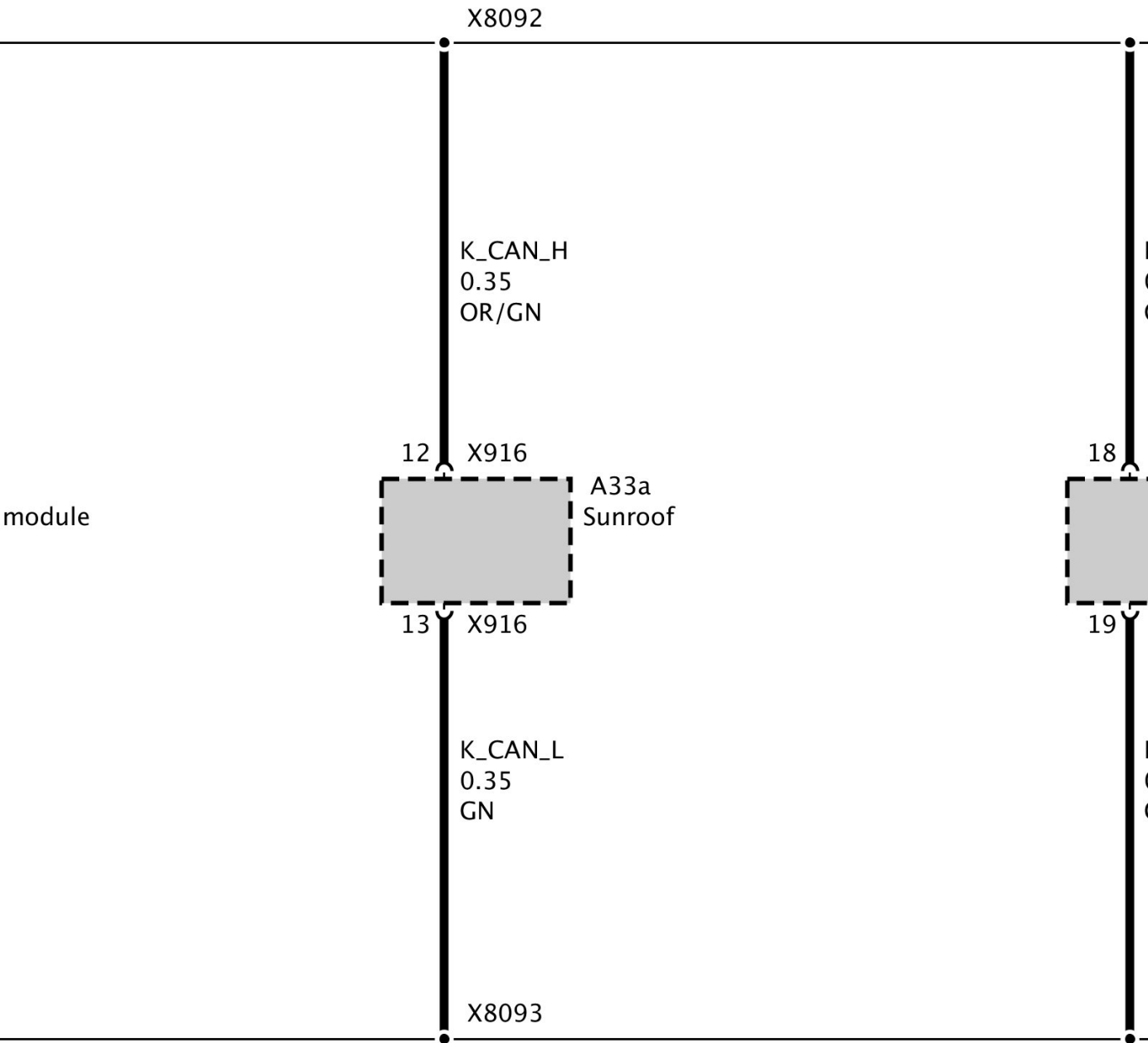


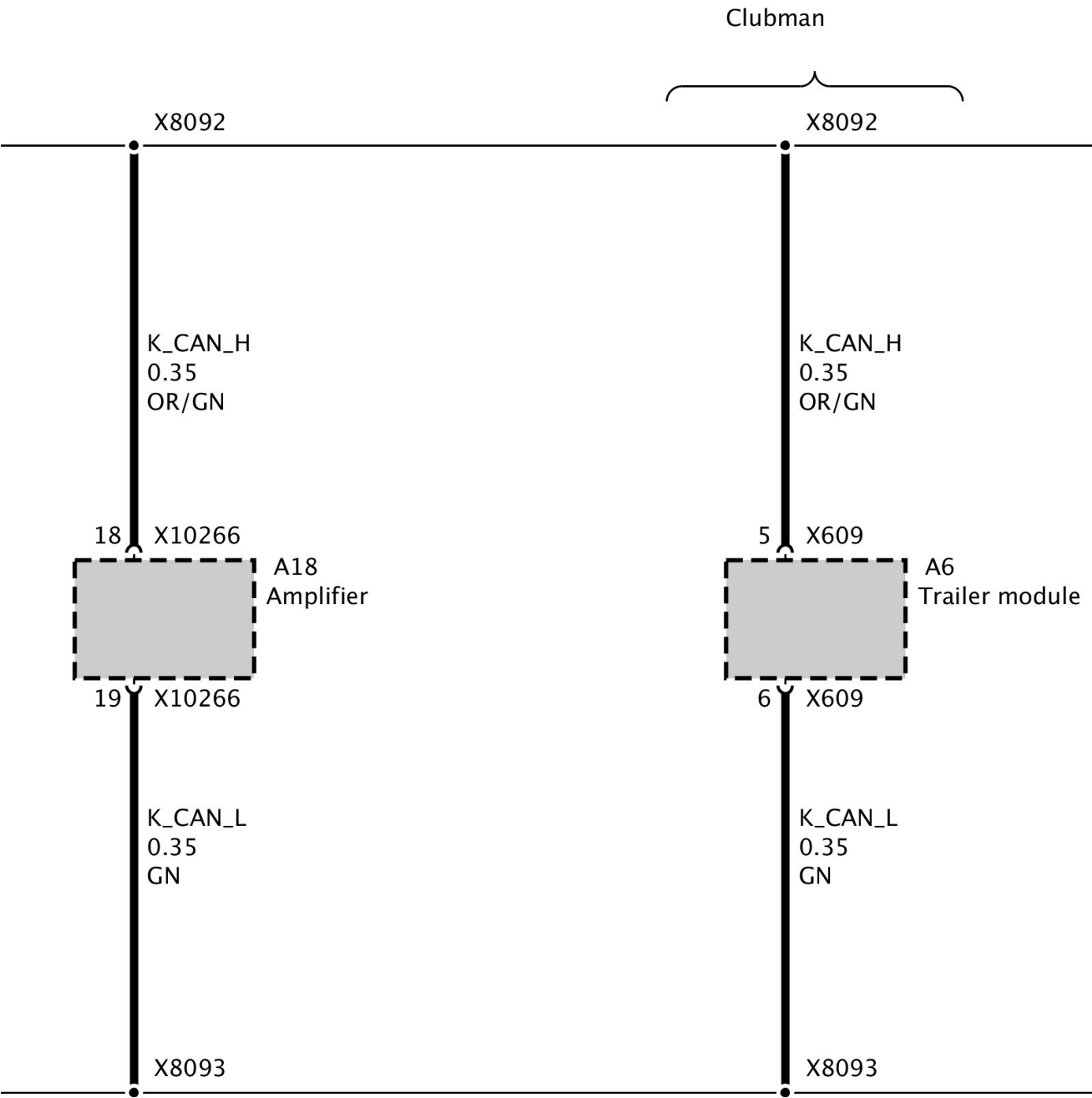


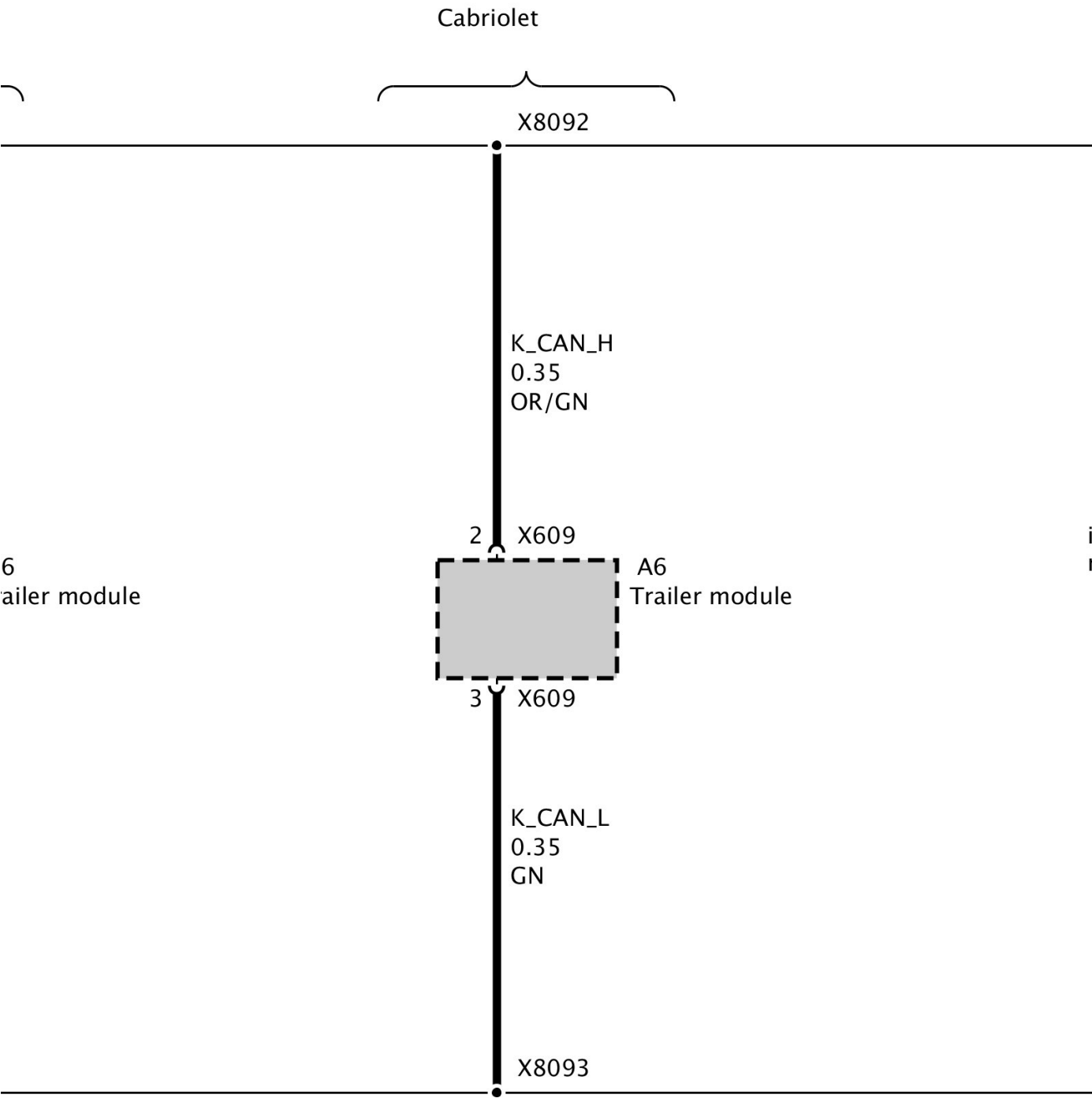
Part 8

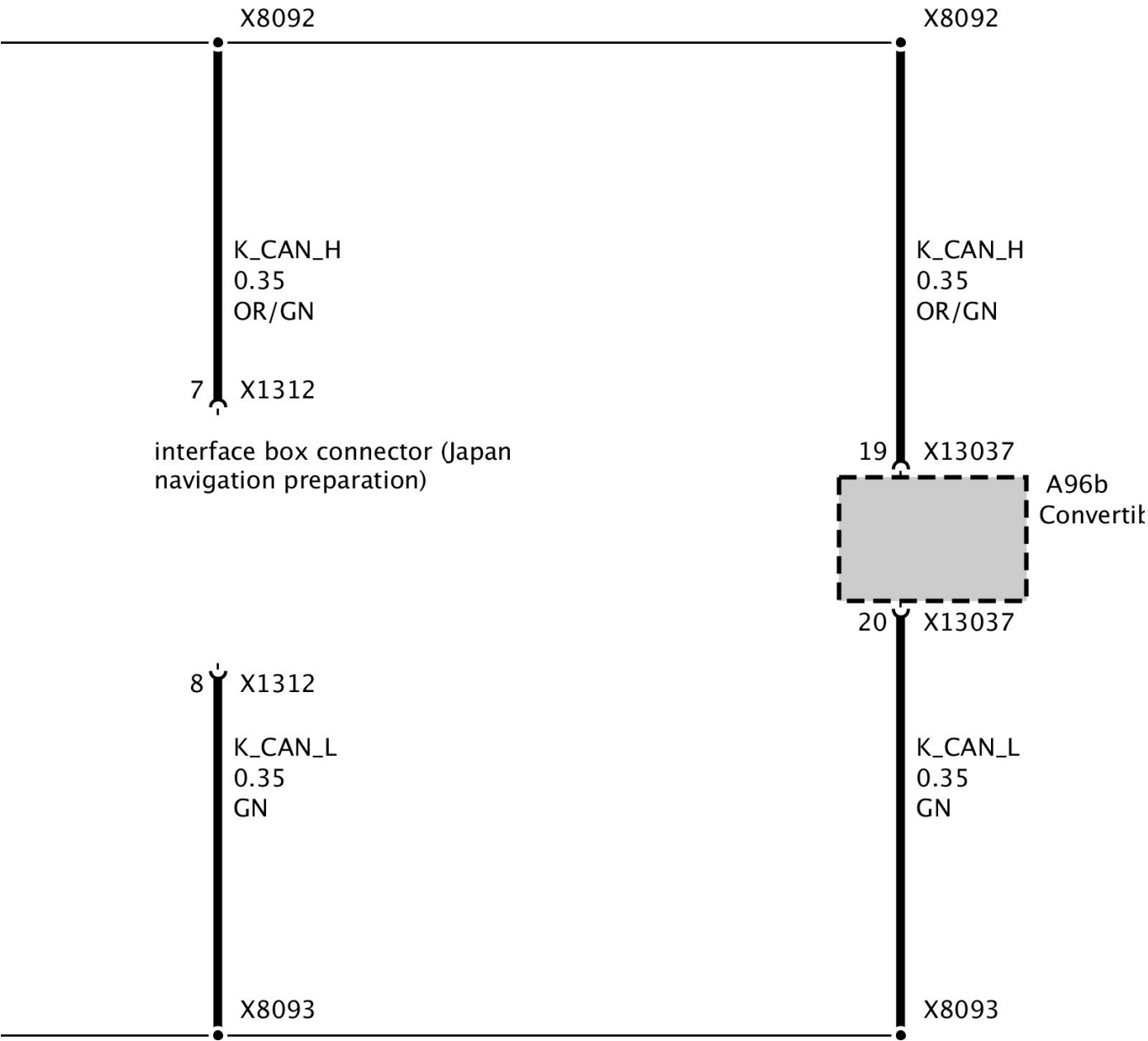












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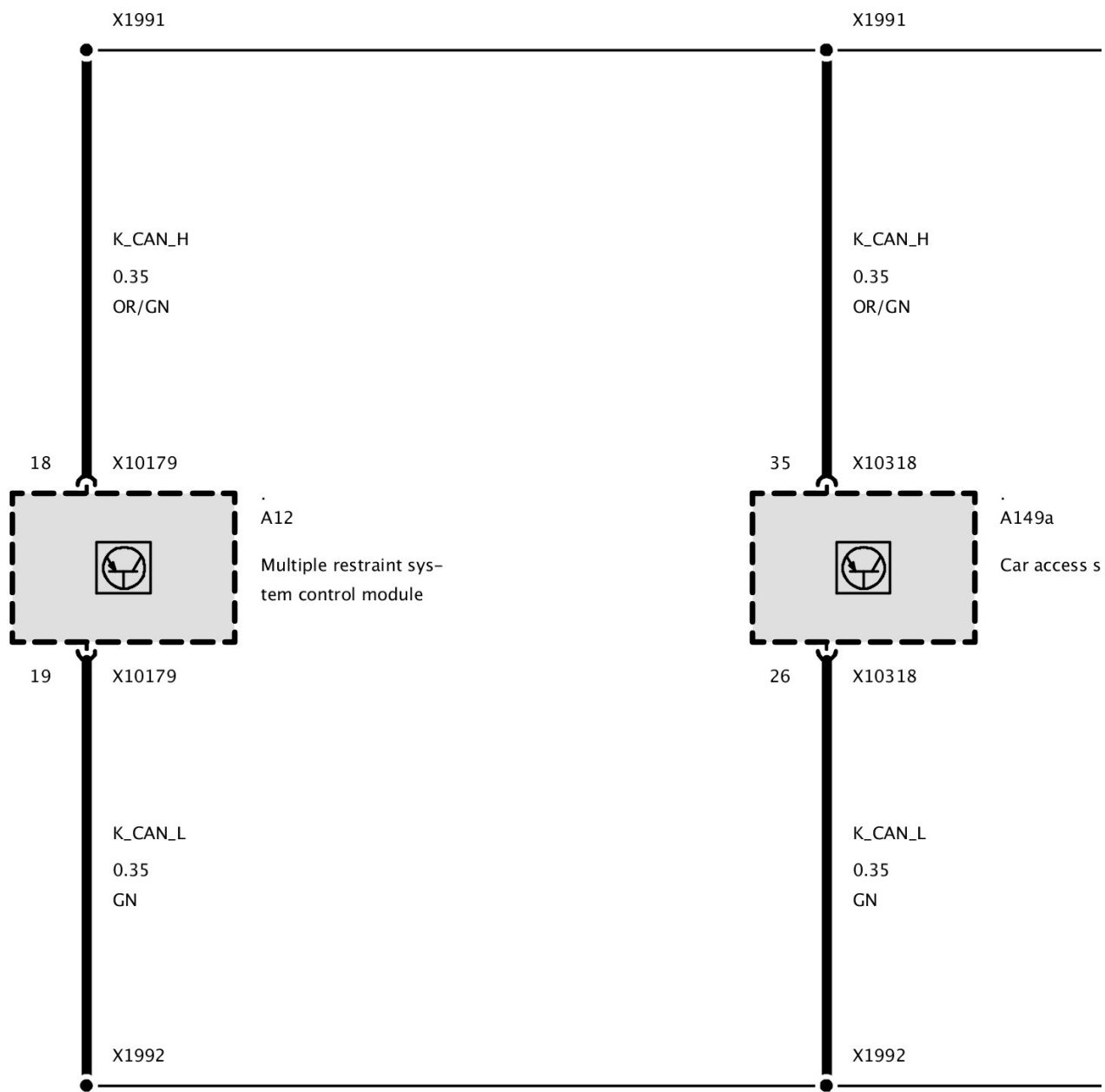
3

Part 14

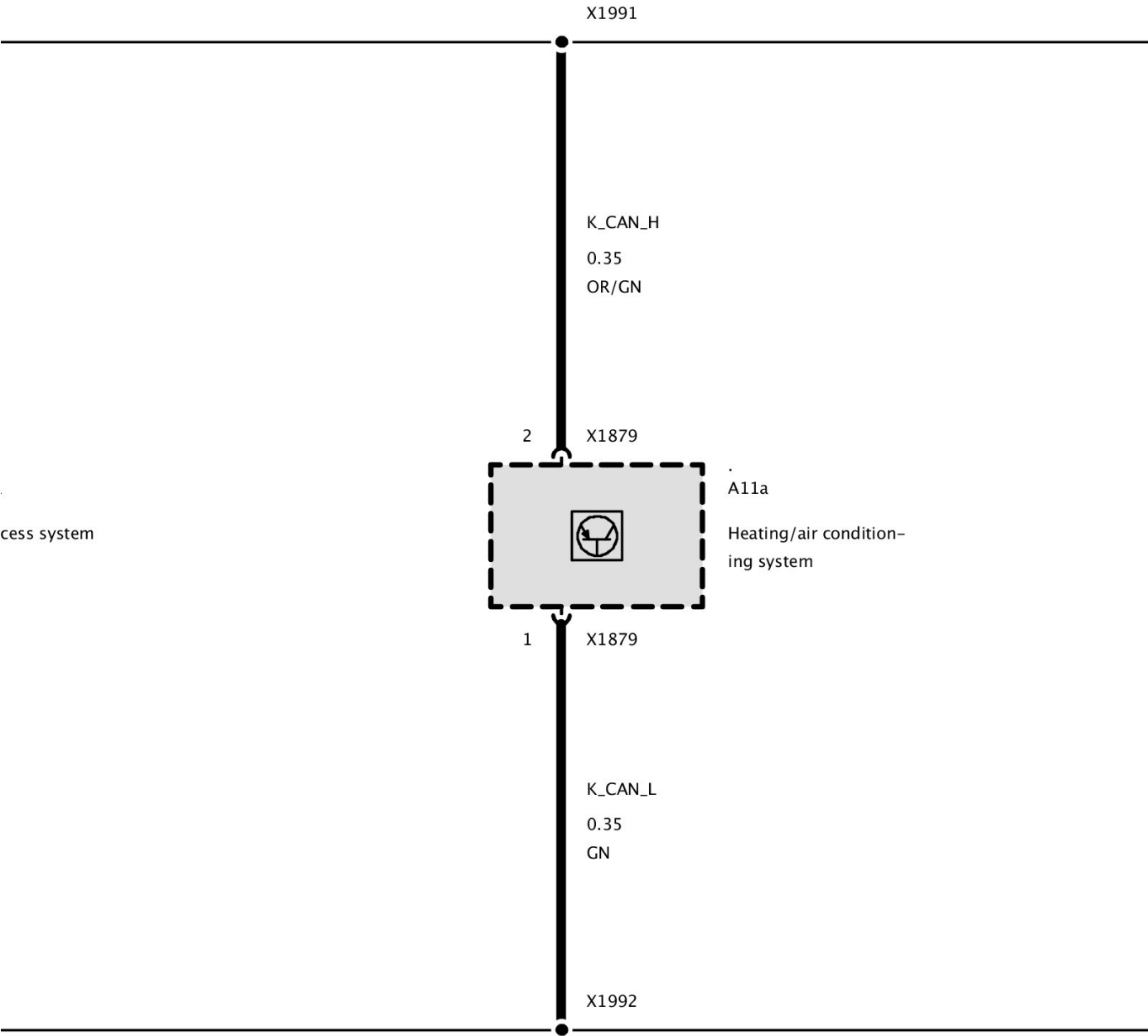
1  
Connector, CAN bus (as of 08/07 up to 12/08)

X8092 No Adapter

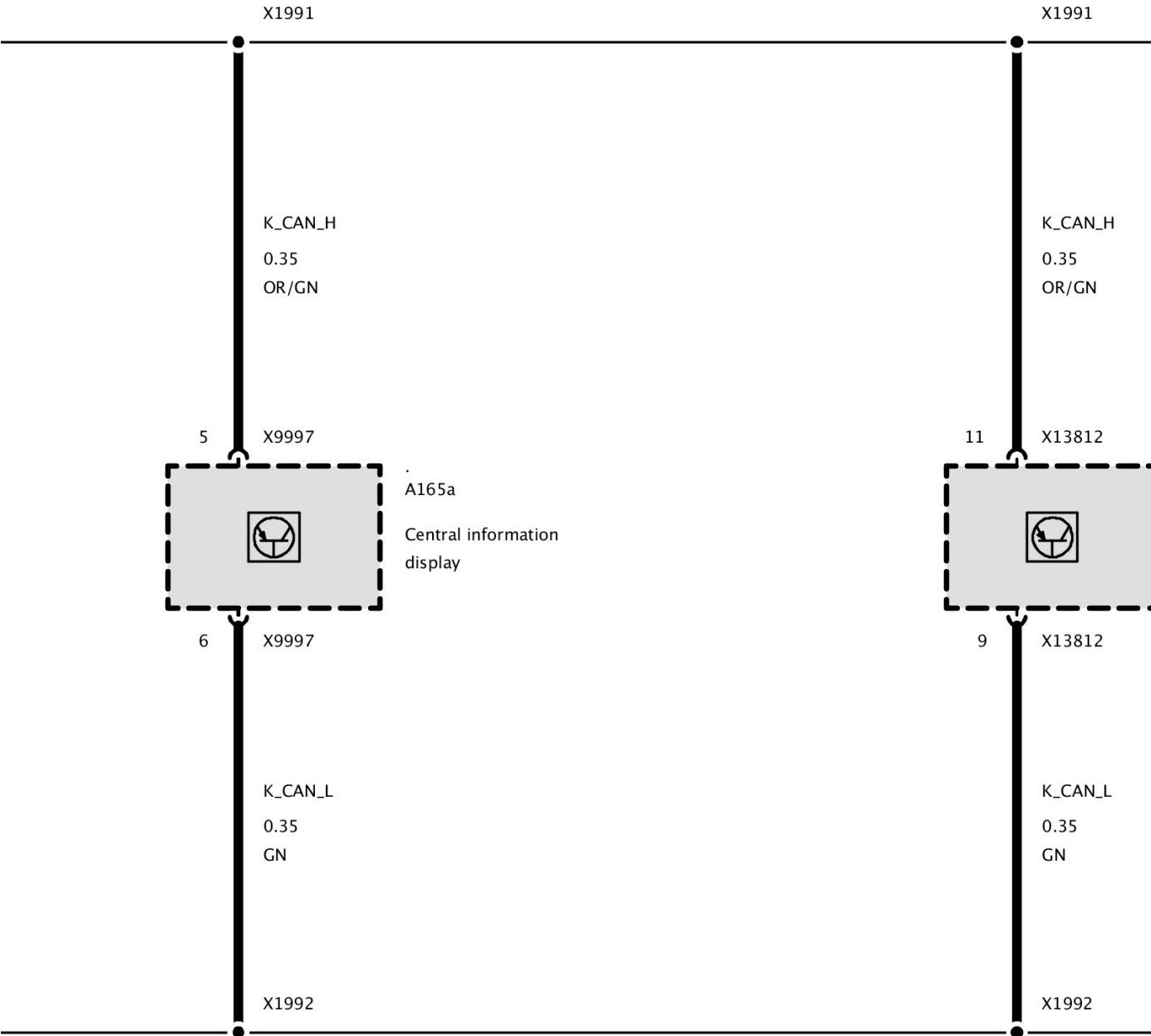
Connector, CAN bus (as of 08/07 up to 12/08)



Part 1

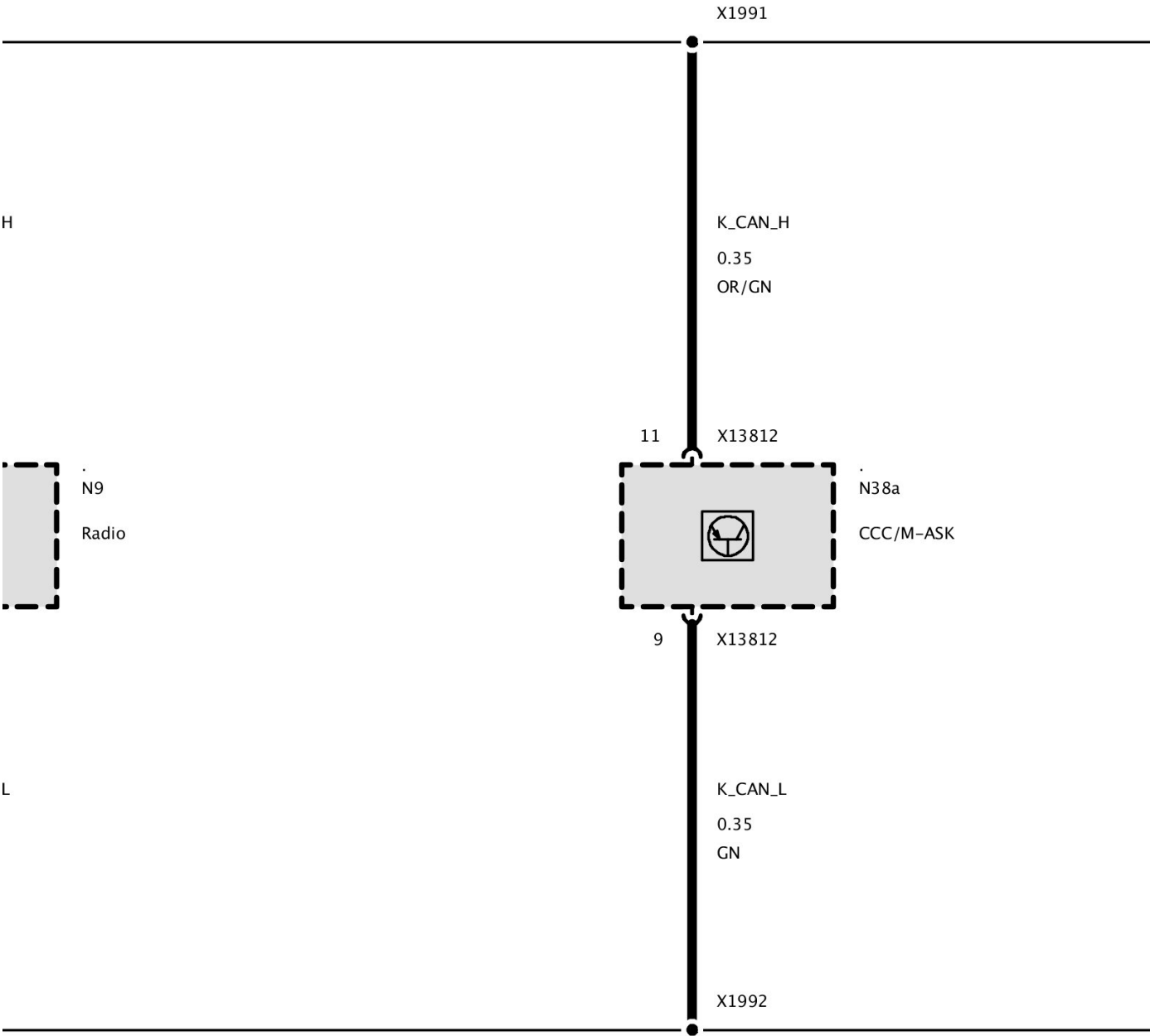


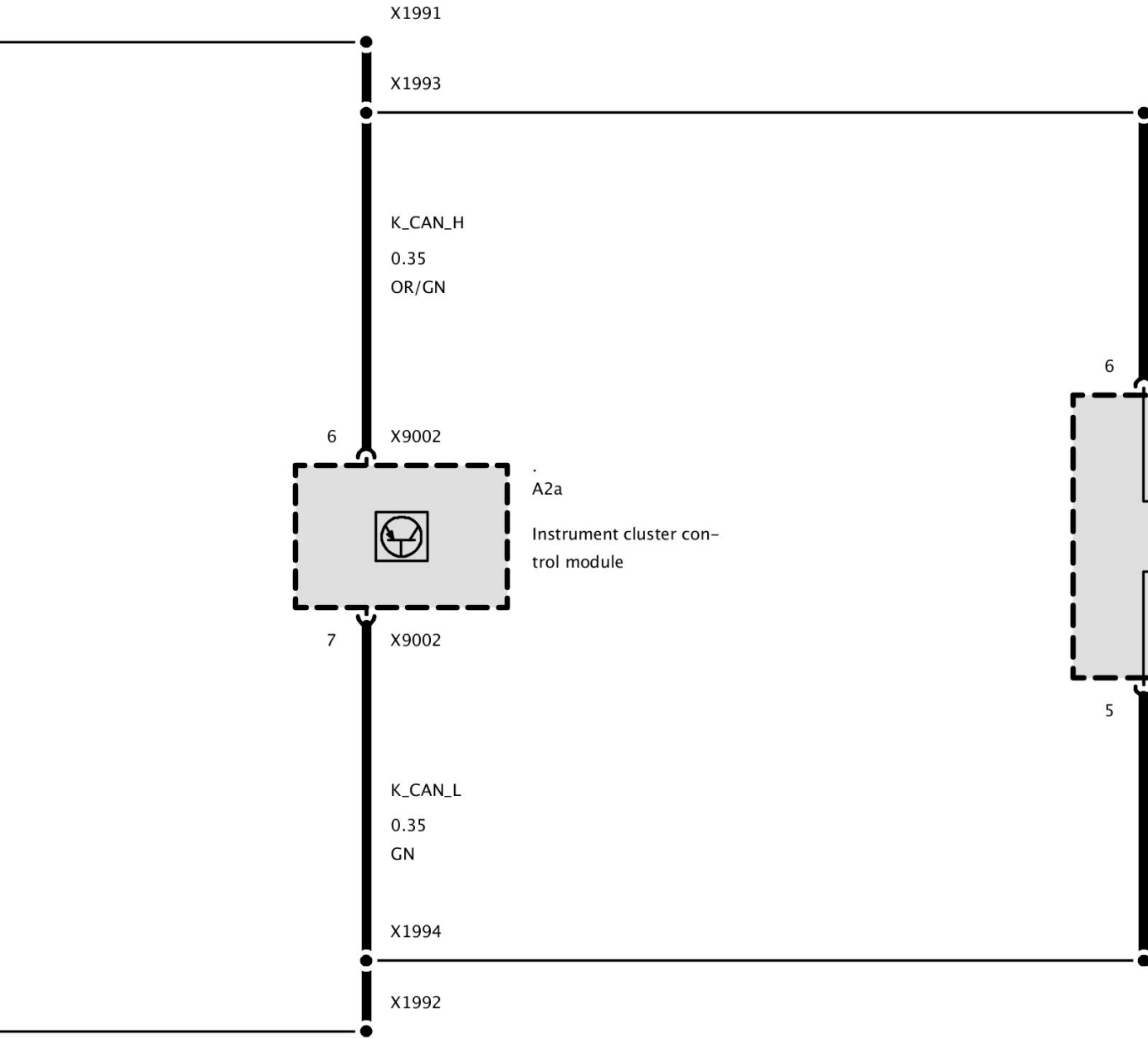
Part 2

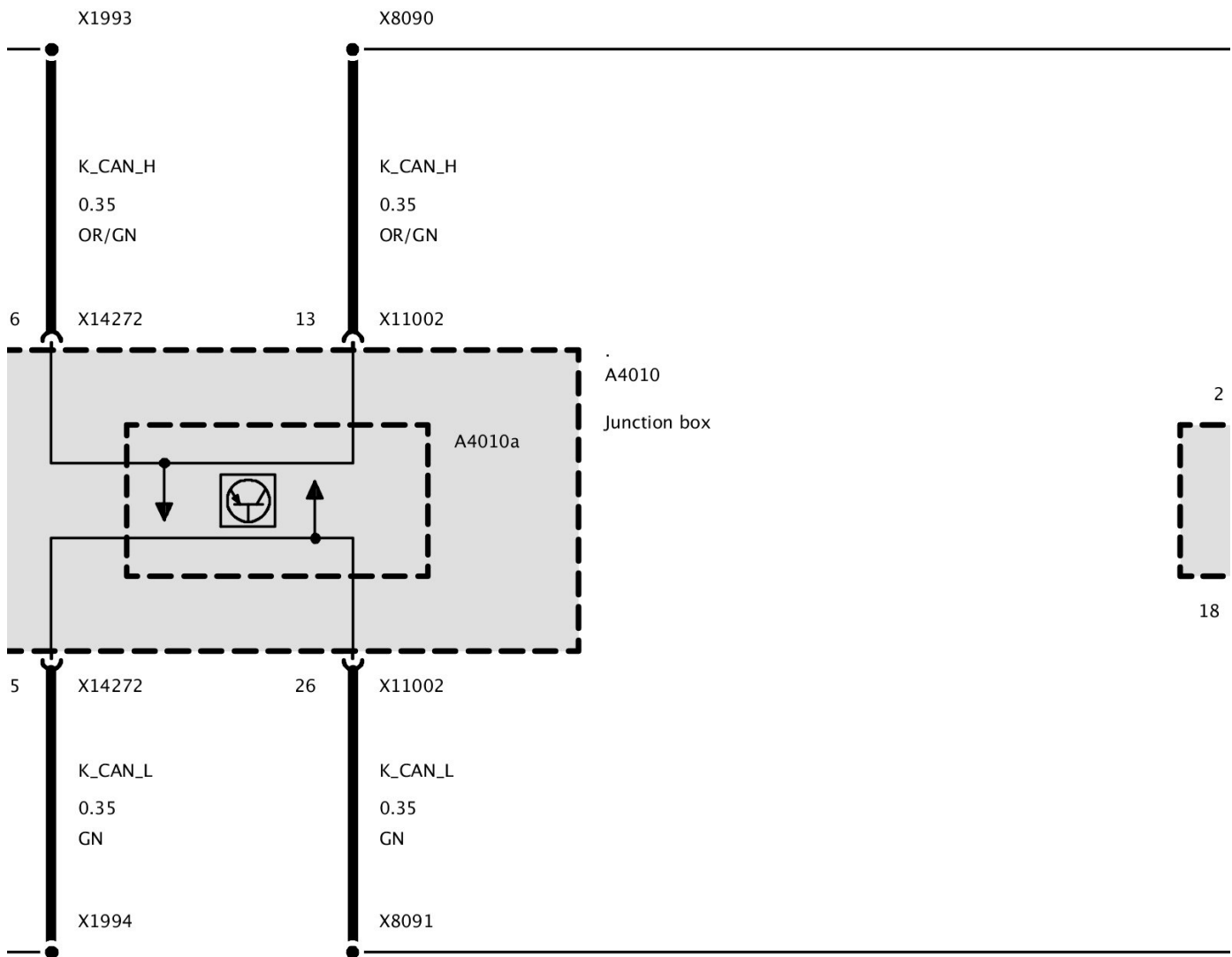


Part 3

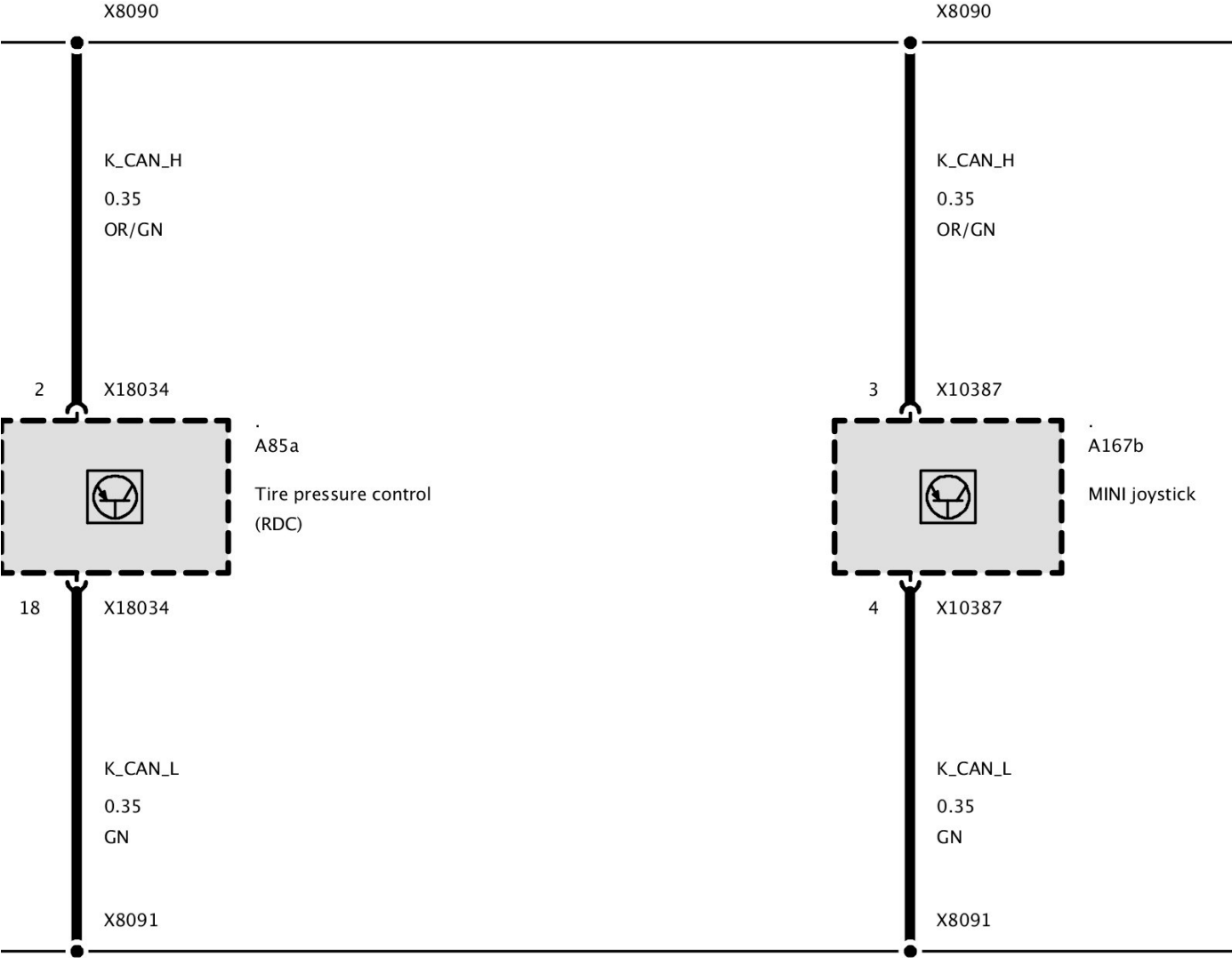


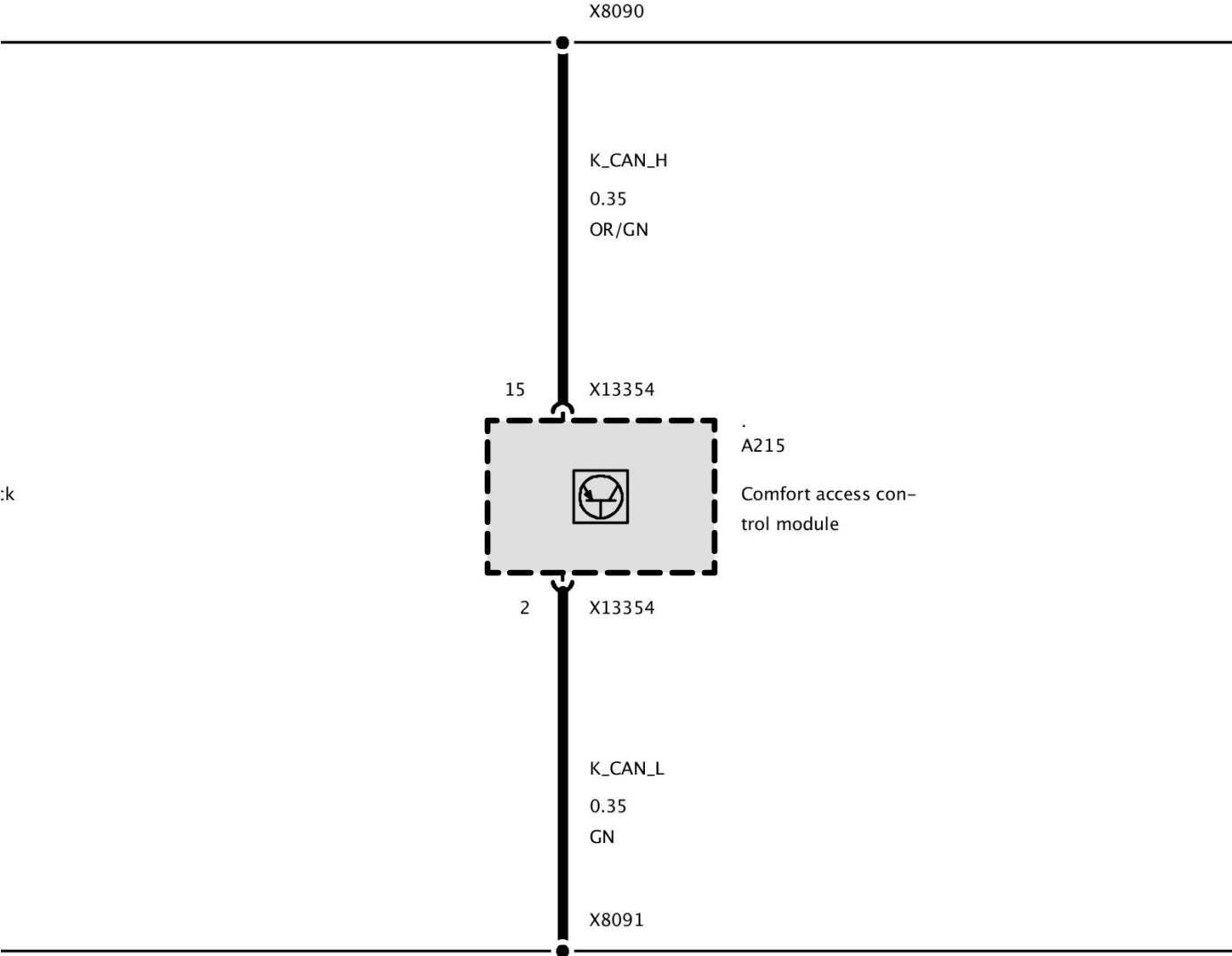


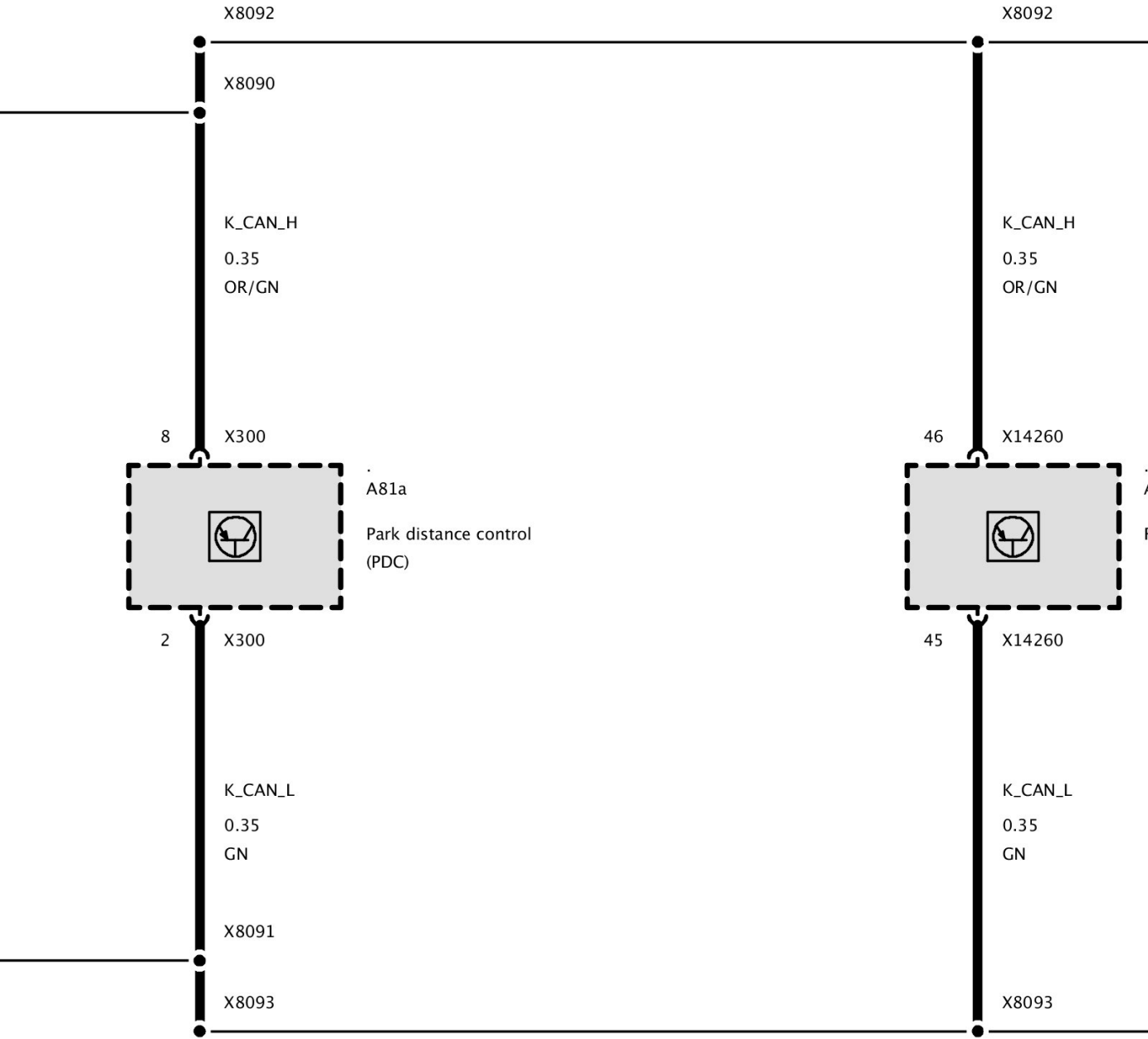




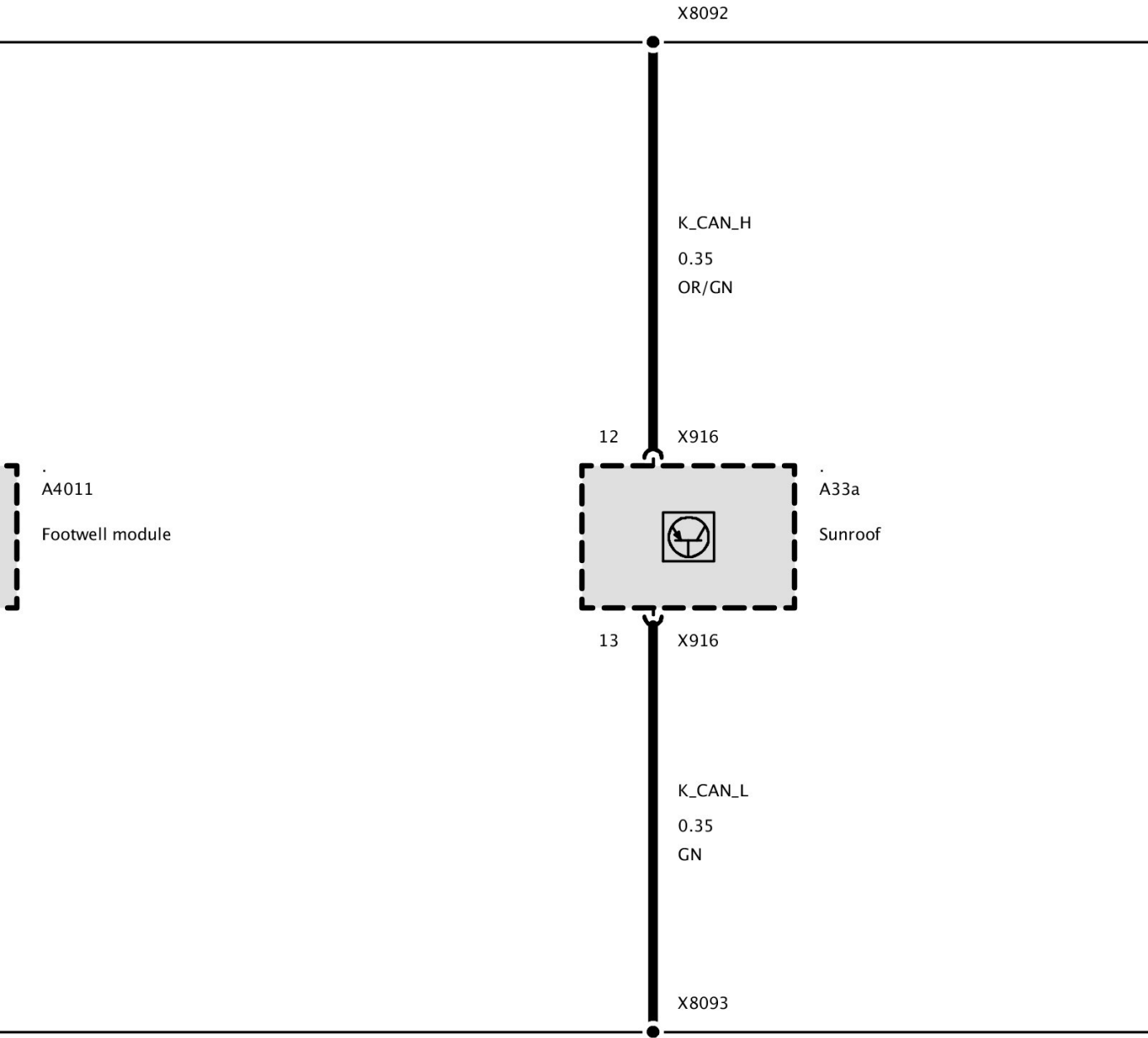
Part 6

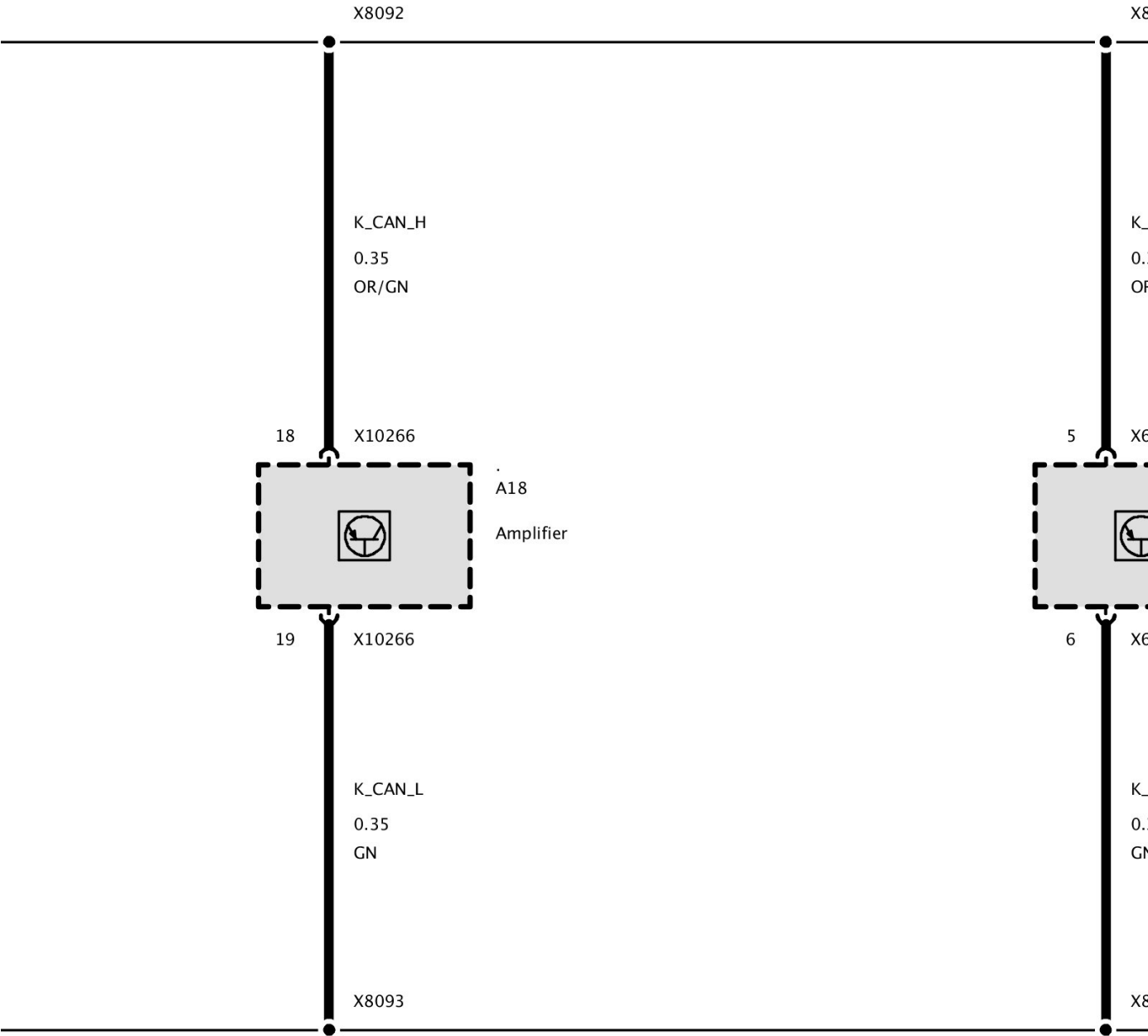




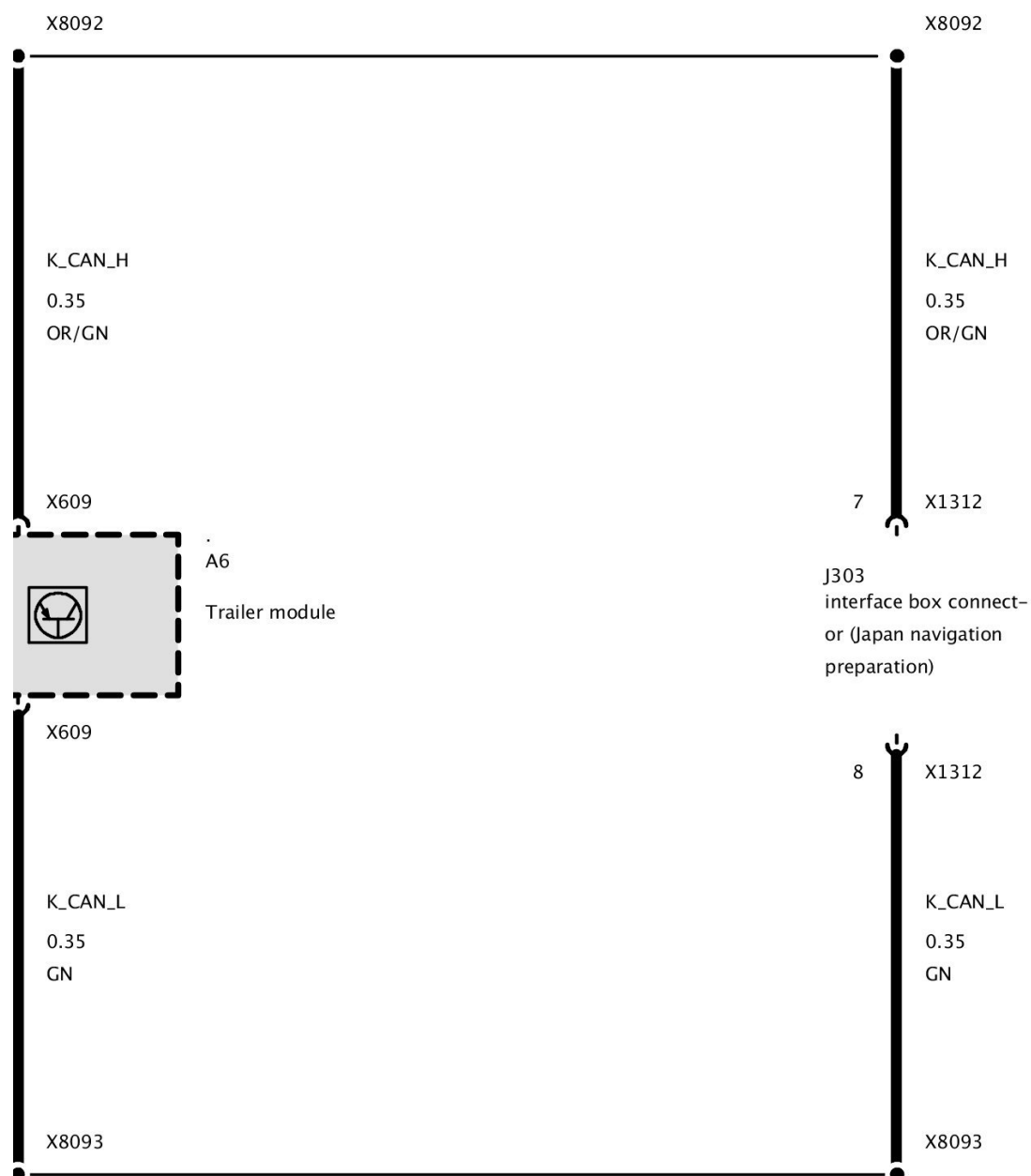


Part 9







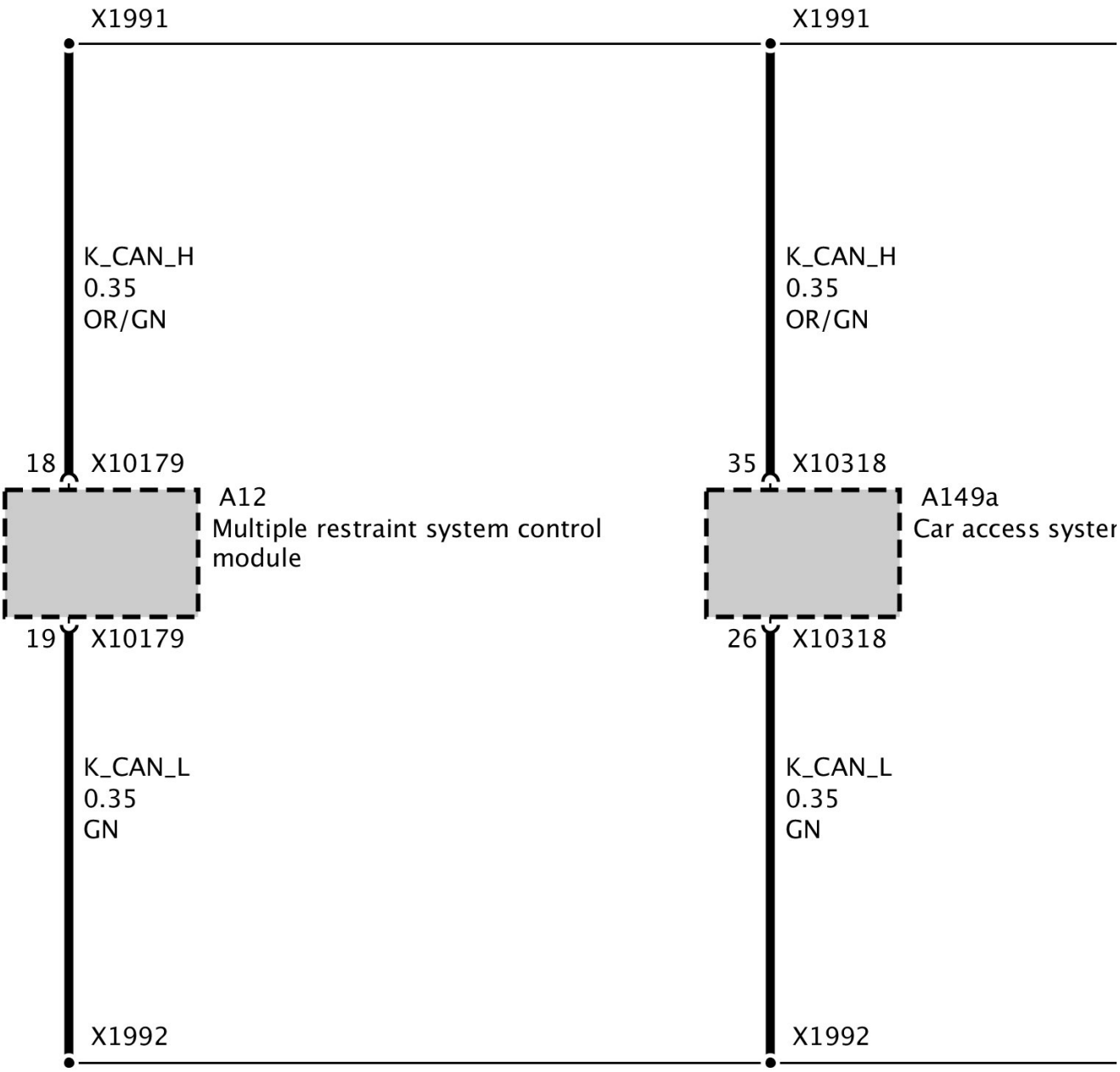


## Part 12

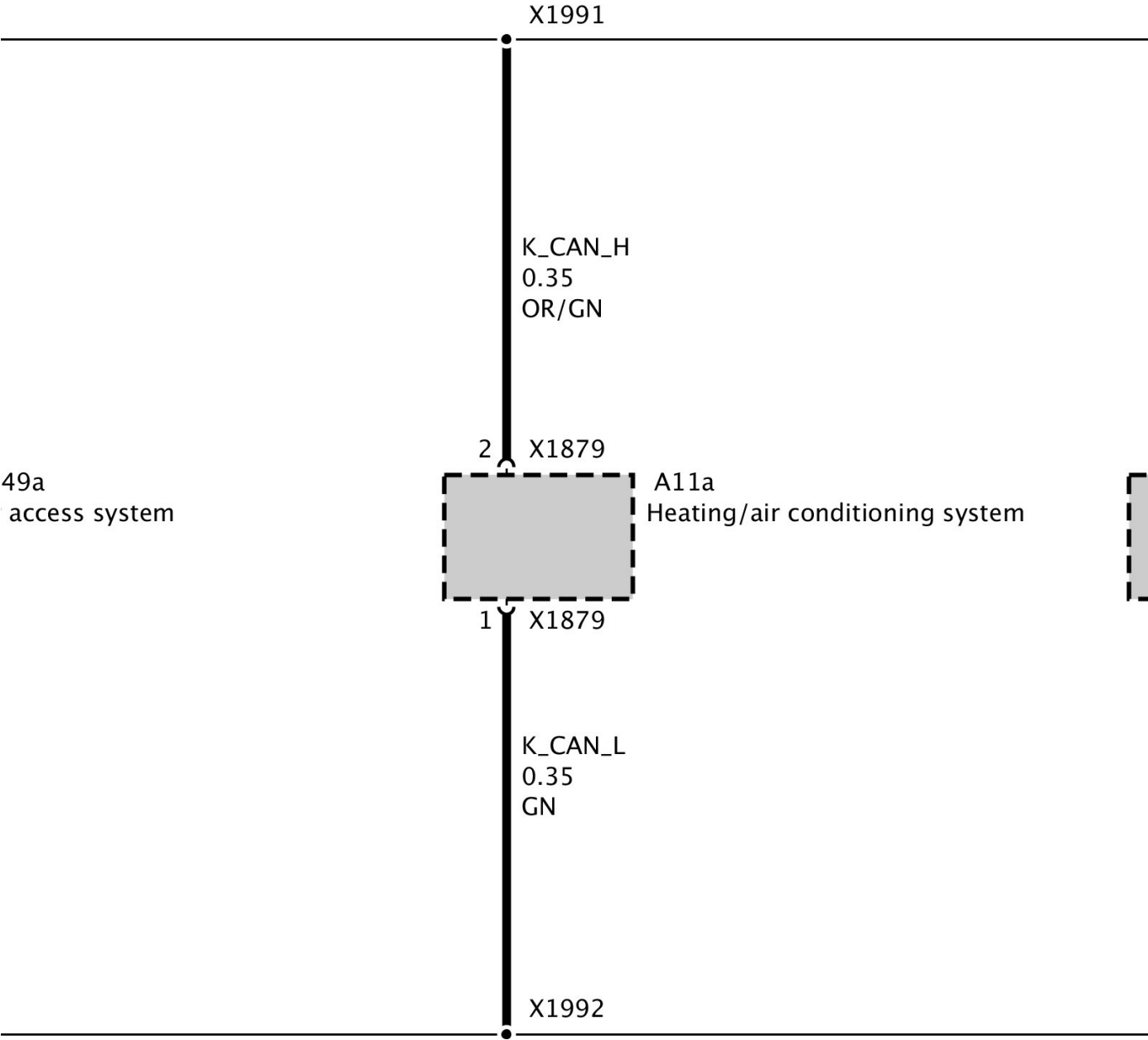
### Connector, CAN bus (as of 12/08)

X8092 No Adapter

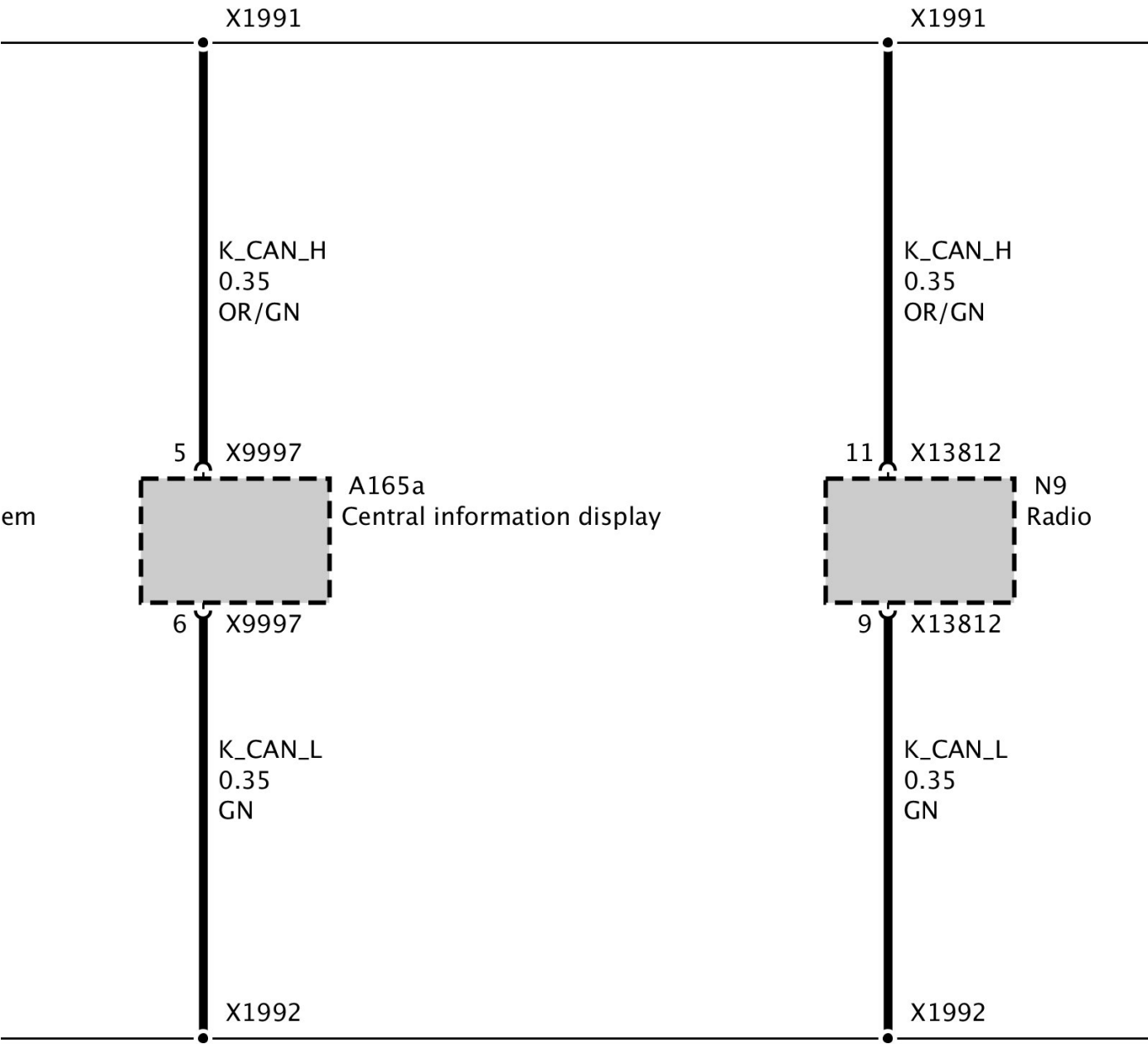
Connector, CAN bus (as of 12/08)

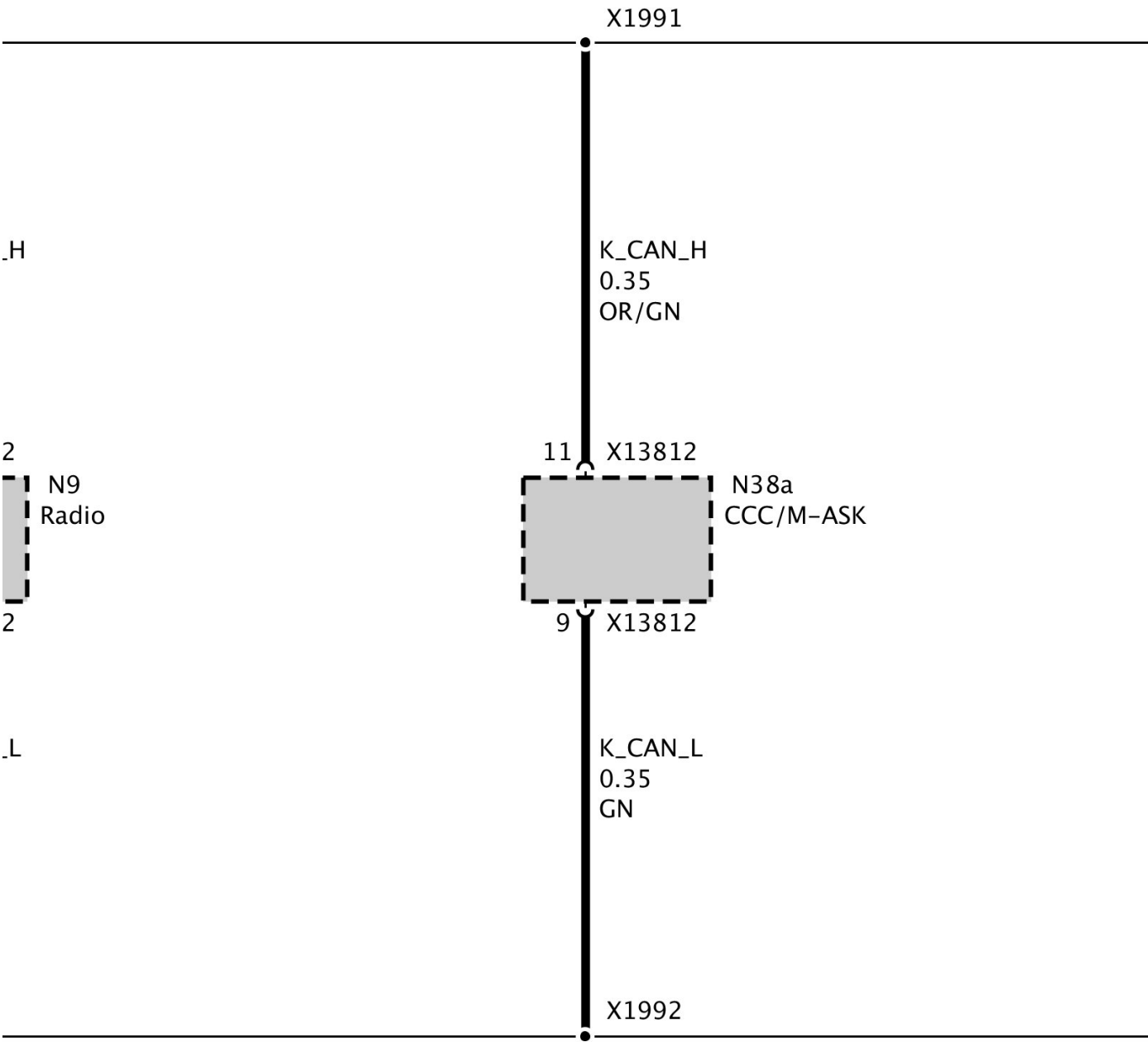


Part 1

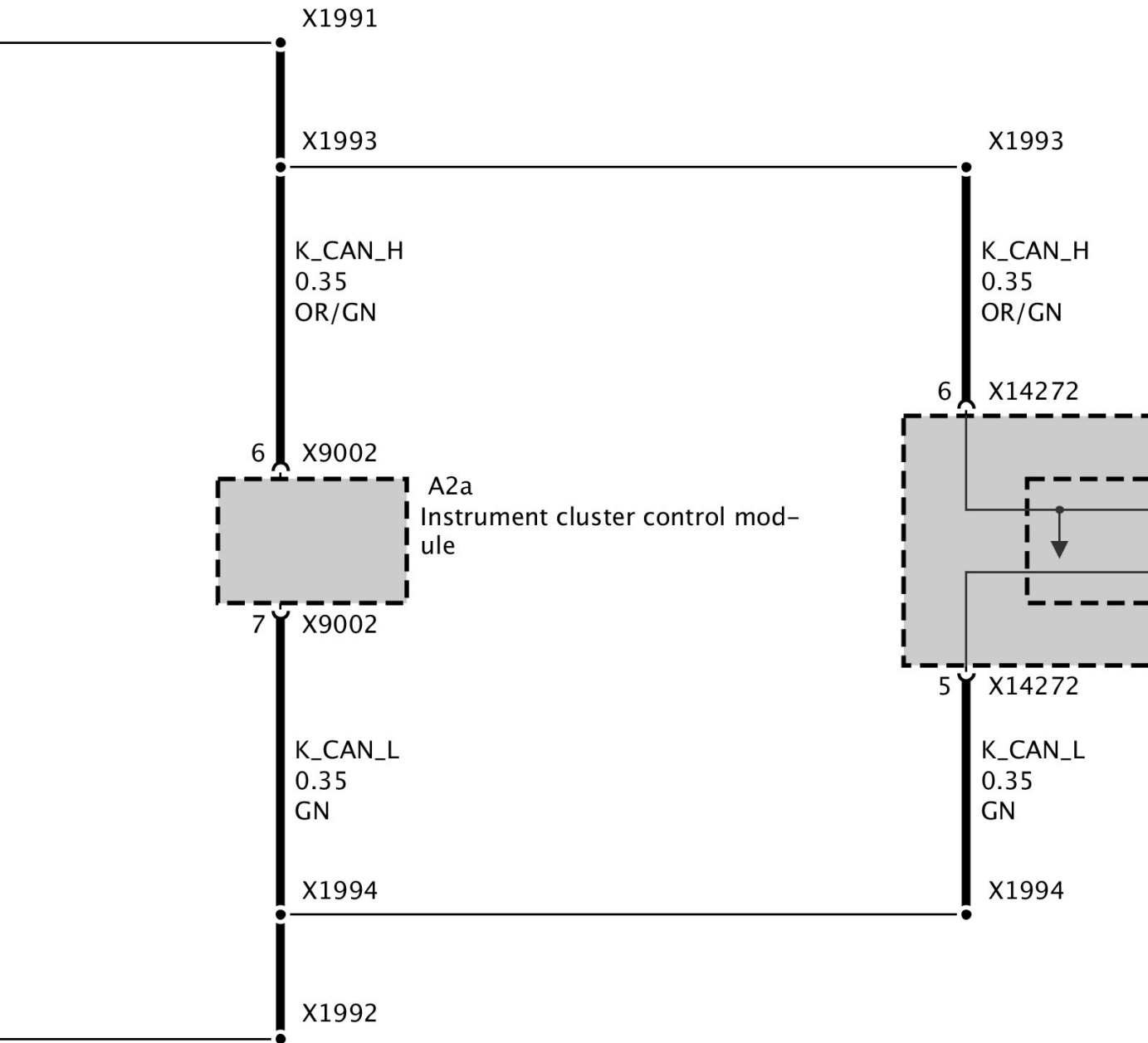


Part 2

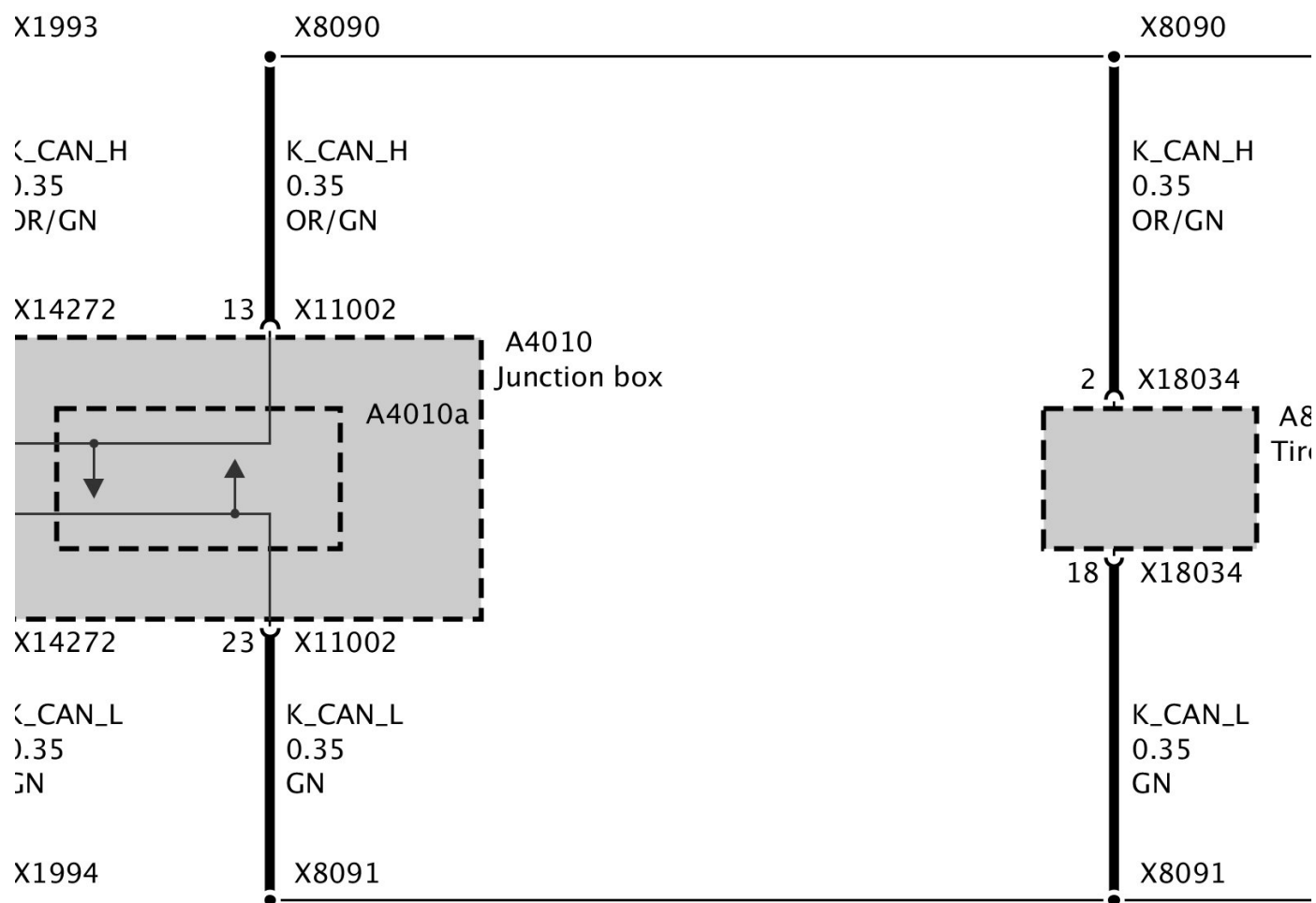




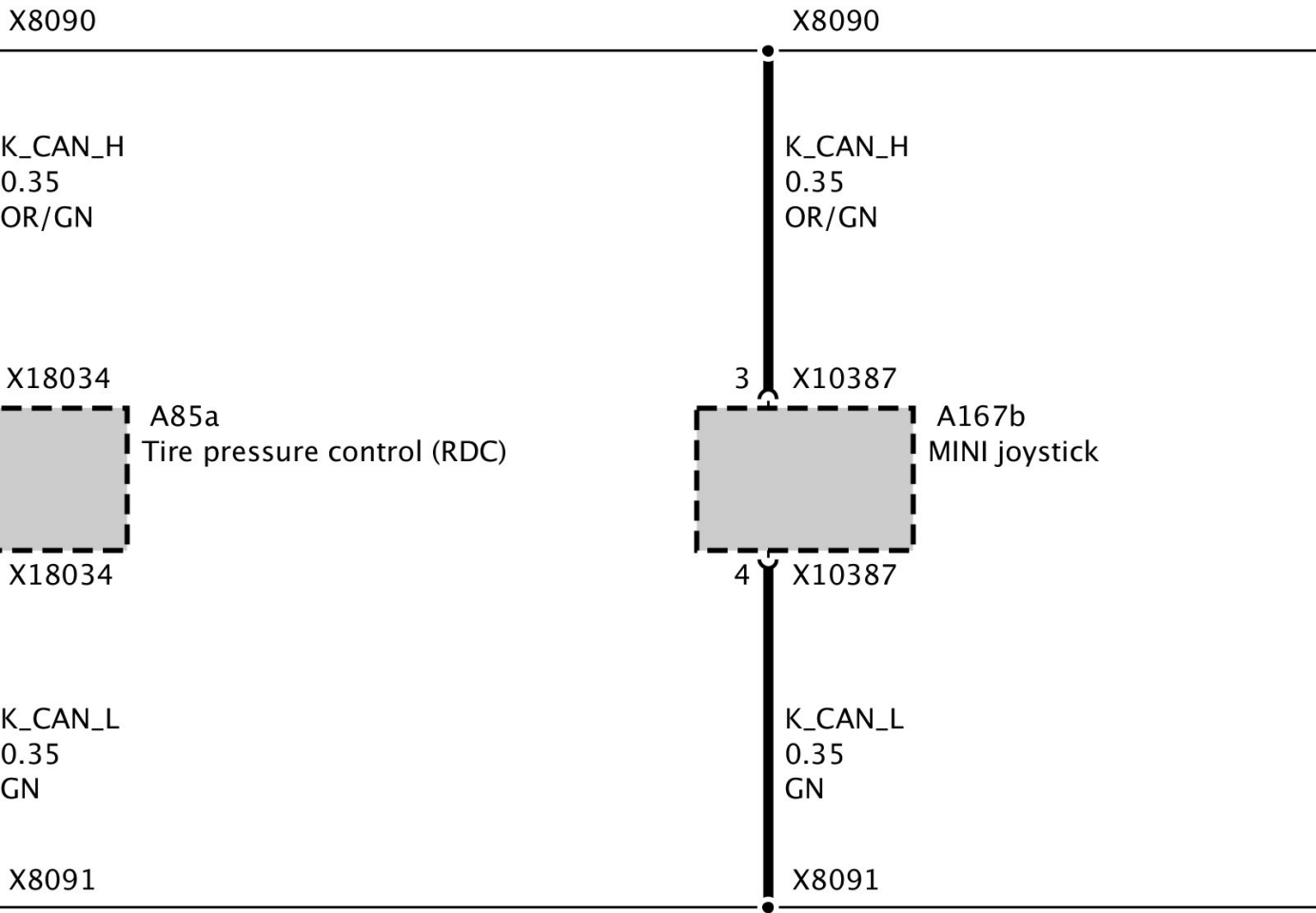
Part 4



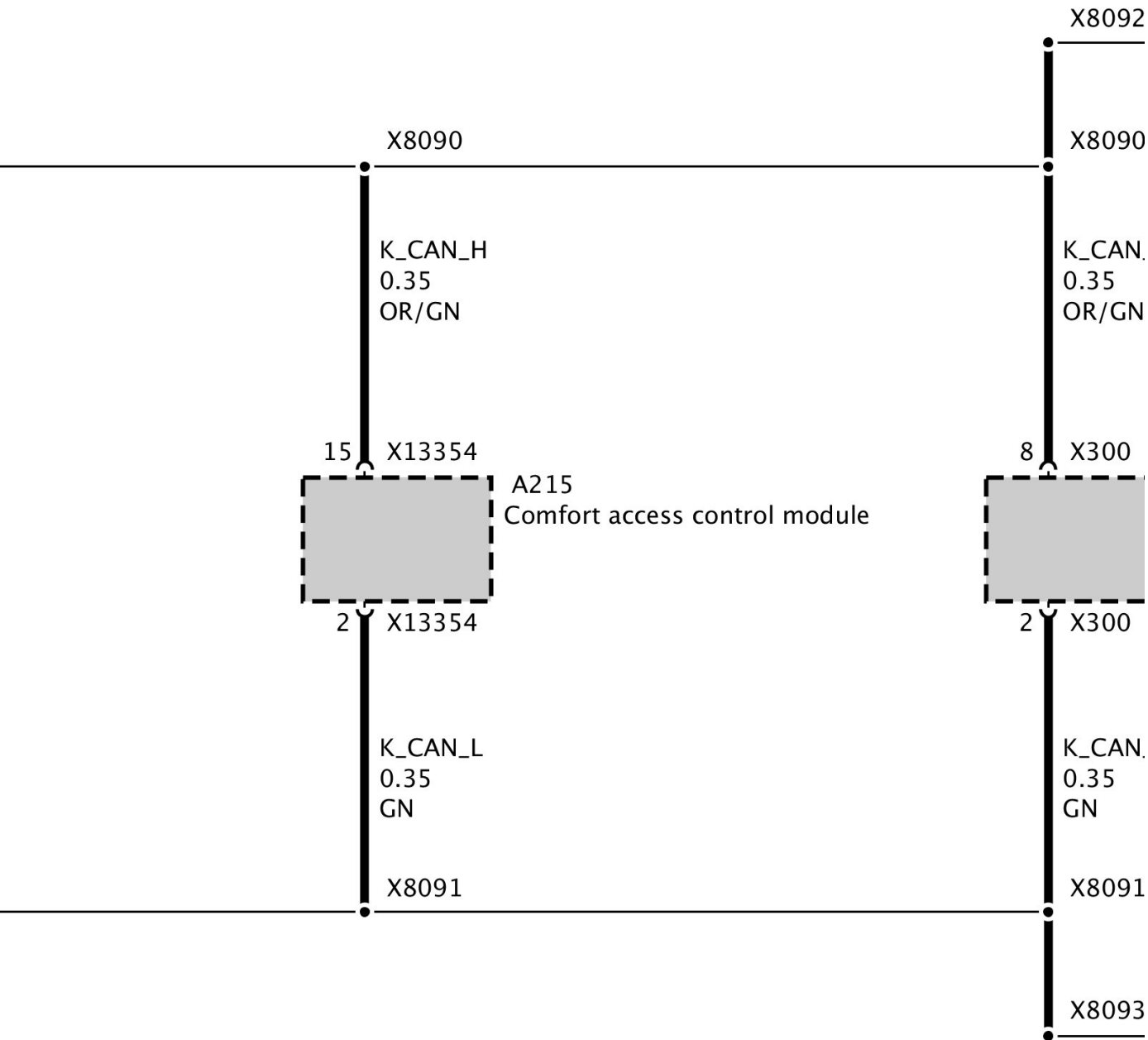
Part 5



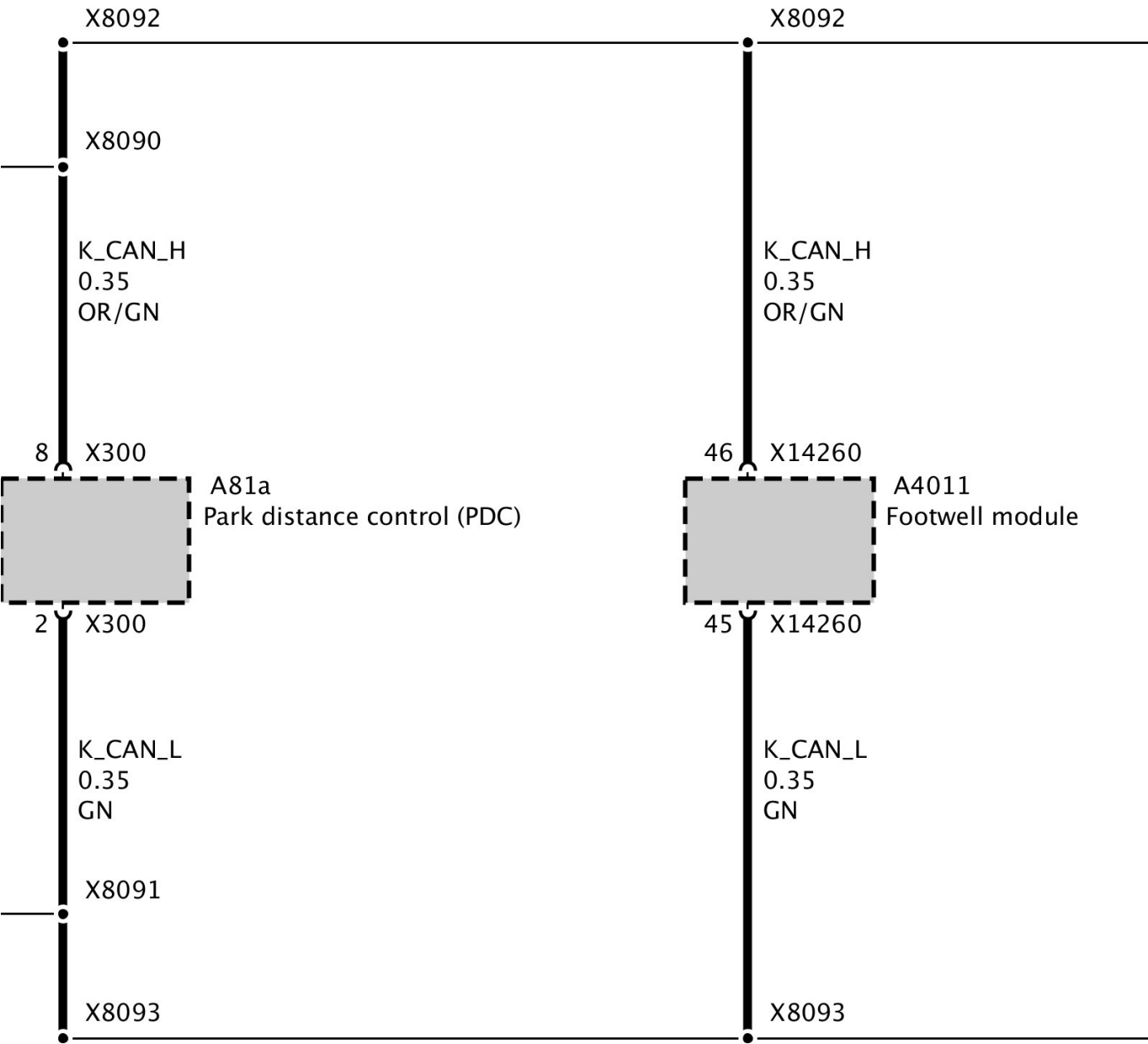
Part 6



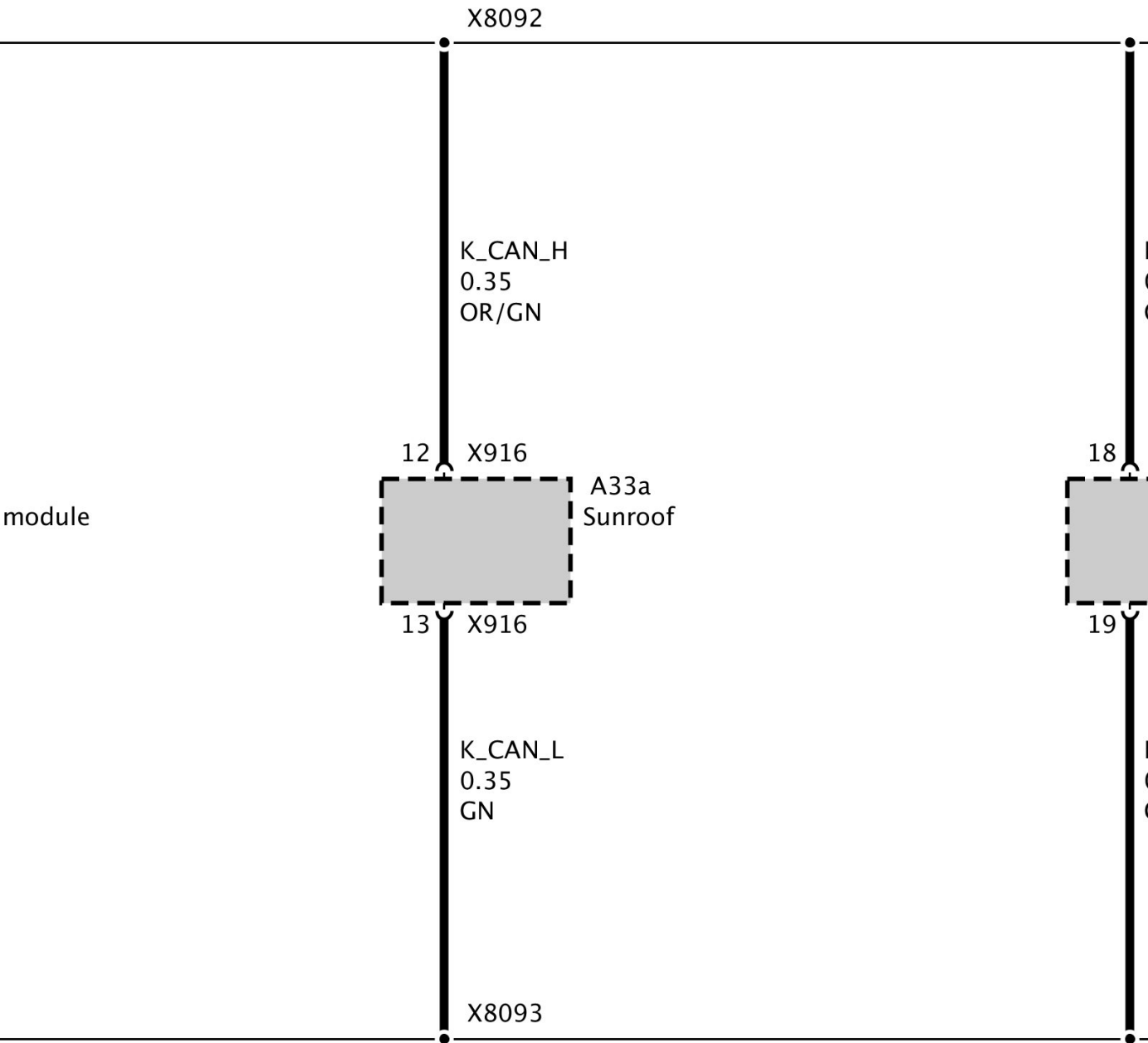


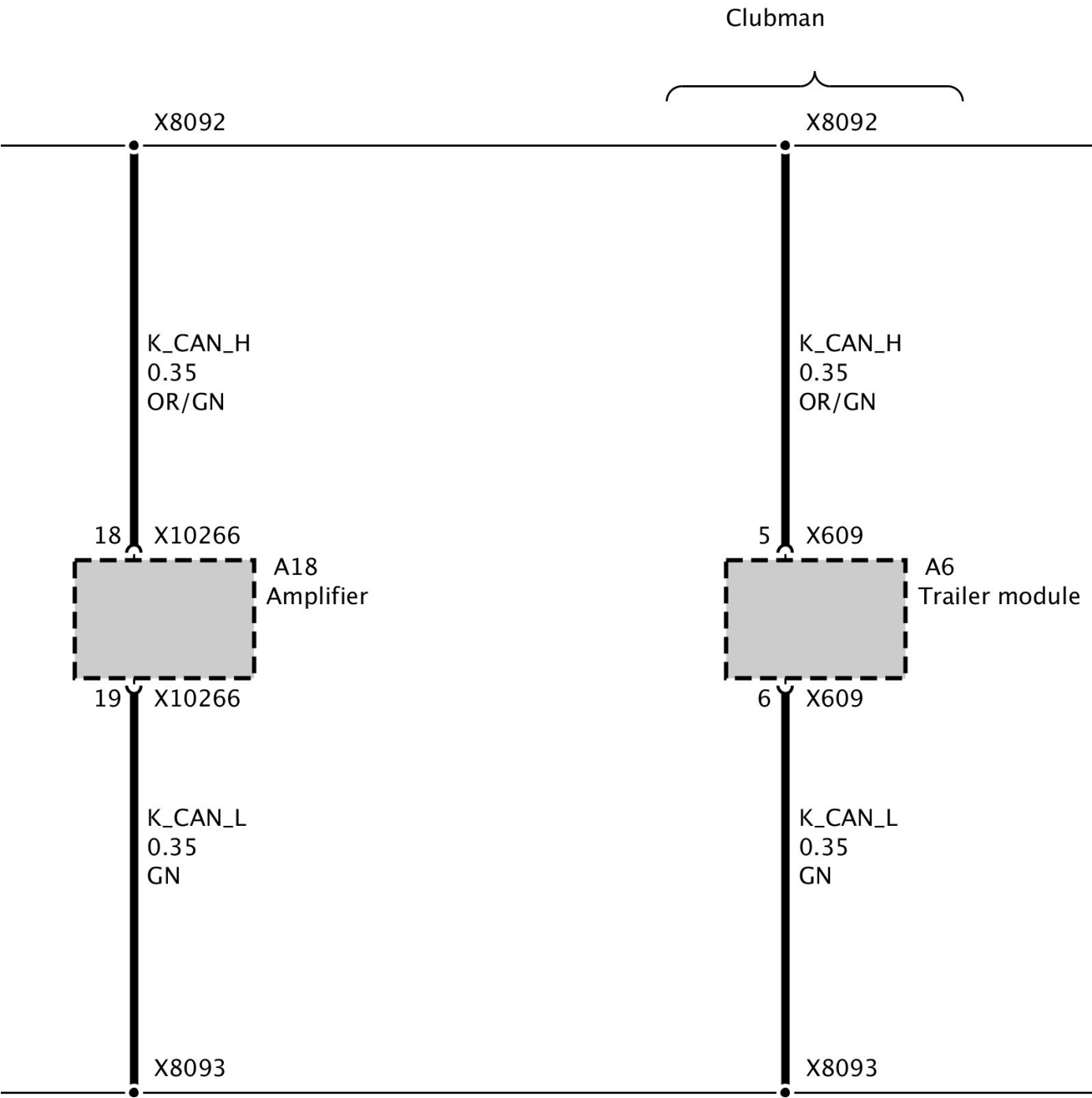


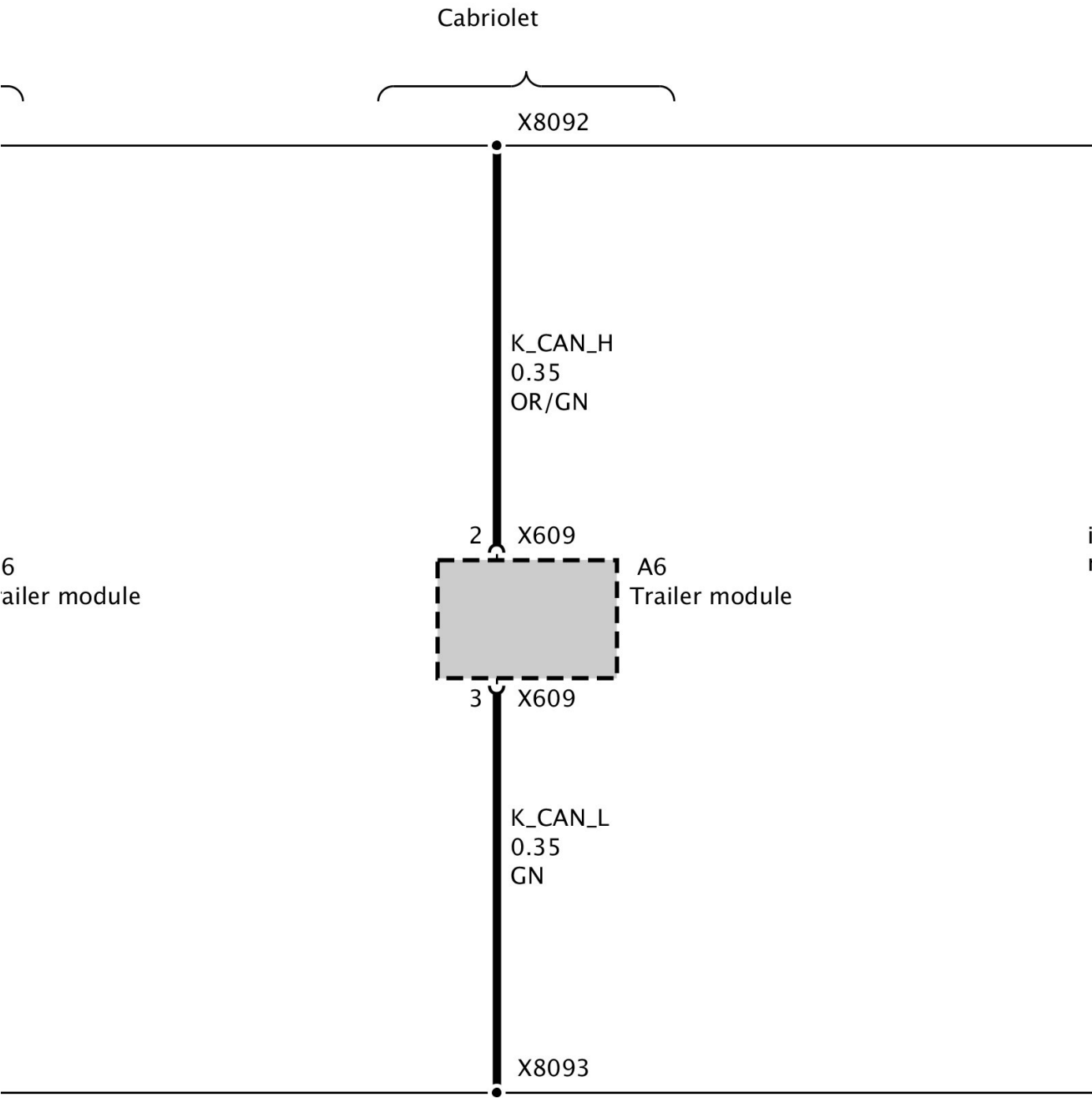
Part 8

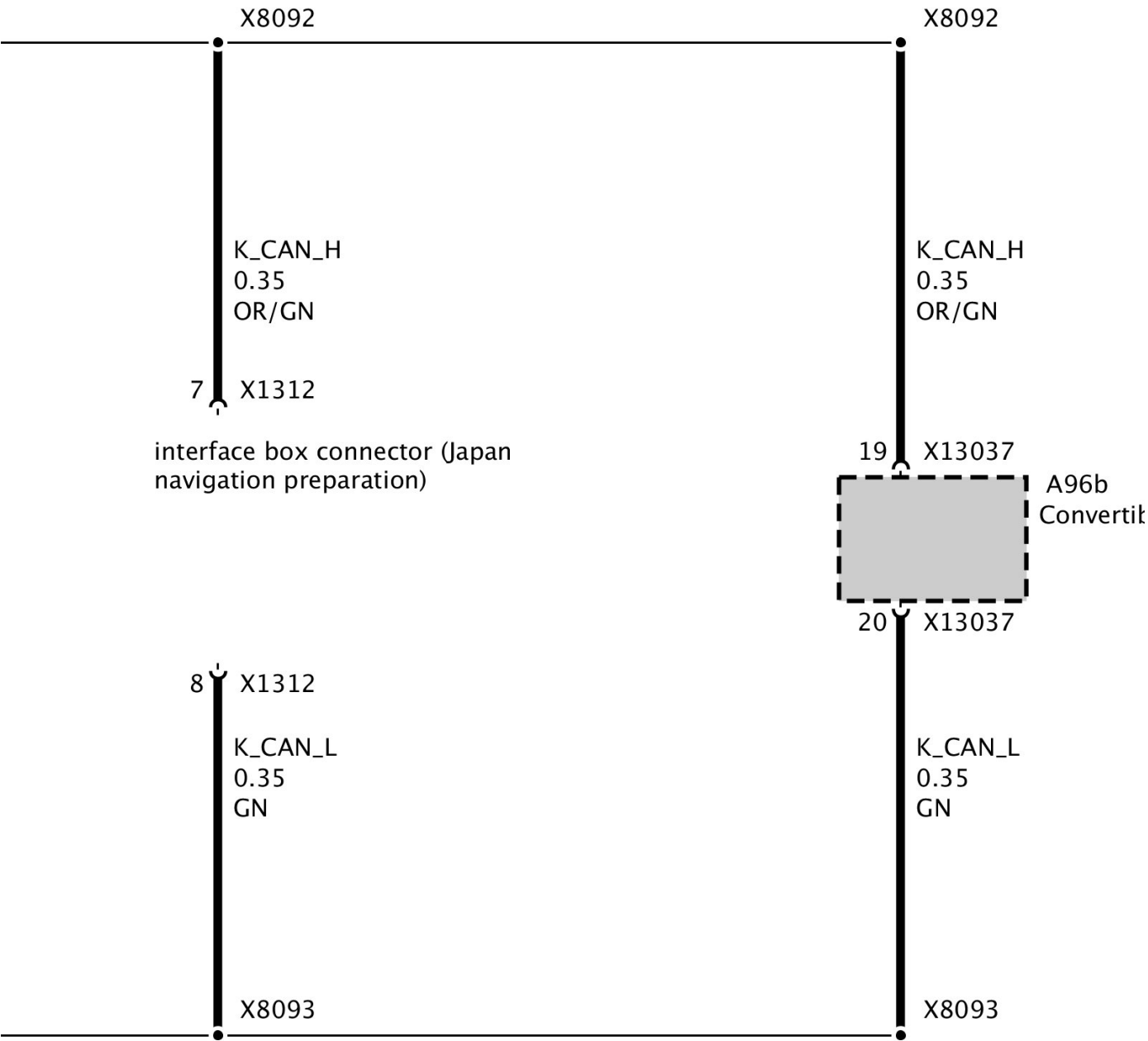


Part 9









2

J\_H

J

37



A96b  
Convertible top module

37

J\_L

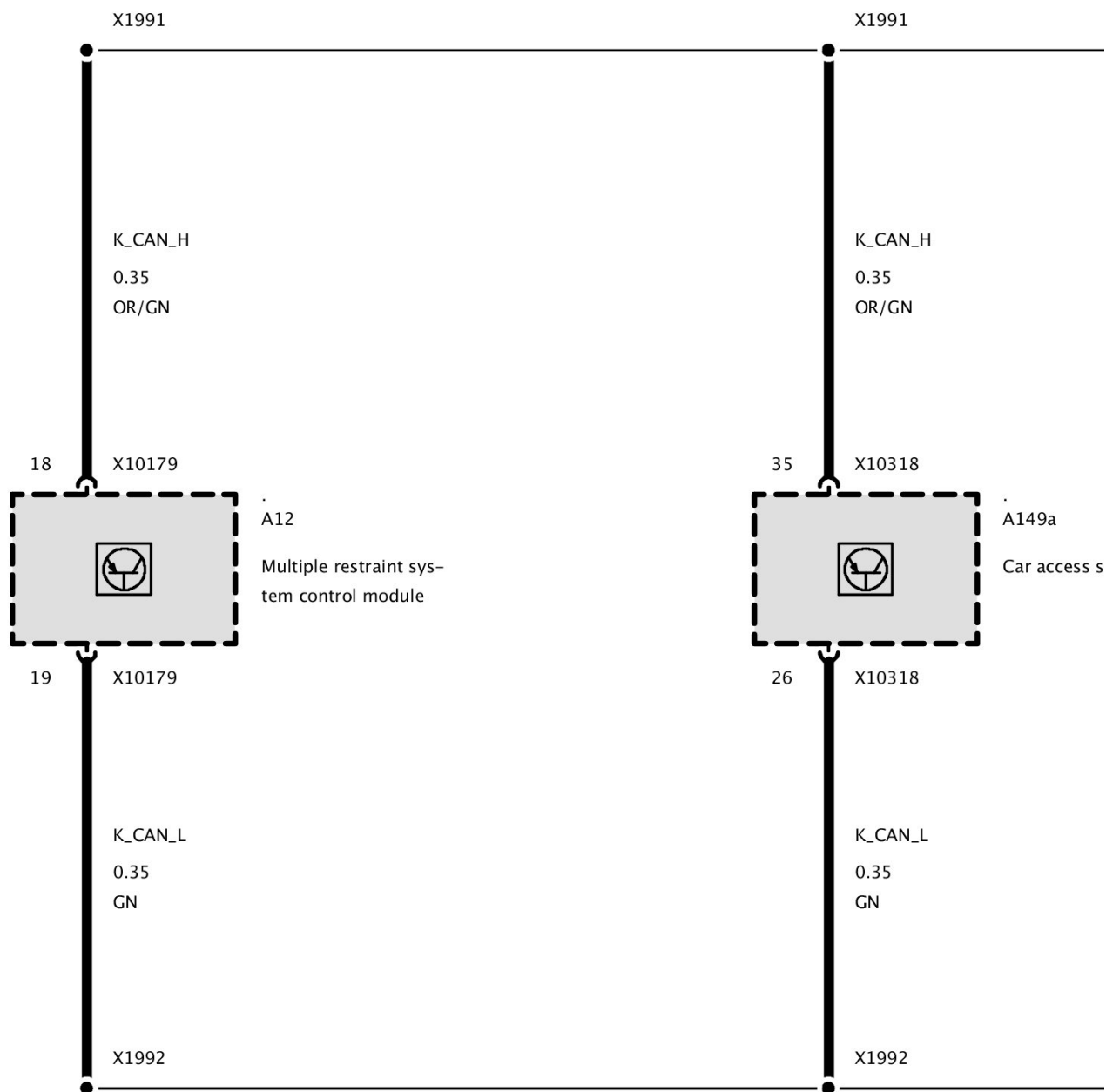
3

#### Part 14

**Connector, CAN bus (as of 08/07 up to 12/08)**

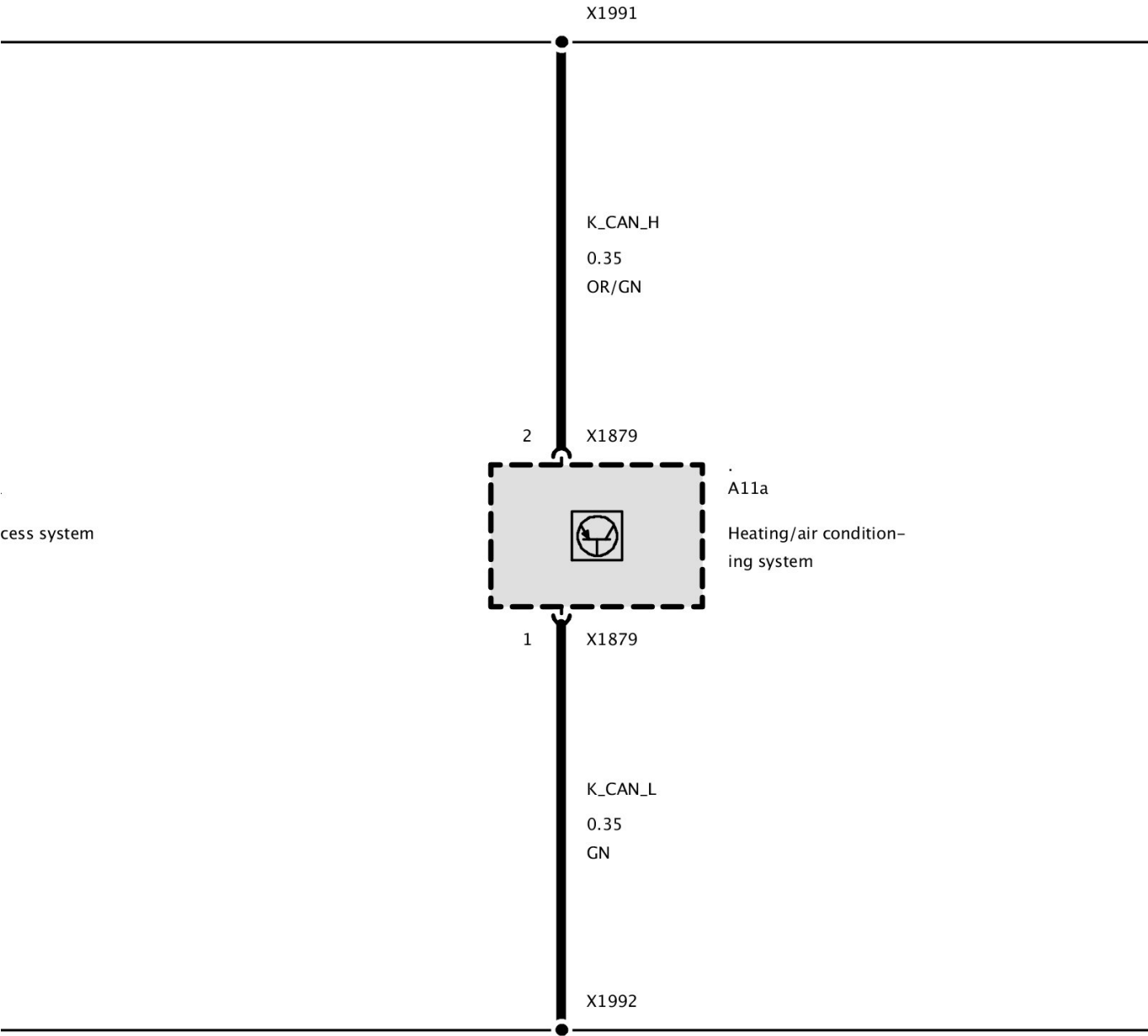
**X8093 No Adapter**

**Connector, CAN bus (as of 08/07 up to 12/08)**

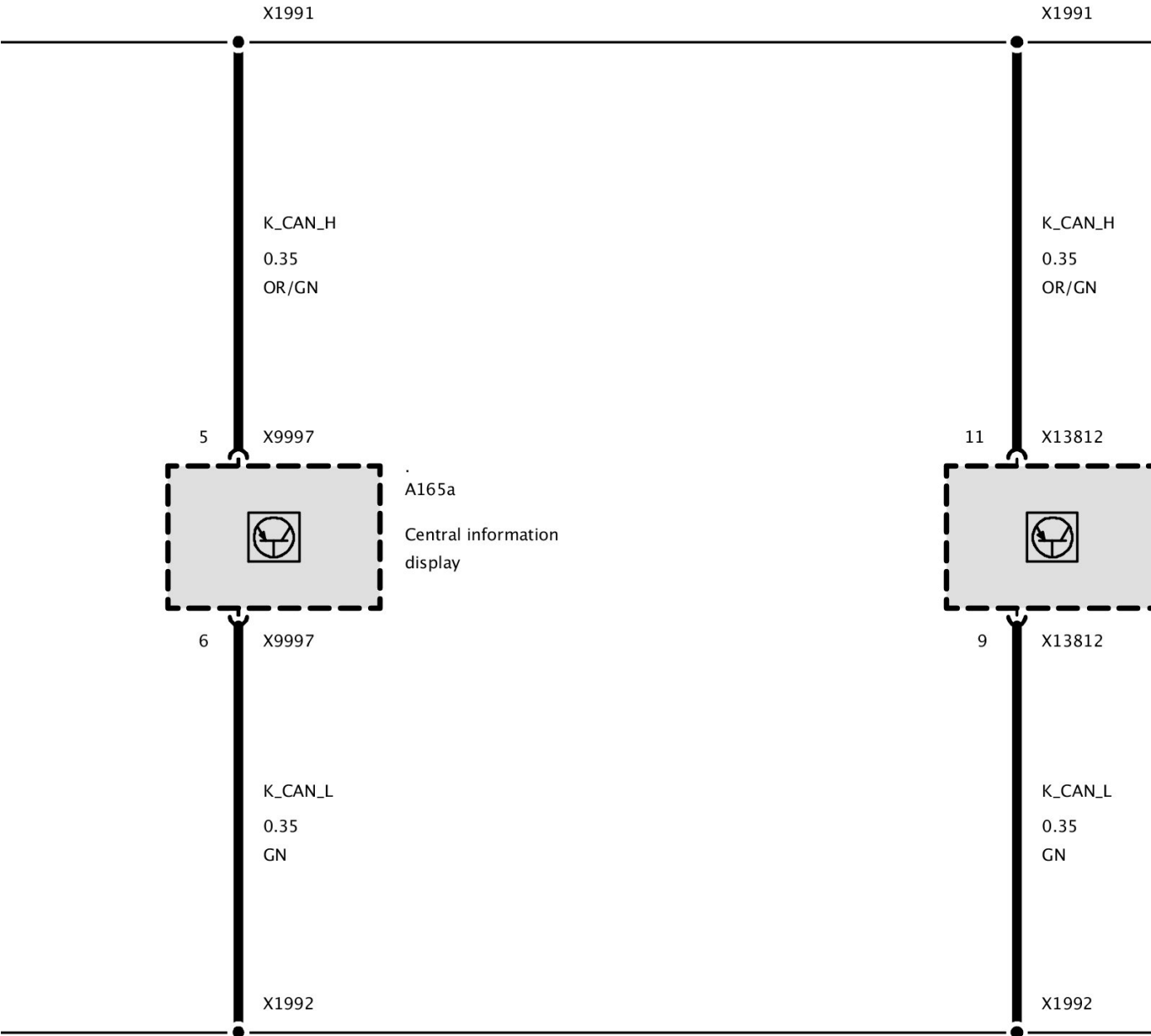


Part 1

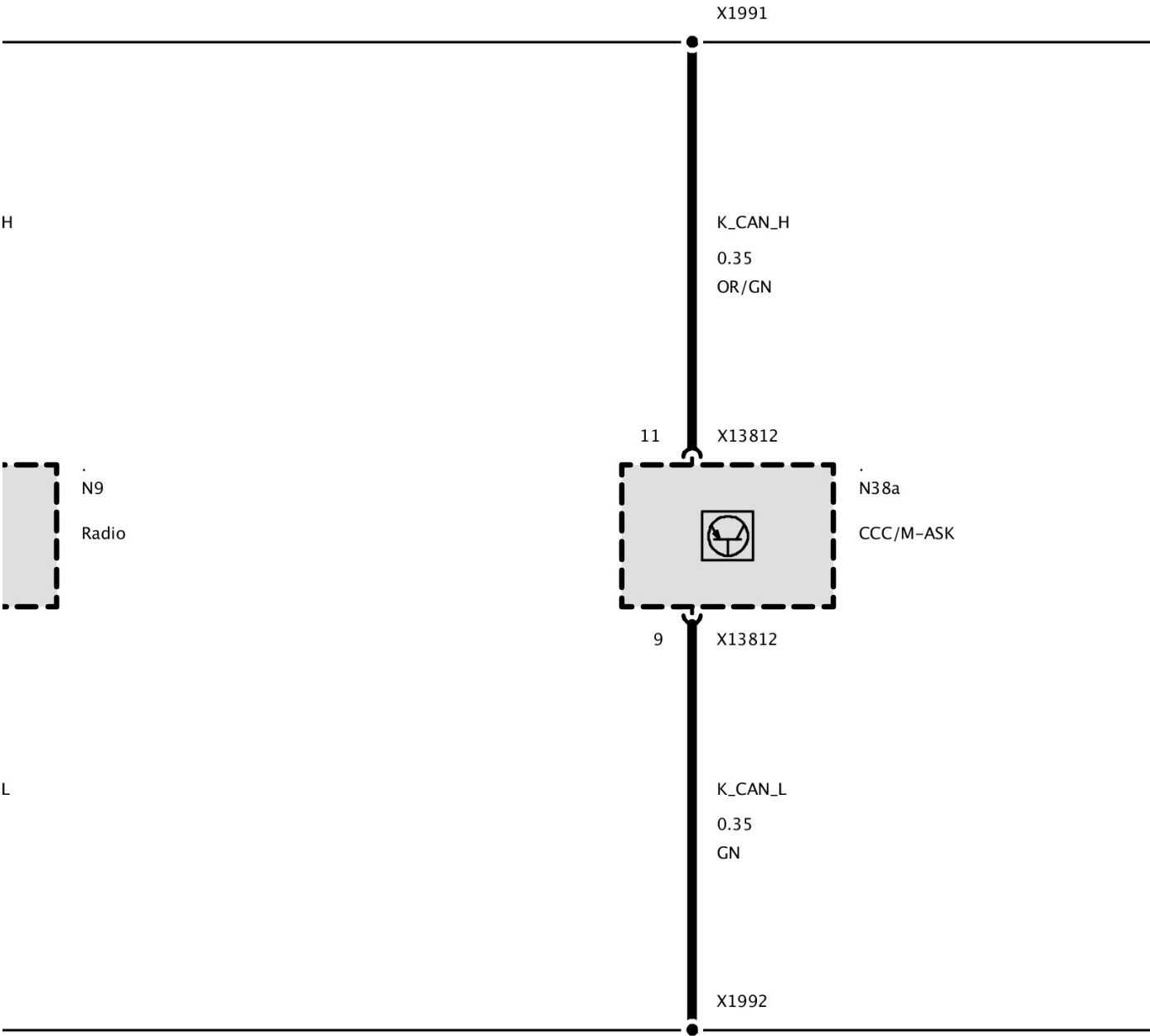




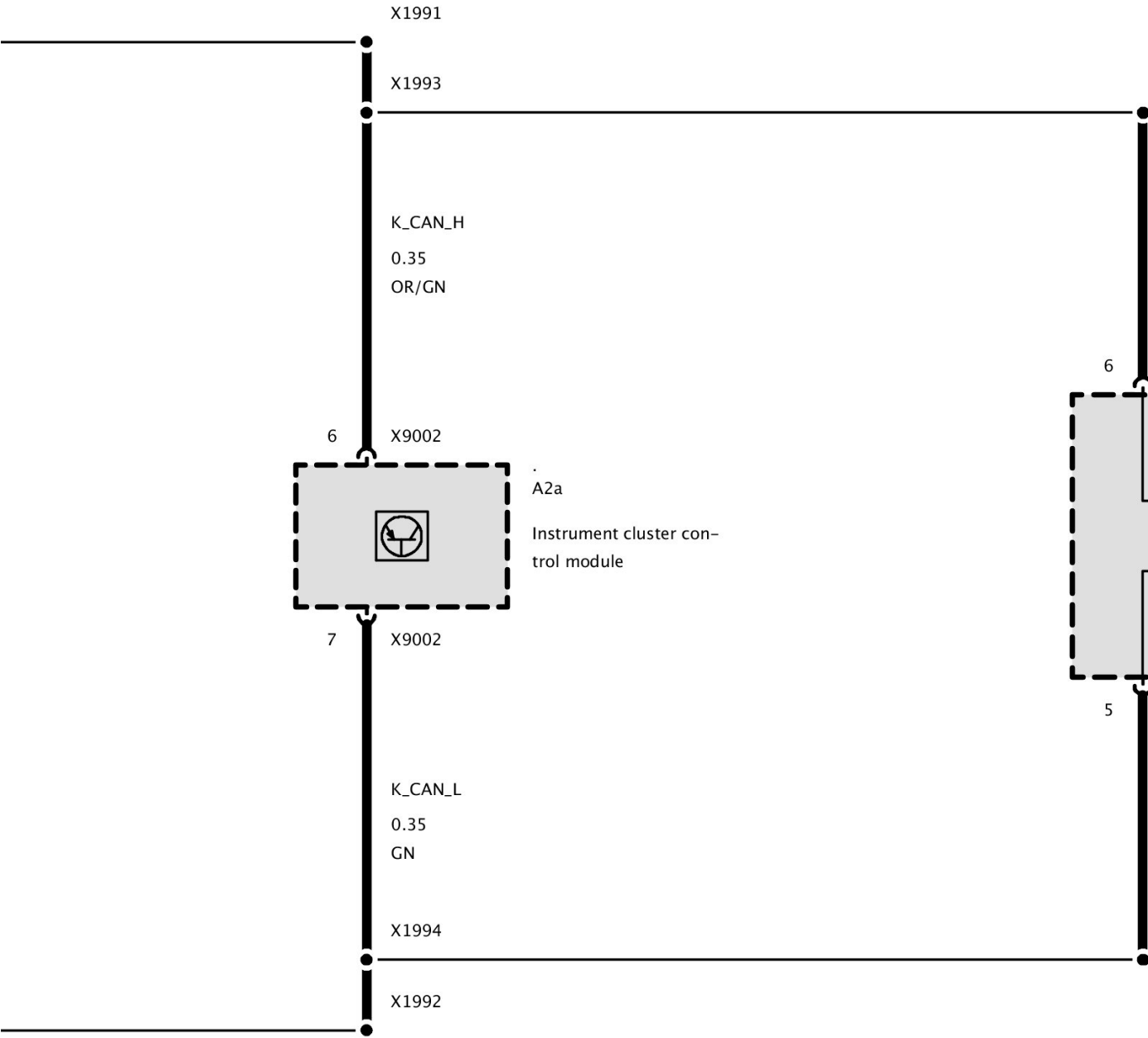
Part 2



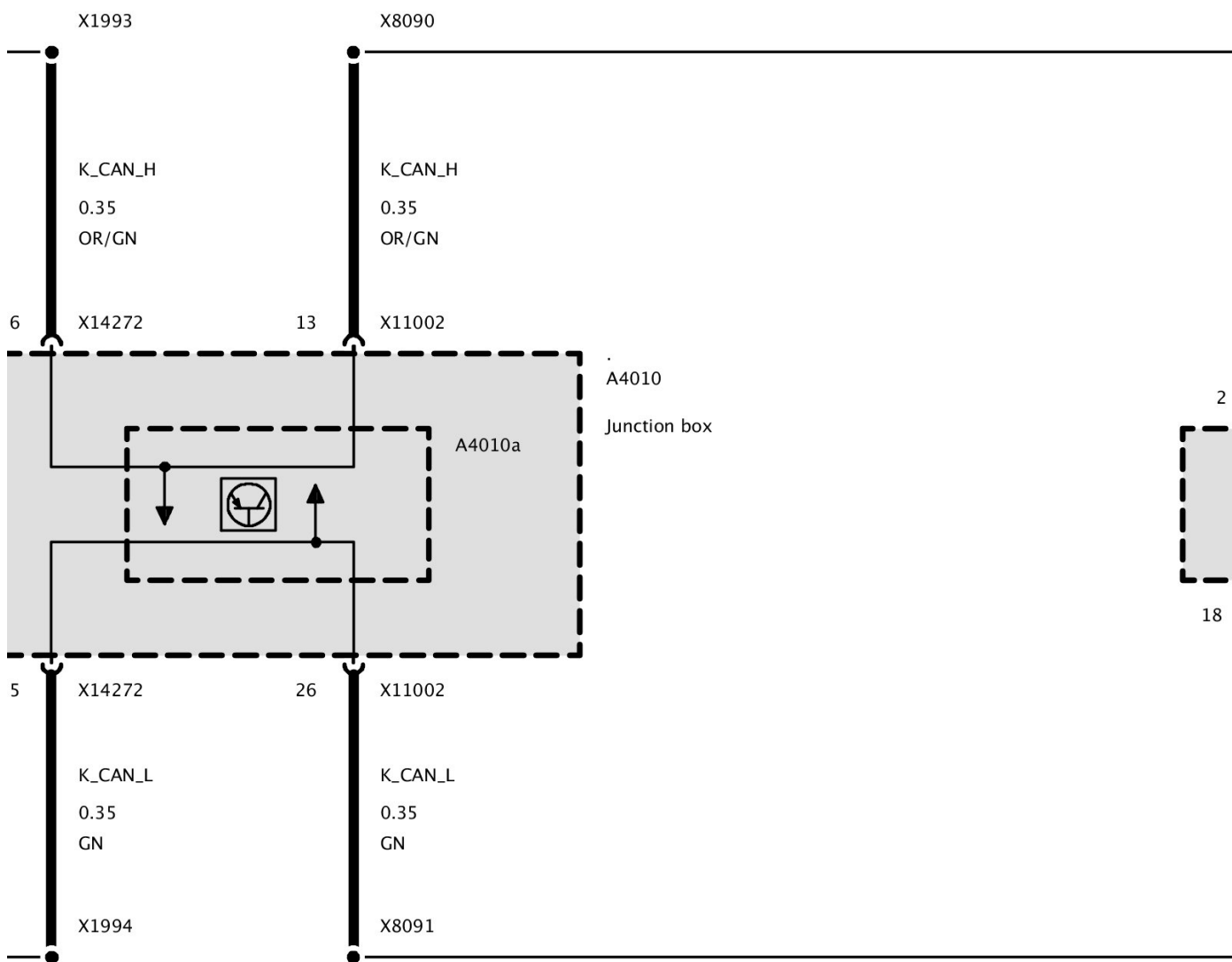
Part 3



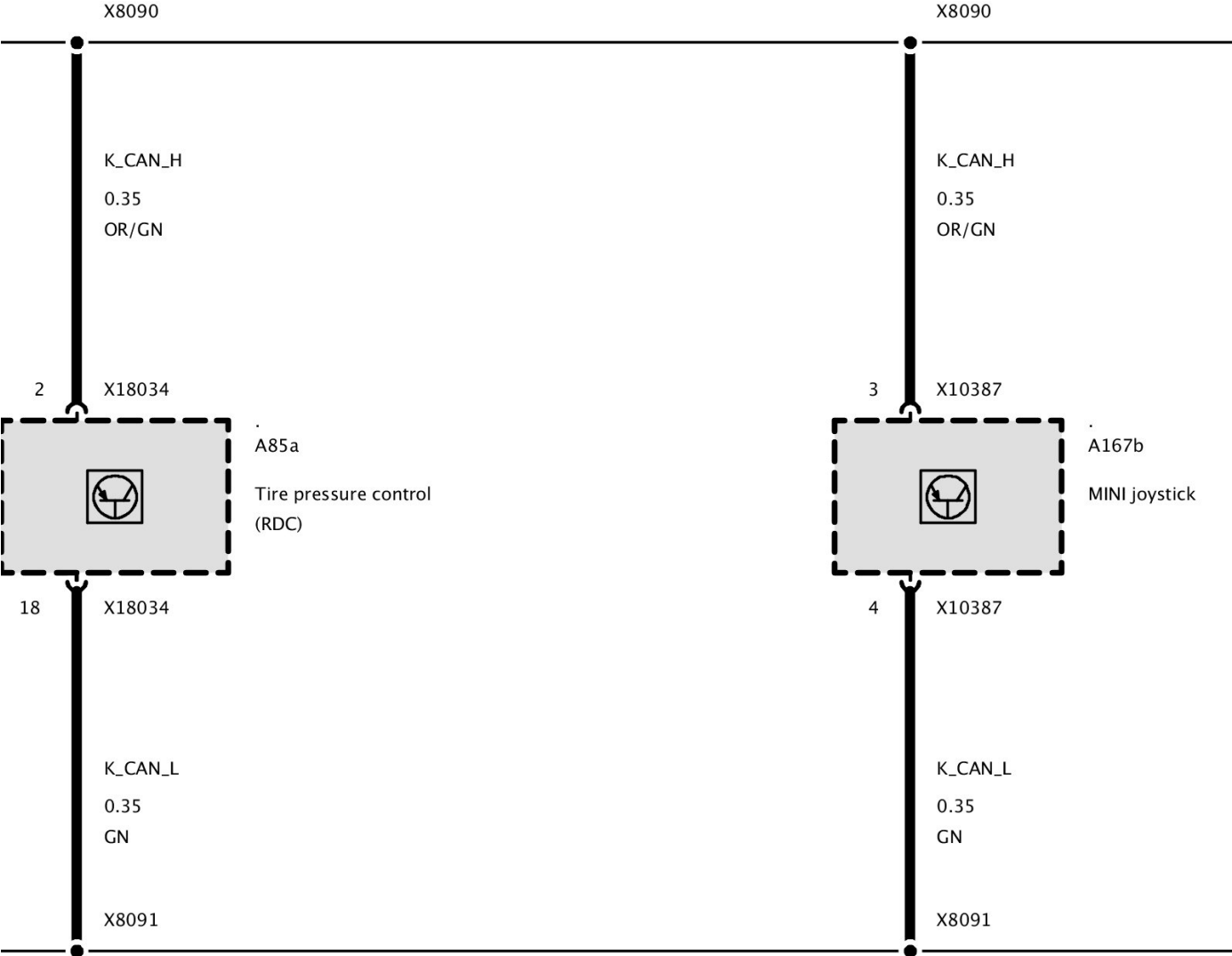
Part 4

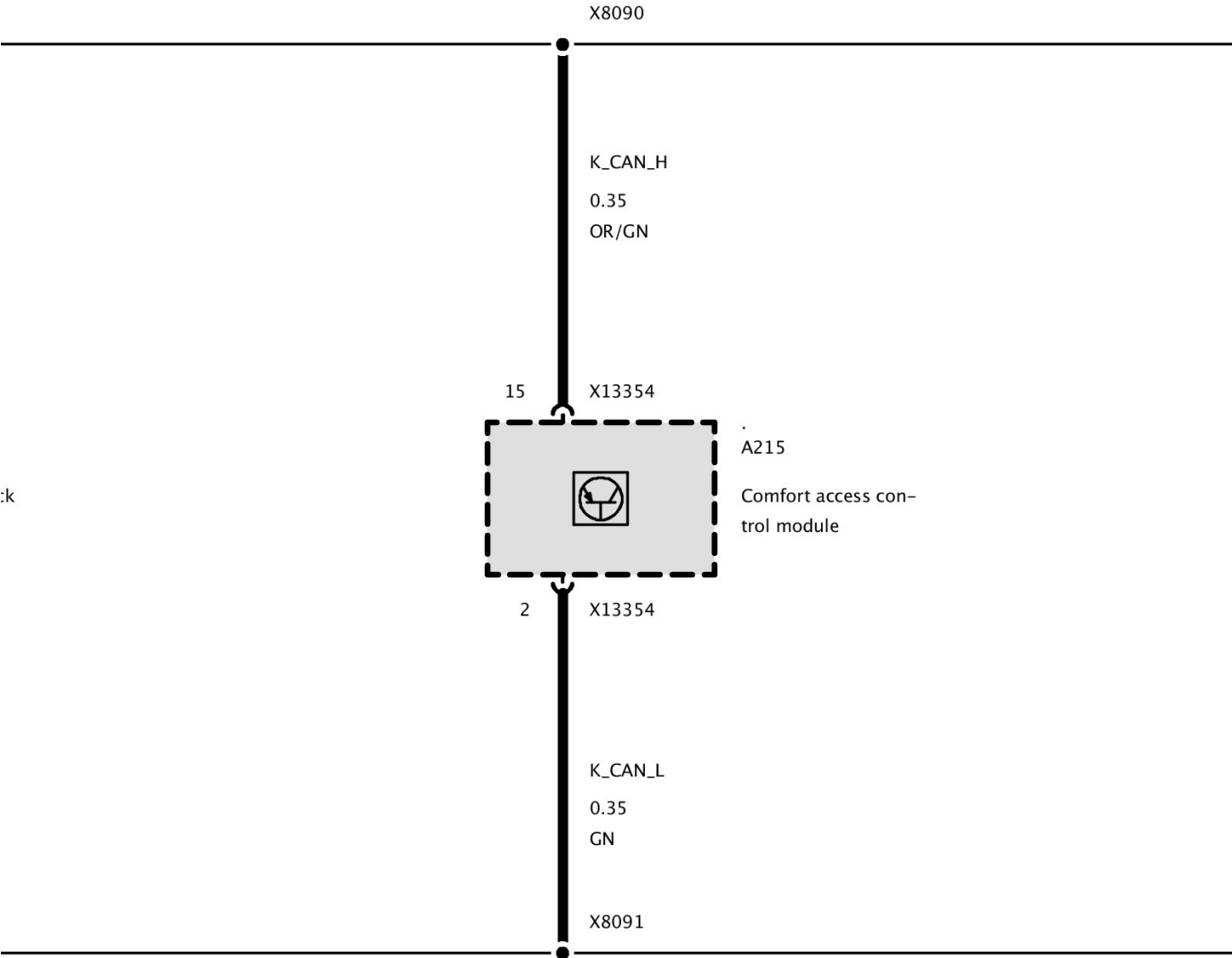


Part 5

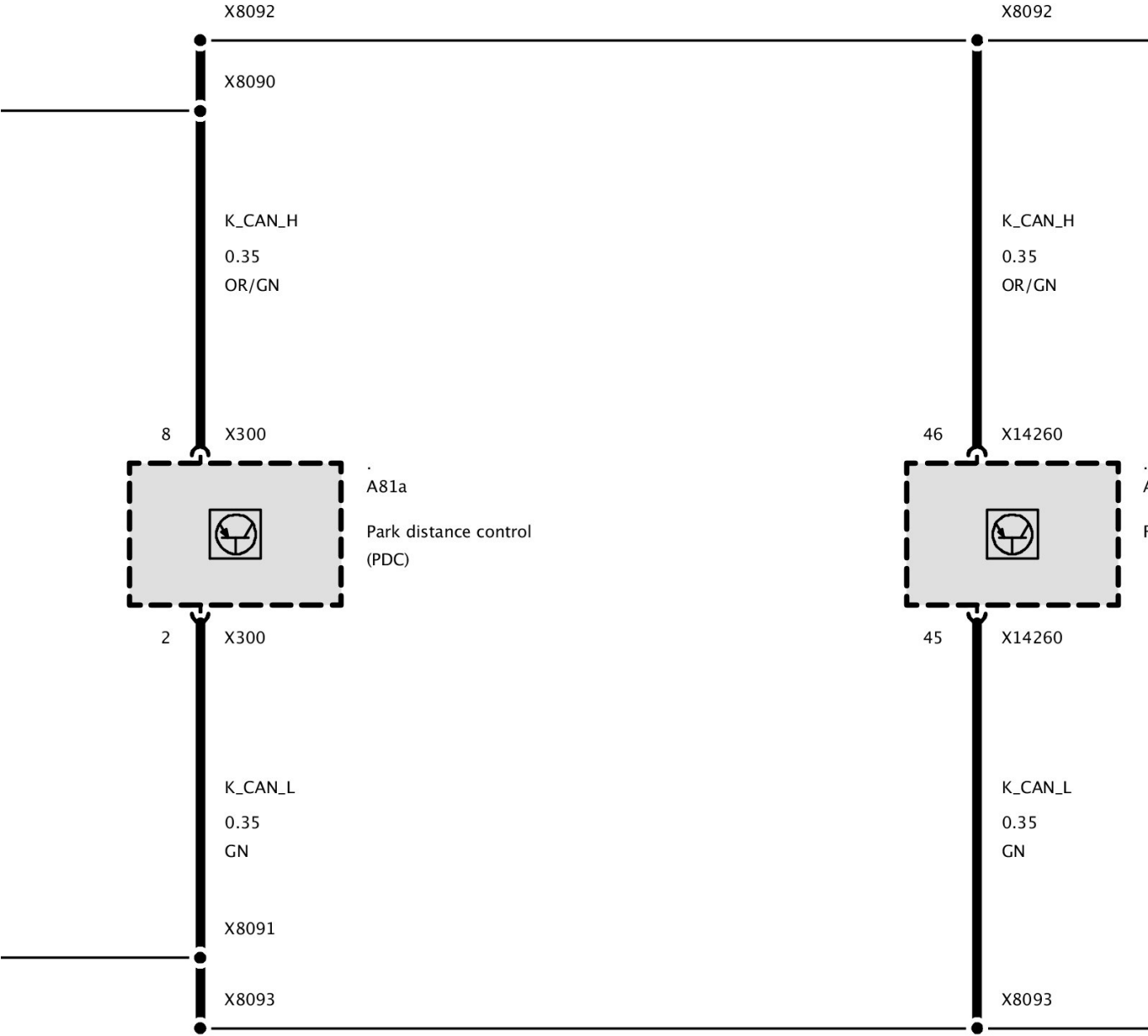


Part 6

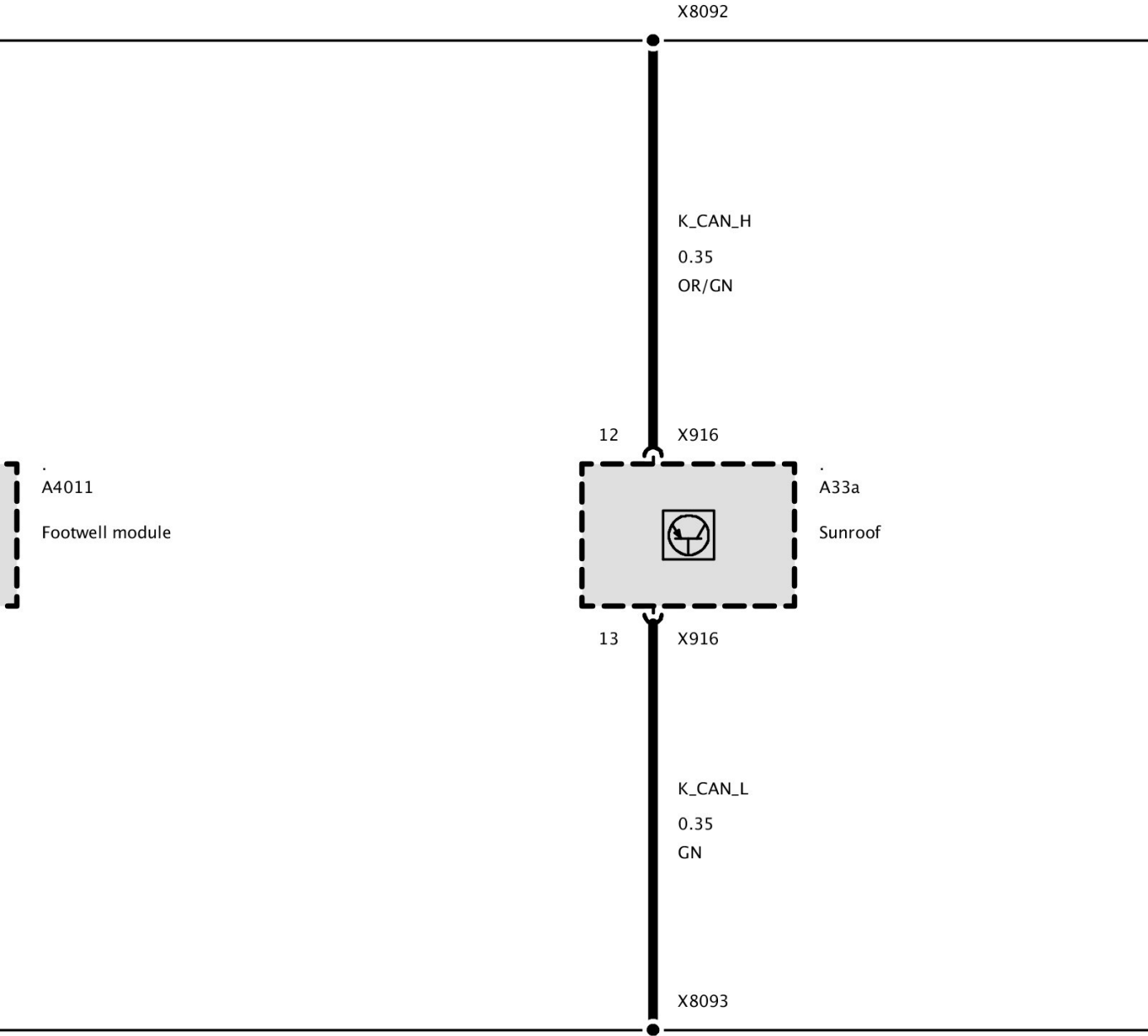




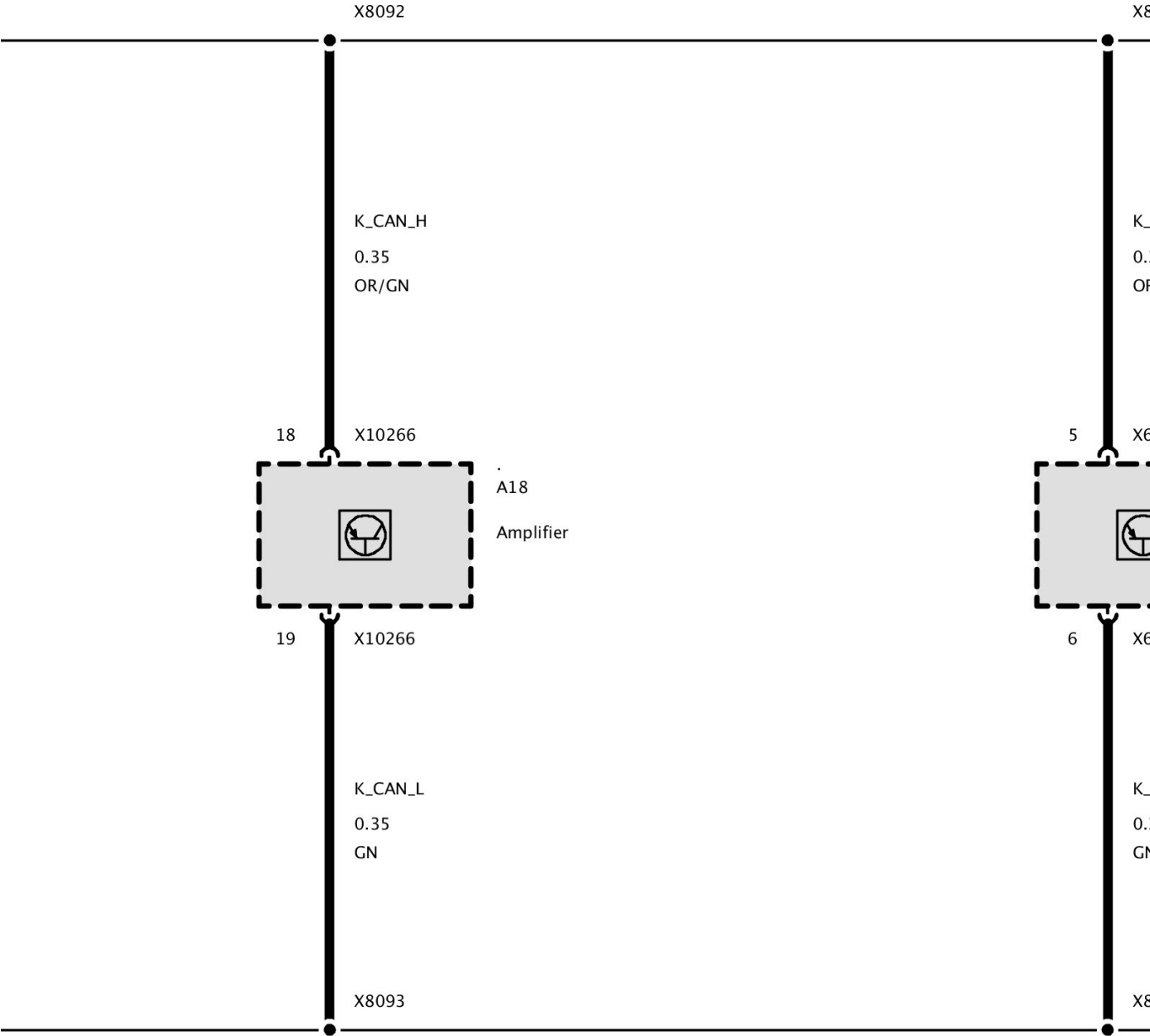
Part 8



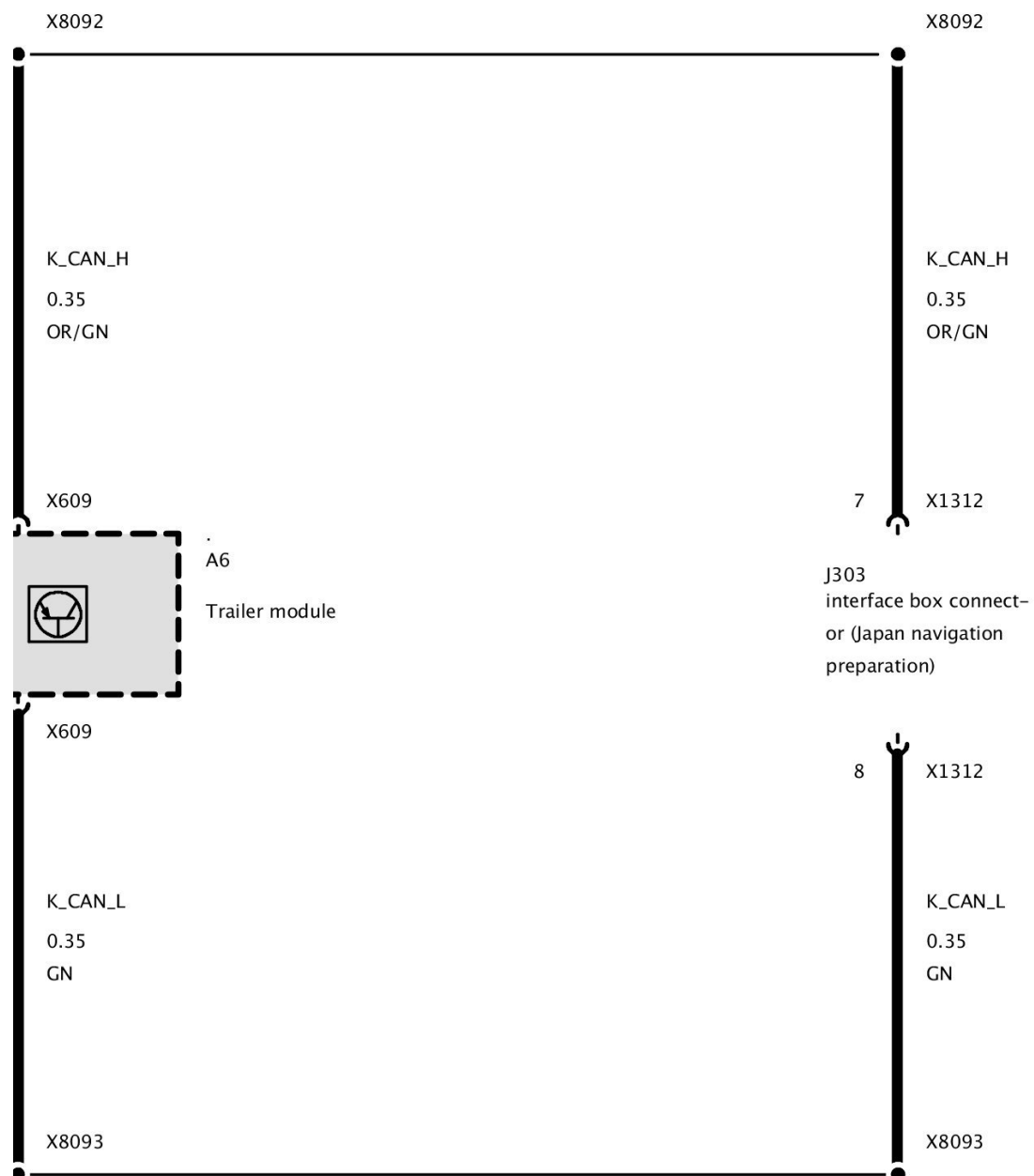




Part 10



Part 11

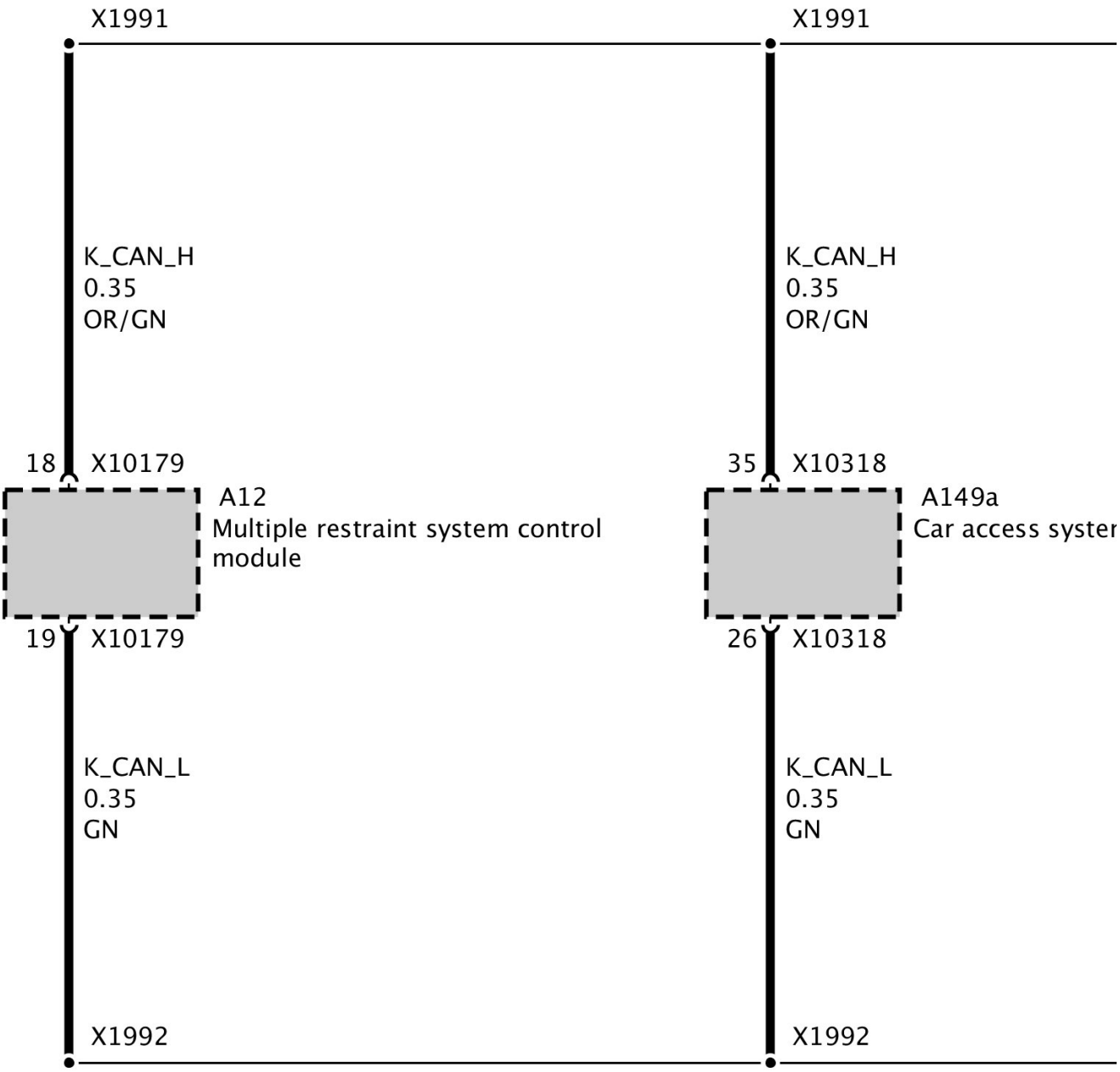


## Part 12

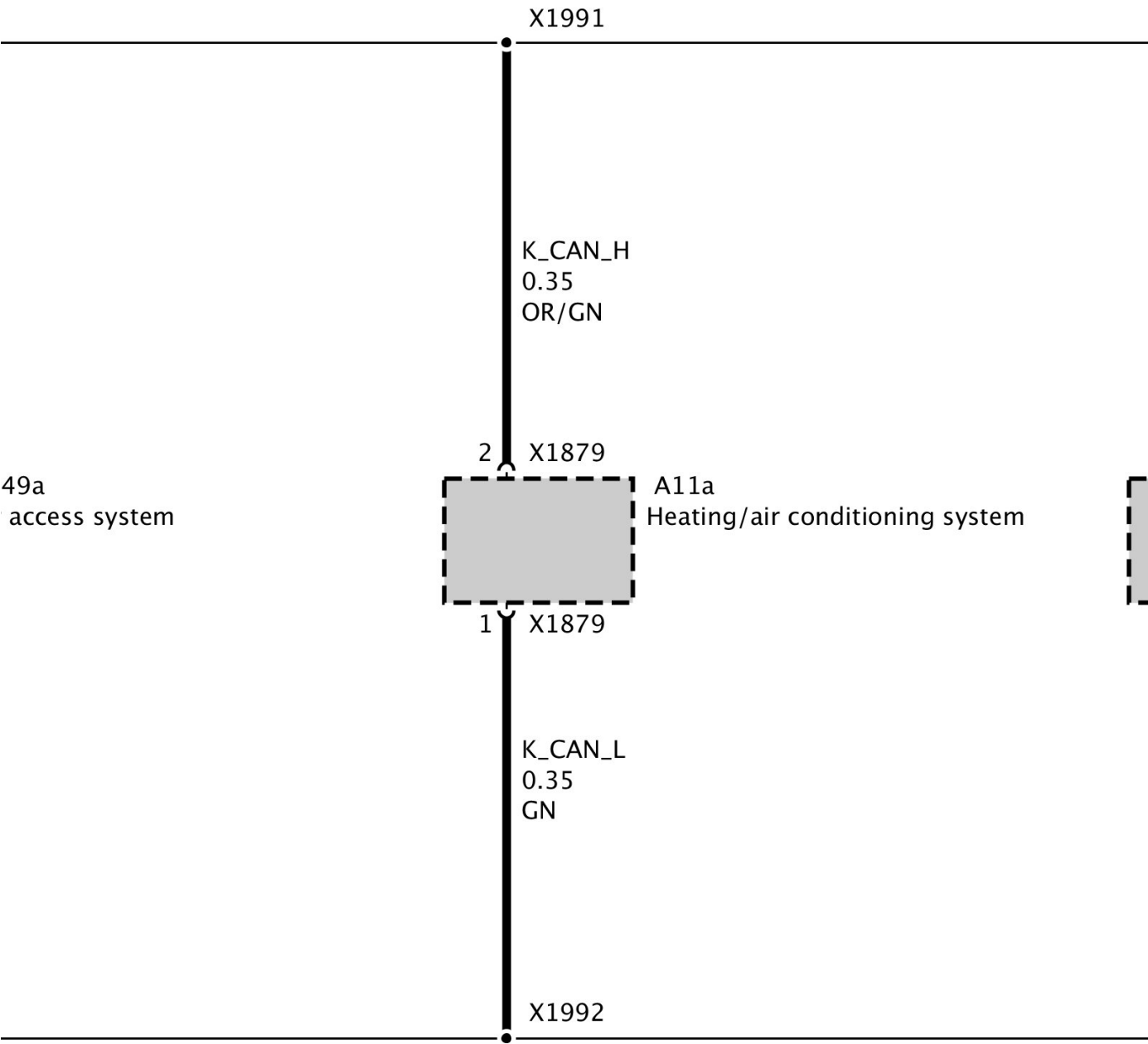
### Connector, CAN bus (as of 12/08)

X8093 No Adapter

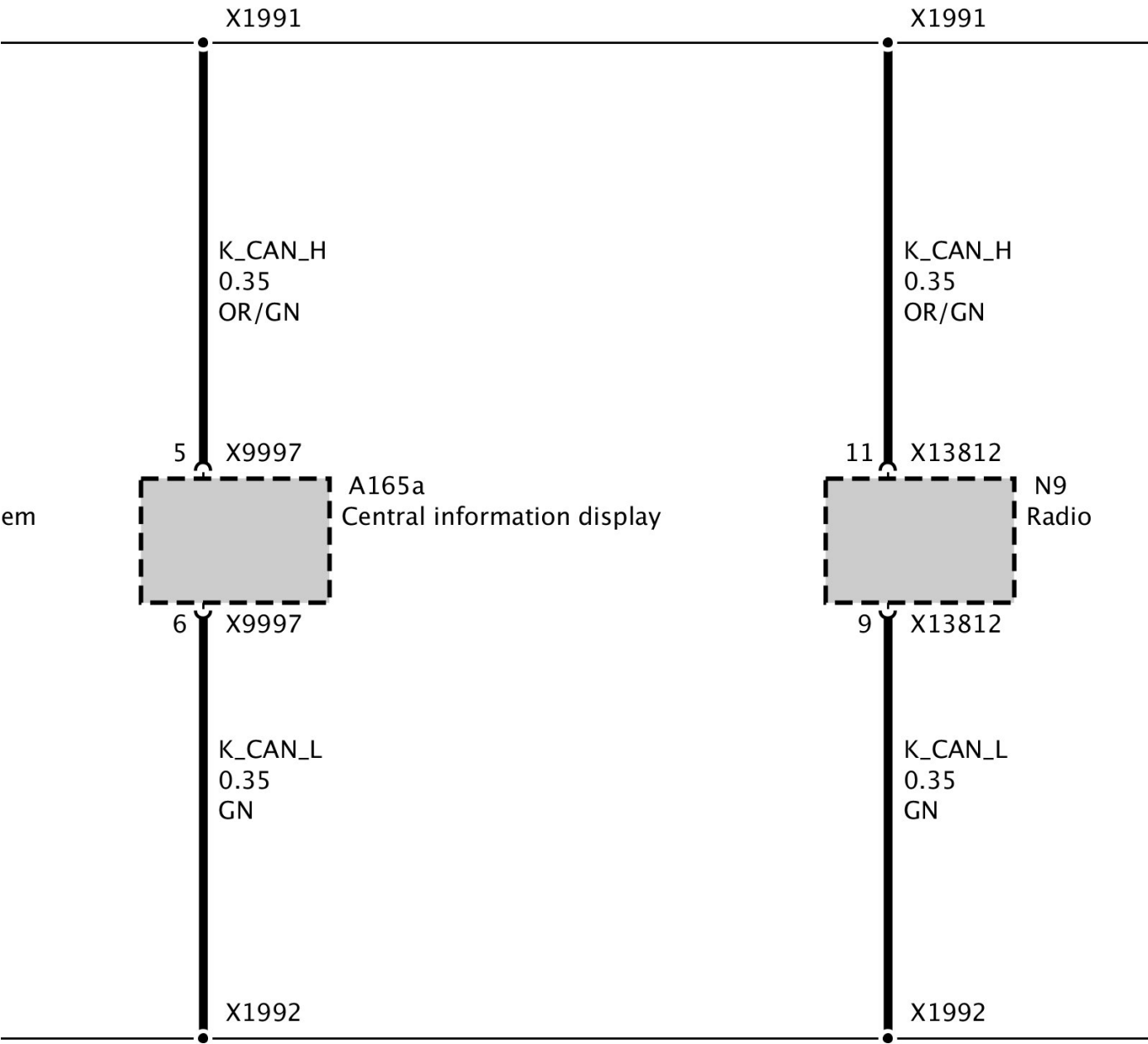
Connector, CAN bus (as of 12/08)



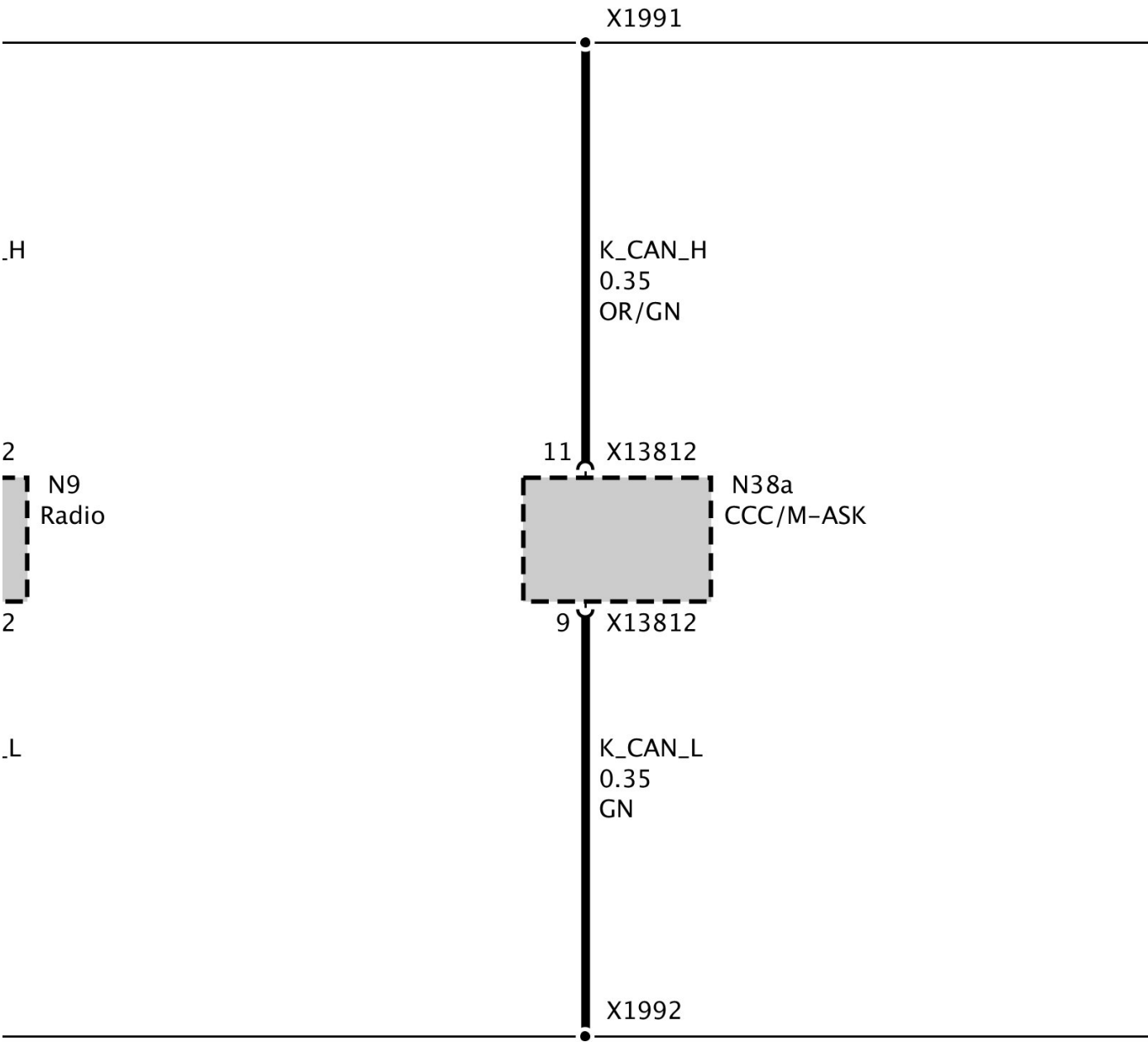
Part 1



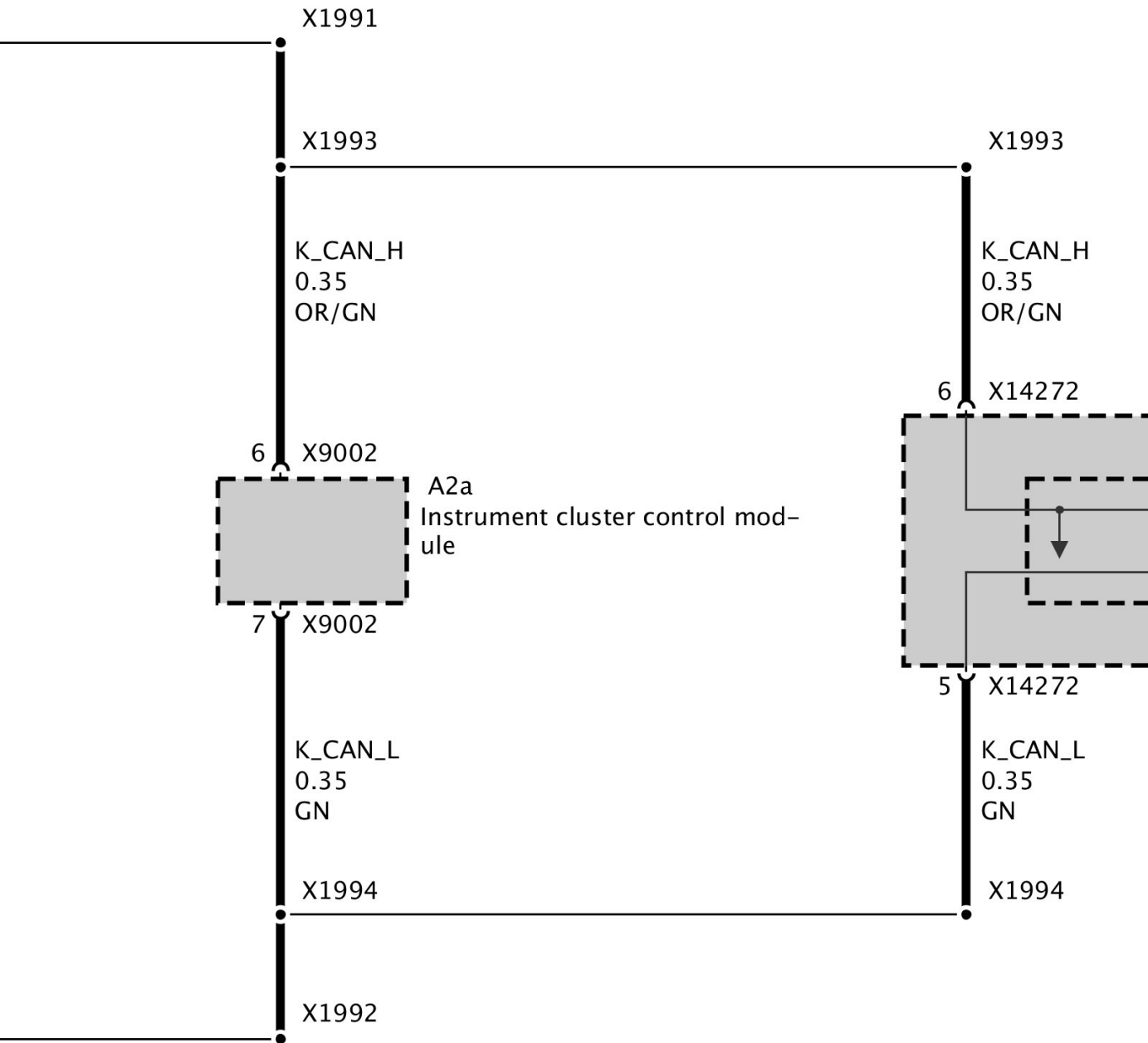
Part 2



Part 3

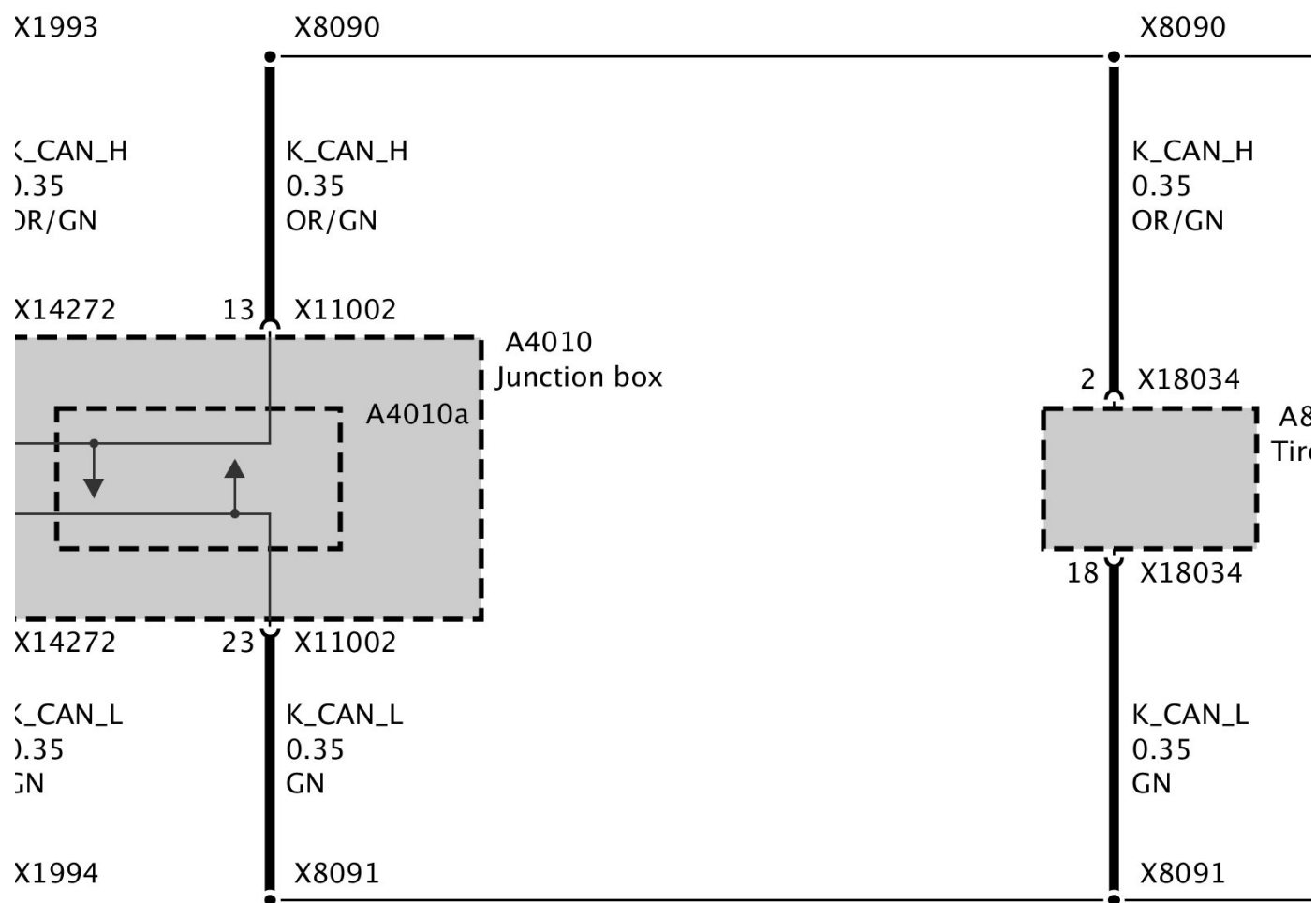


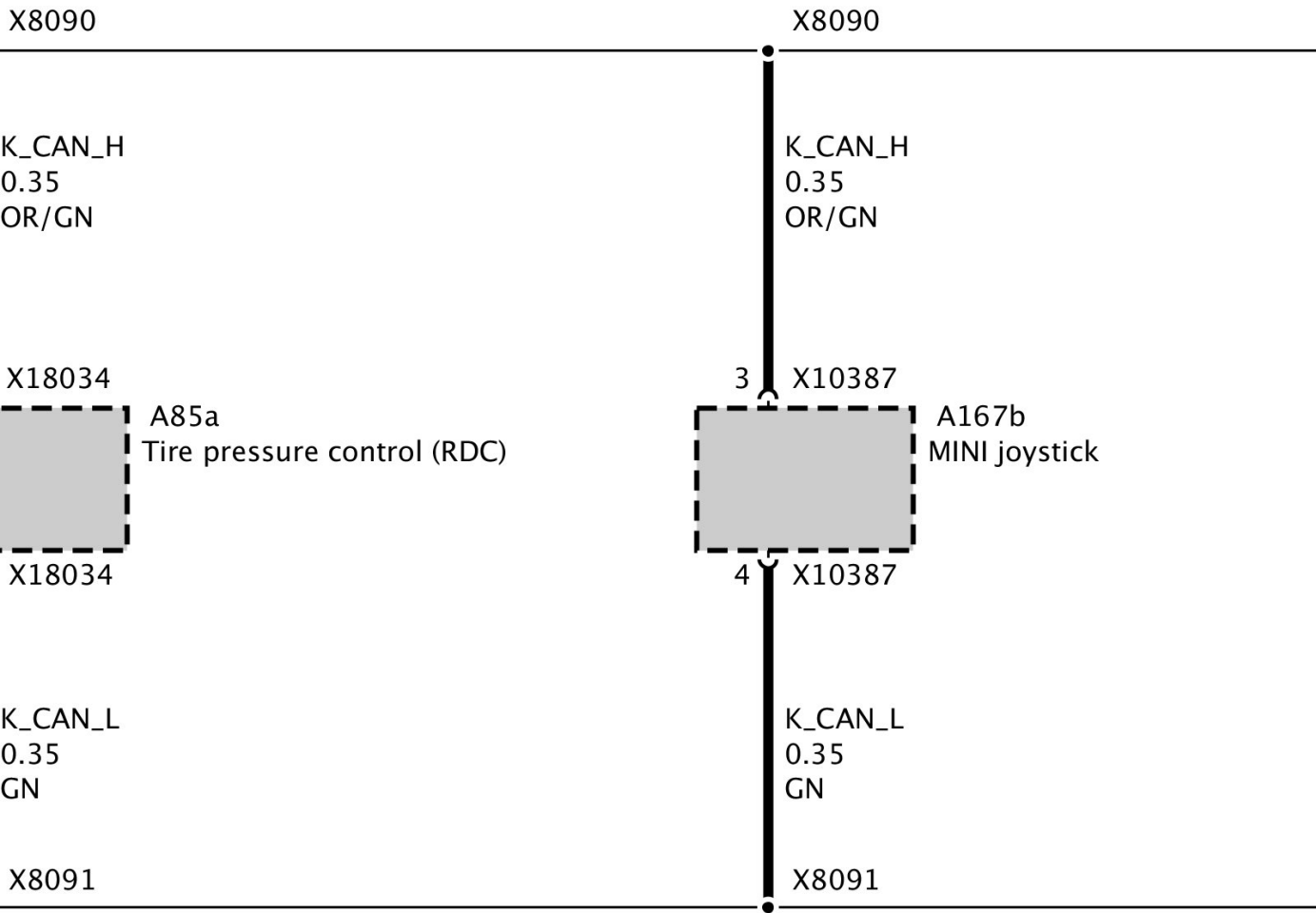
Part 4

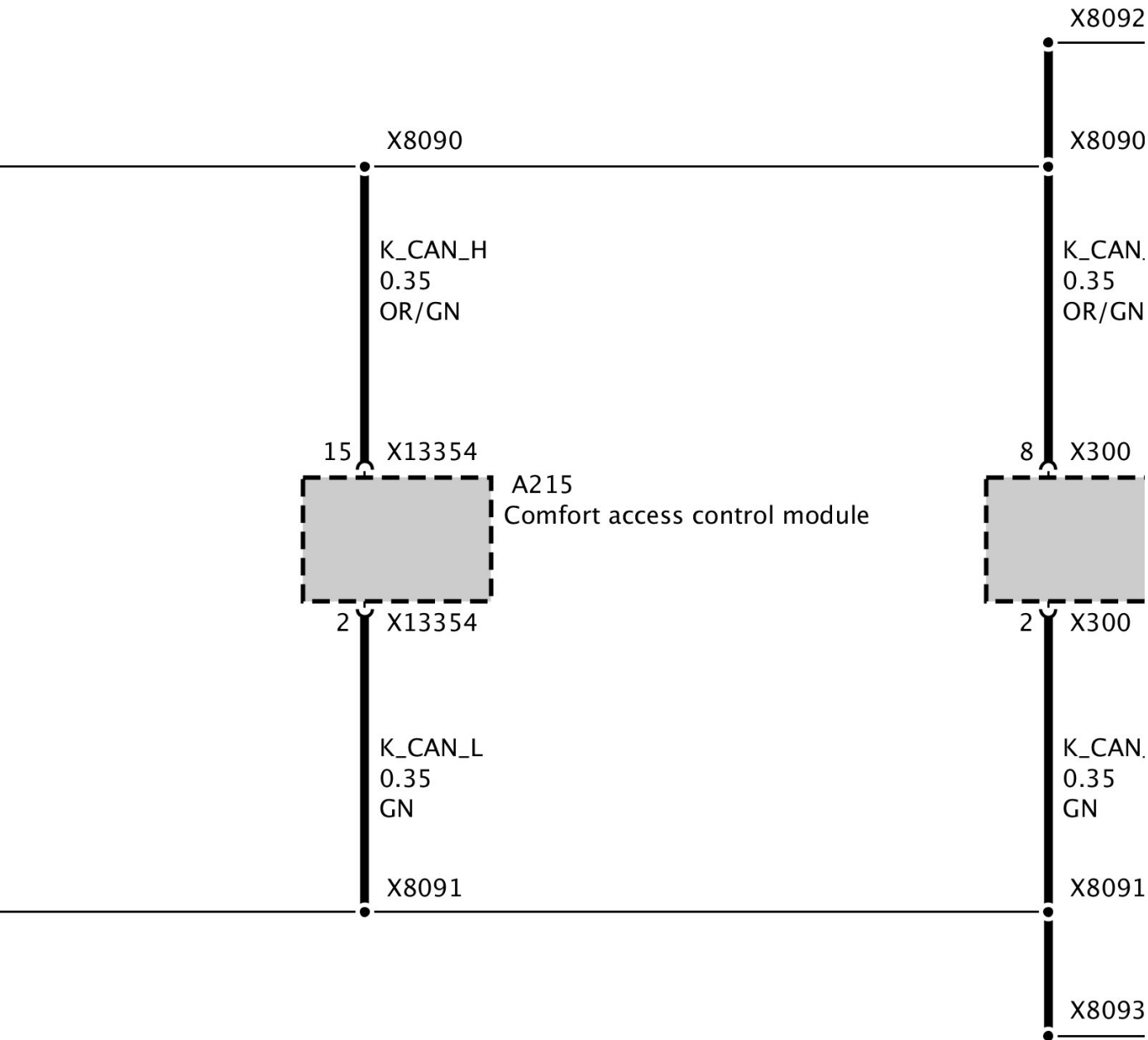


Part 5

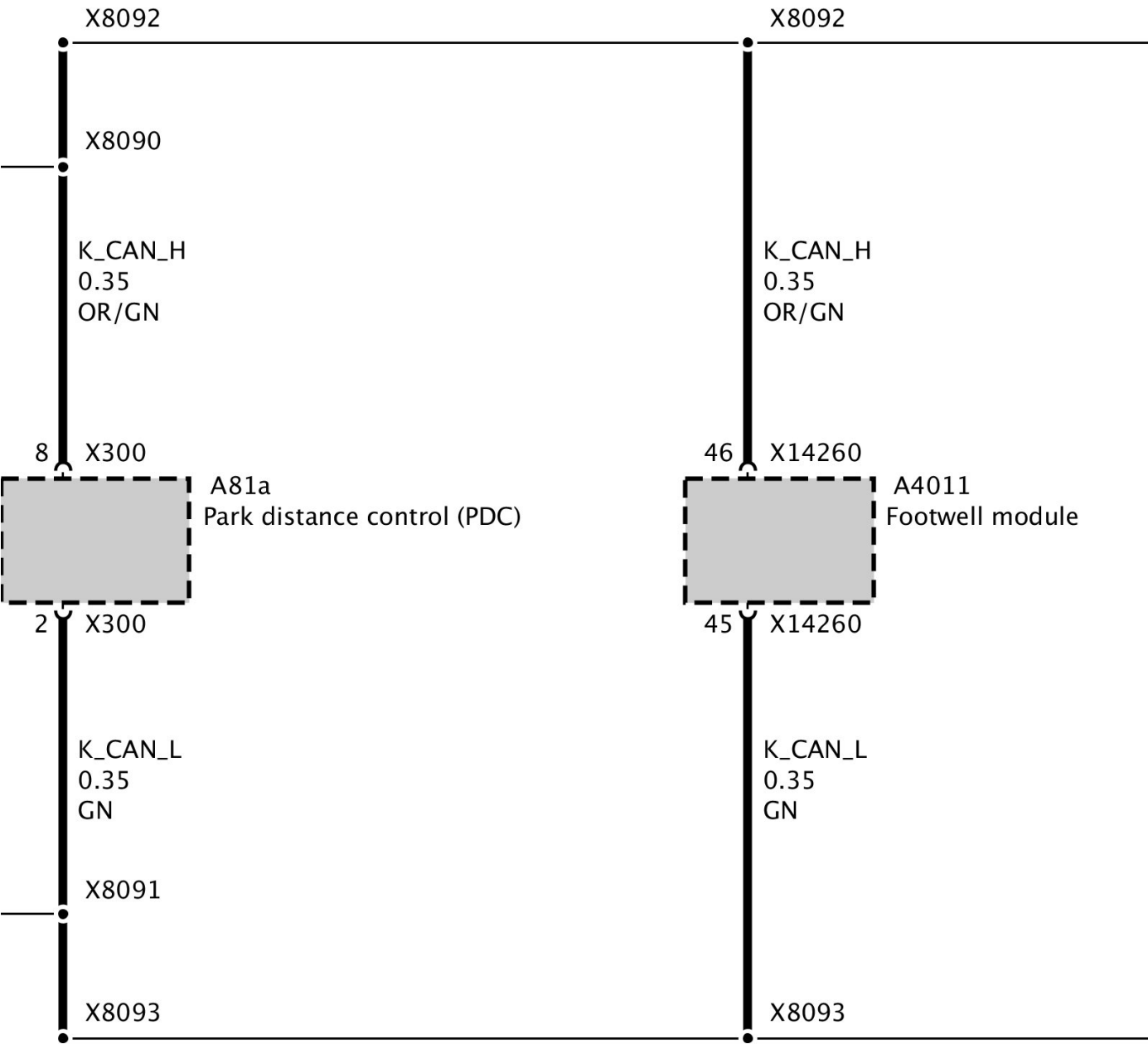


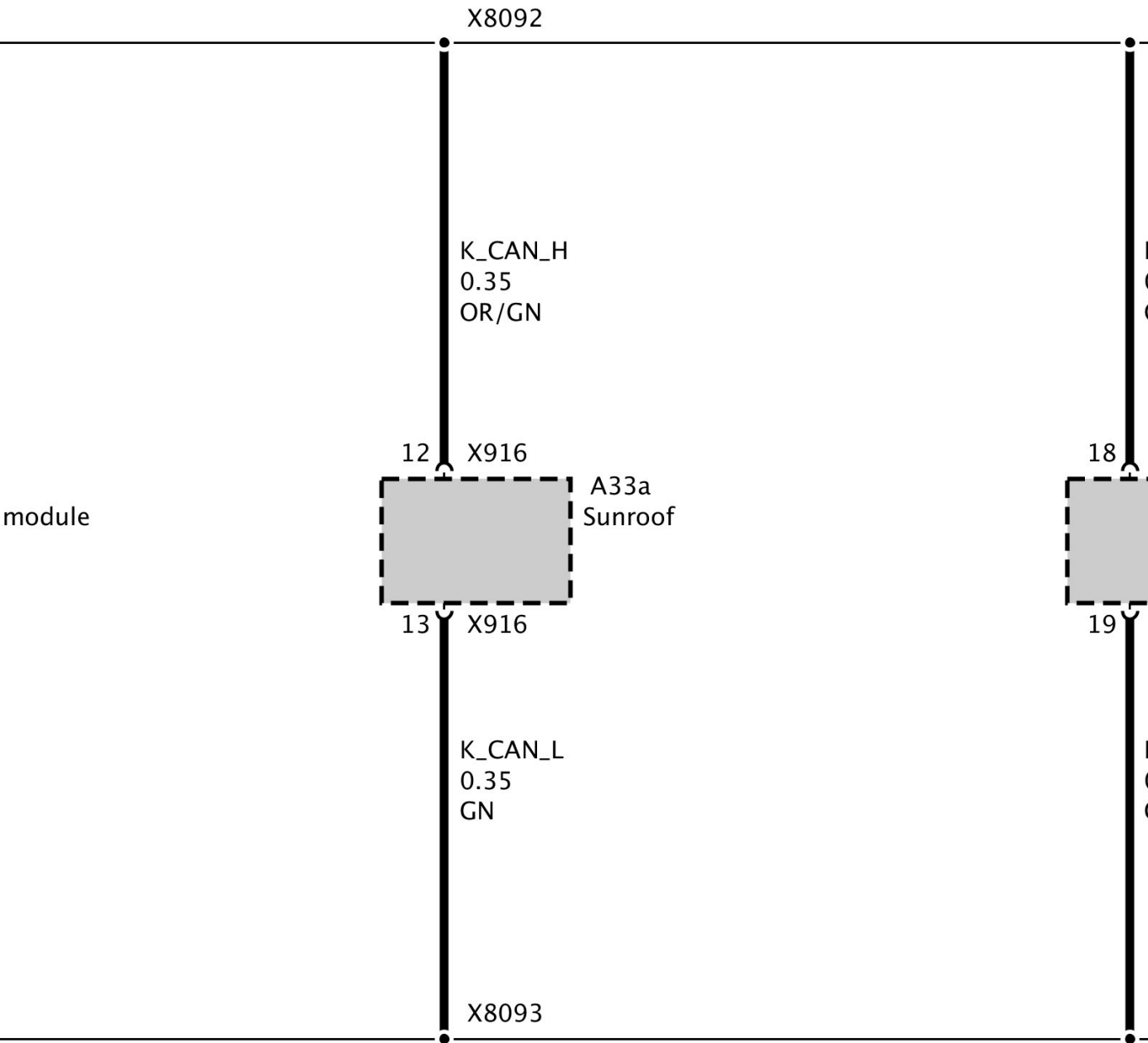


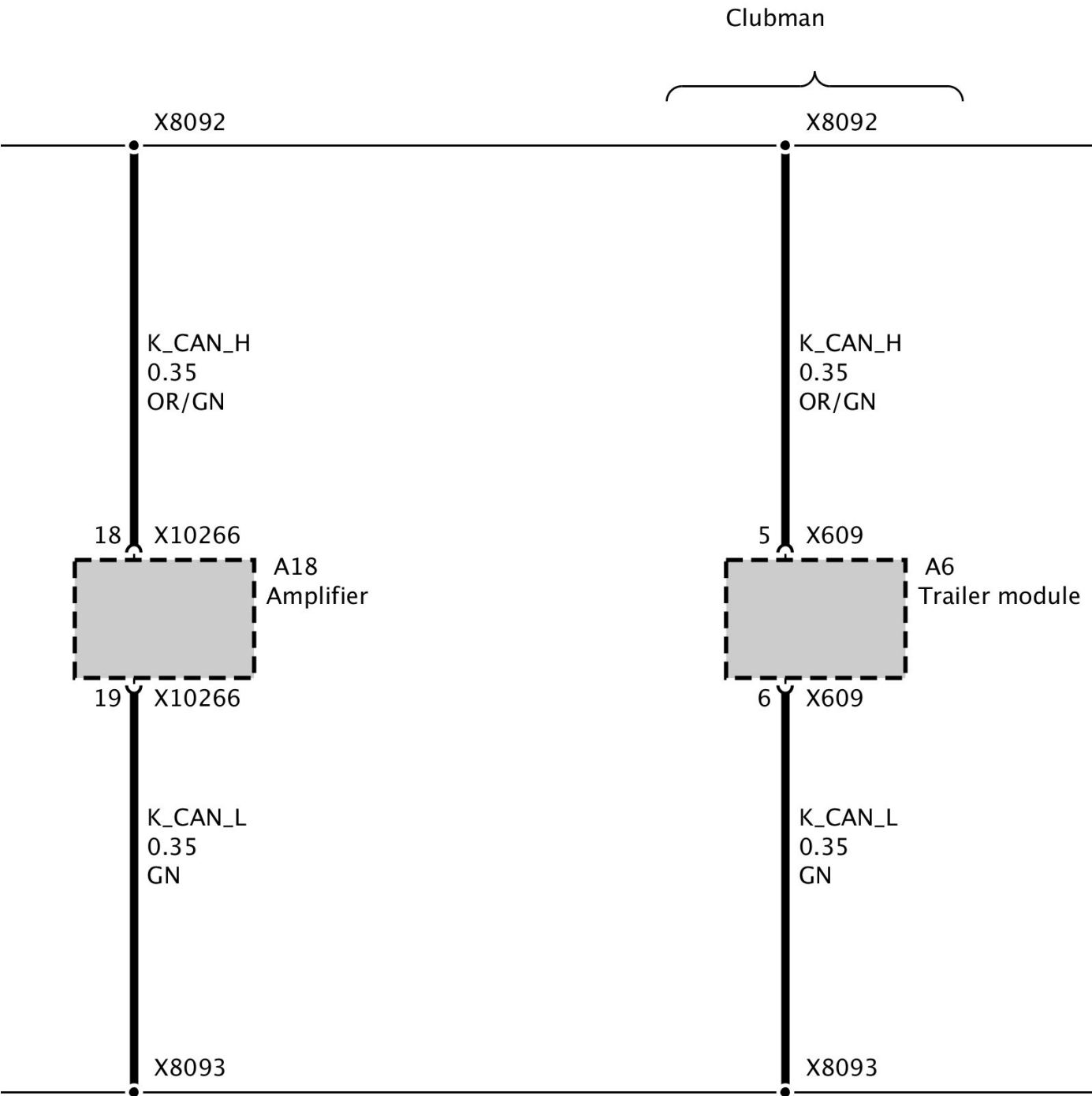


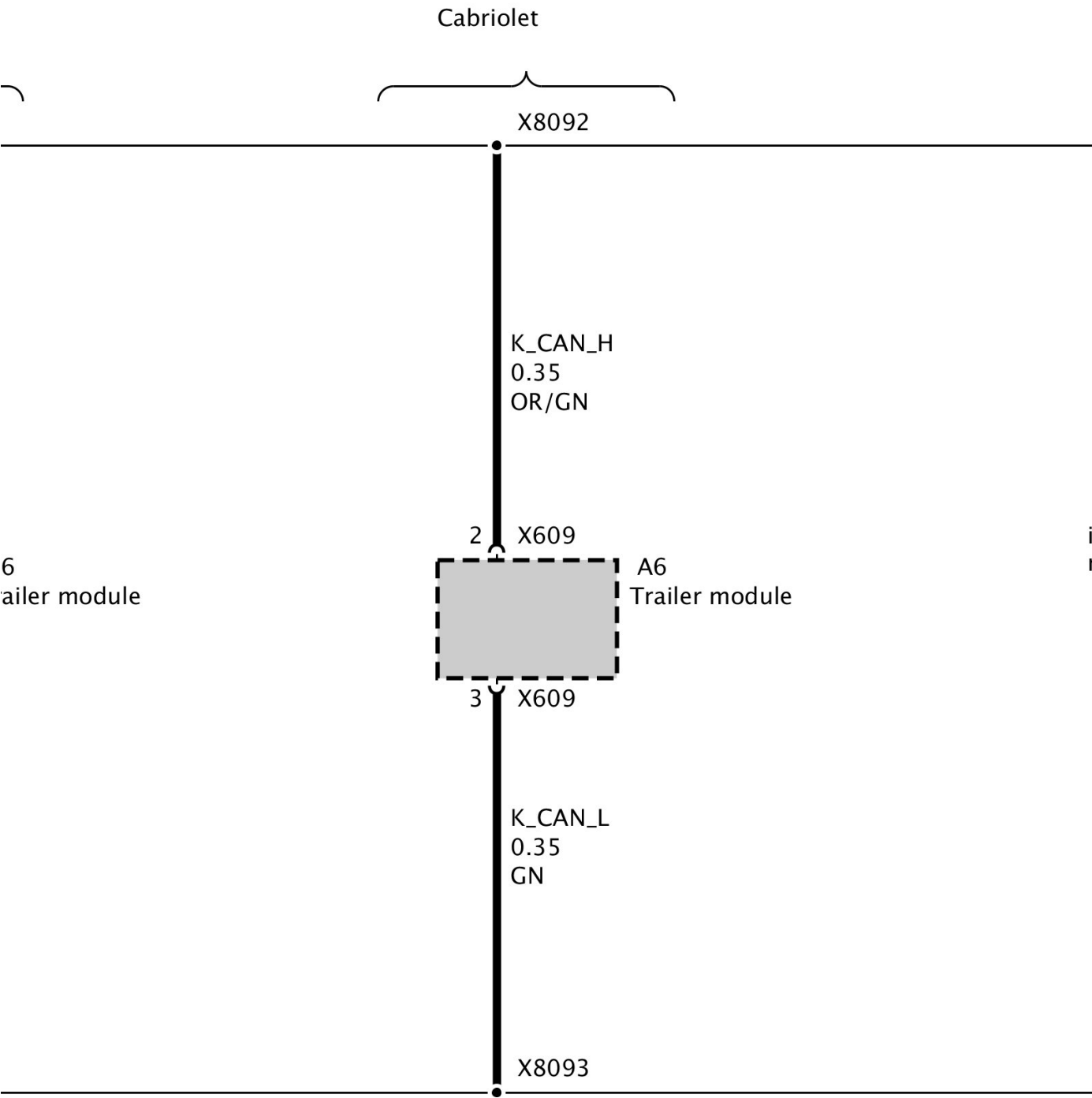


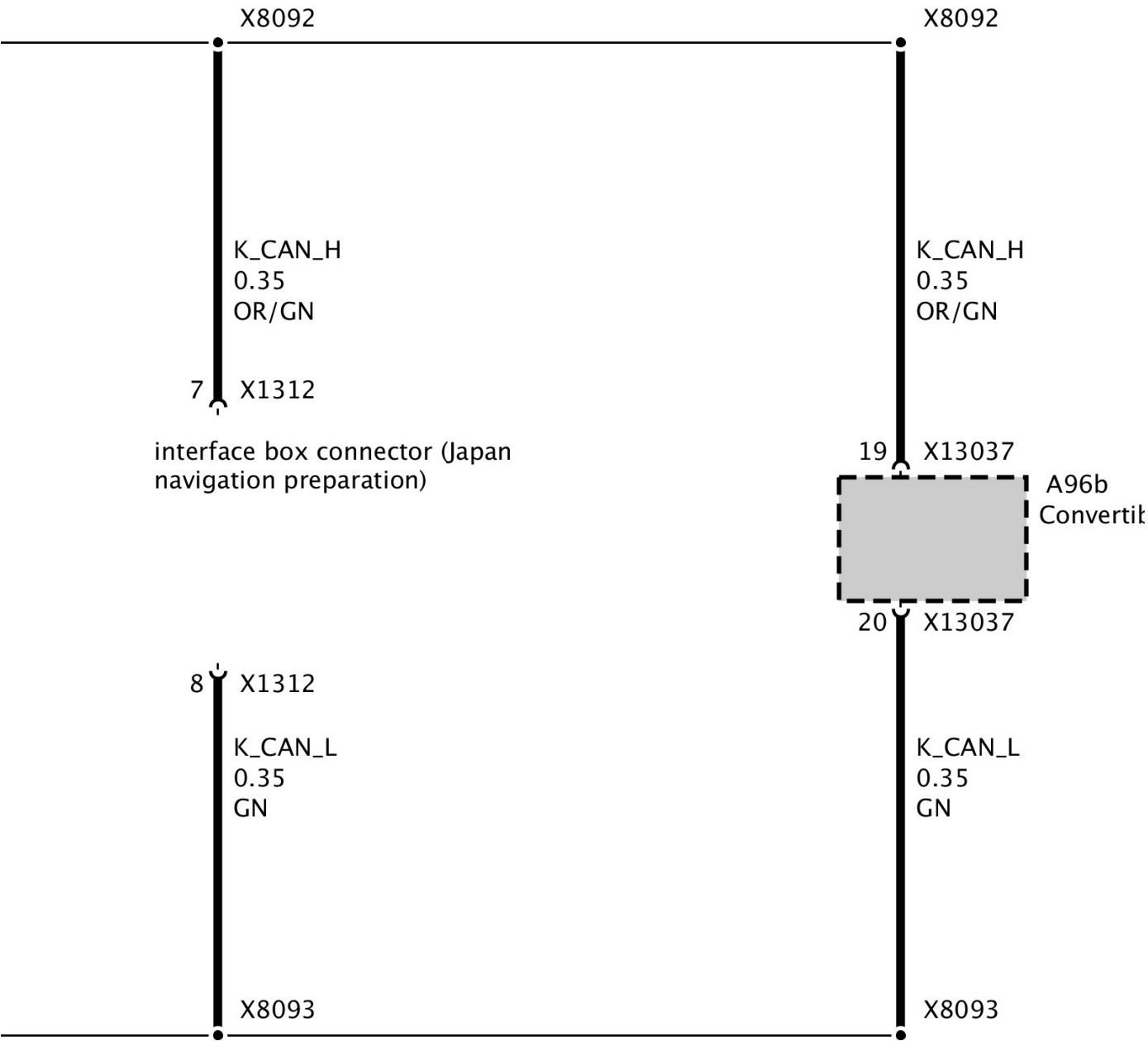
Part 8













2

J\_H

V

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A96b  
Convertible top module

37

J\_L

3

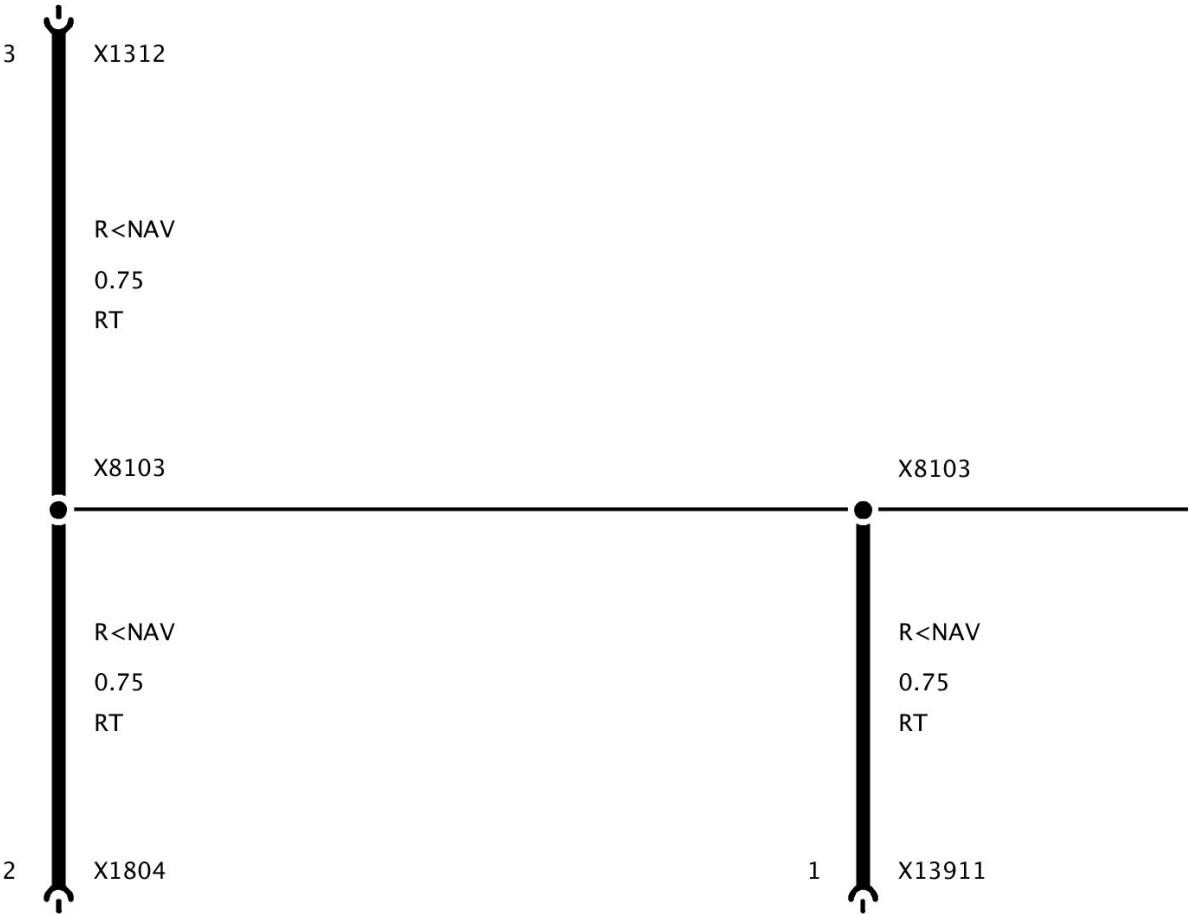
#### Part 14

### X8103 No Adapter

X8103 No Adapter

Connector X8103

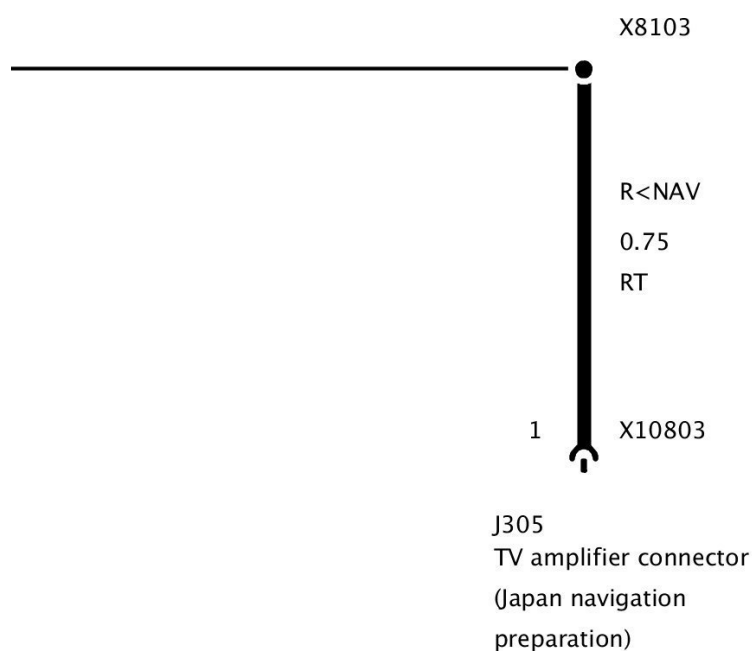
J303  
interface box connect-  
or (Japan navigation  
preparation)



J304  
navigation system  
connector (Japan nav-  
igation preparation)

J306  
Phantom box con-  
nector (Japan naviga-  
tion preparation)

Part 1

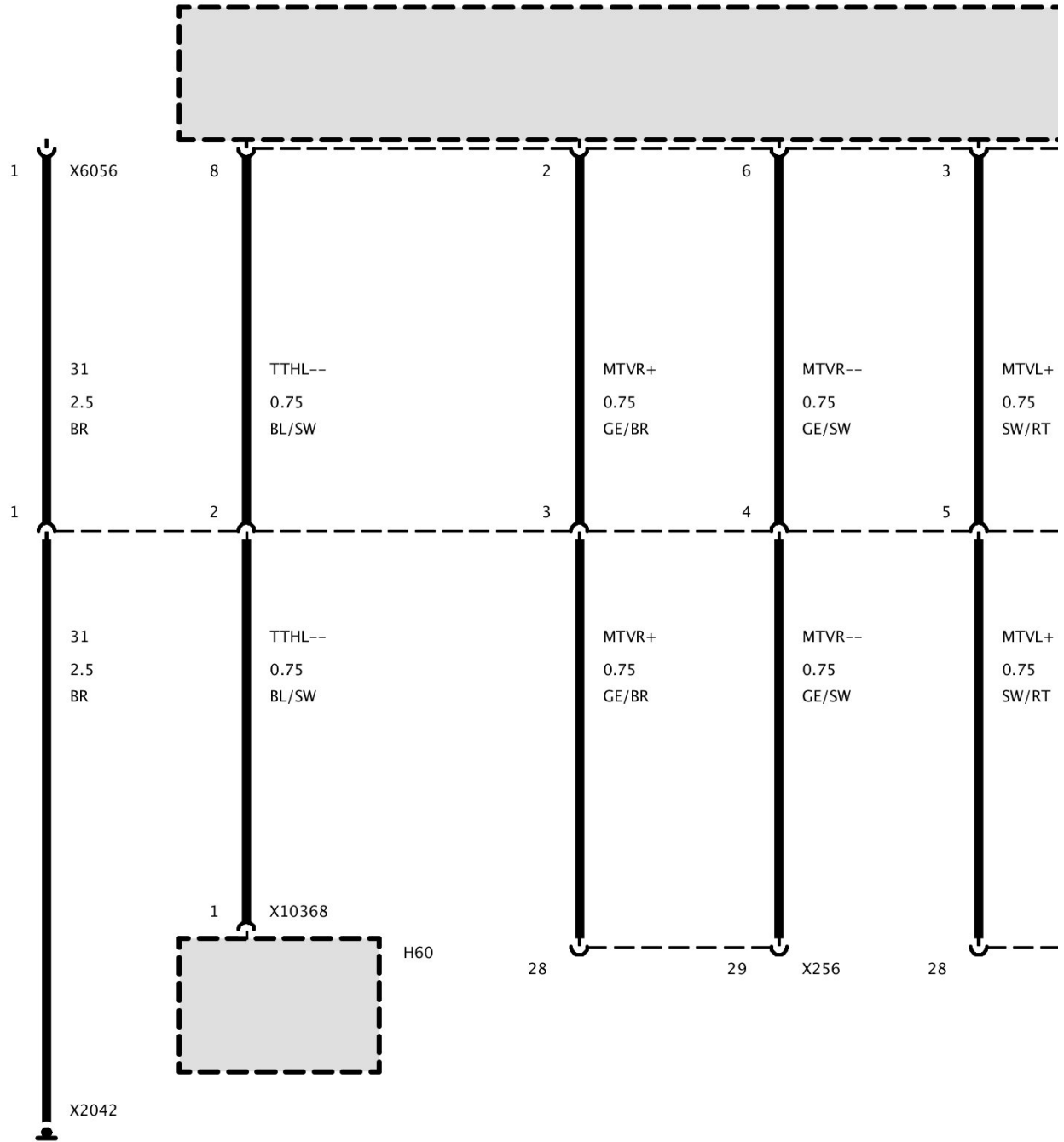


## Part 2

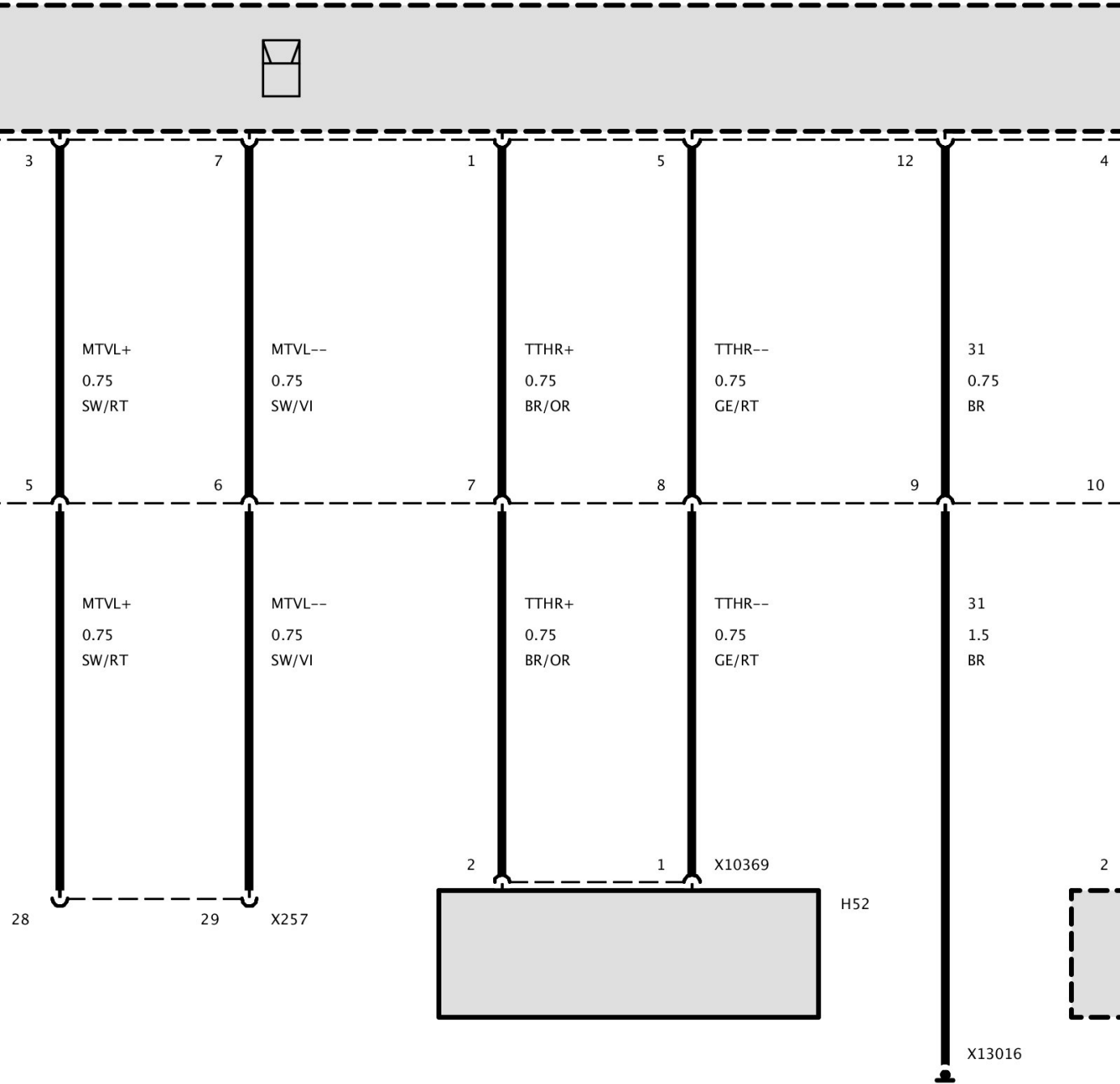
### Connector X9331 (Left-Hand Drive With (RAD Radio or RAD2-BO User Interface) Without AMP Hi-Fi Amplifier Up to 08/07)

#### X9331 No Adapter

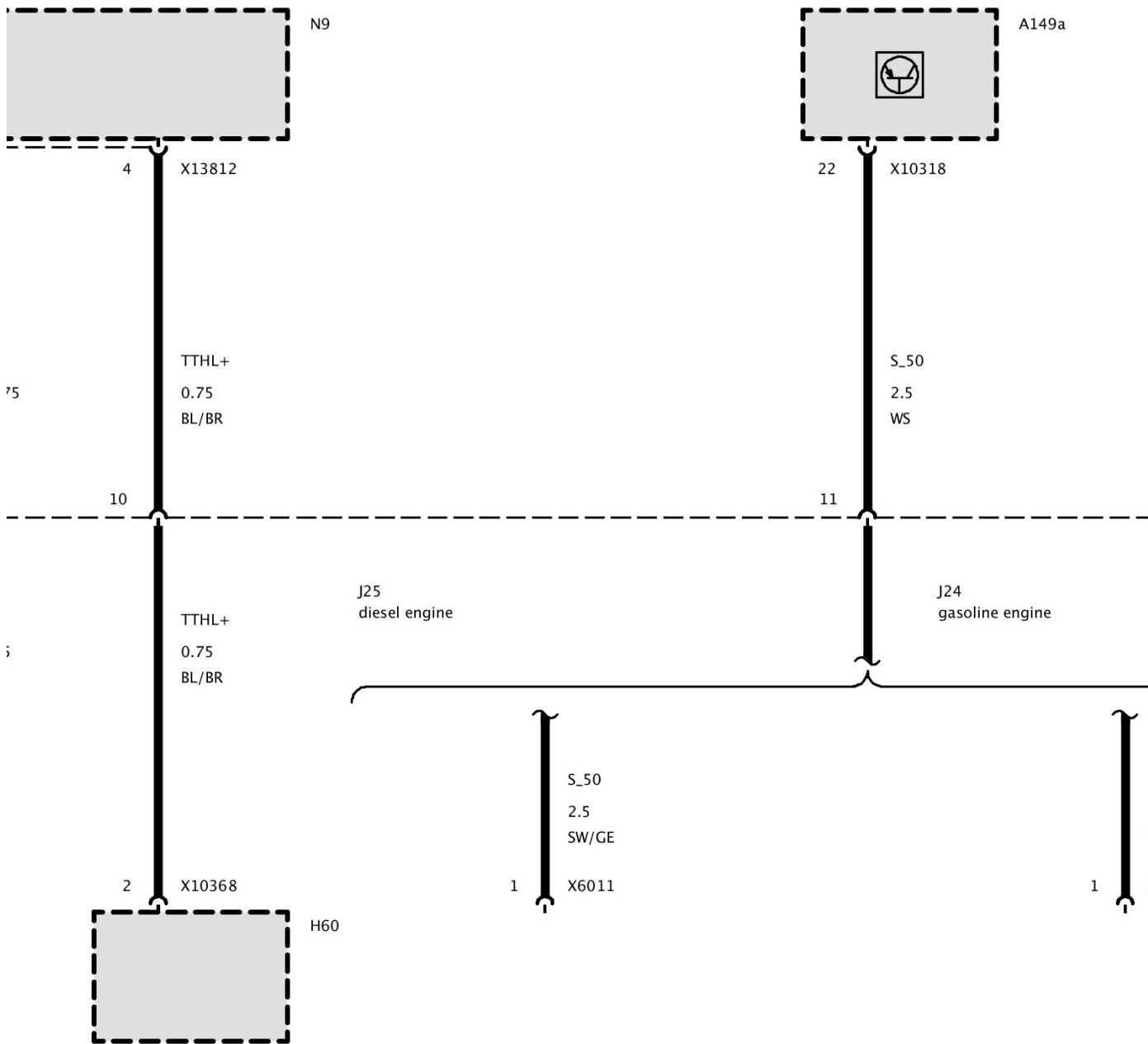
#### Connector X9331 (Left-Hand Drive With (RAD Radio or RAD2-BO User Interface) Without AMP Hi-Fi Amplifier Up to 08/07)



Part 1



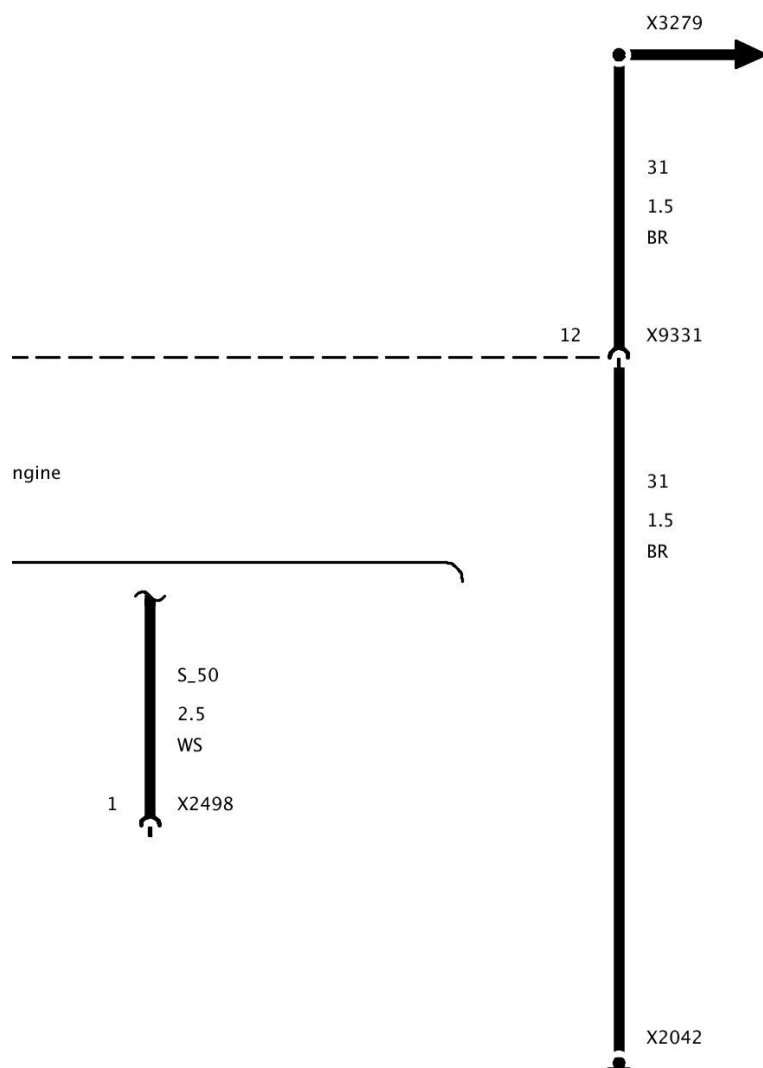
Part 2



3016

Part 3

A149a

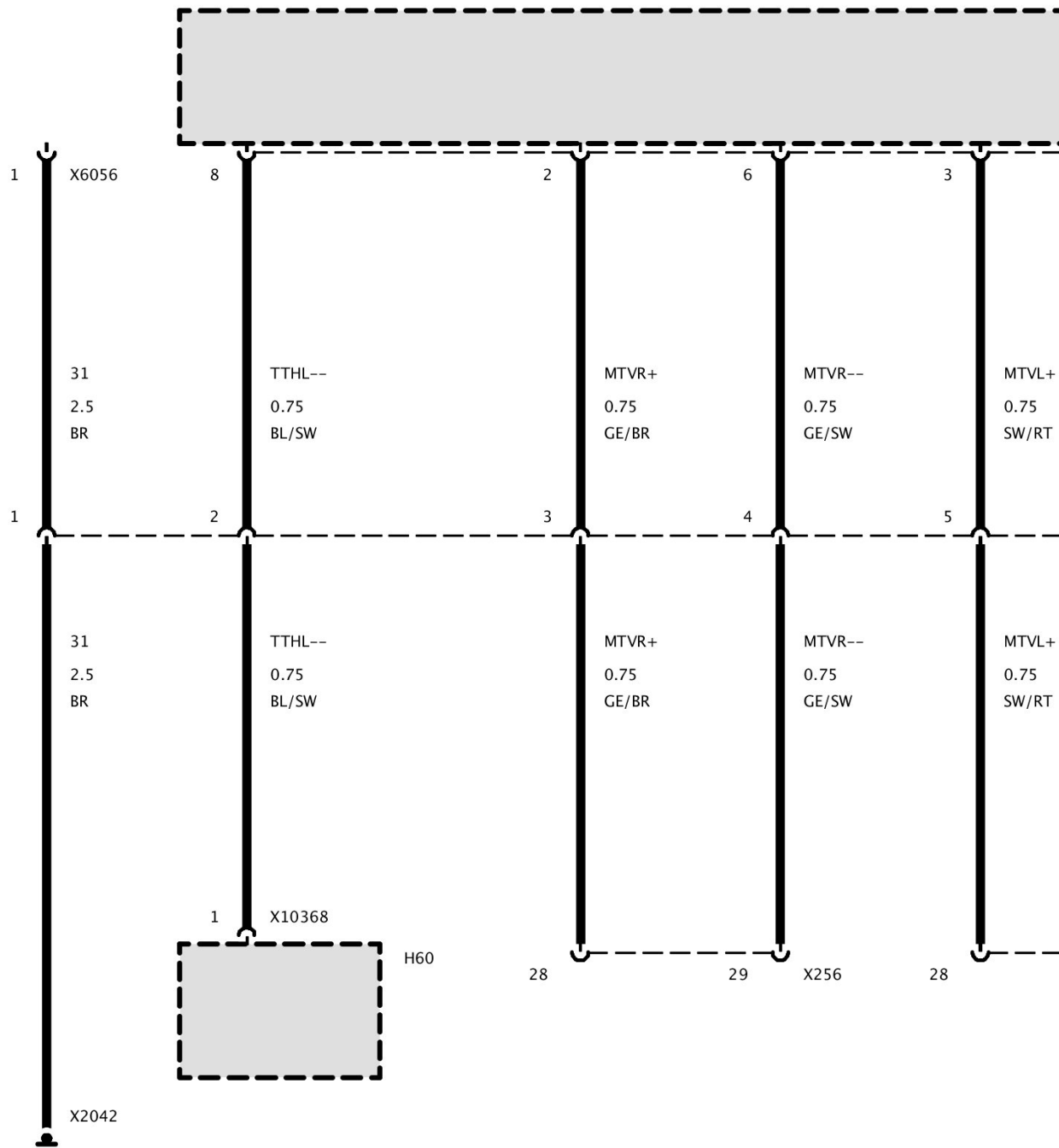


#### Part 4

**Connector X9331 (Left-Hand Drive With CCC-BO User Interface Without AMP Hi-Fi Amplifier Up to 08/07)**

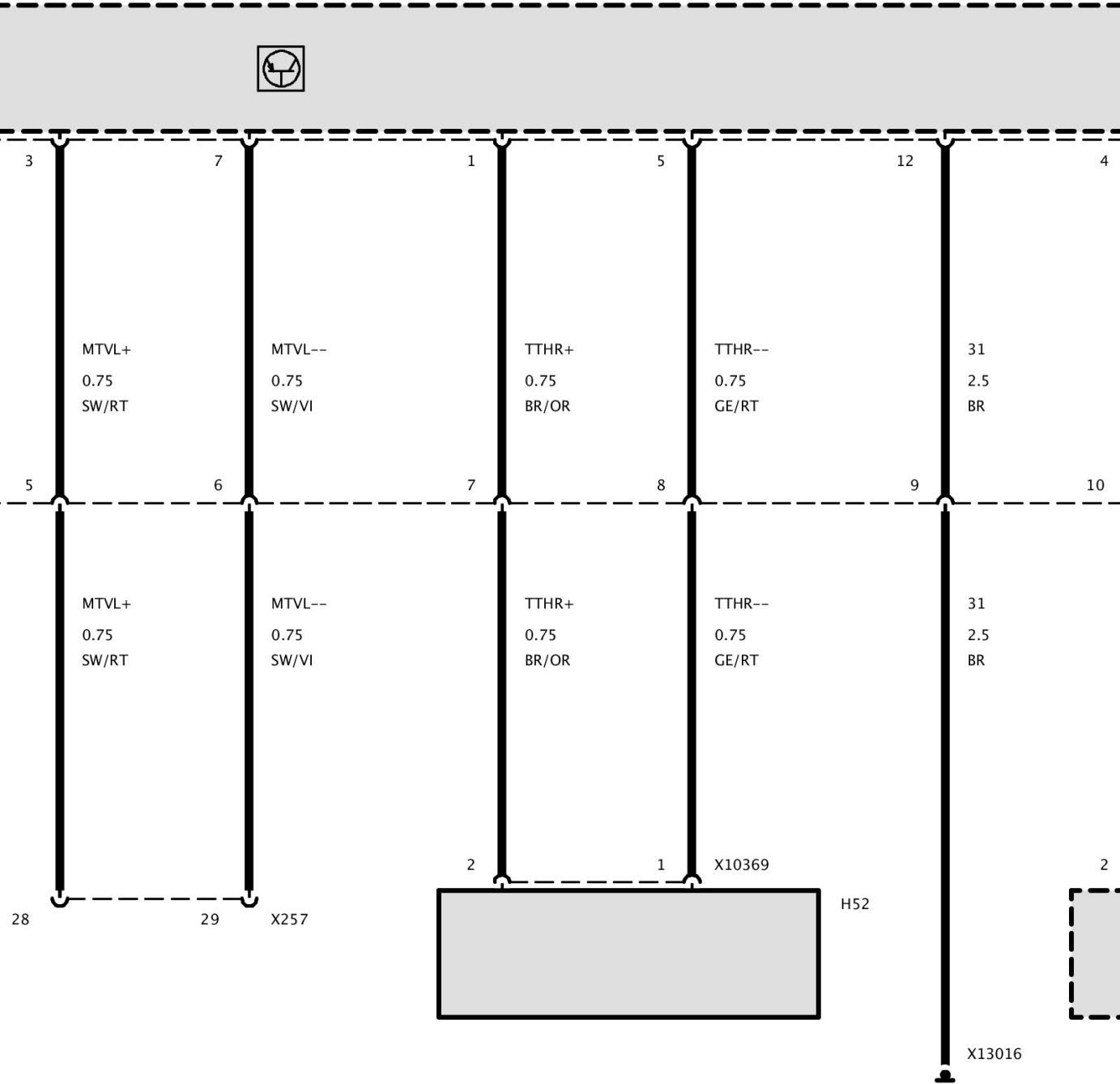
**X9331 No Adapter**

**Connector X9331 (Left-Hand Drive With CCC-BO User Interface Without AMP Hi-Fi Amplifier Up to 08/07)**

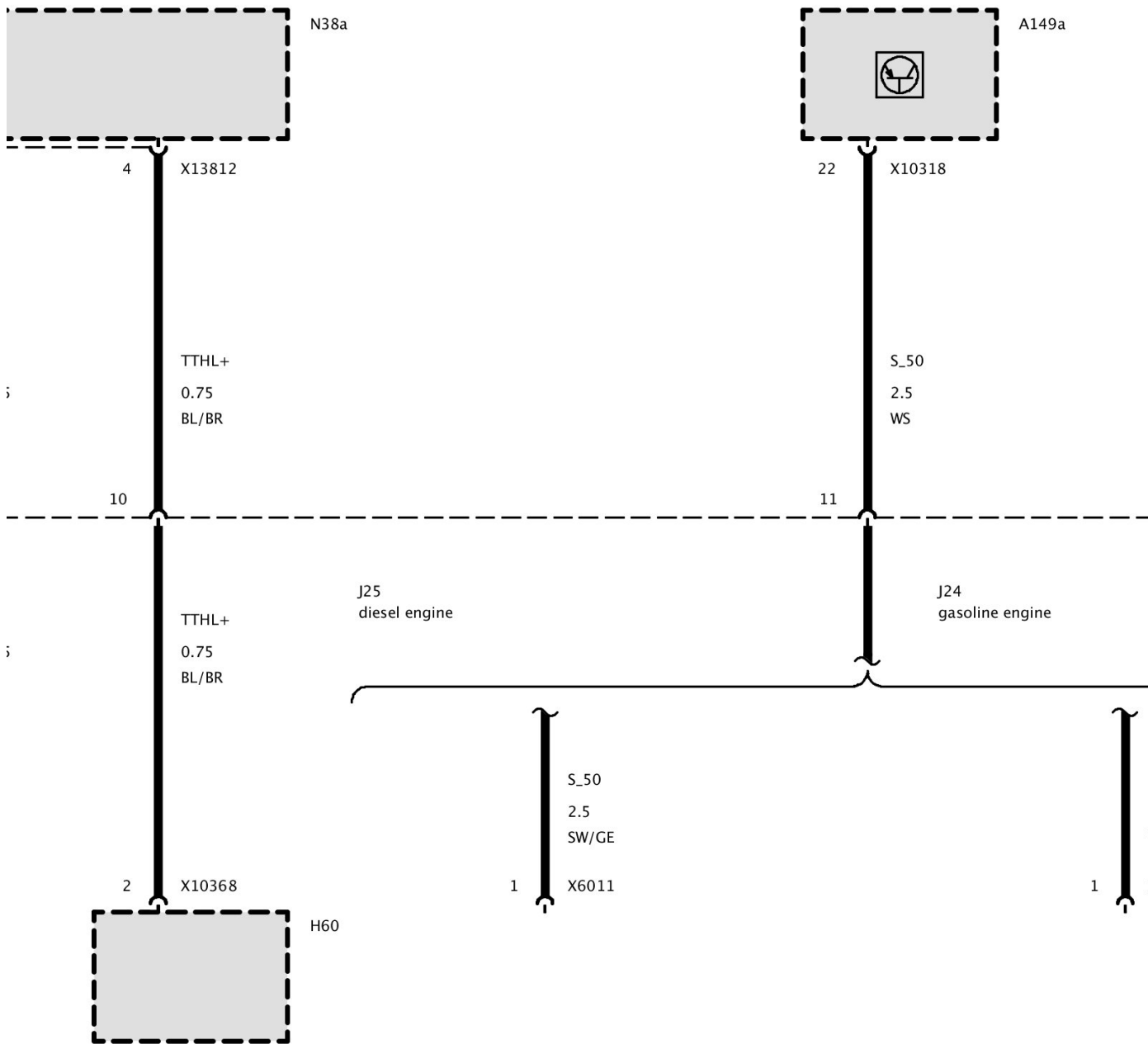


Part 1





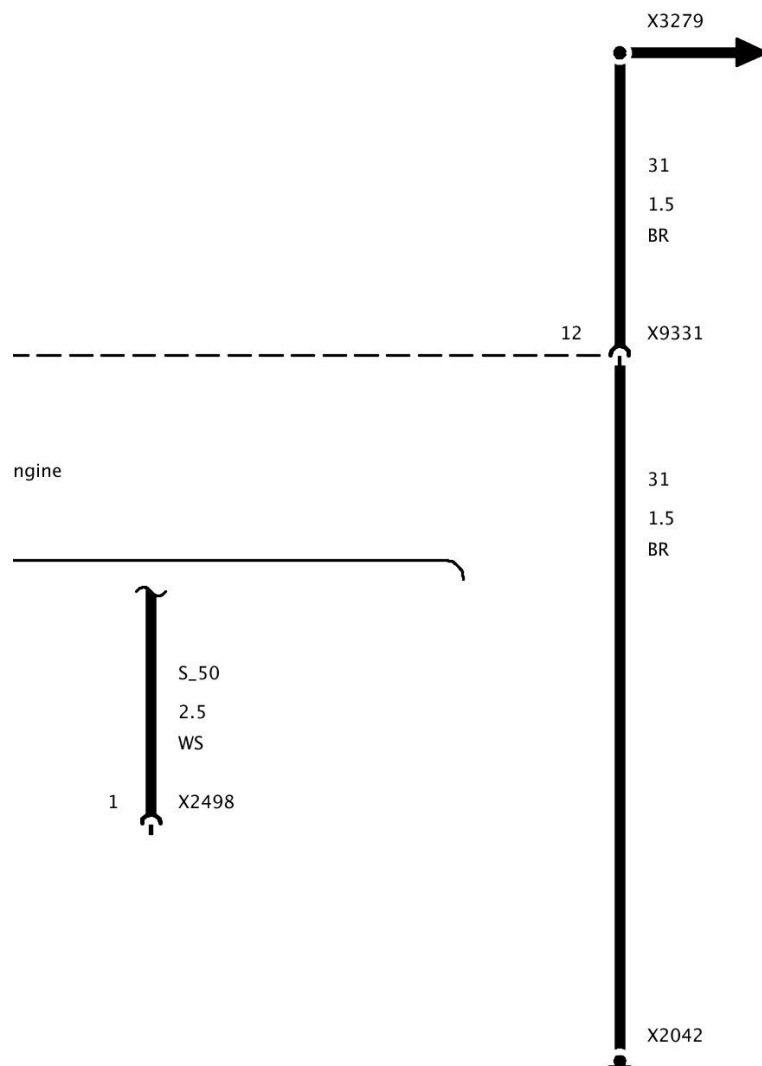
Part 2



3016

Part 3

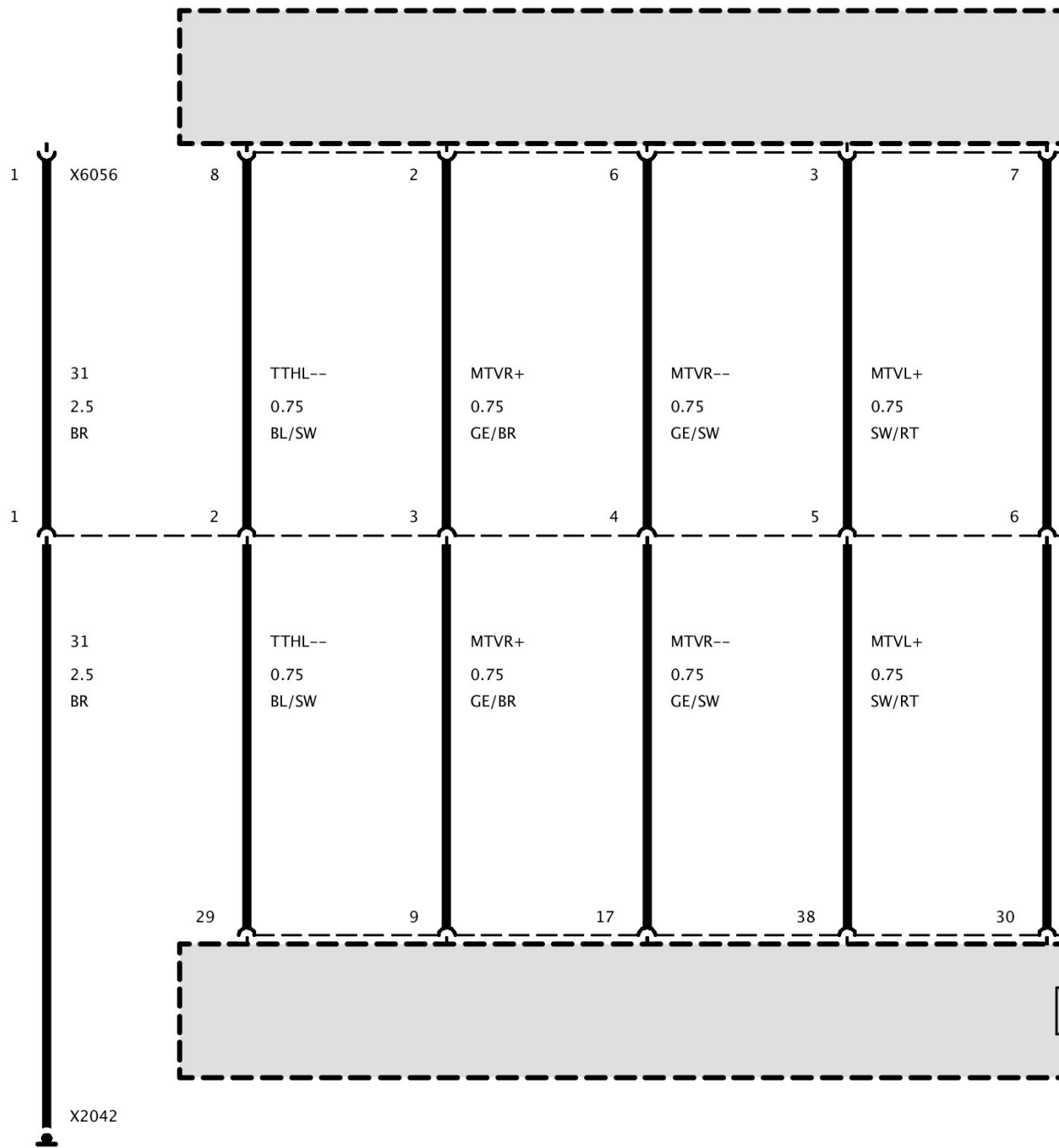
A149a

**Part 4**

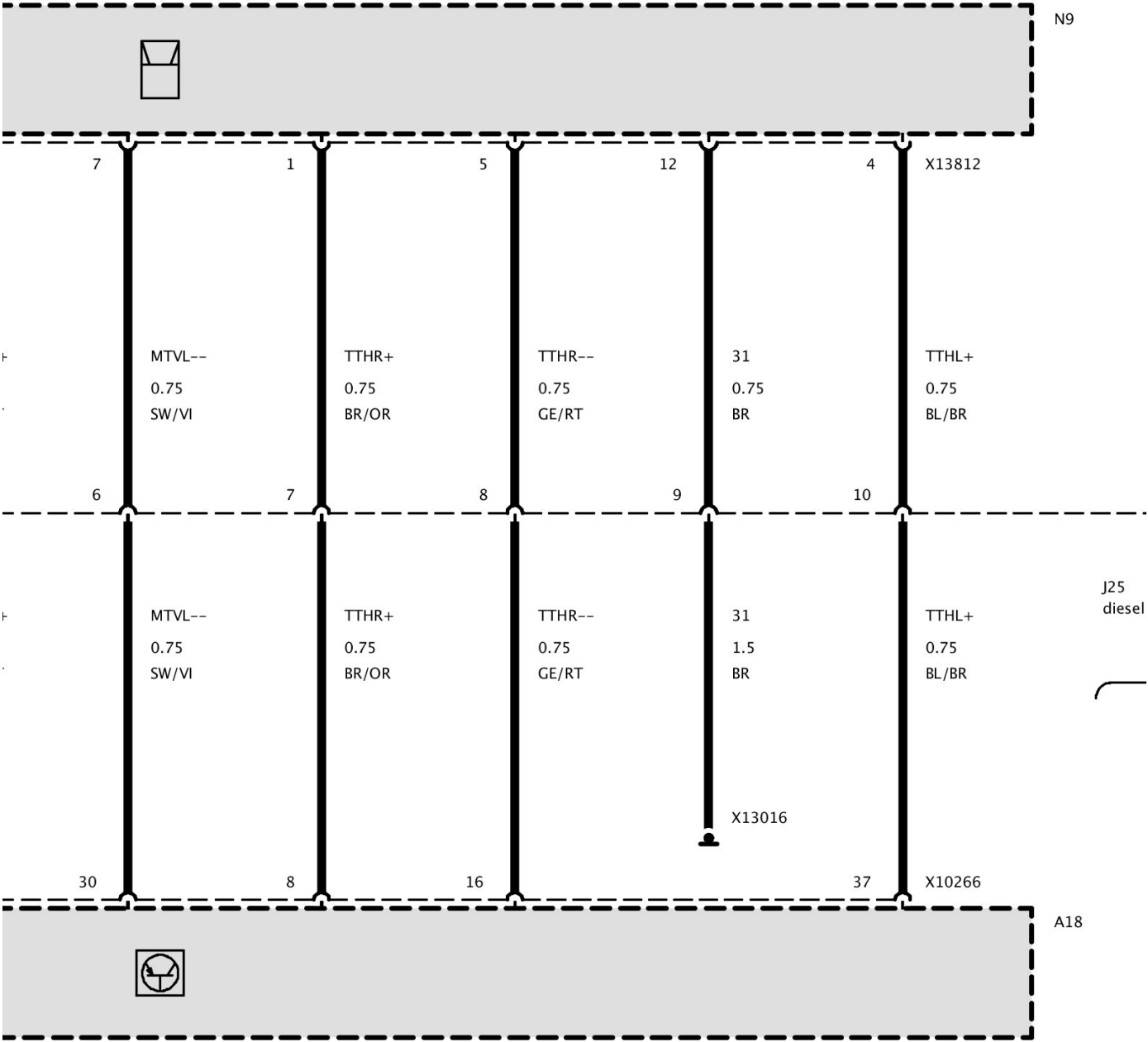
**Connector X9331 (Left-Hand Drive With RAD2-BO User Interface With AMP Hi-Fi Amplifier Up to 08/07)**

**X9331 No Adapter**

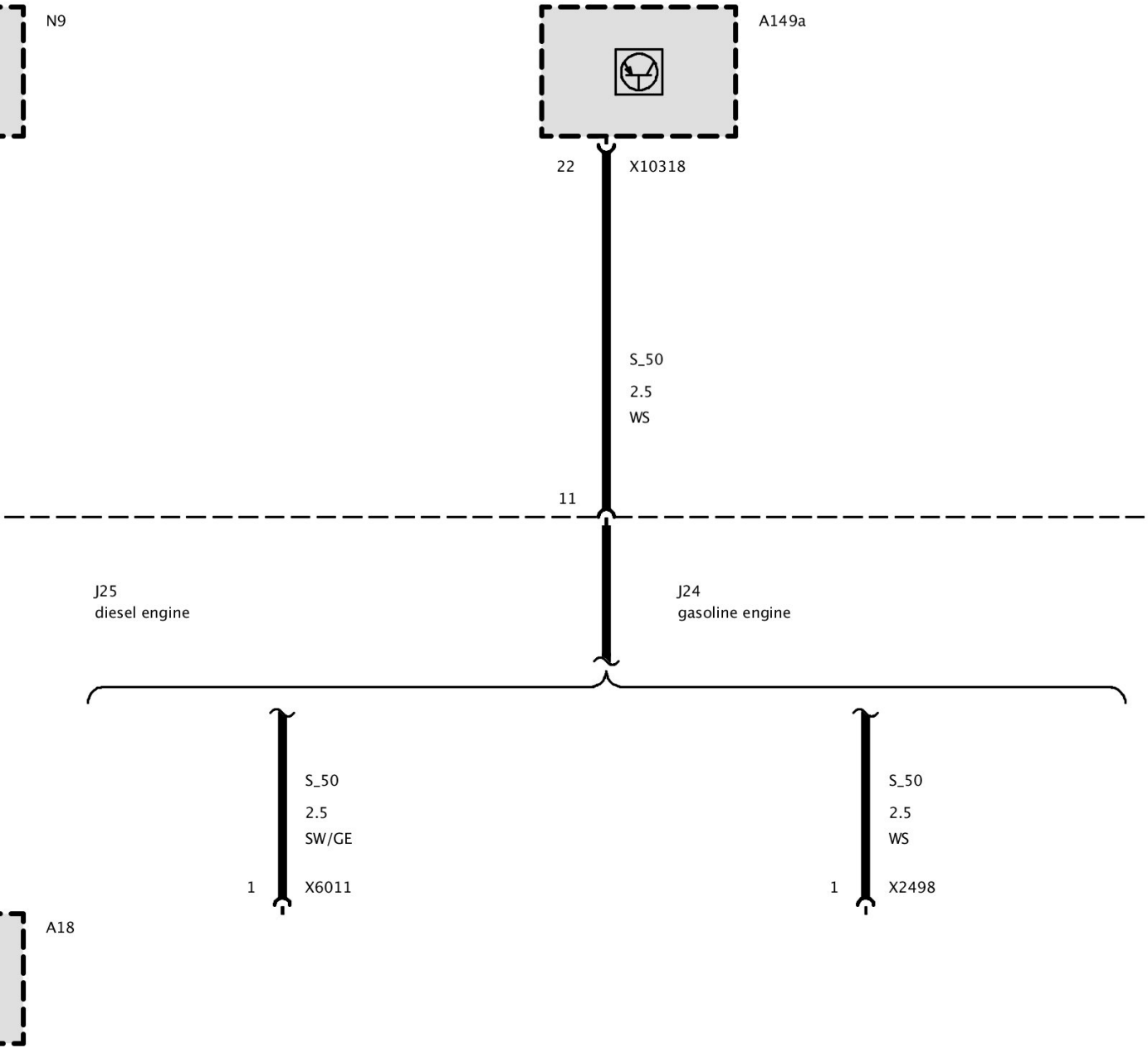
**Connector X9331 (Left-Hand Drive With RAD2-BO User Interface With AMP Hi-Fi Amplifier Up to 08/07)**



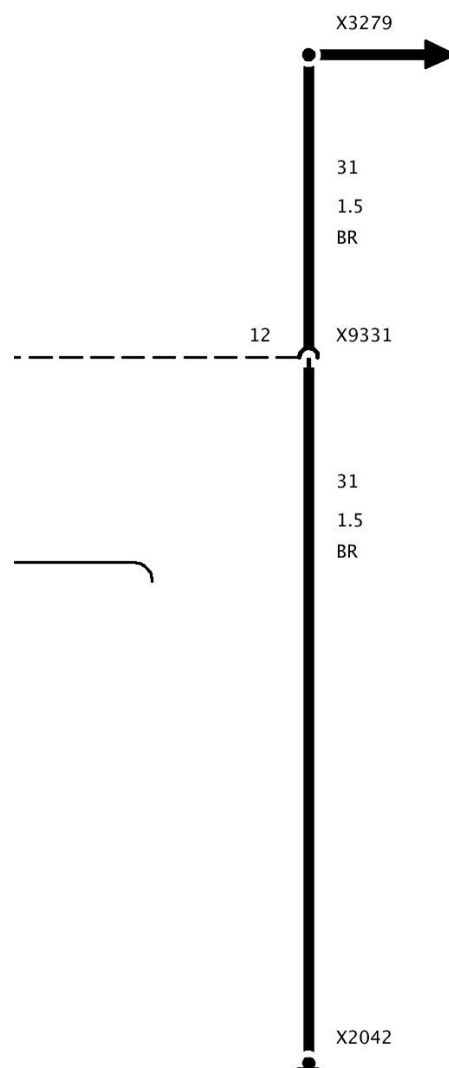
Part 1



Part 2



Part 3

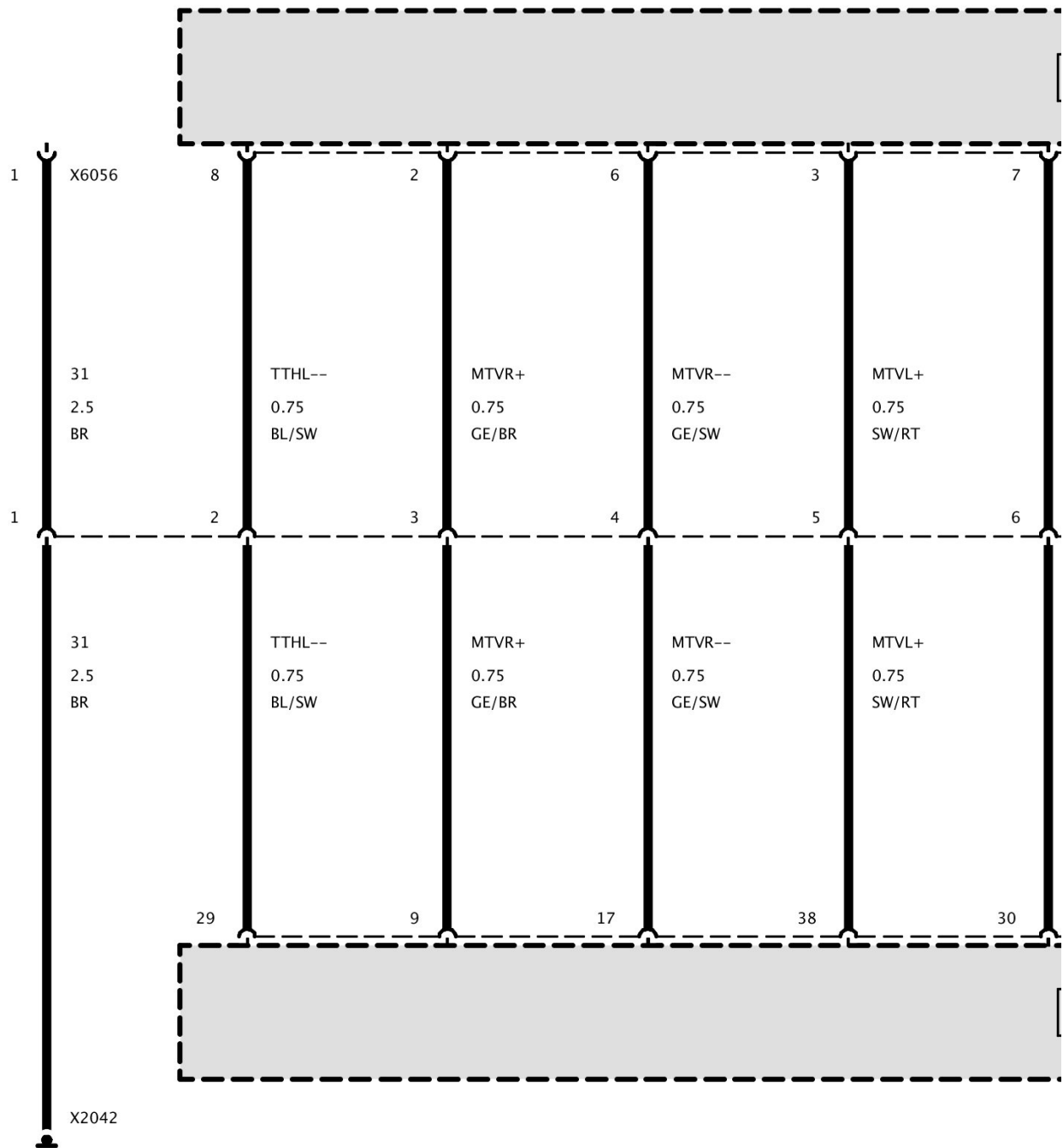


#### Part 4

**Connector X9331 (Left-Hand Drive With CCC-BO User Interface With AMP Hi-Fi Amplifier Up to 08/07)**

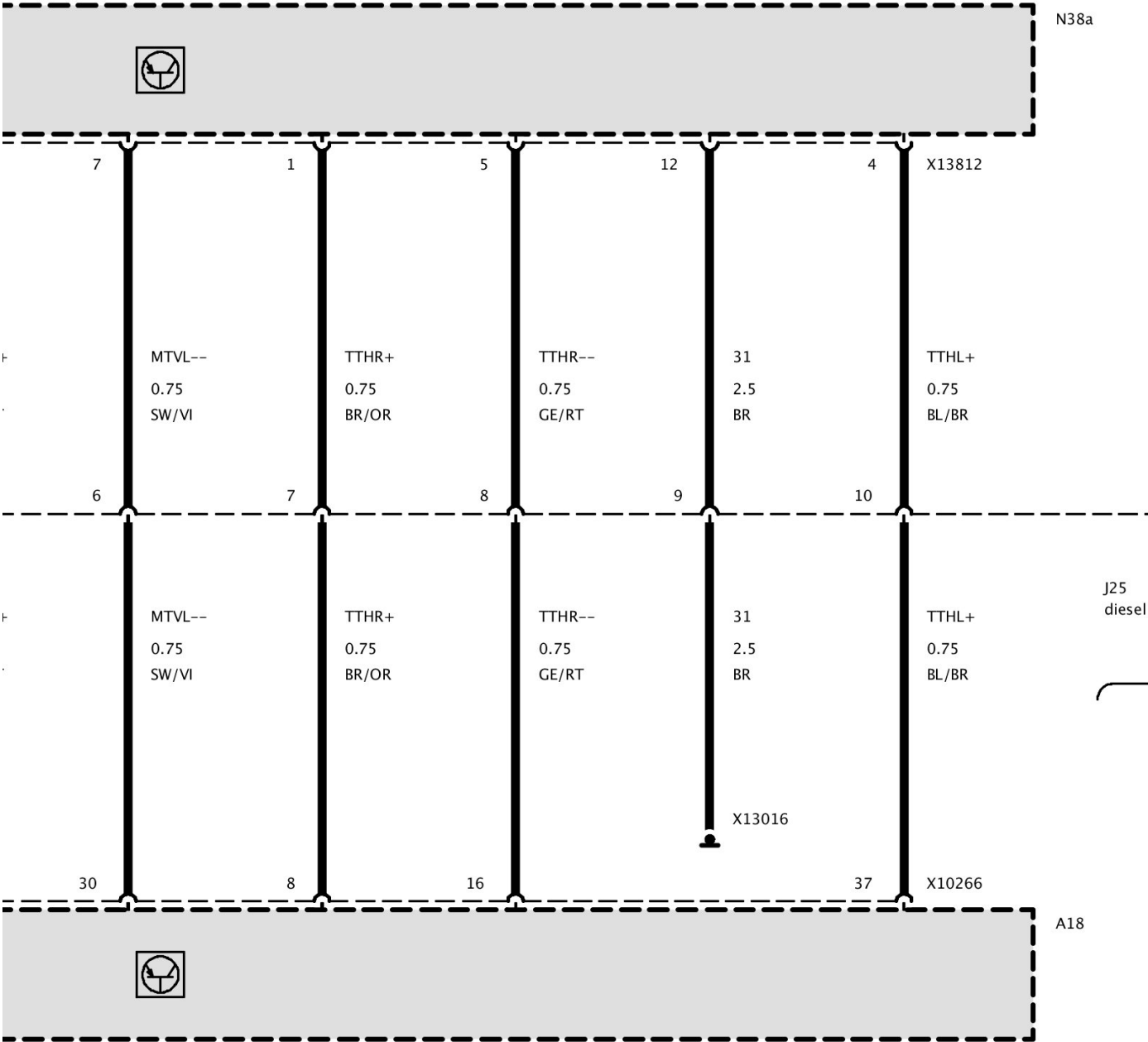
**X9331 No Adapter**

**Connector X9331 (Left-Hand Drive With CCC-BO User Interface With AMP Hi-Fi Amplifier Up to 08/07)**

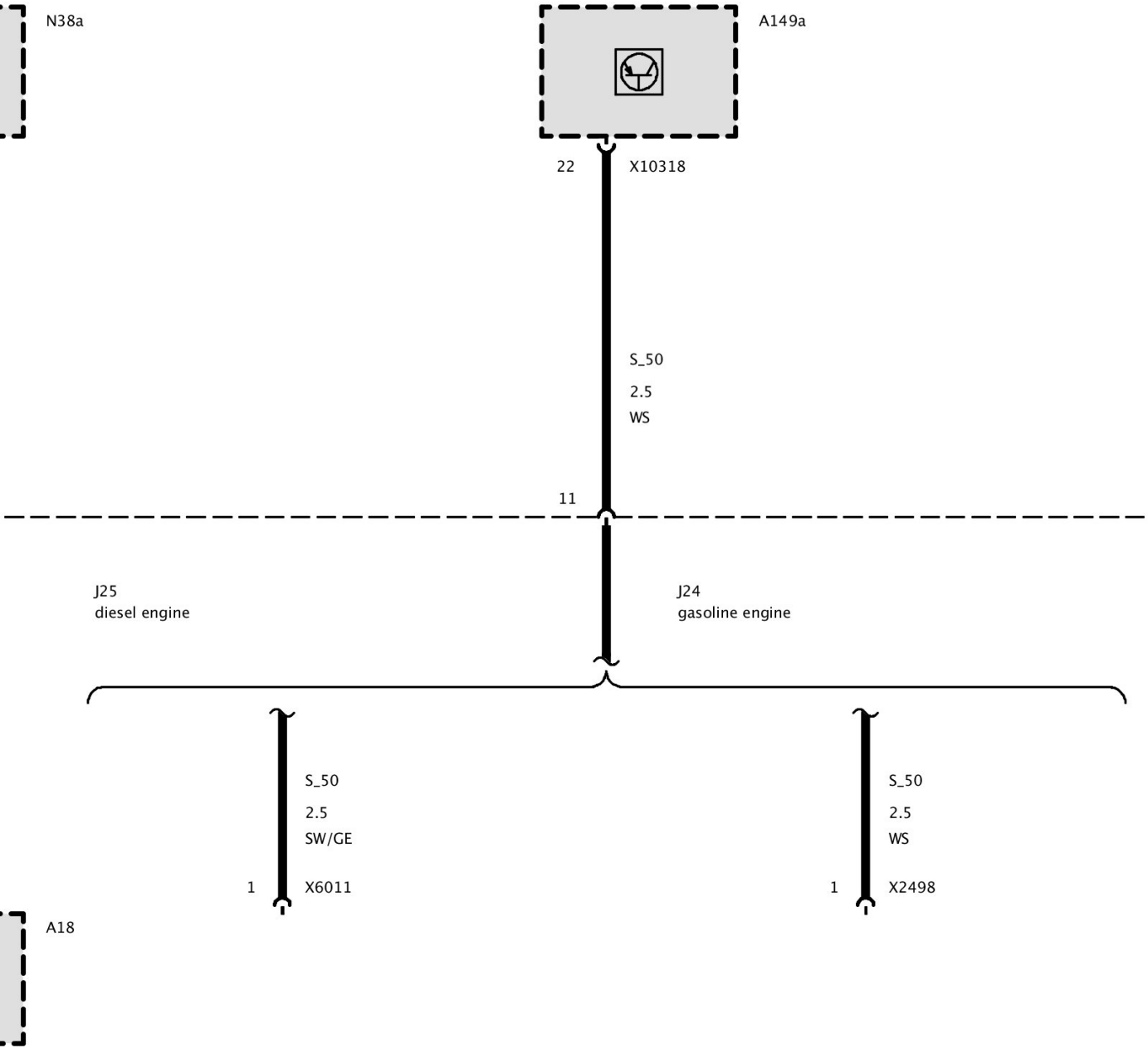


Part 1

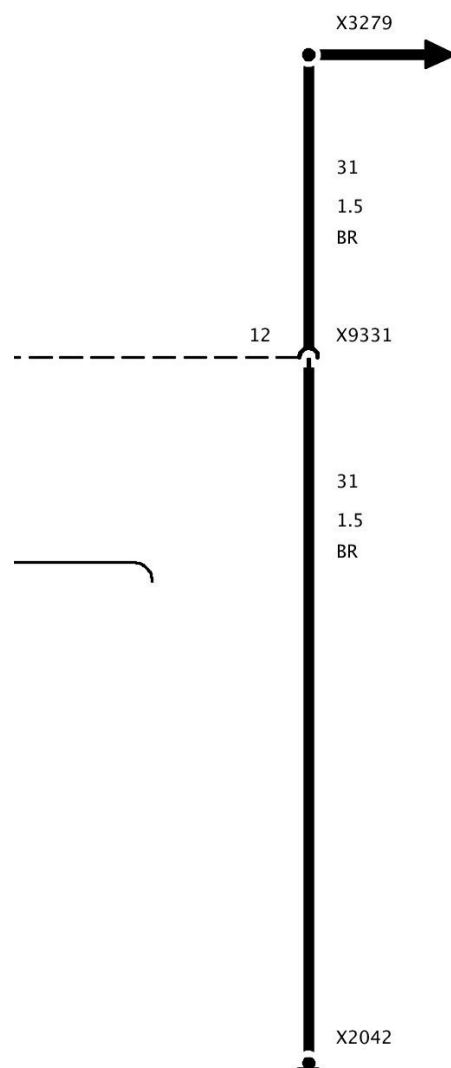




Part 2



Part 3

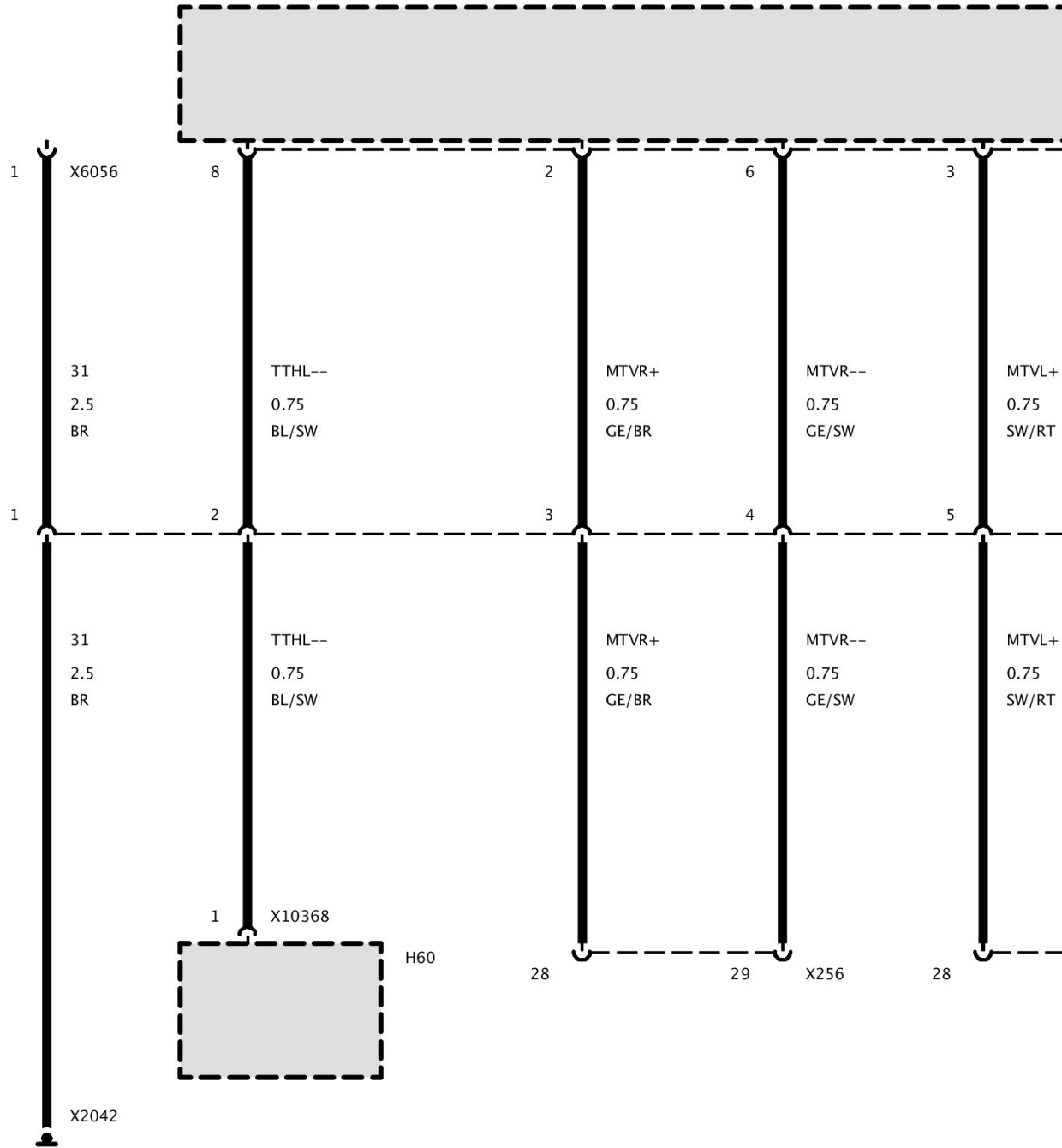


#### Part 4

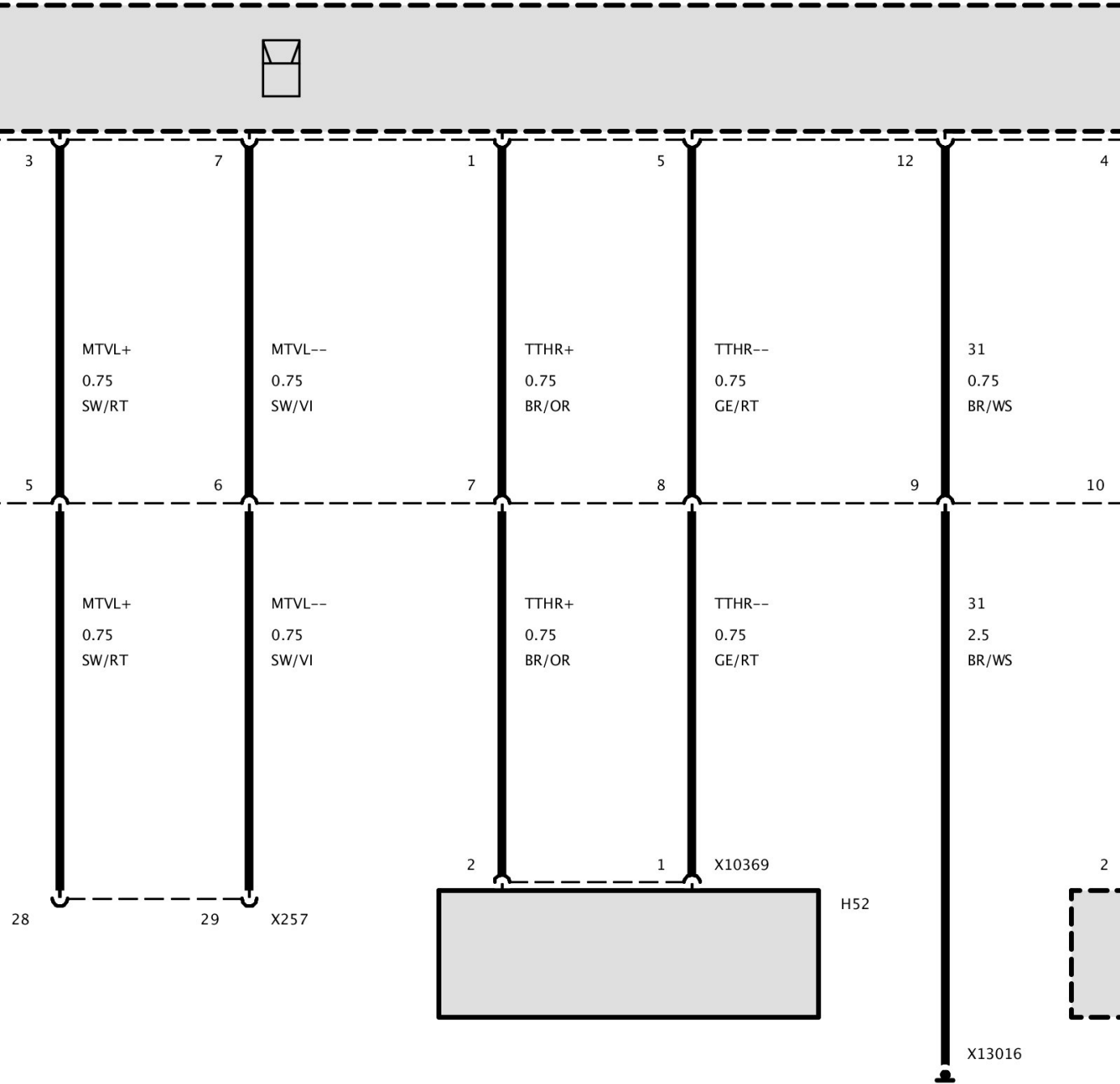
**Connector X9331 (Left-Hand Drive With (RAD Radio or RAD2-BO User Interface) Without AMP Hi-Fi Amplifier As of 08/07)**

**X9331 No Adapter**

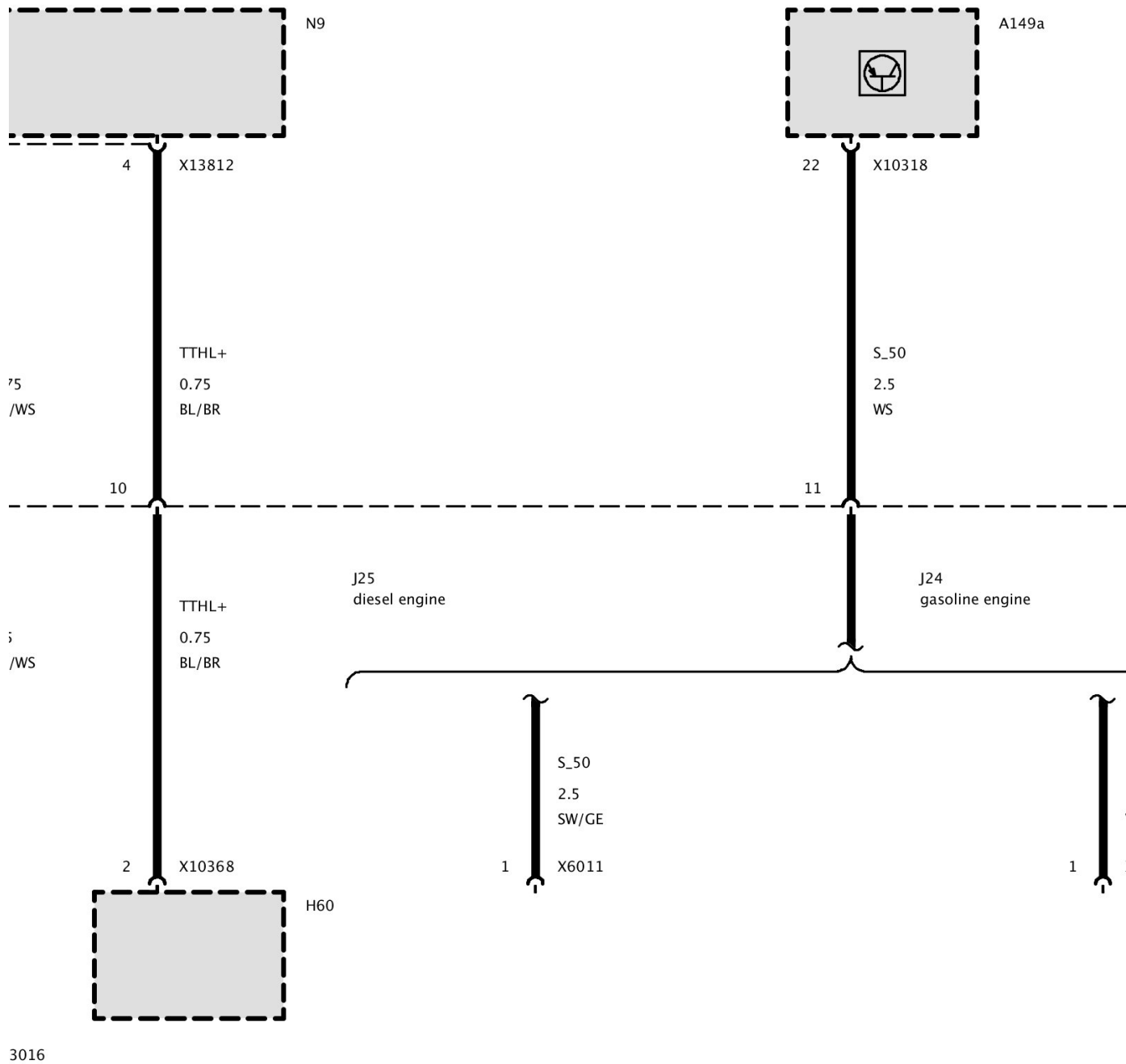
**Connector X9331 (Left-Hand Drive With (RAD Radio or RAD2-BO User Interface) Without AMP Hi-Fi Amplifier As of 08/07)**



Part 1

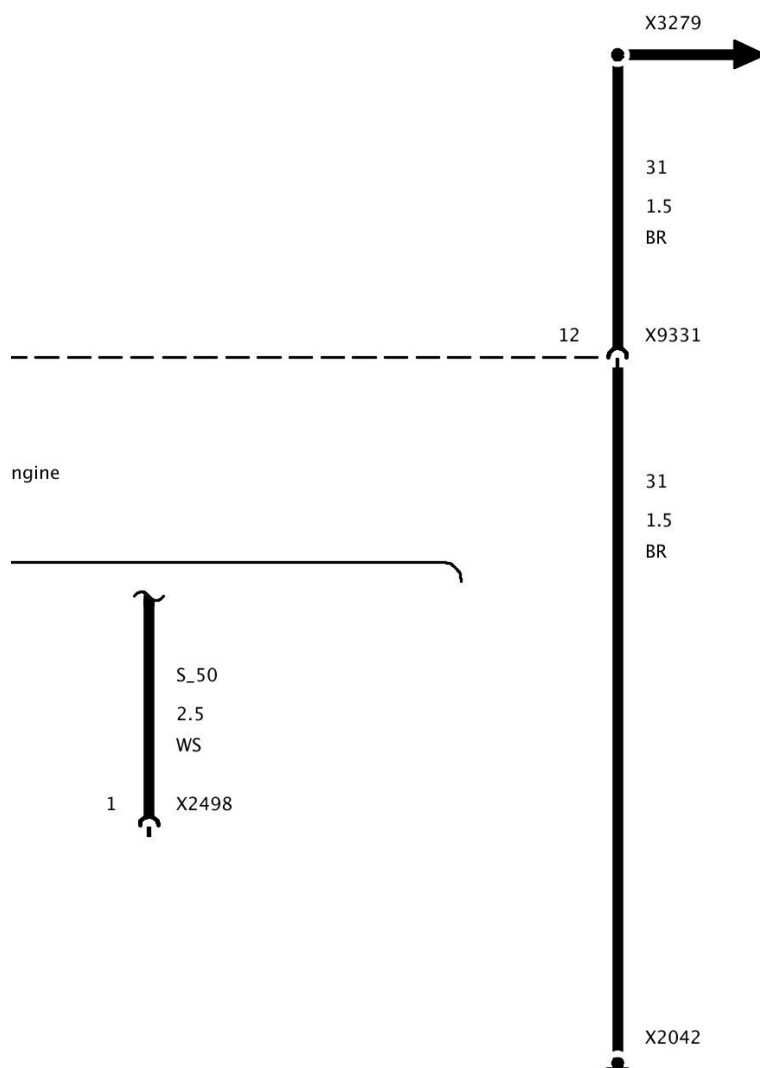


Part 2



Part 3

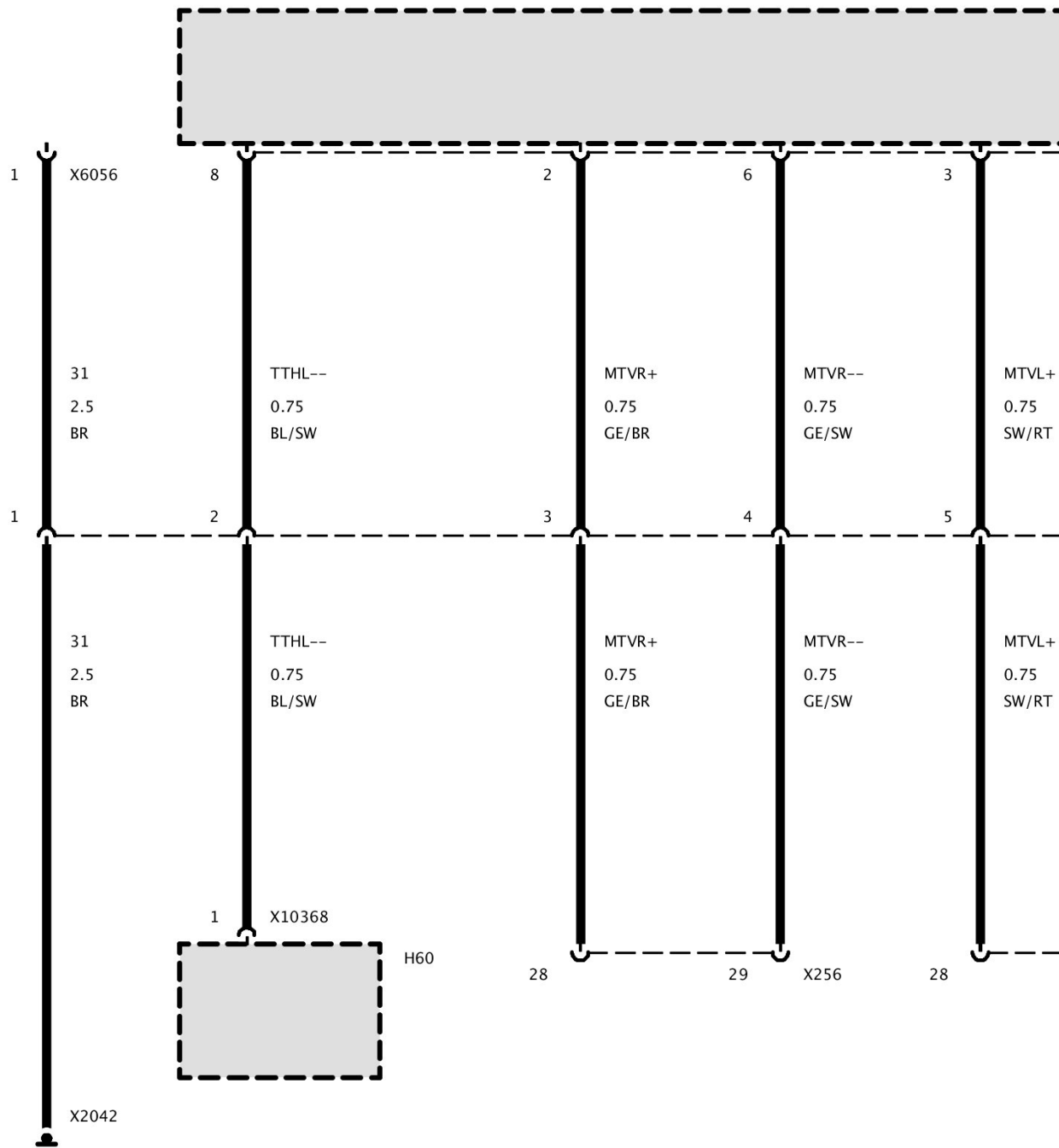
A149a

**Part 4**

**Connector X9331 (Left-Hand Drive With CCC-BO User Interface Without AMP Hi-Fi Amplifier As of 08/07)**

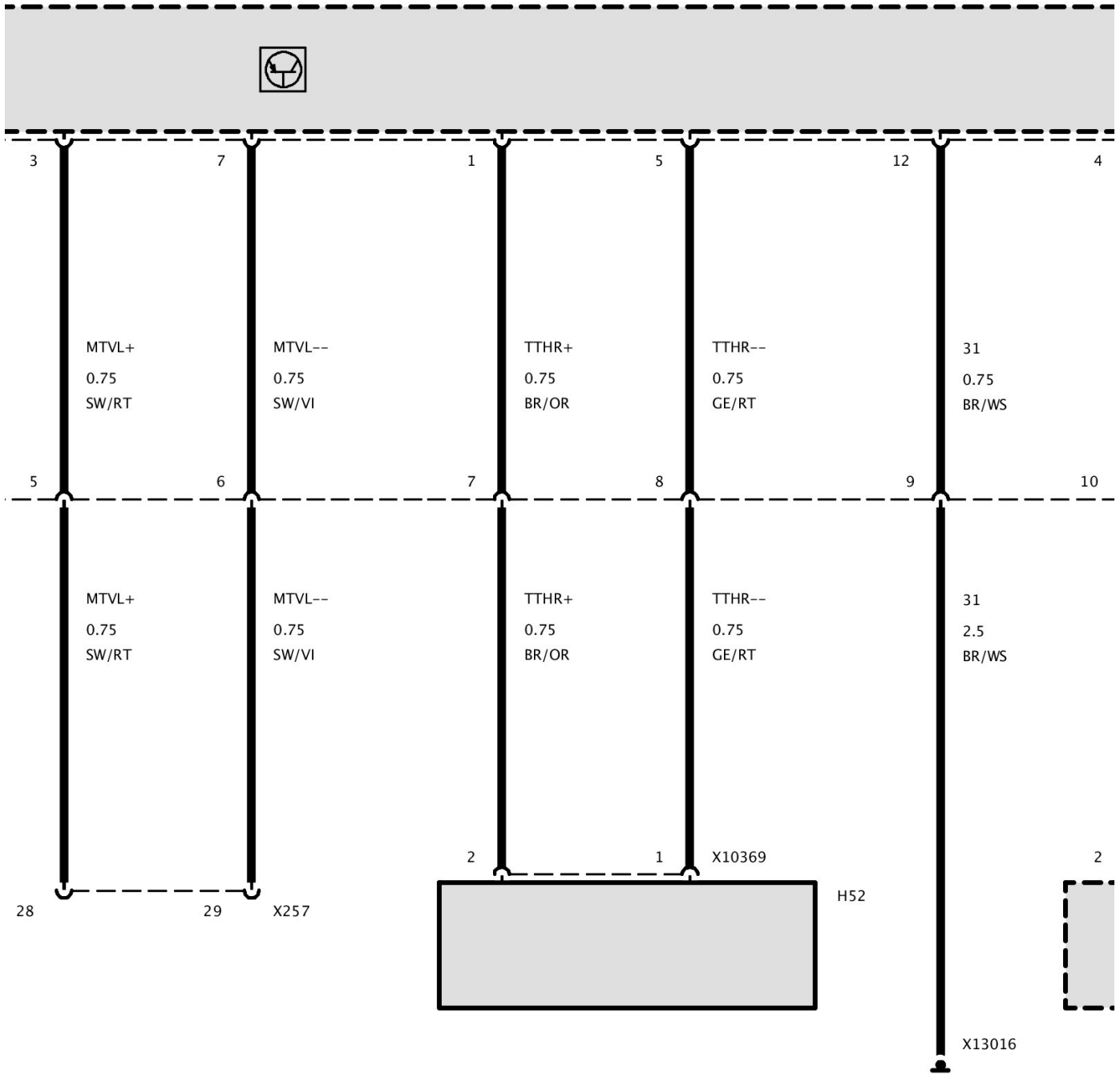
**X9331 No Adapter**

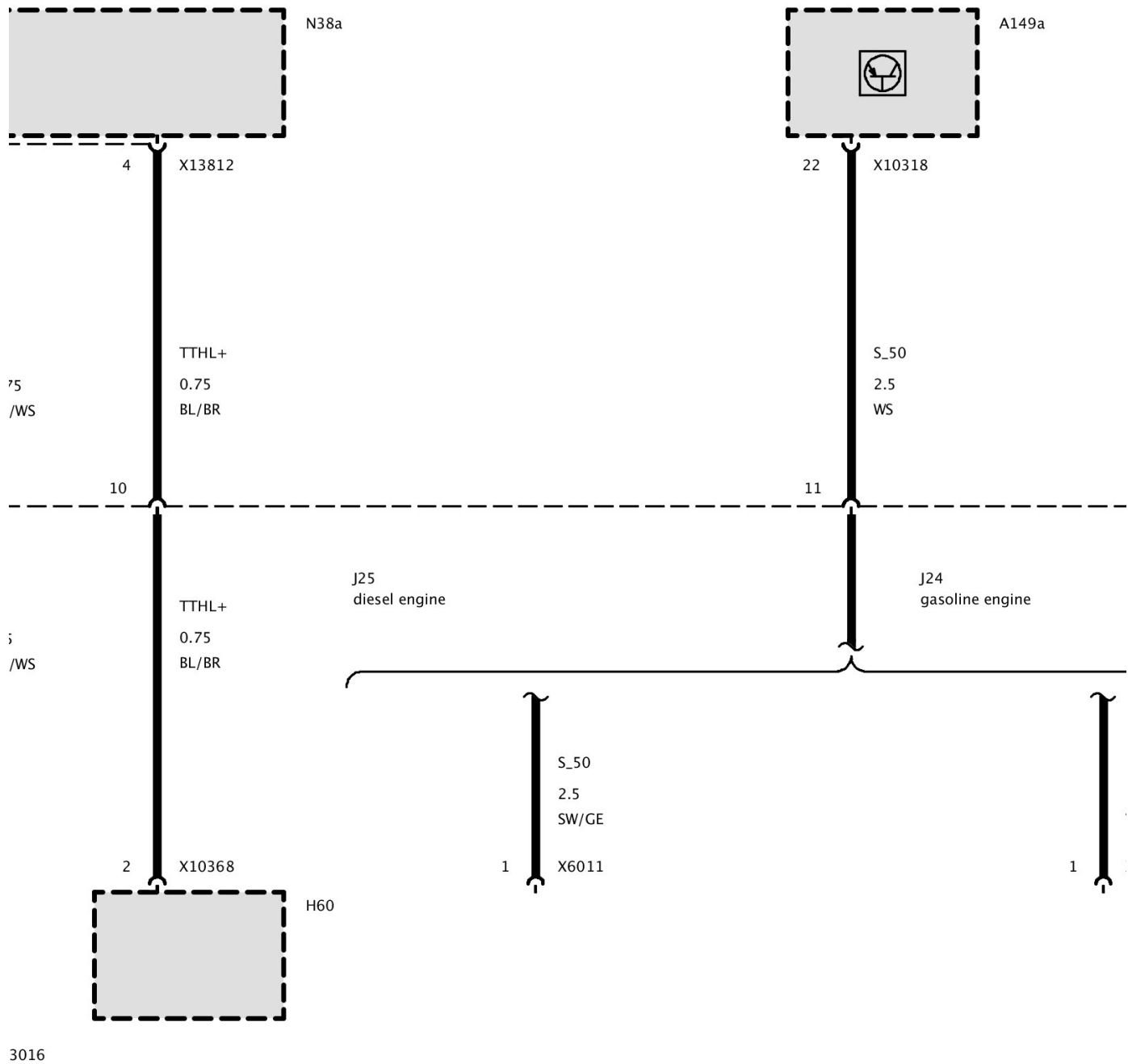
**Connector X9331 (Left-Hand Drive With CCC-BO User Interface Without AMP Hi-Fi Amplifier As of 08/07)**



Part 1

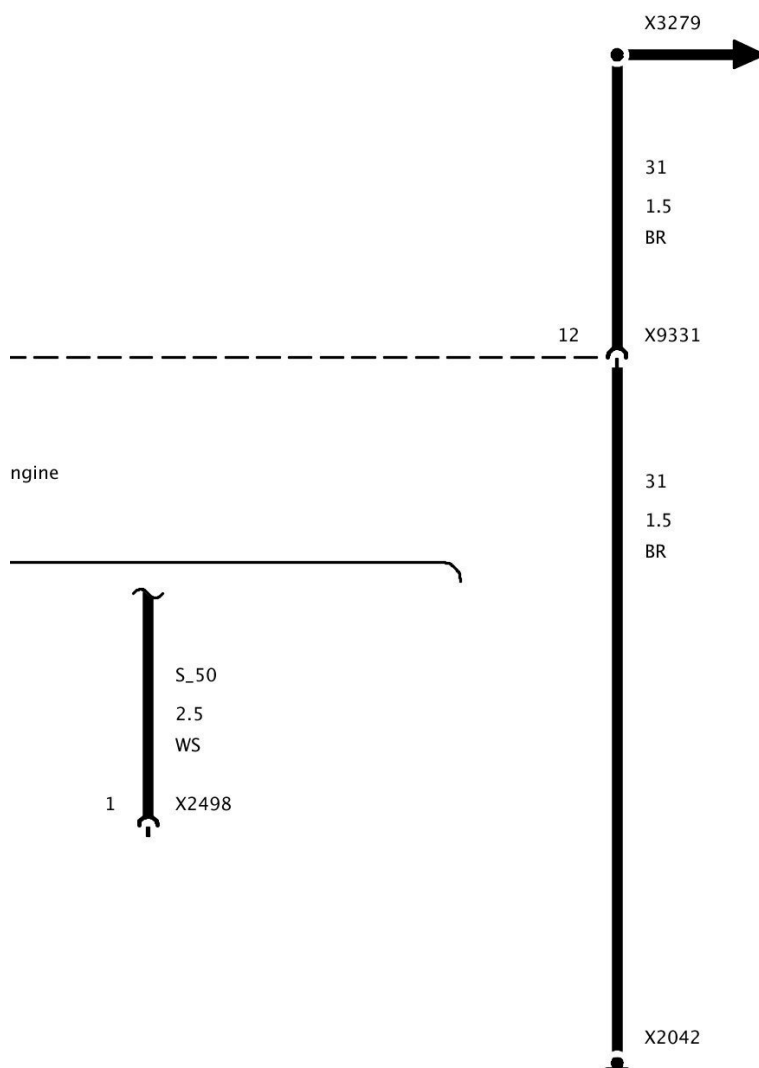






Part 3

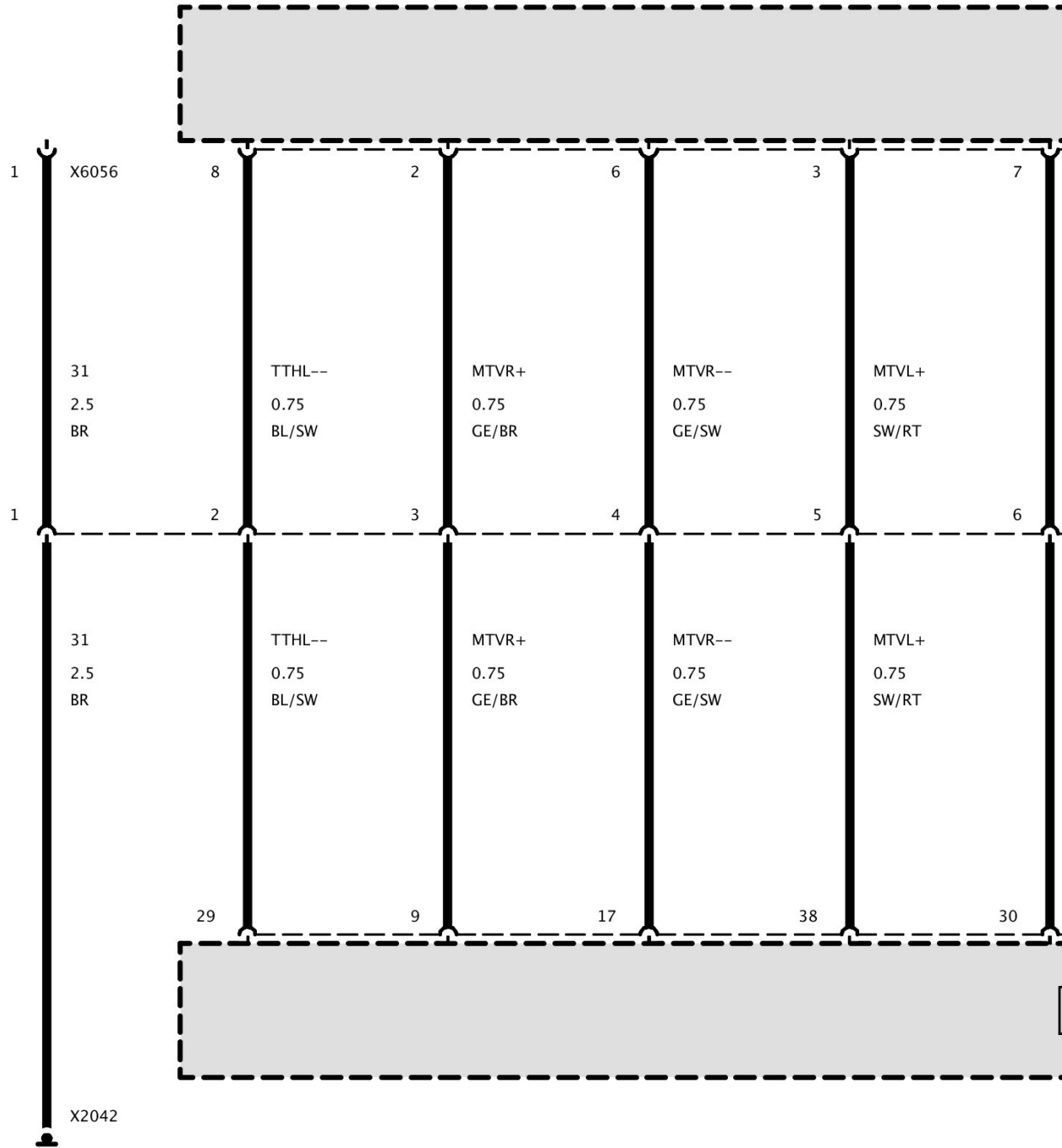
A149a

**Part 4**

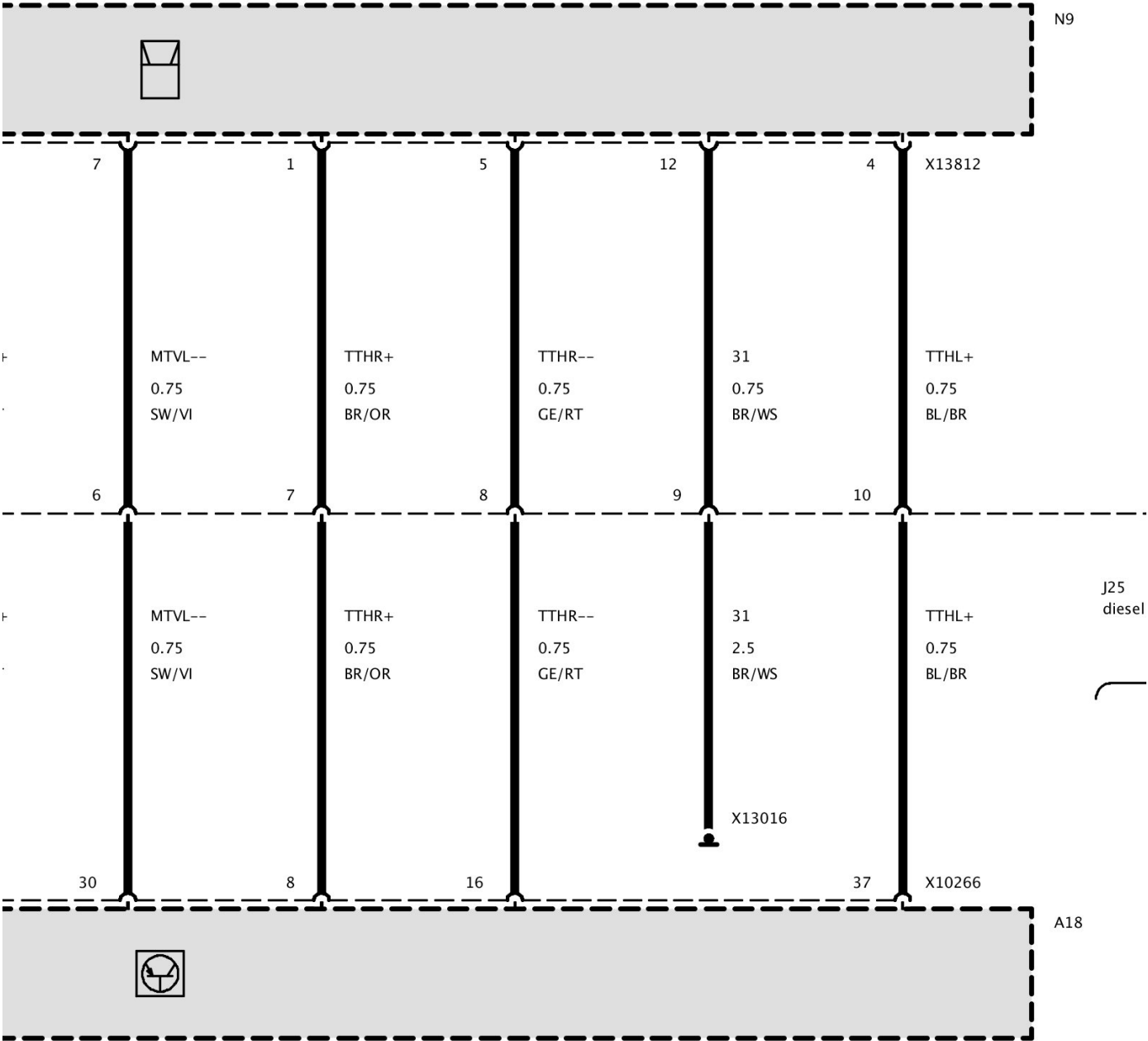
**Connector X9331 (Left-Hand Drive With RAD2-BO User Interface With AMP Hi-Fi Amplifier As of 08/07)**

**X9331 No Adapter**

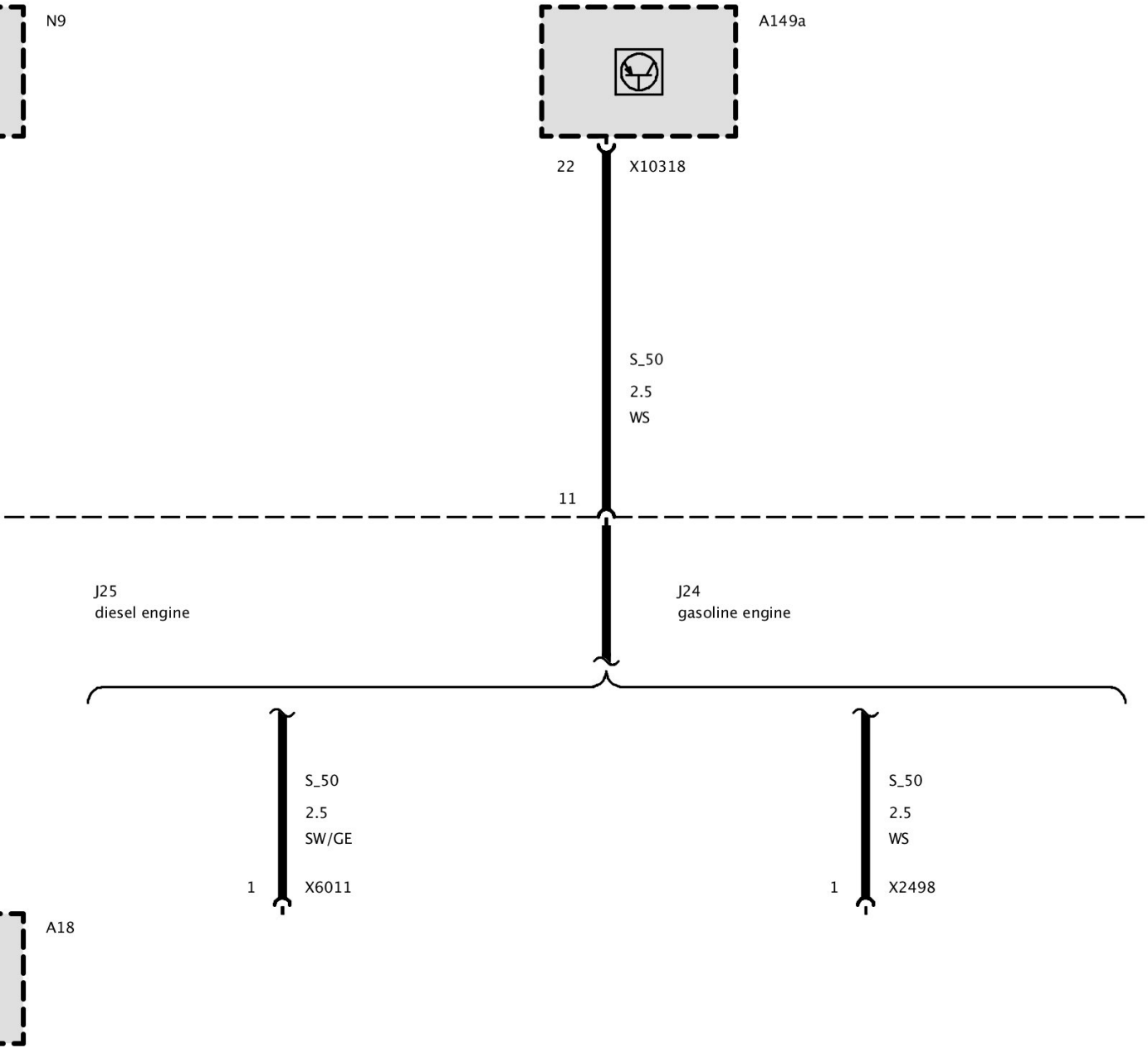
**Connector X9331 (Left-Hand Drive With RAD2-BO User Interface With AMP Hi-Fi Amplifier As of 08/07)**



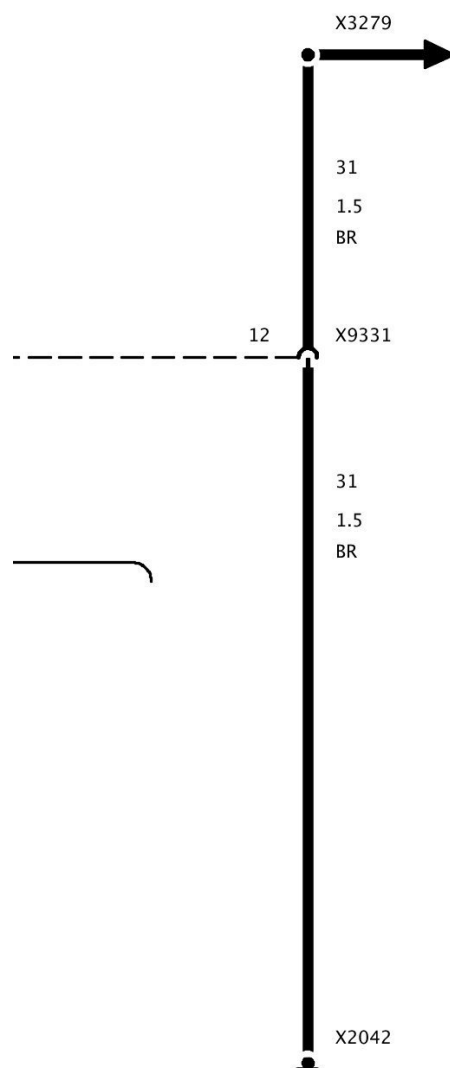
Part 1



Part 2



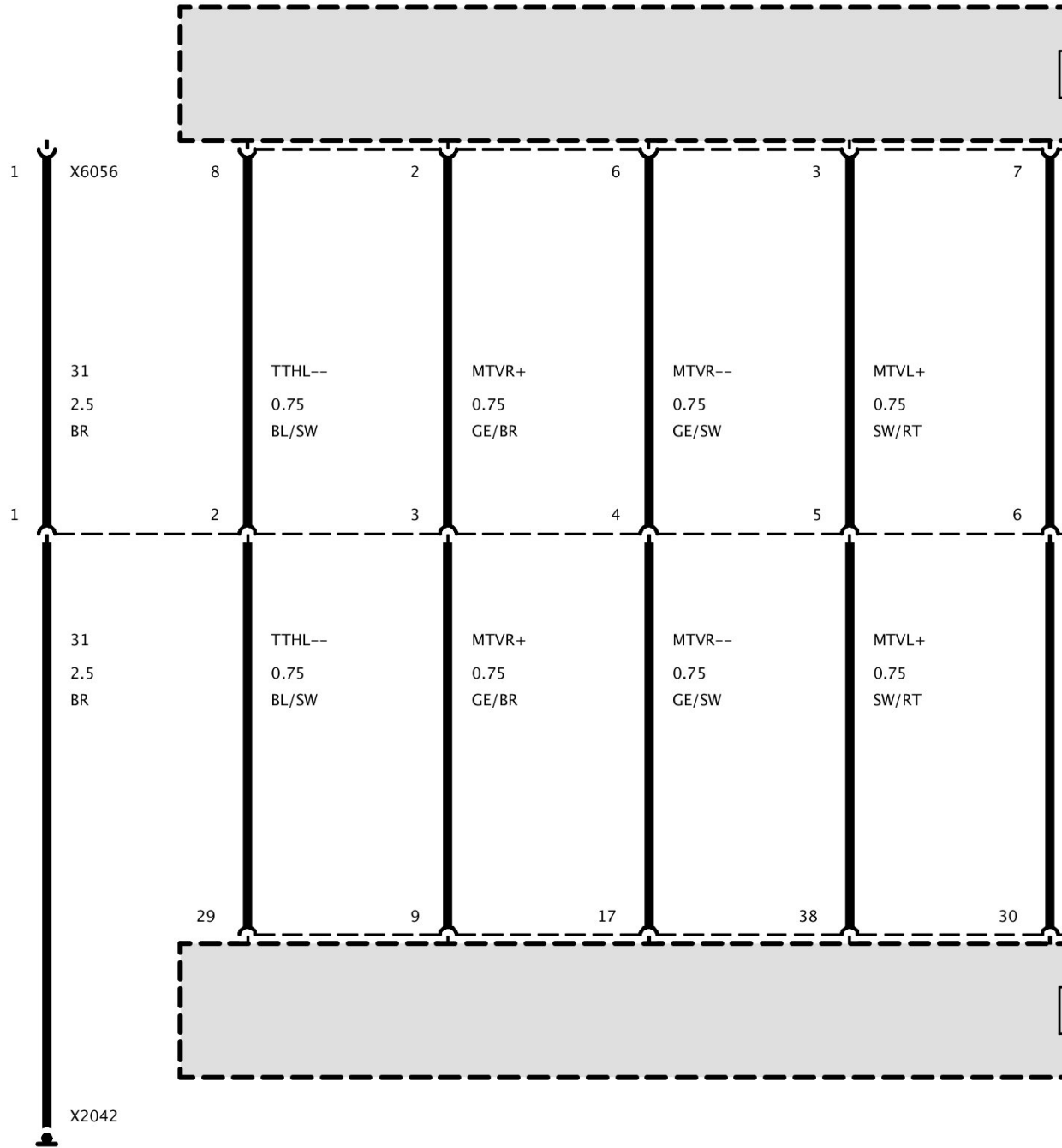
Part 3

**Part 4**

**Connector X9331 (Left-Hand Drive With CCC-BO User Interface With AMP Hi-Fi Amplifier As of 08/07)**

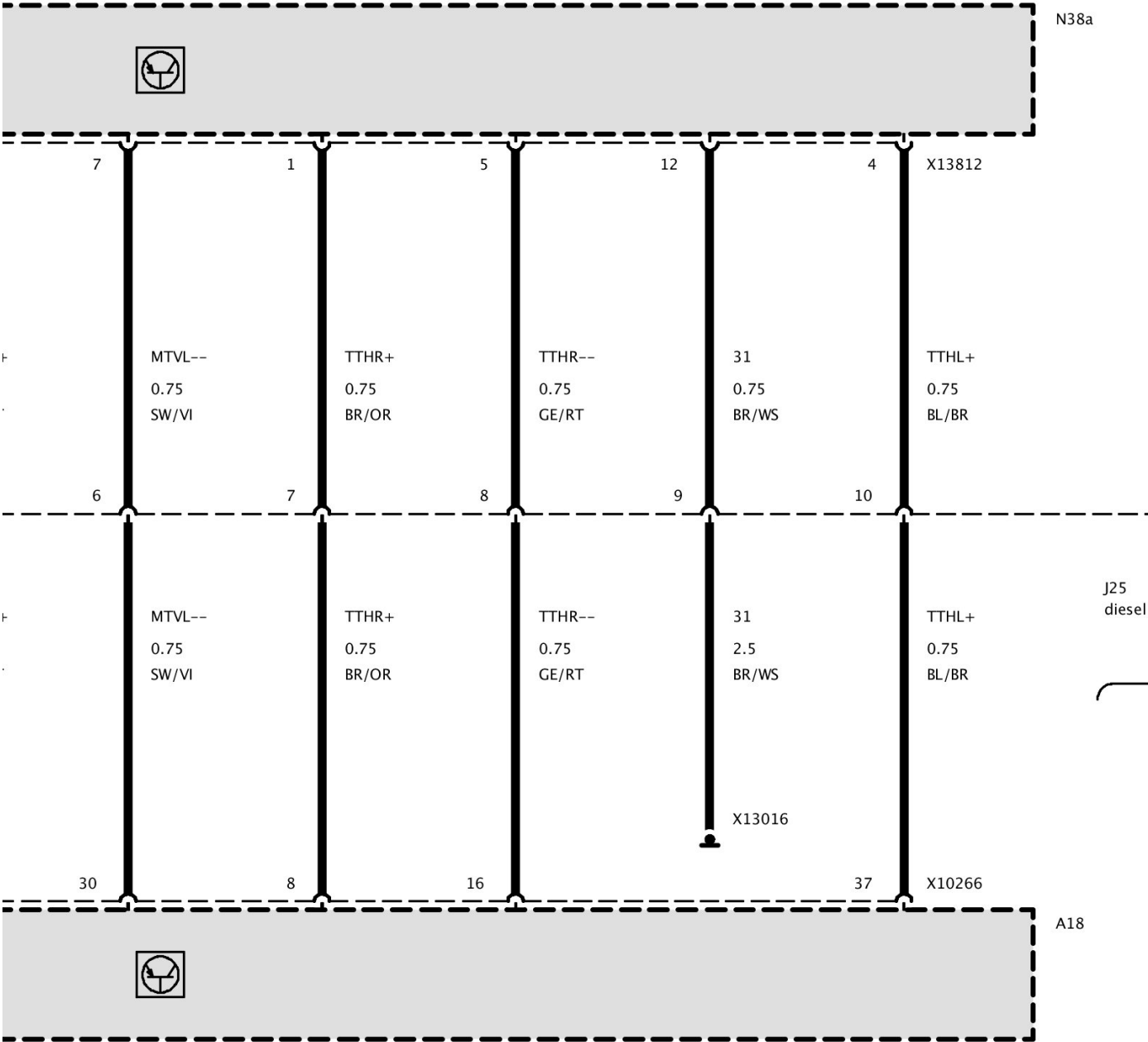
**X9331 No Adapter**

**Connector X9331 (Left-Hand Drive With CCC-BO User Interface With AMP Hi-Fi Amplifier As of 08/07)**

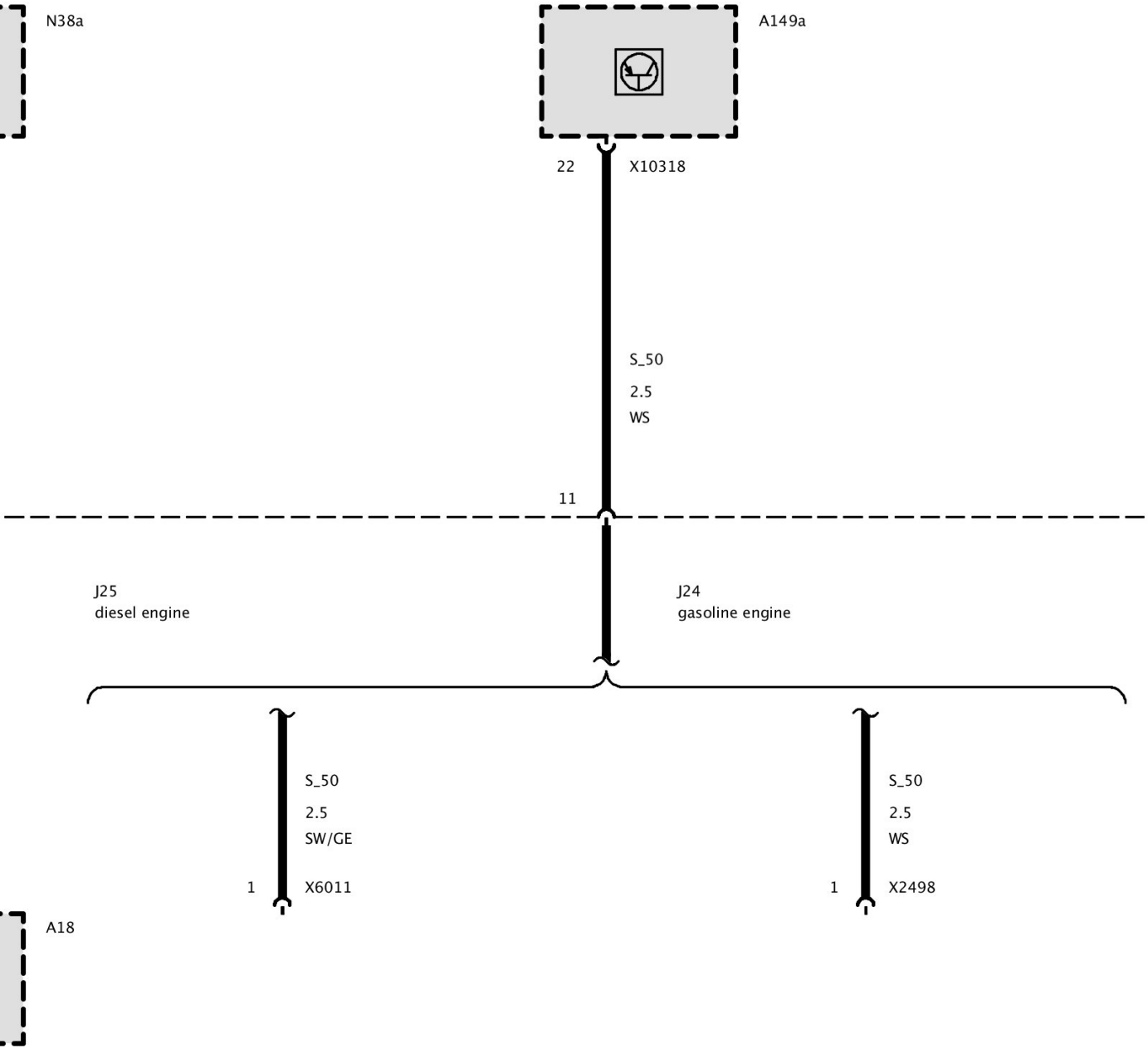


Part 1

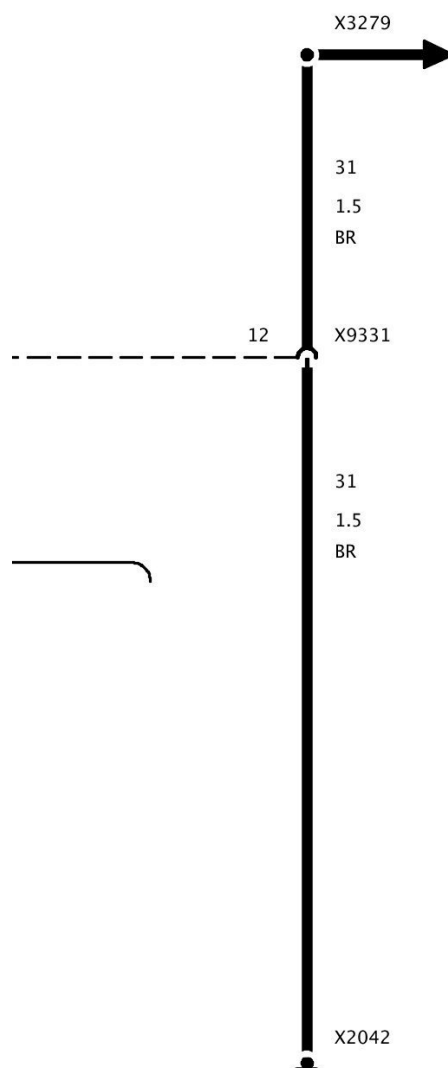


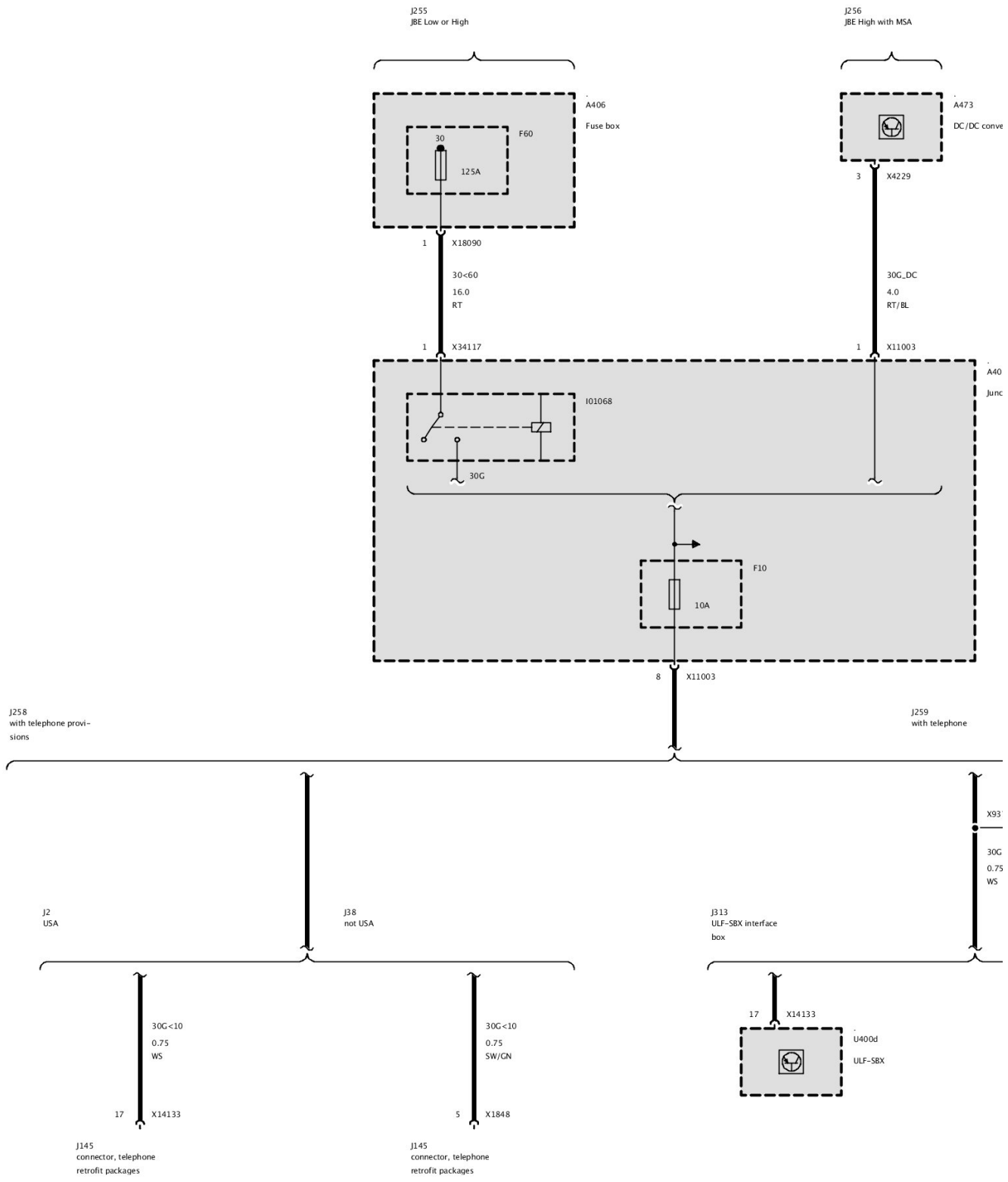


Part 2



Part 3

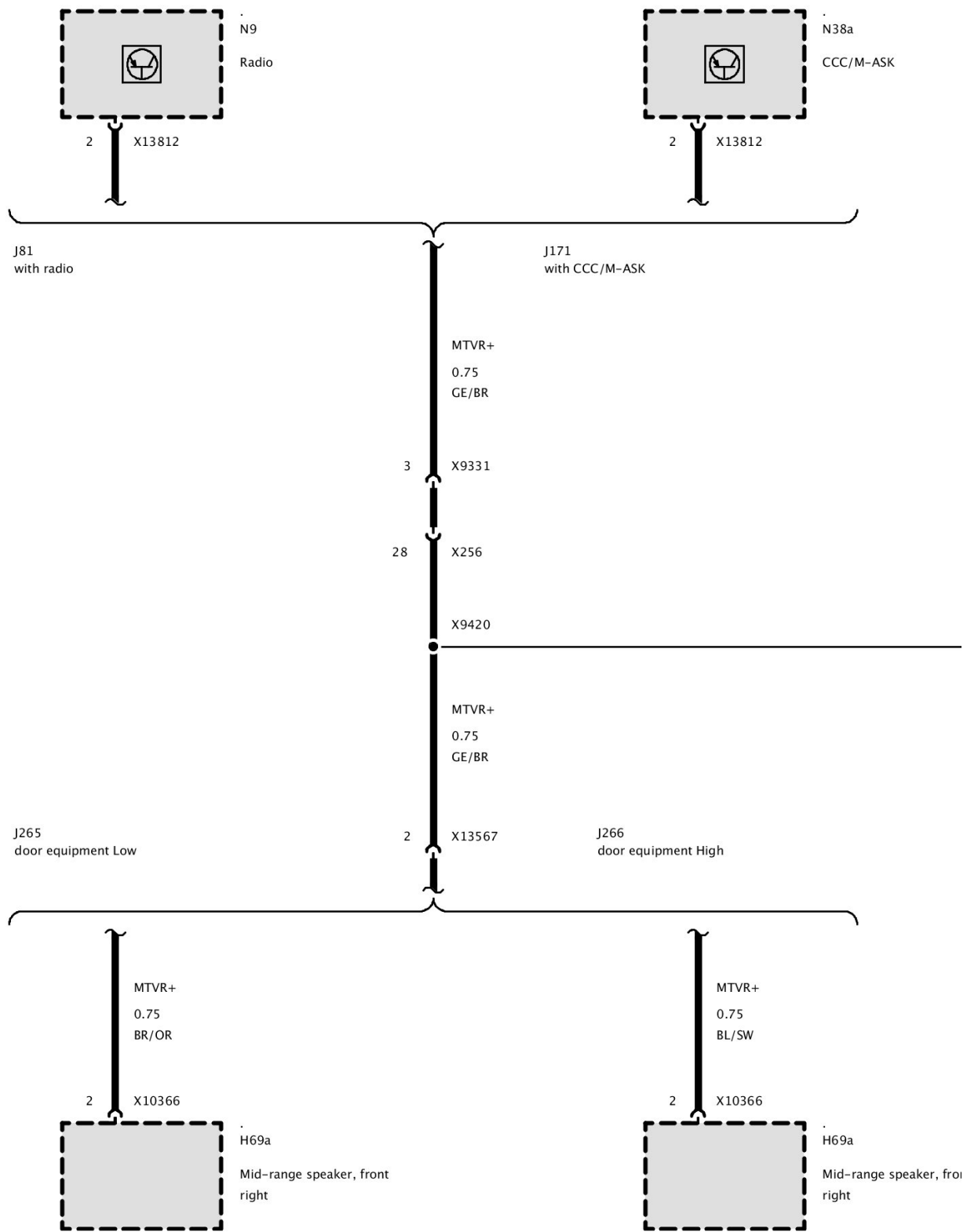
**Part 4****X9379 No Adapter****X9379 No Adapter****Fuse F10**



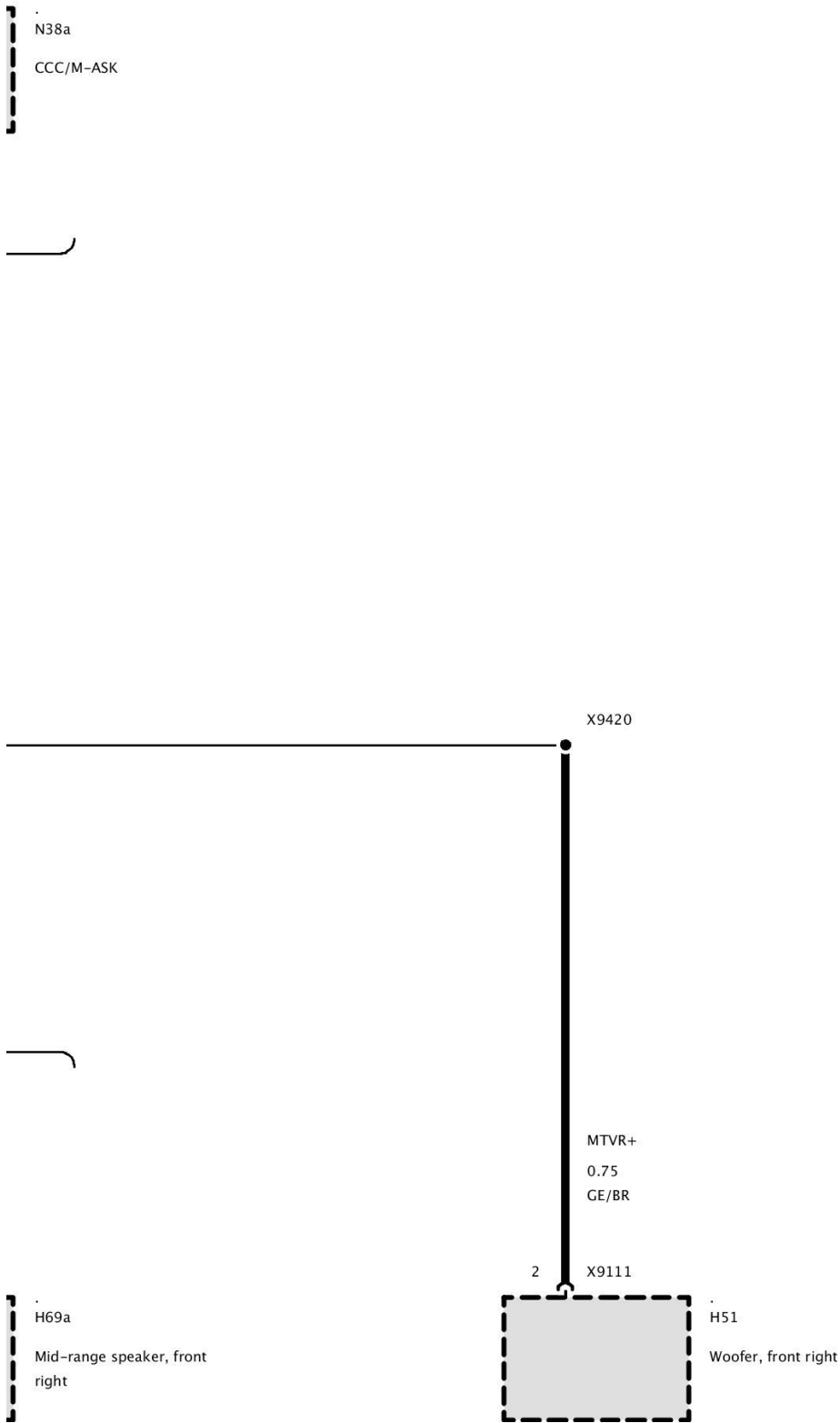
Part 1



jmoraflores@hotmail.cl



Part 1

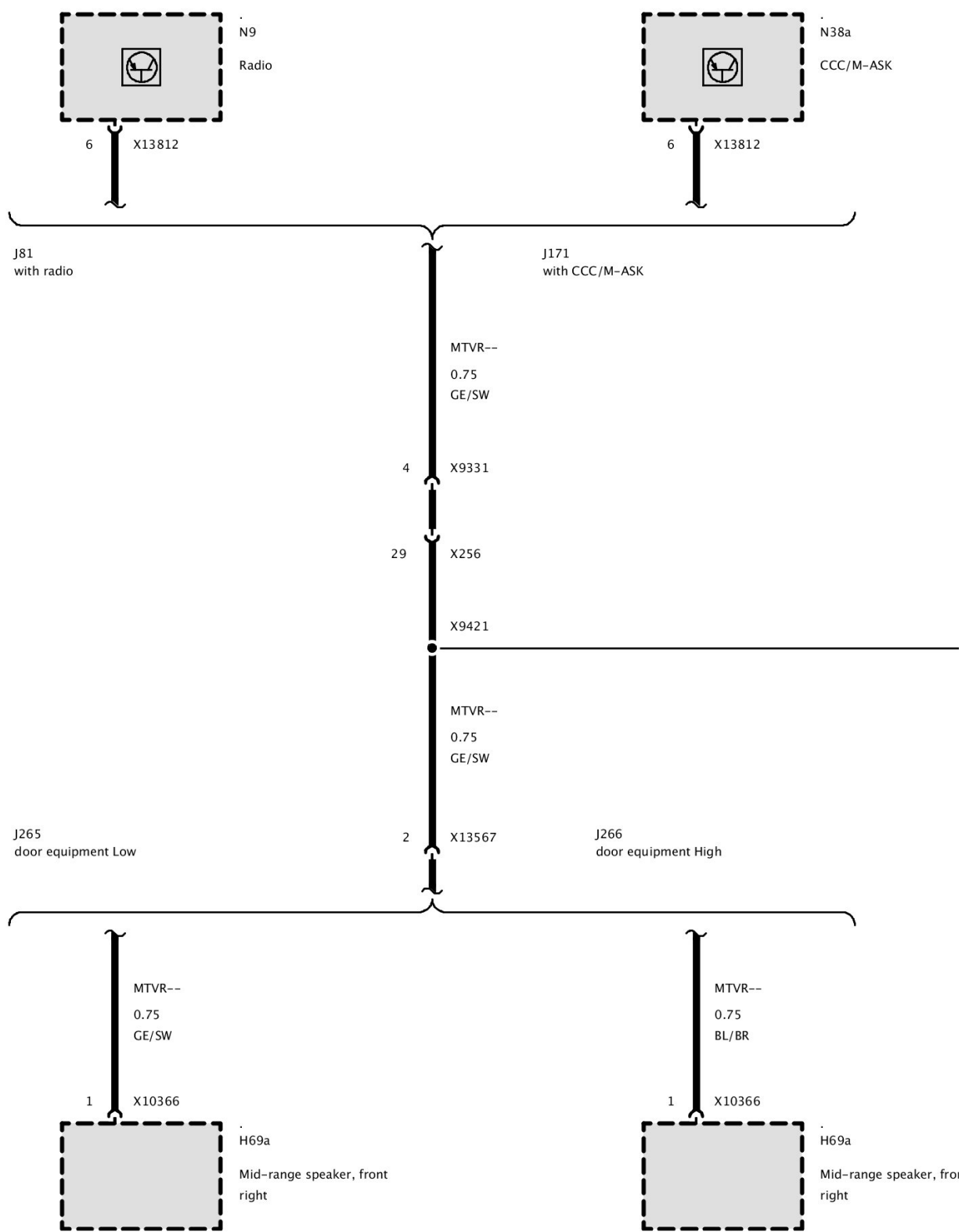


Part 2

X9421 No Adapter

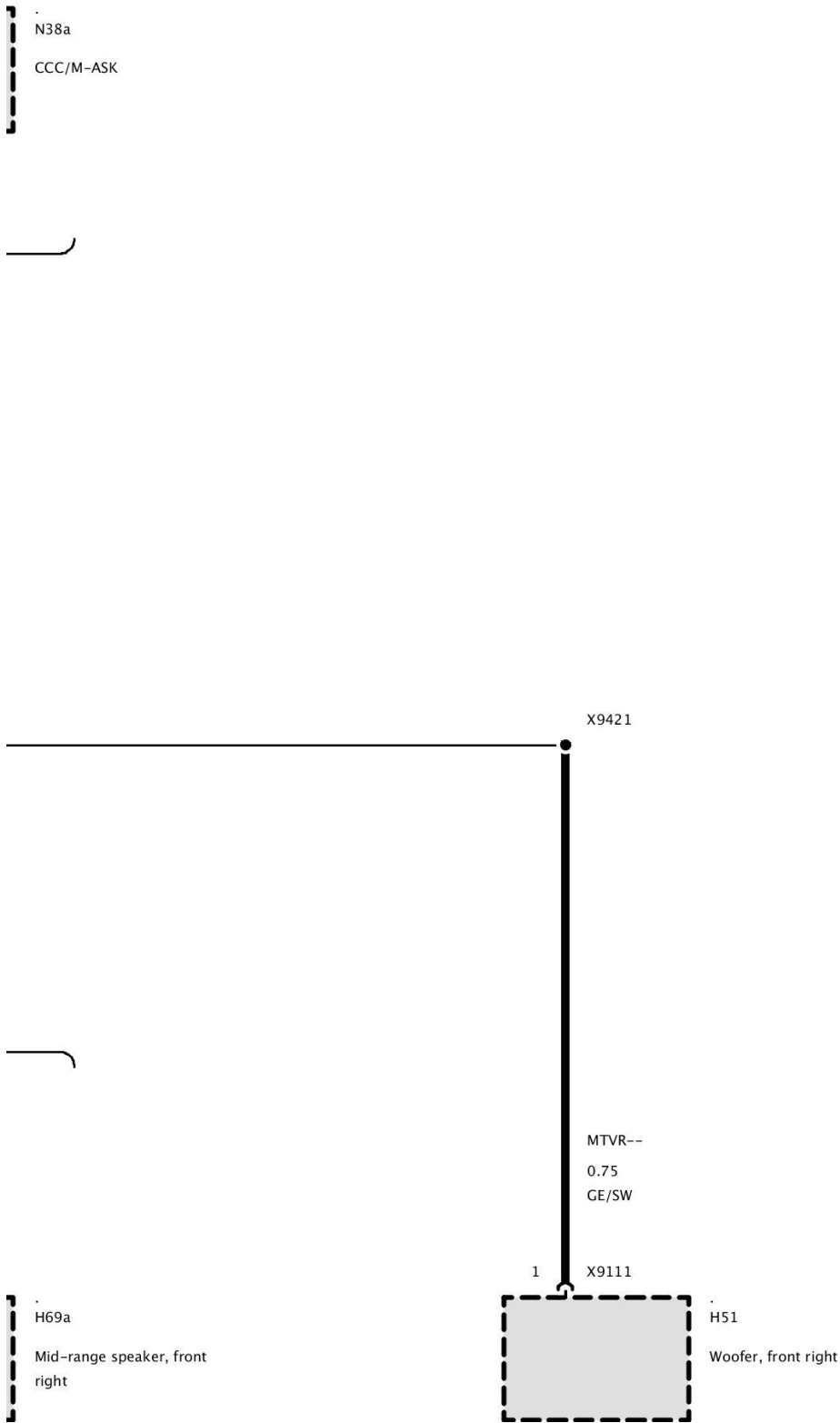
X9421 No Adapter

Connector X9421



Part 1



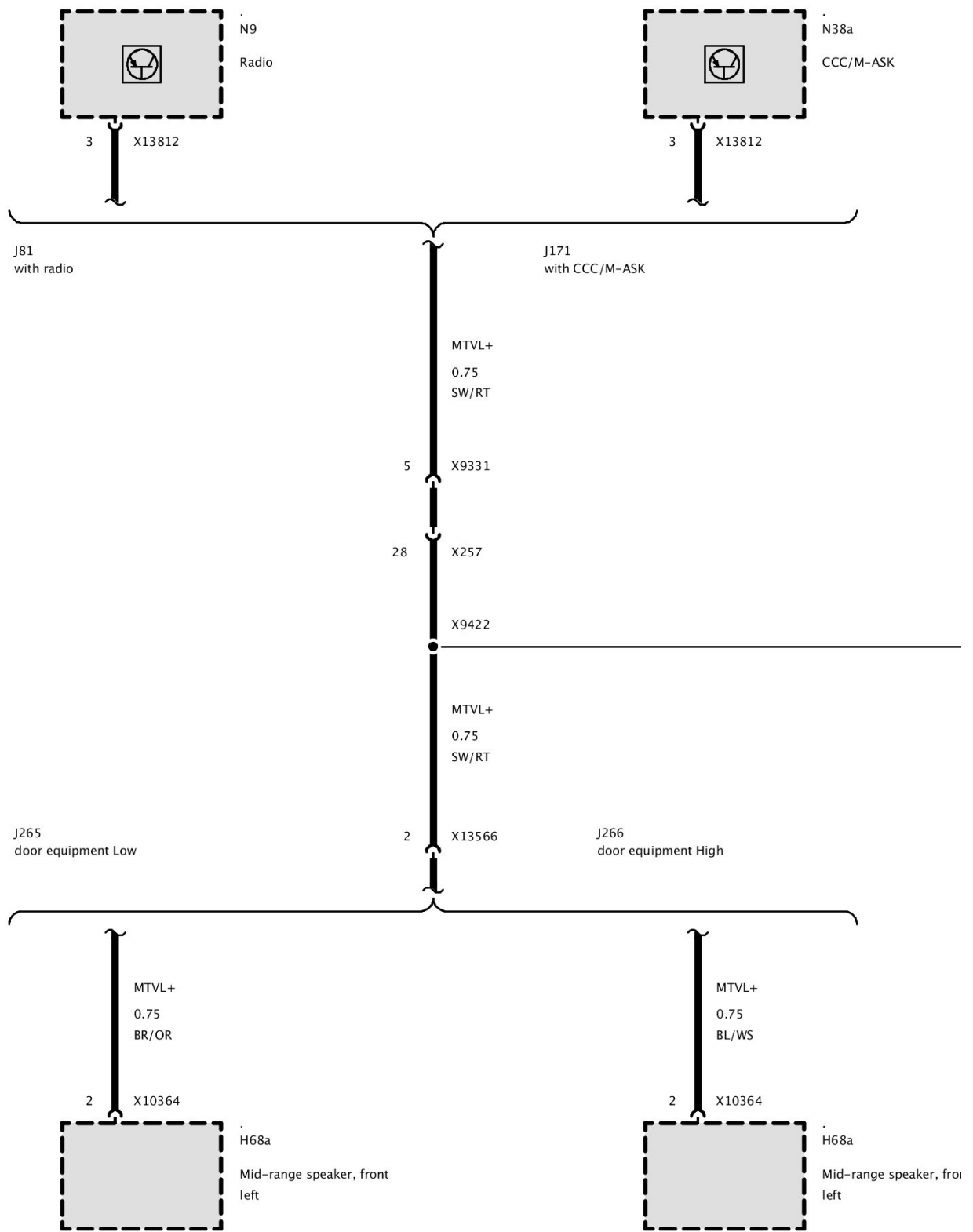


Part 2

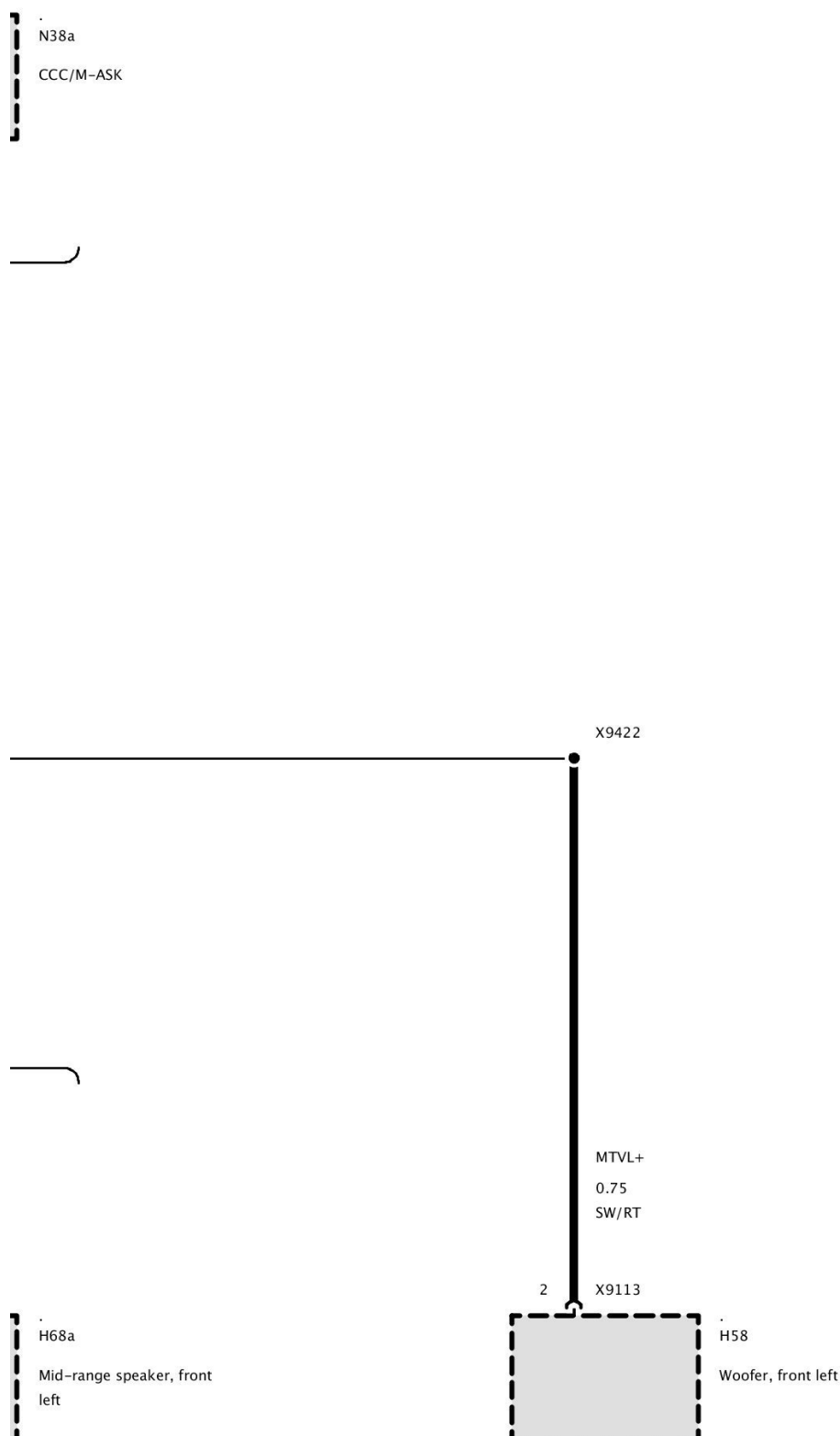
X9422 No Adapter

X9422 No Adapter

Connector X9422



Part 1

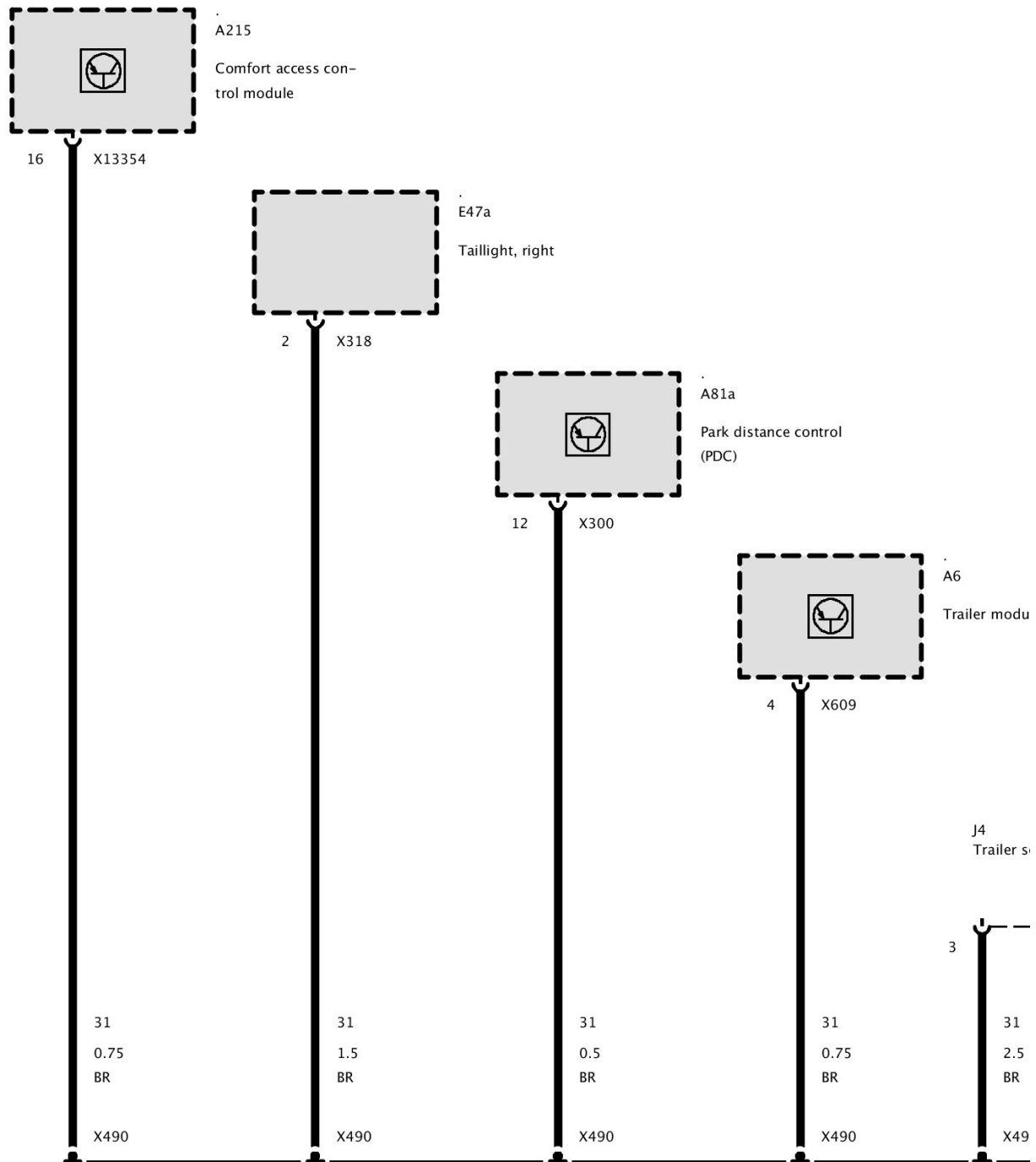


## Part 2

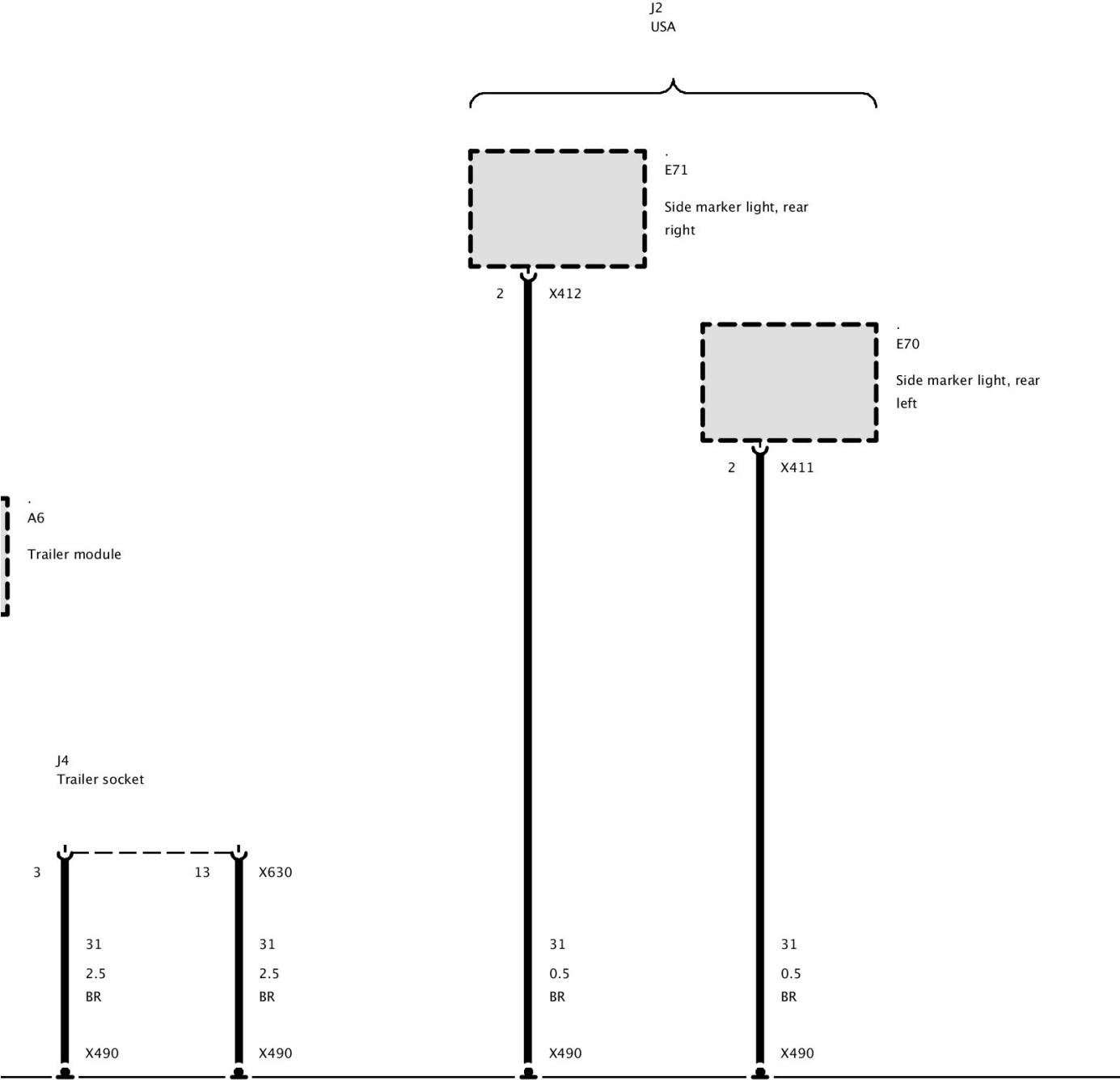
**Ground Connection X490, Connector X1256, X9641, X13229 (Up to 03/08)**

**X9641 No Adapter**

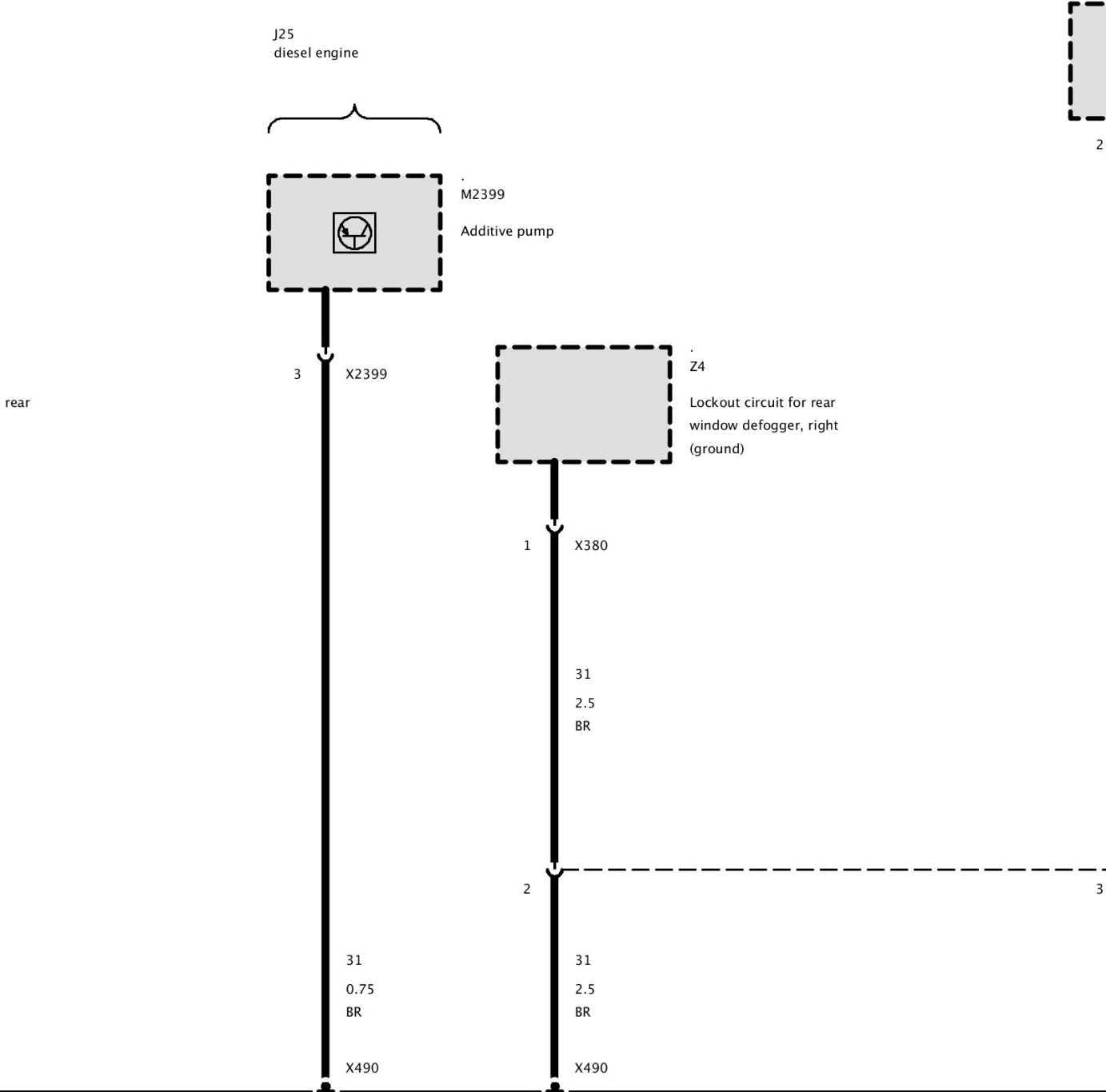
**Ground Connection X490, Connector X1256, X9641, X13229 (Up to 03/08)**



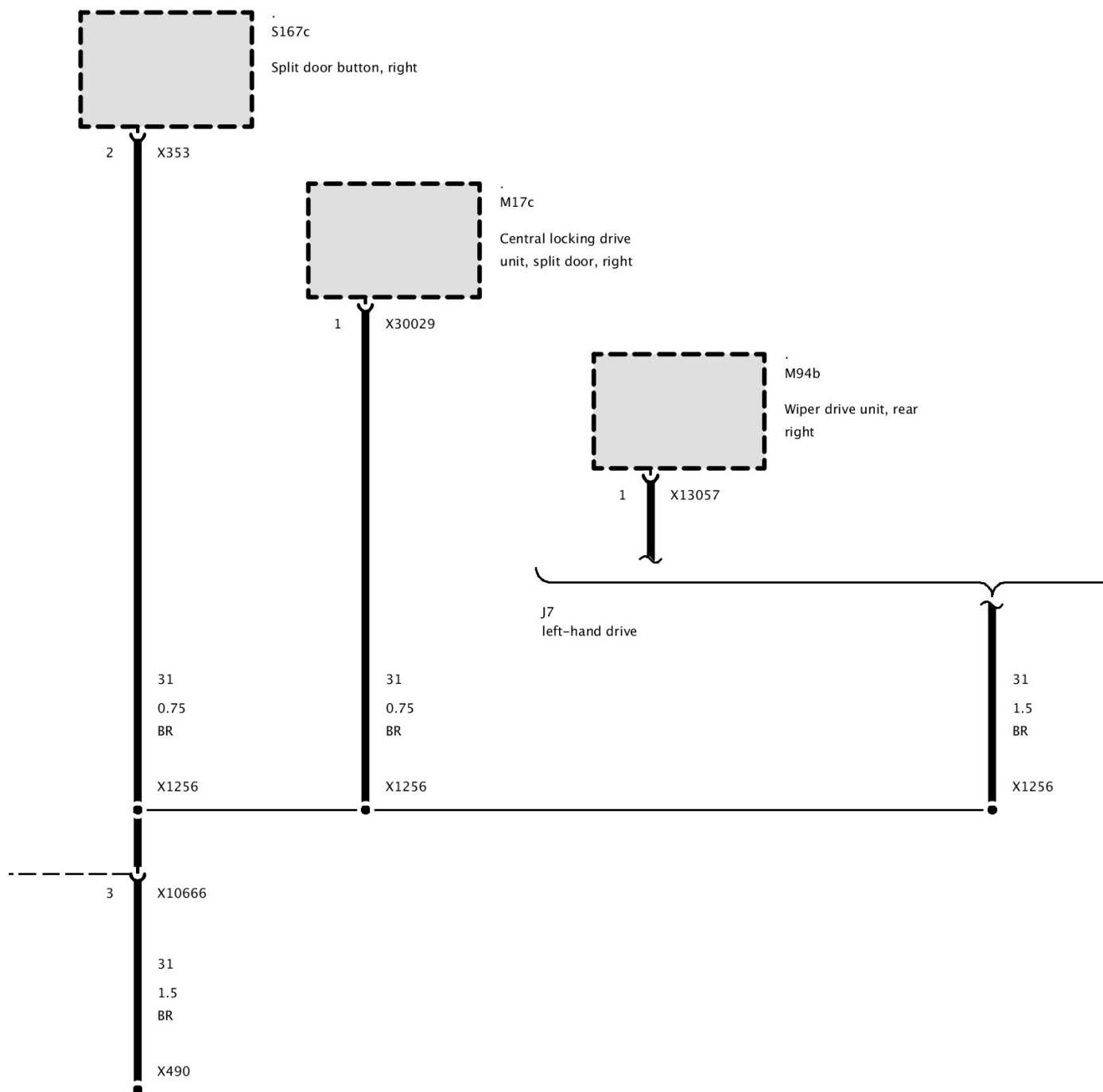
Part 1



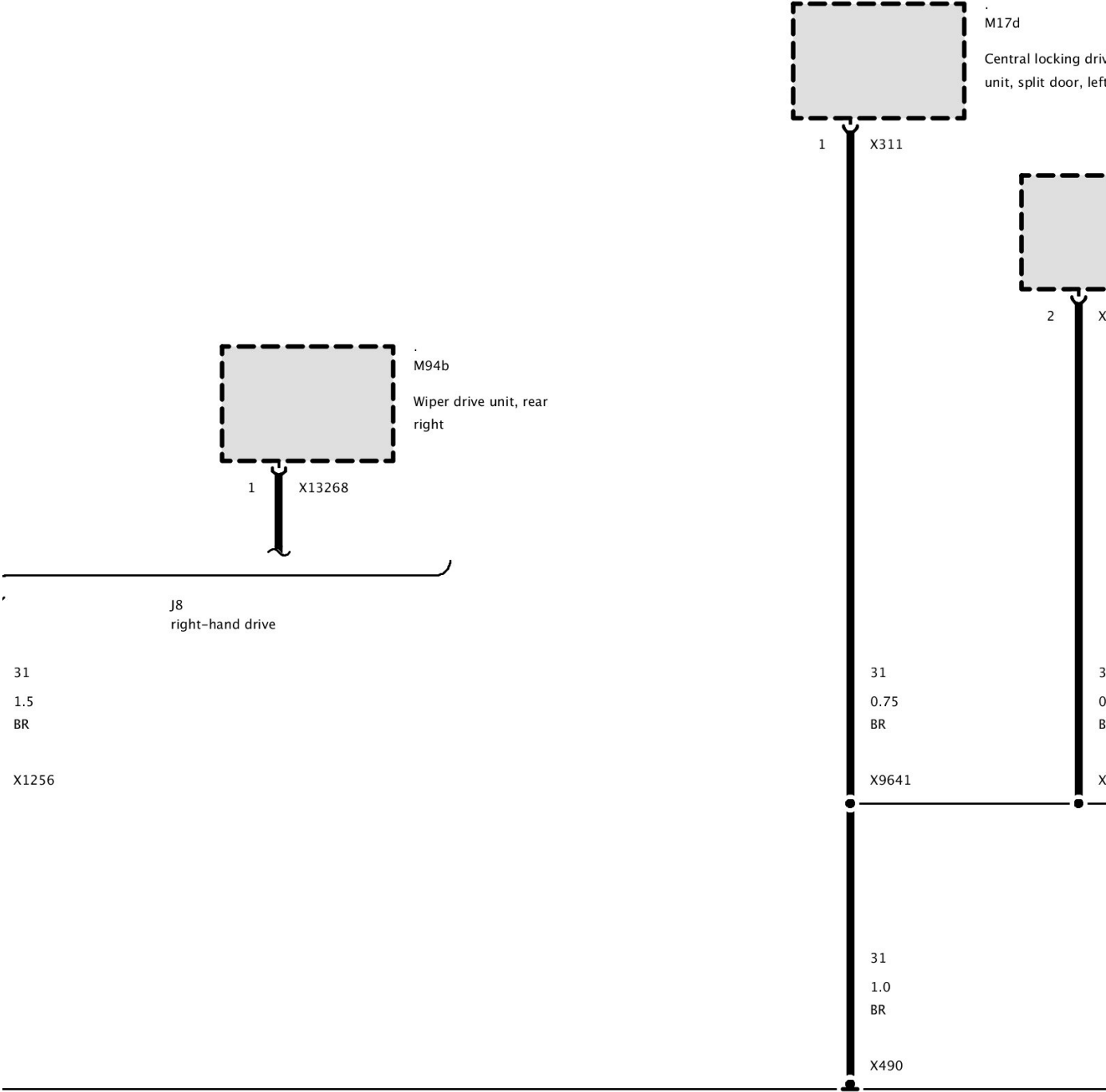
Part 2



Part 3

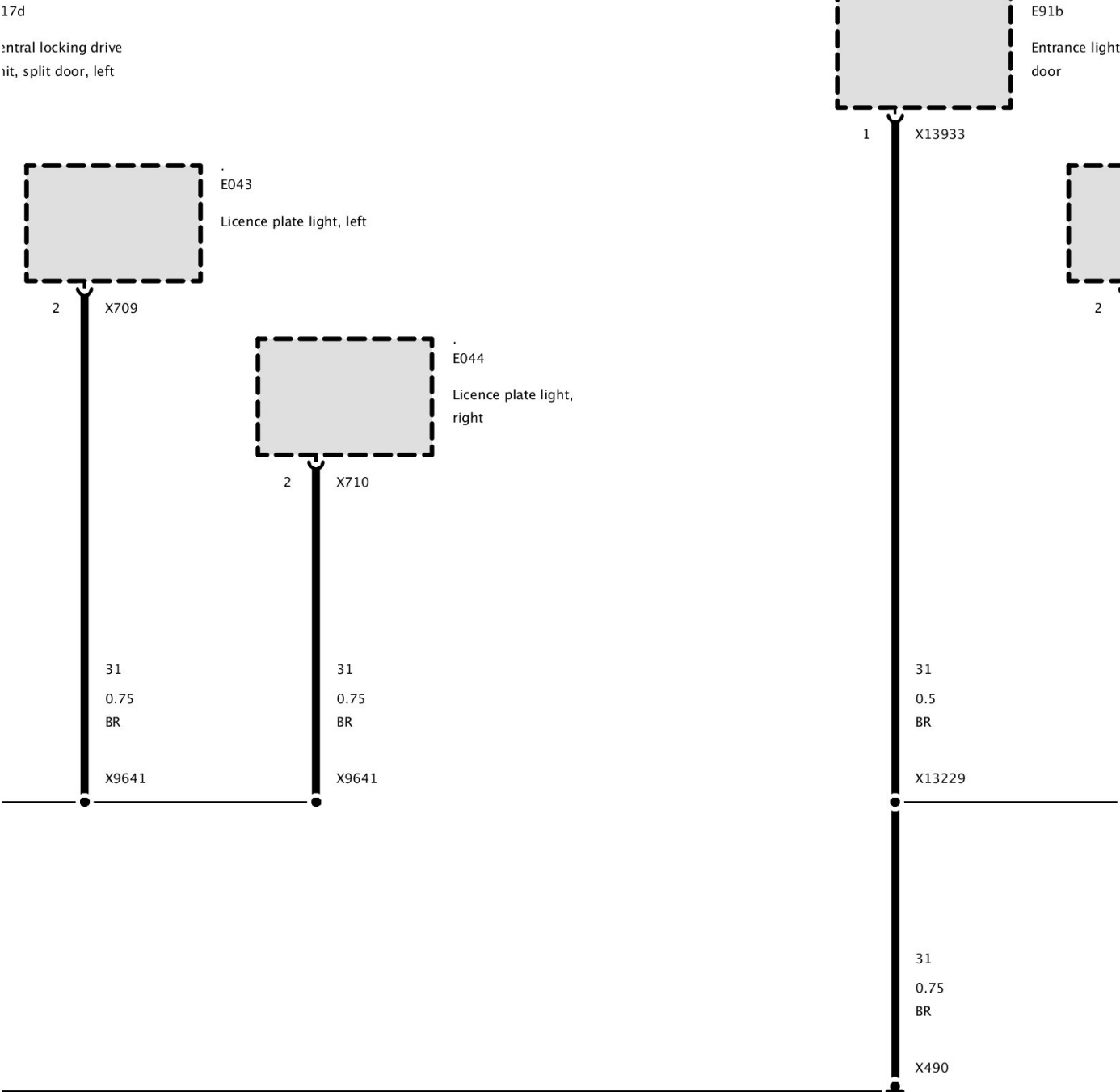


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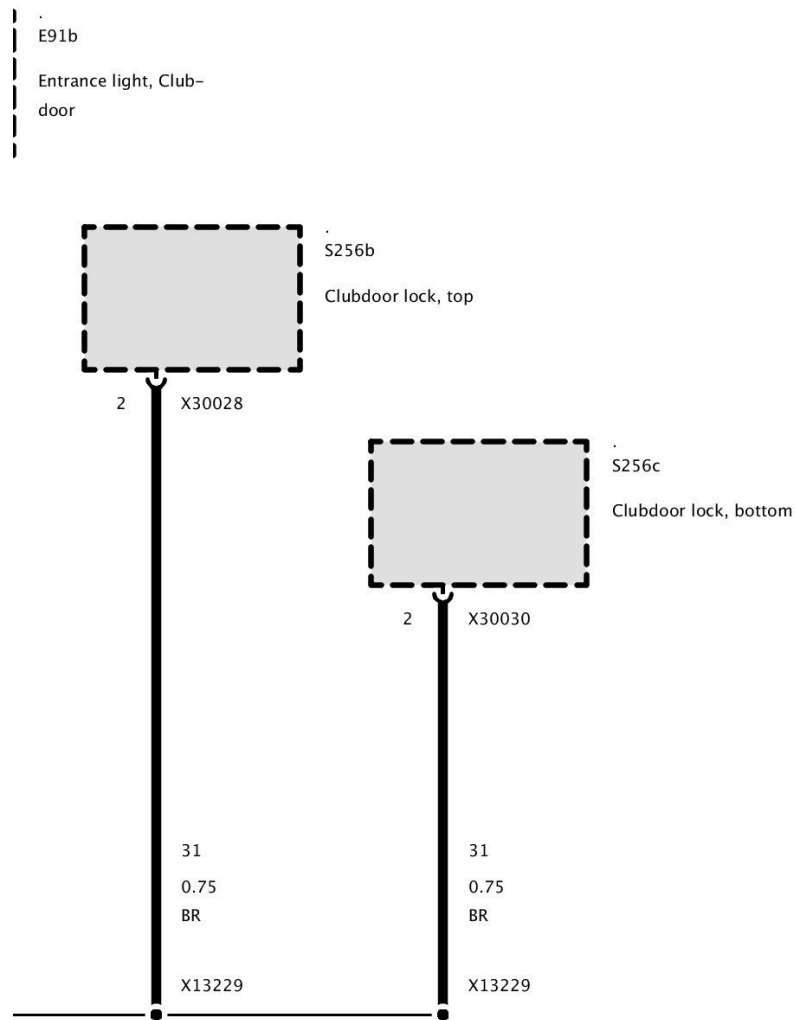


Part 5





Part 6

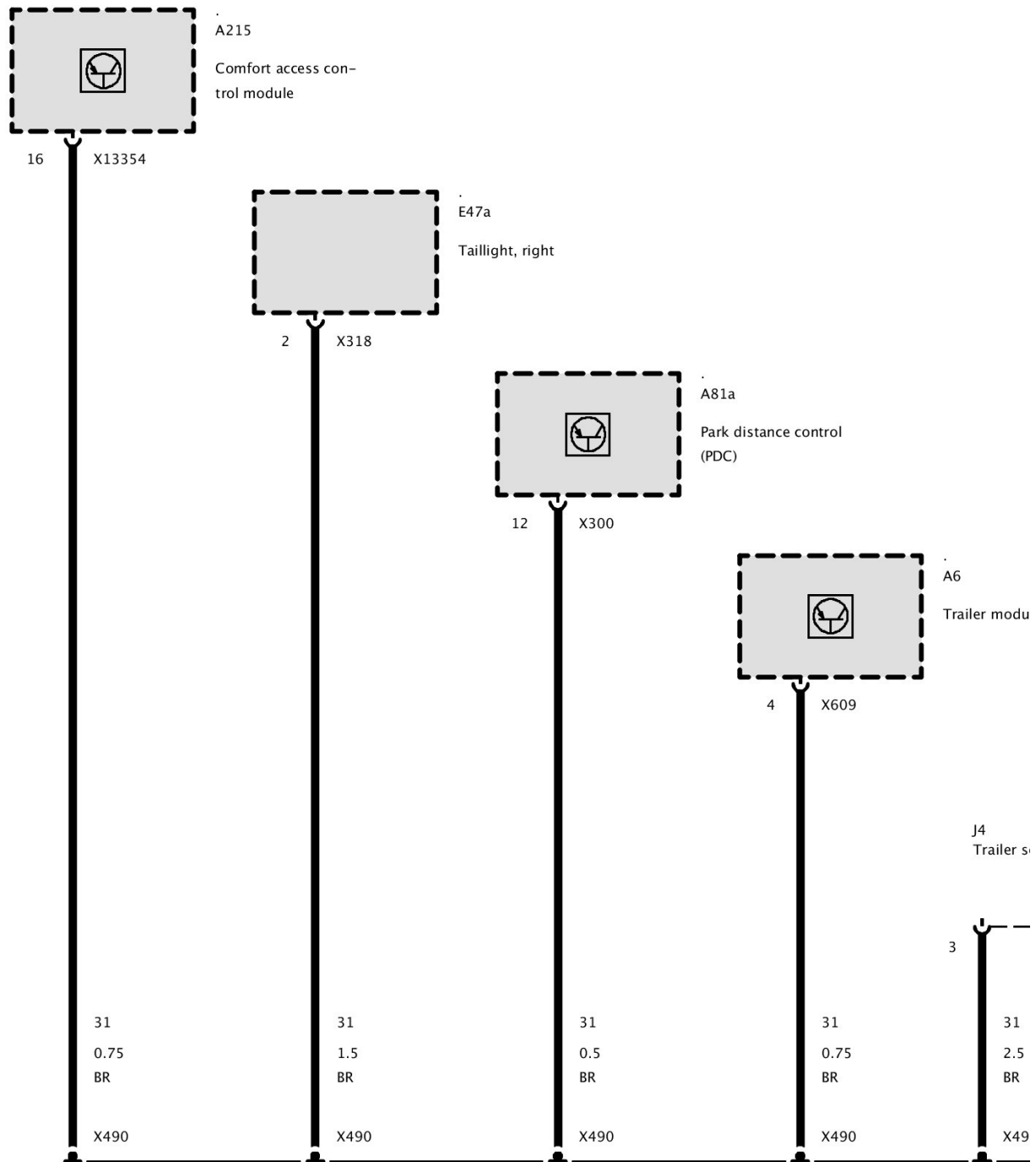


**Part 7**

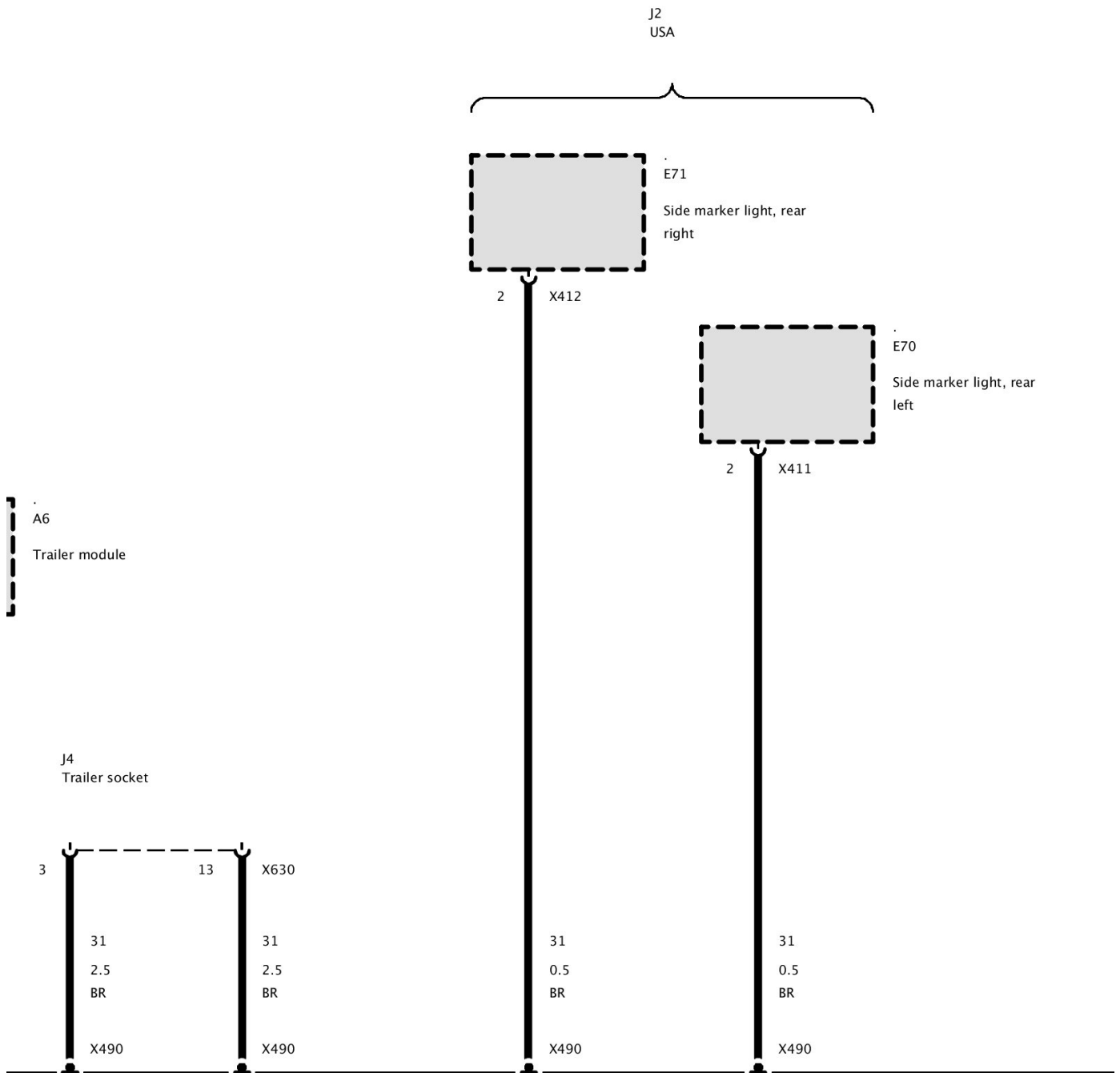
**Ground Connection X490, Connector X18740, X9641, X13229 (Left-Hand Drive As of 03/08)**

**X9641 No Adapter**

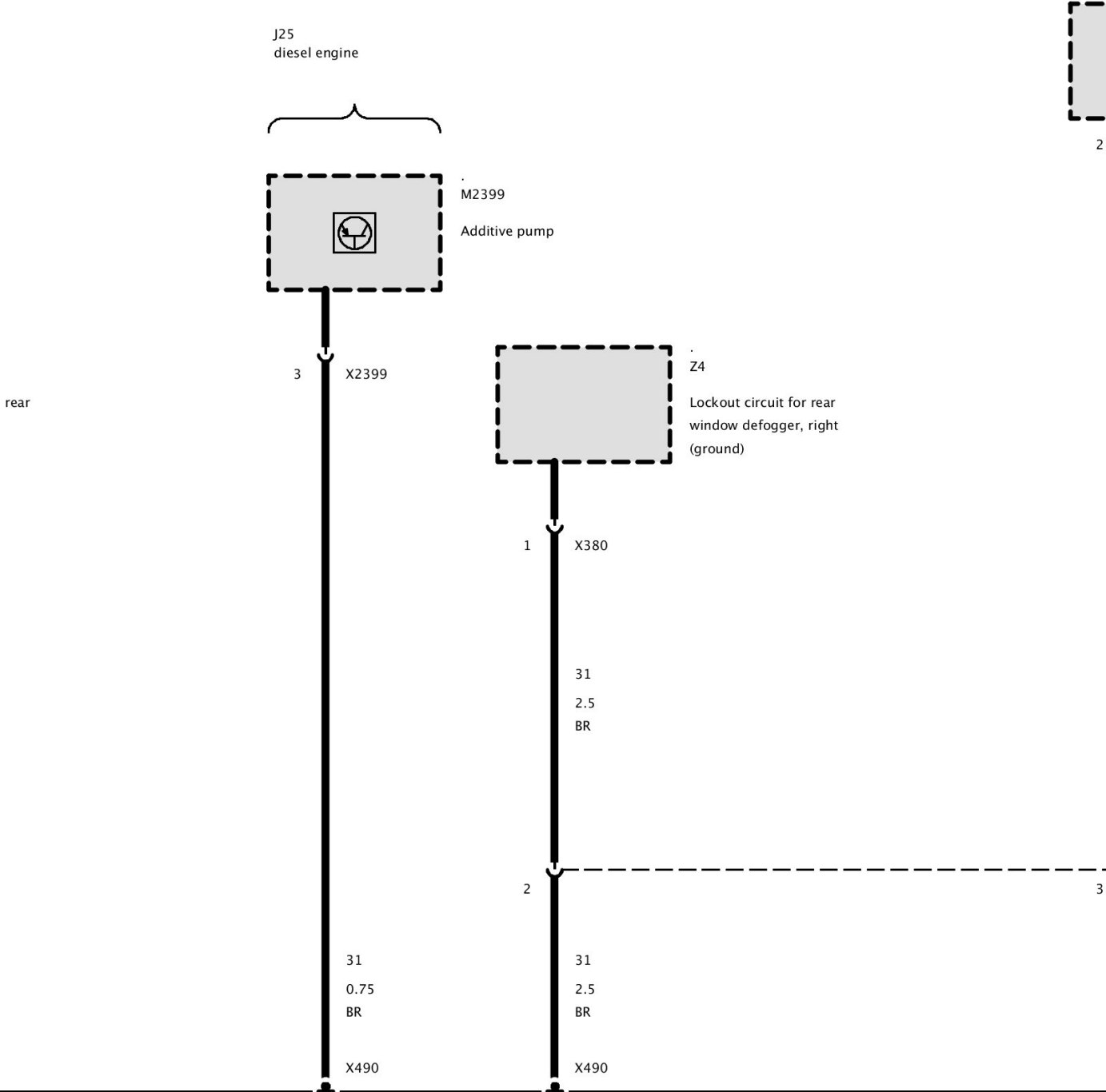
**Ground Connection X490, Connector X18740, X9641, X13229 (Left-Hand Drive As of 03/08)**



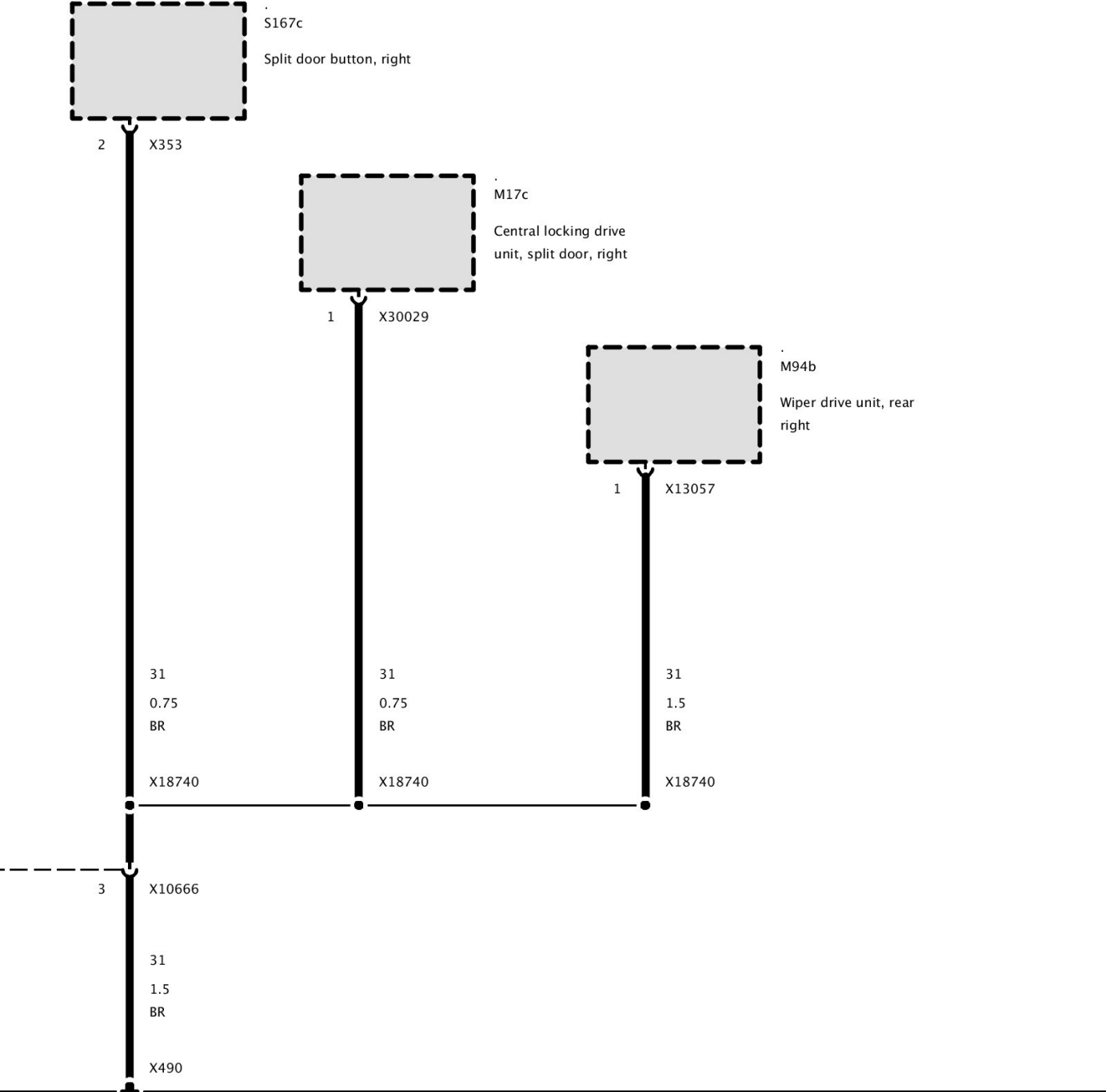
Part 1



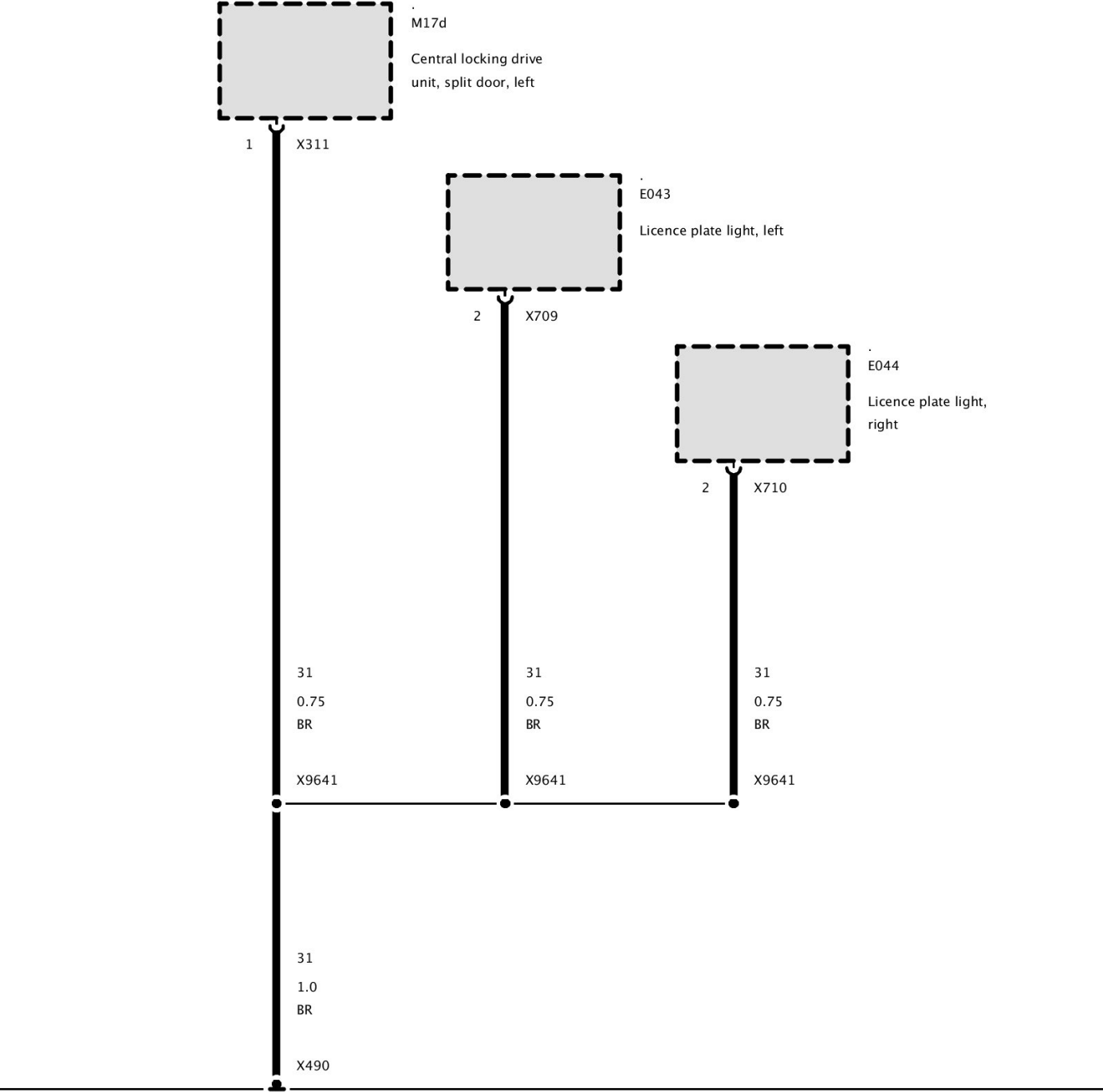
Part 2



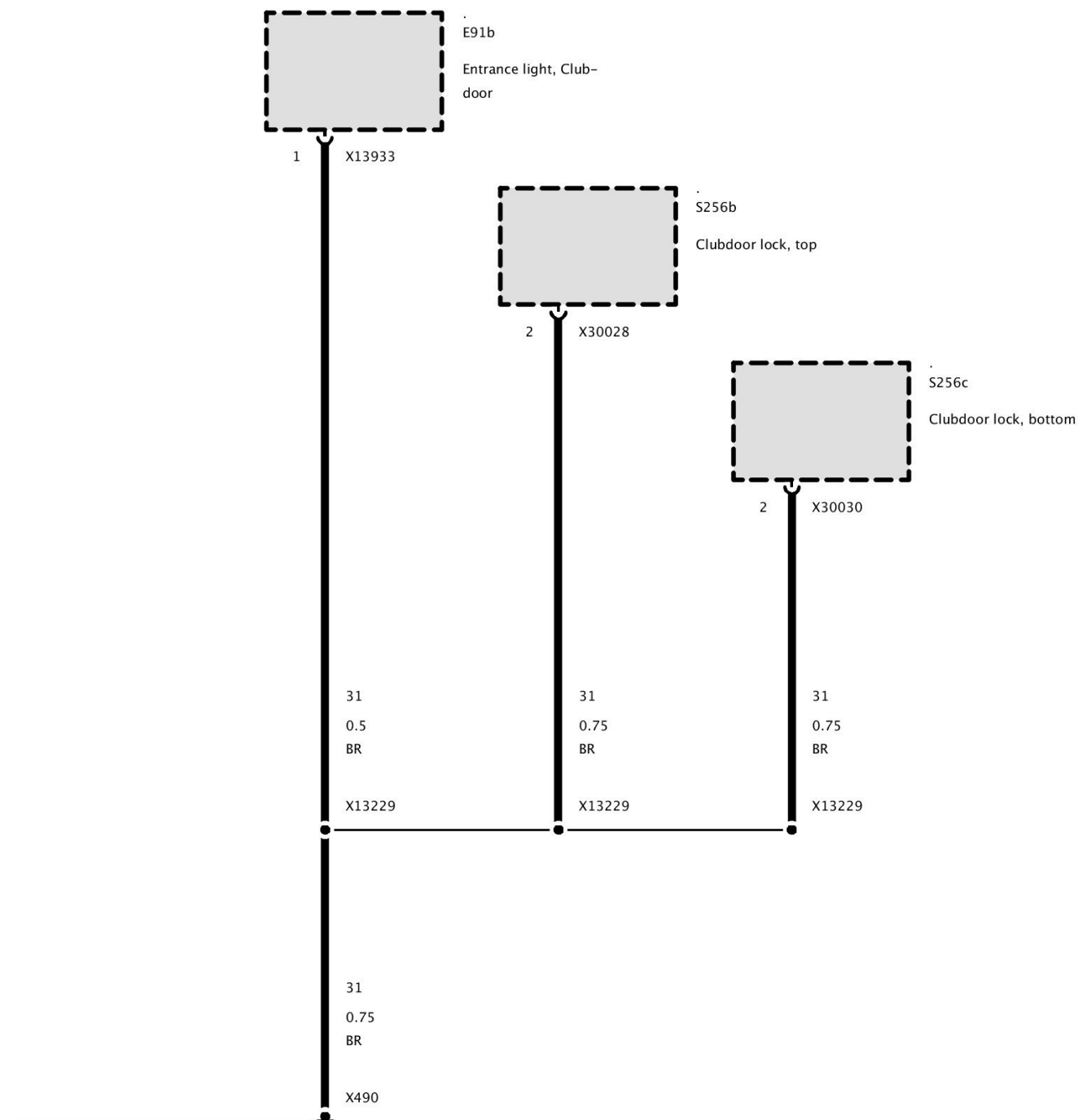
Part 3



Part 4



Part 5



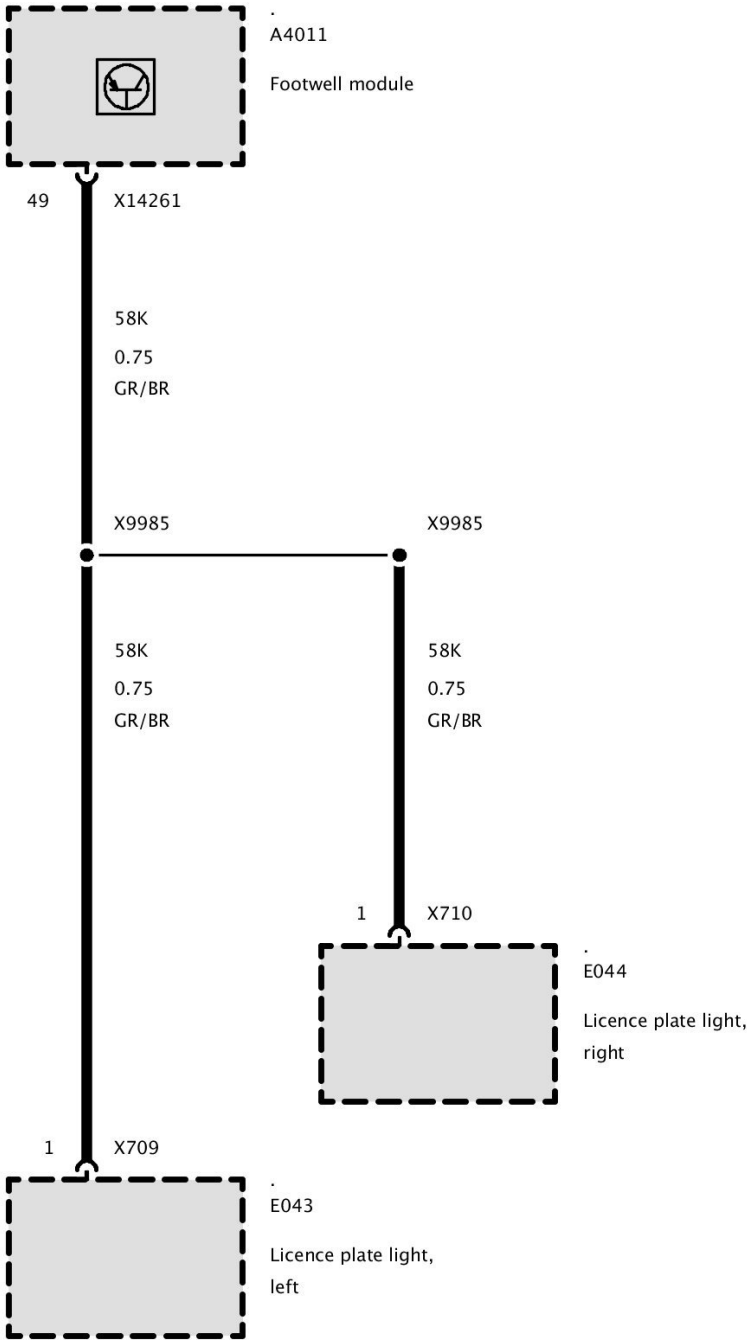
## Part 6

### X9985 No Adapter

#### X9985 No Adapter

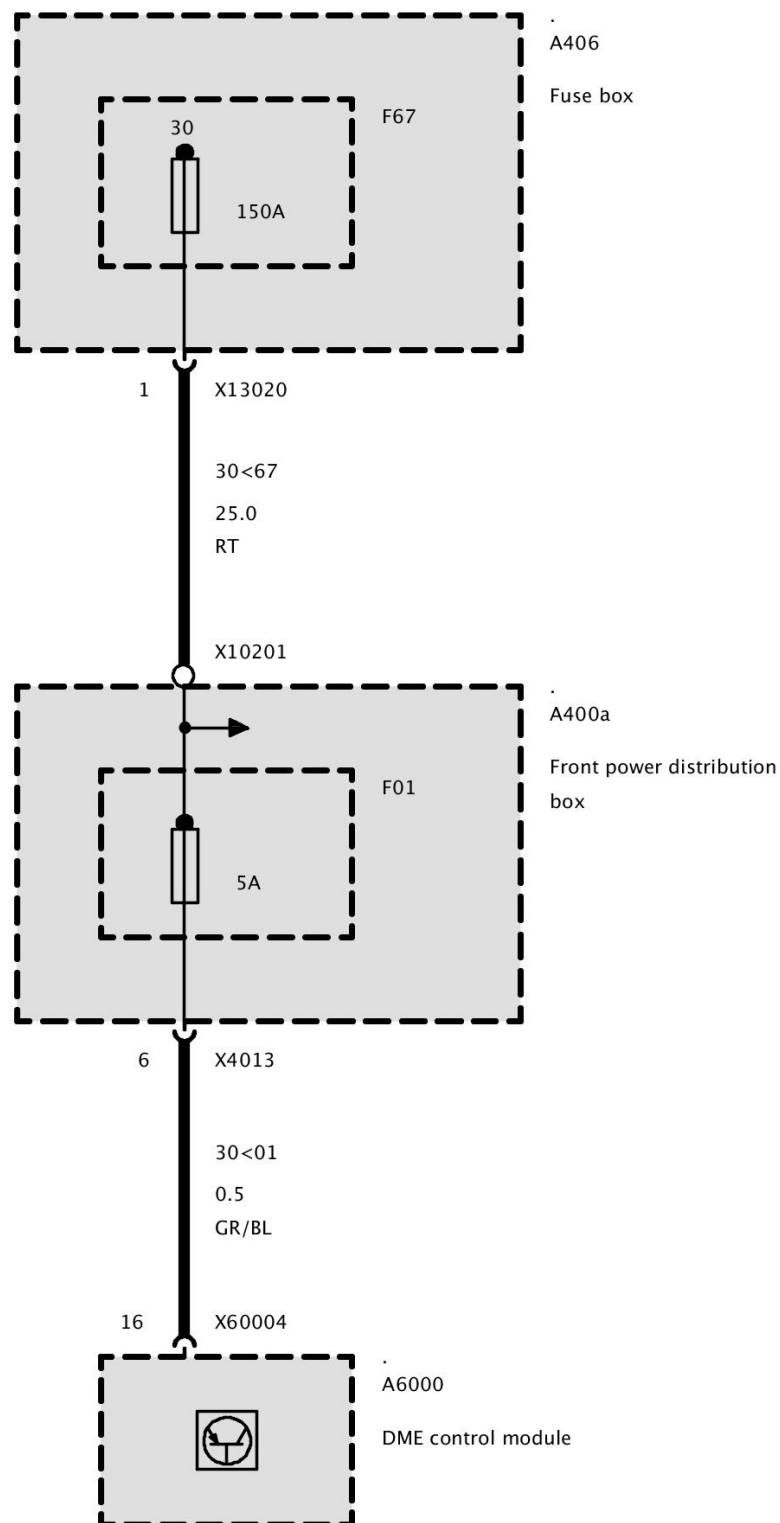
#### Connector X9985





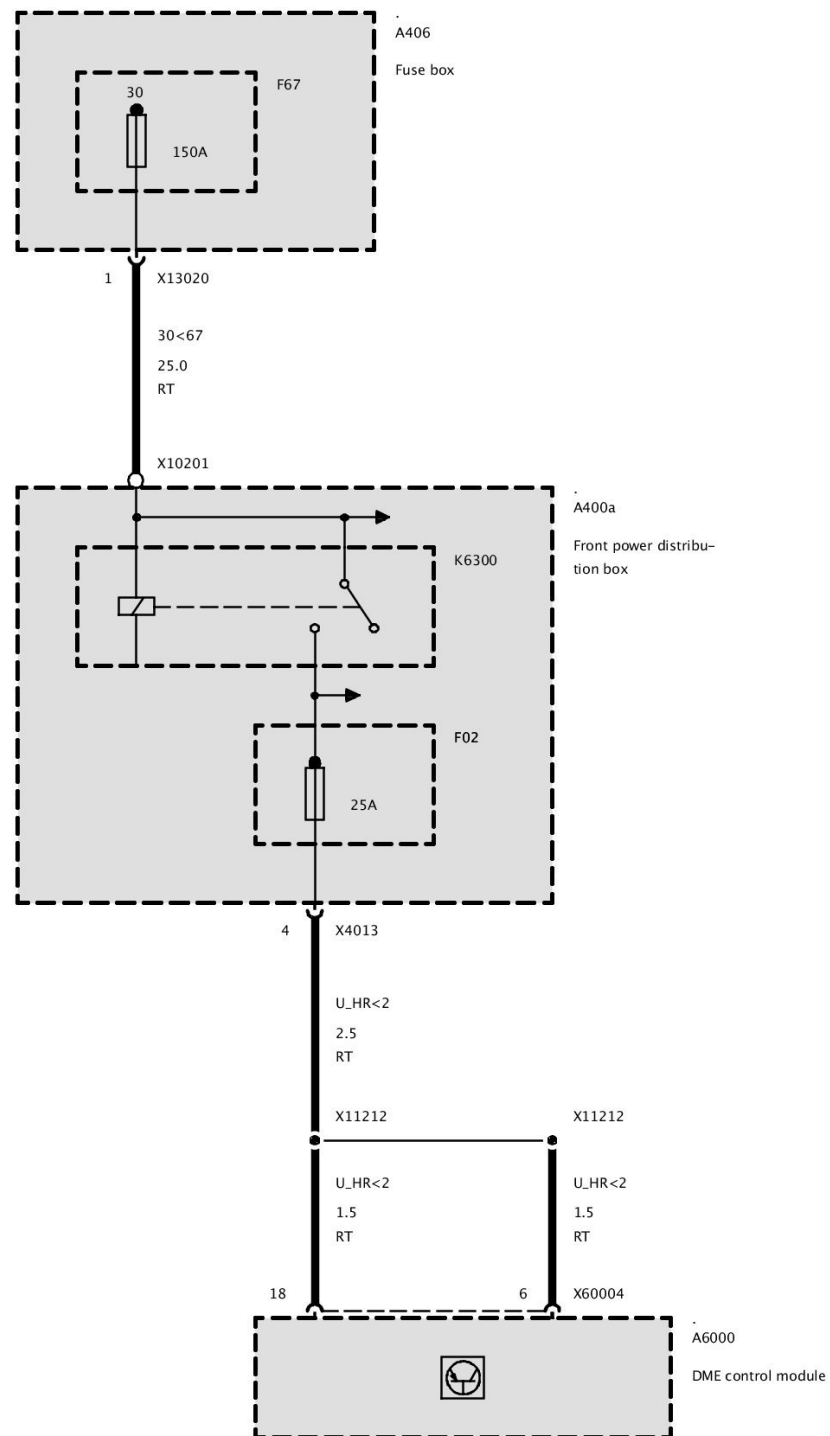
F01

Fuse F01 (Petrol Engine)

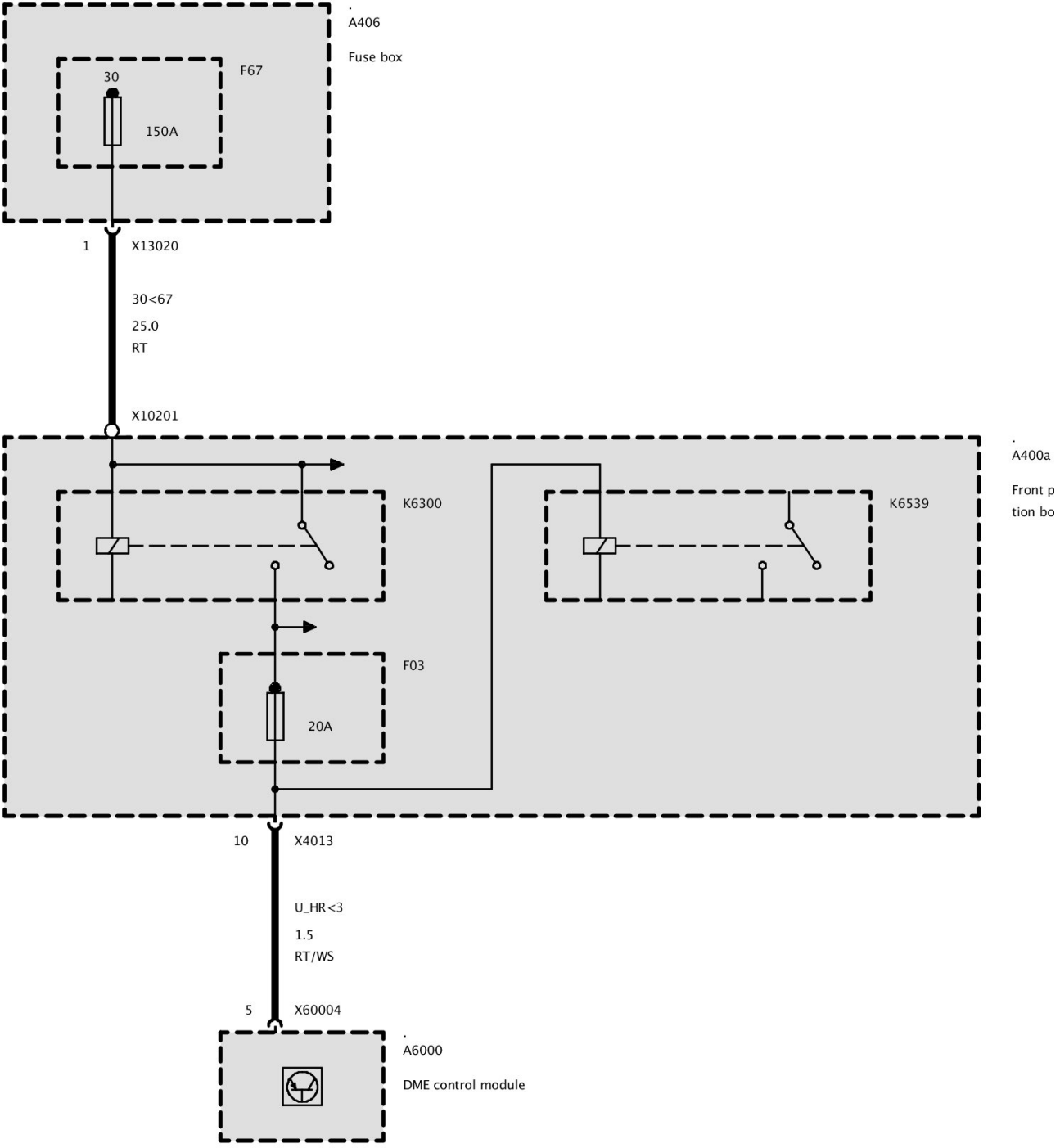


## F02

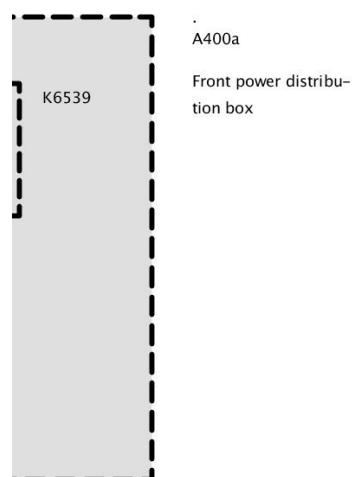
Fuse F02 (Petrol Engine)



### Fuse F03 (Petrol Engine)



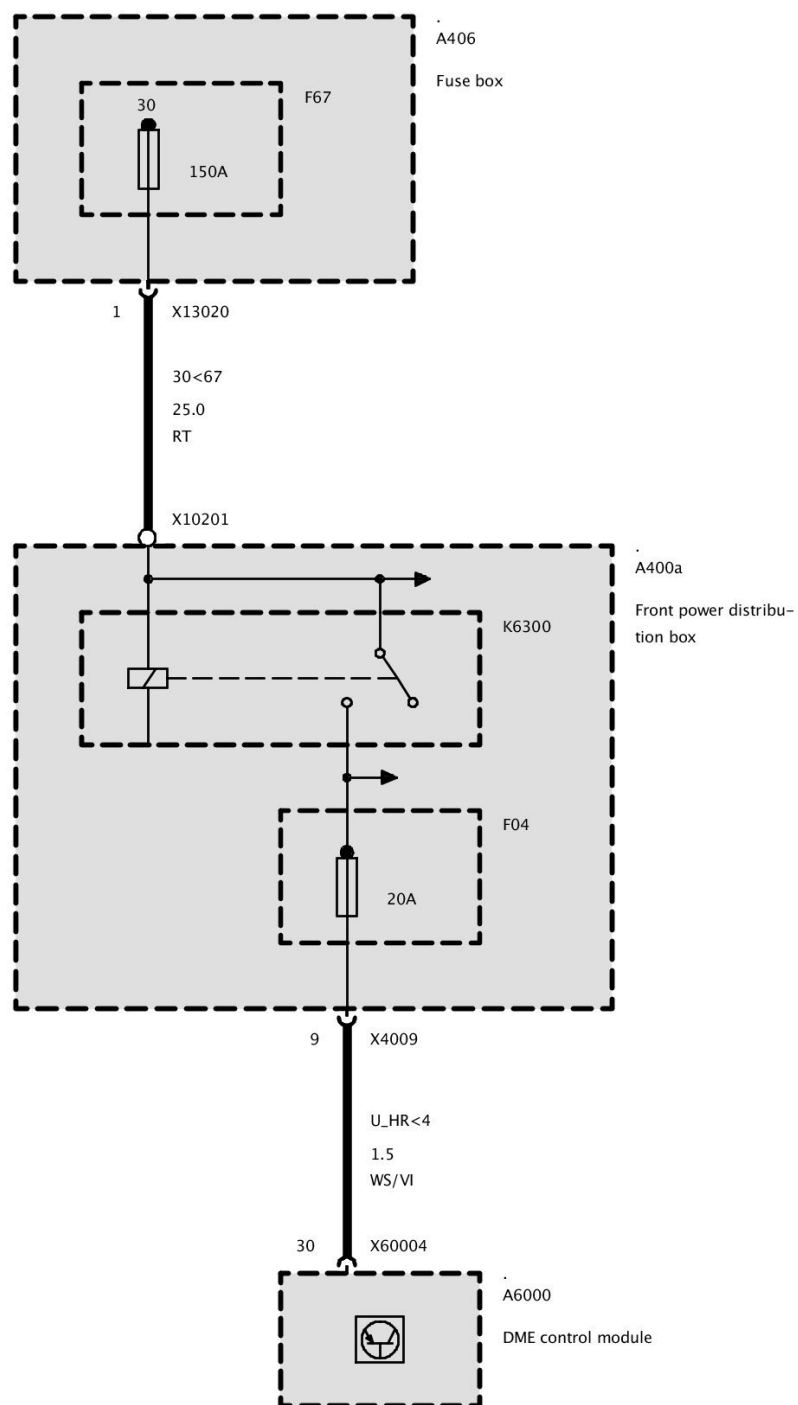
Part 1



## Part 2

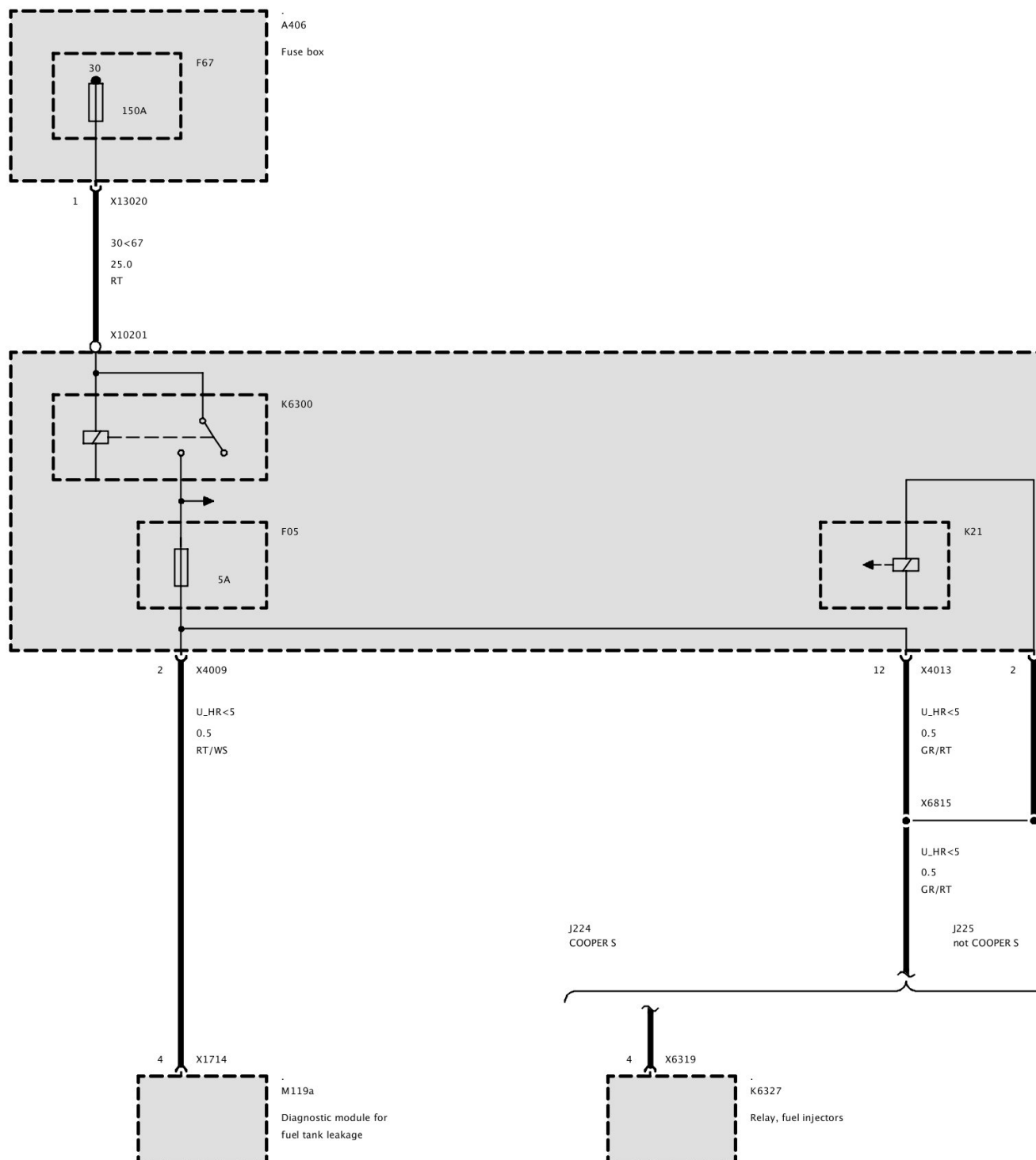
### F04

Fuse F04 (Petrol Engine)

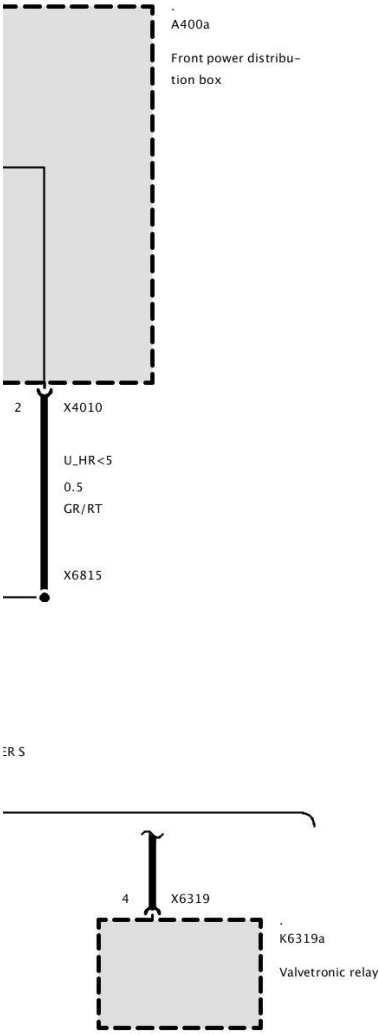


## F05

Fuse F05



## Part 1

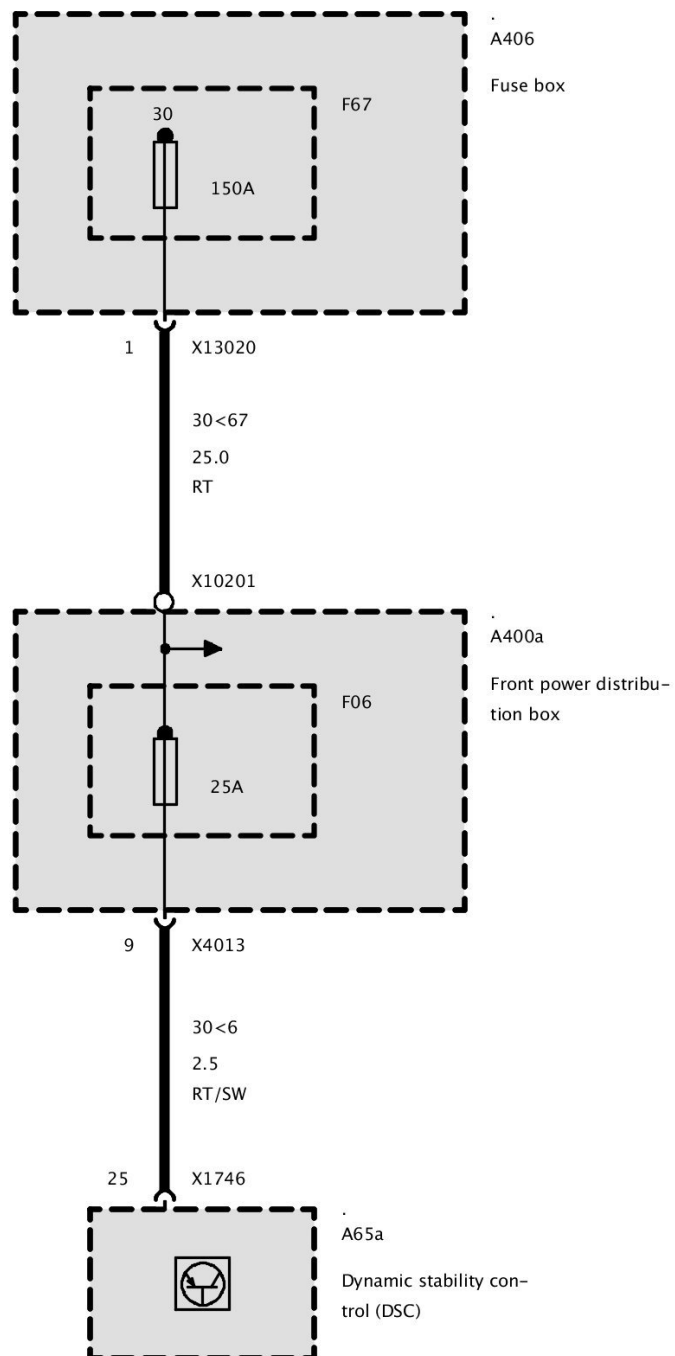


Part 2

F06

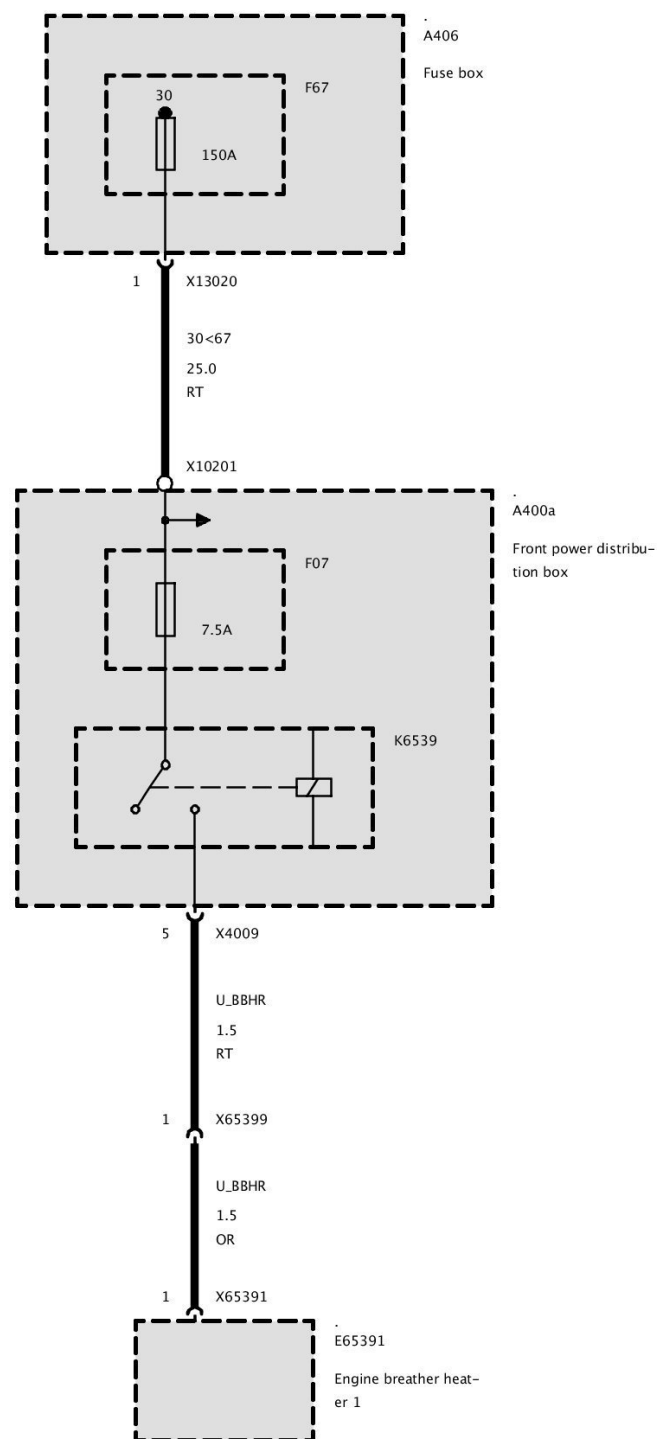
Fuse F06





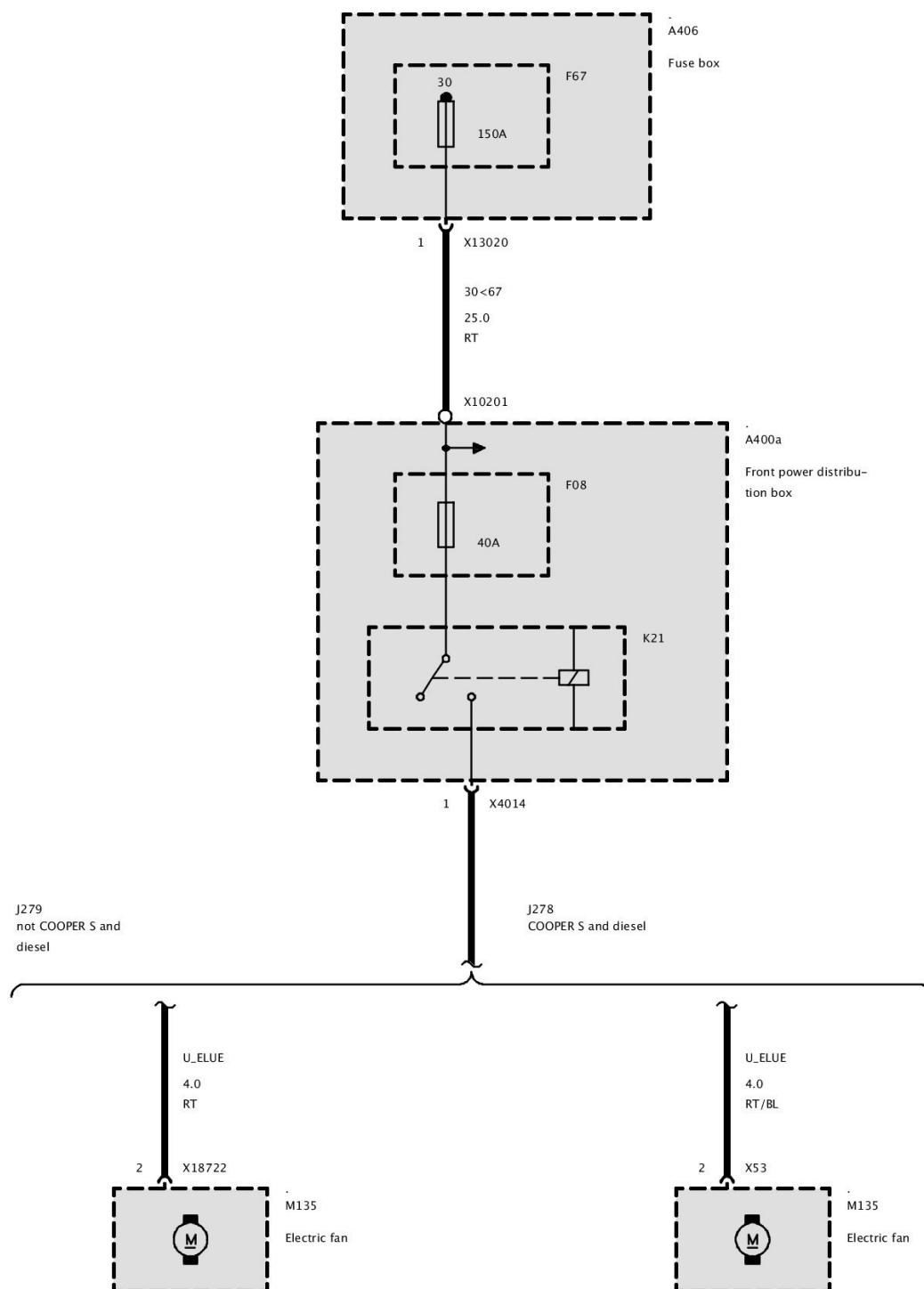
## F07

Fuse F07



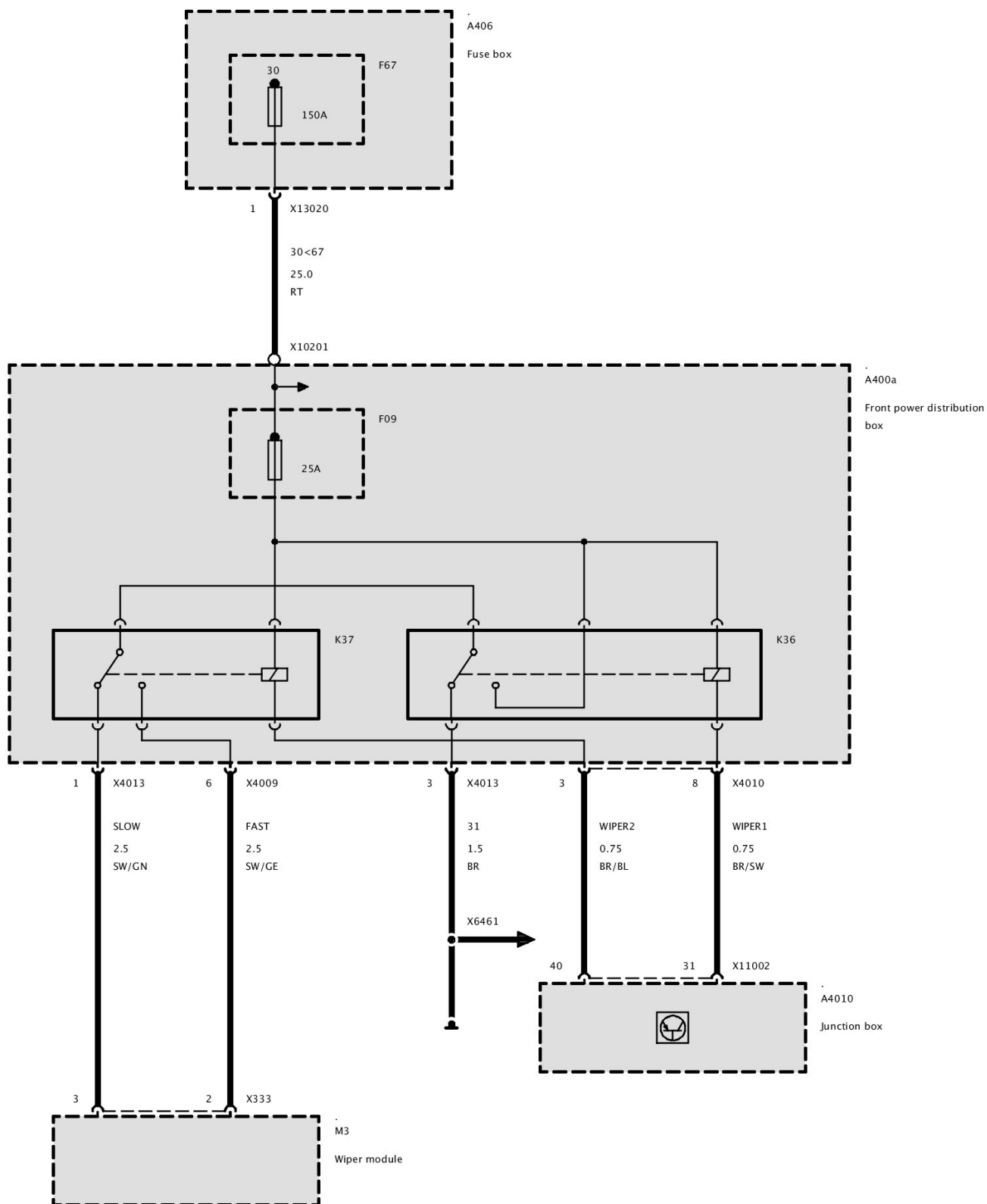
## F08

Fuse F08 (As of 08/07)



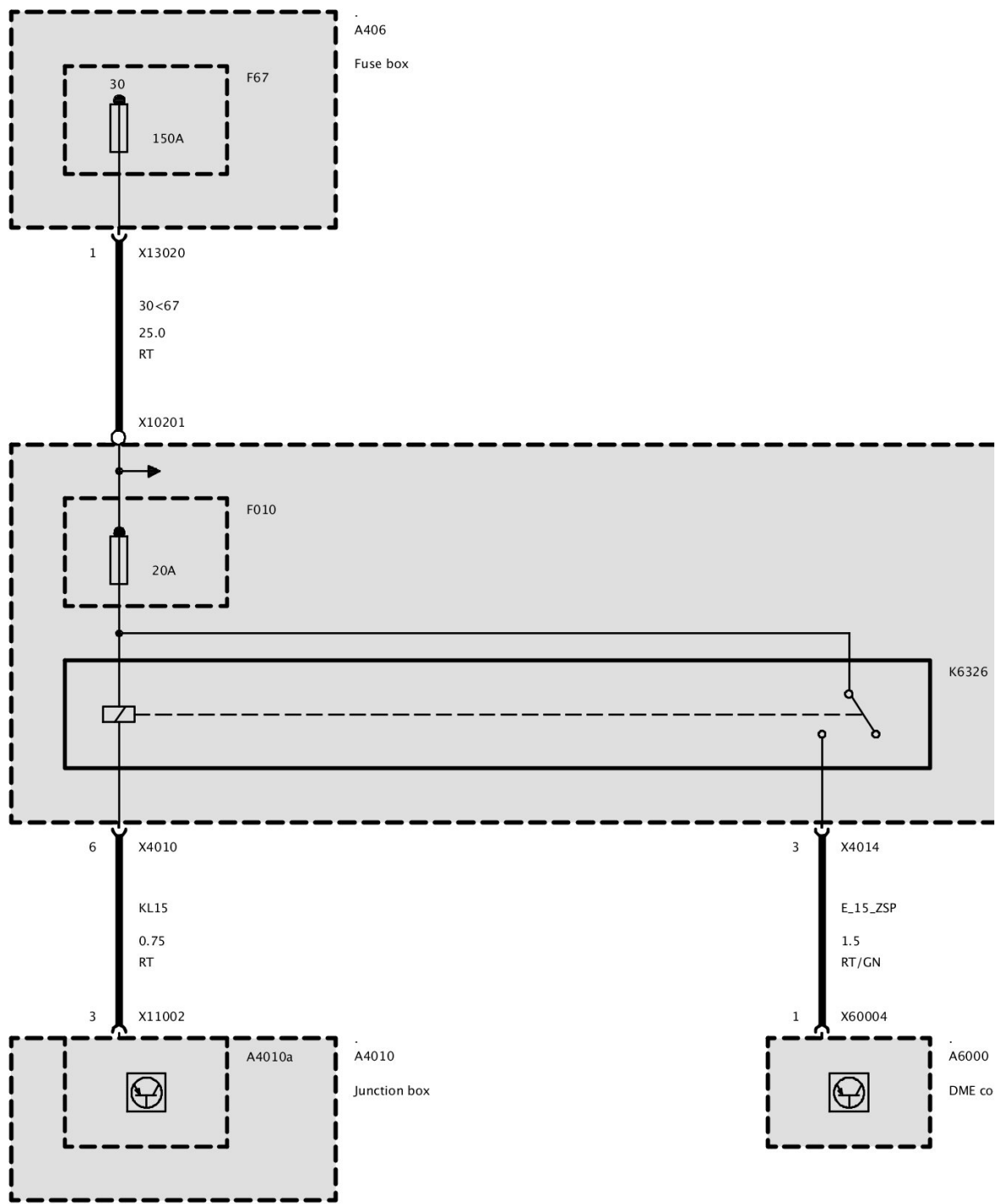
## F09

Fuse F09

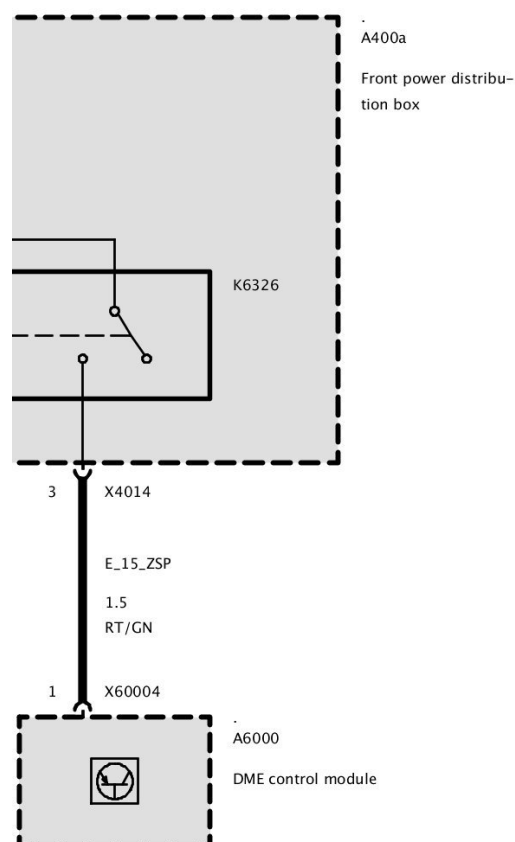


**Fuse F010 (Without Engine As of 09/06 Up to 03/07)**

**Fuse F010 (Without Engine As of 09/06 Up to 03/07)**



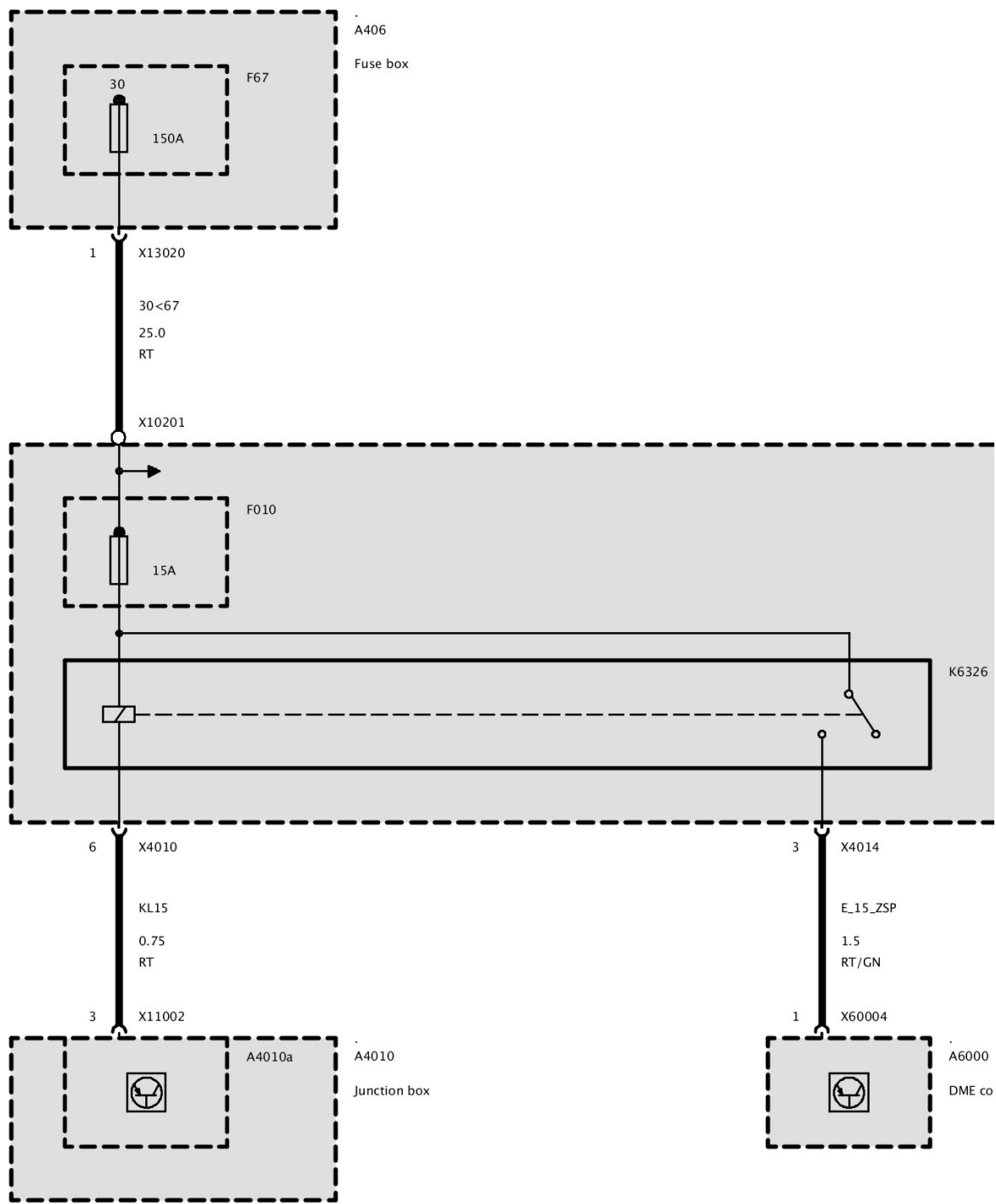
Part 1



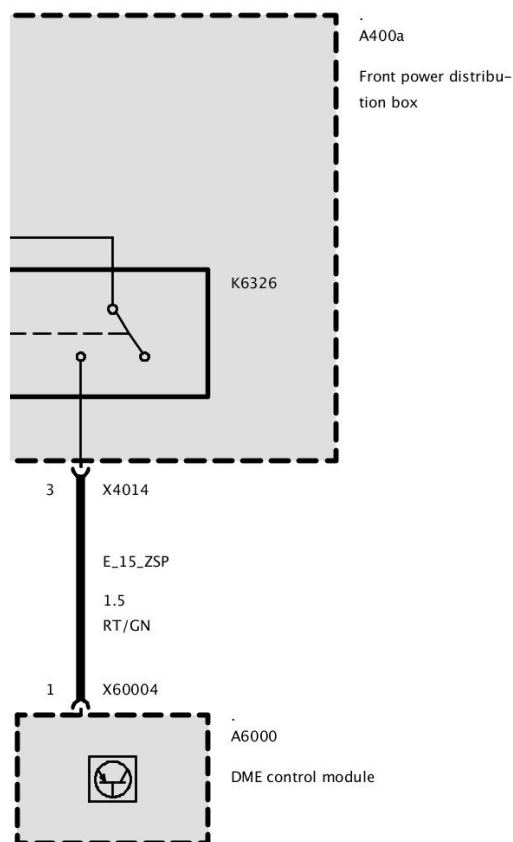
## Part 2

### Fuse F010 (Petrol Engine As of 03/07)

Fuse F010 (Petrol Engine As of 03/07)



Part 1

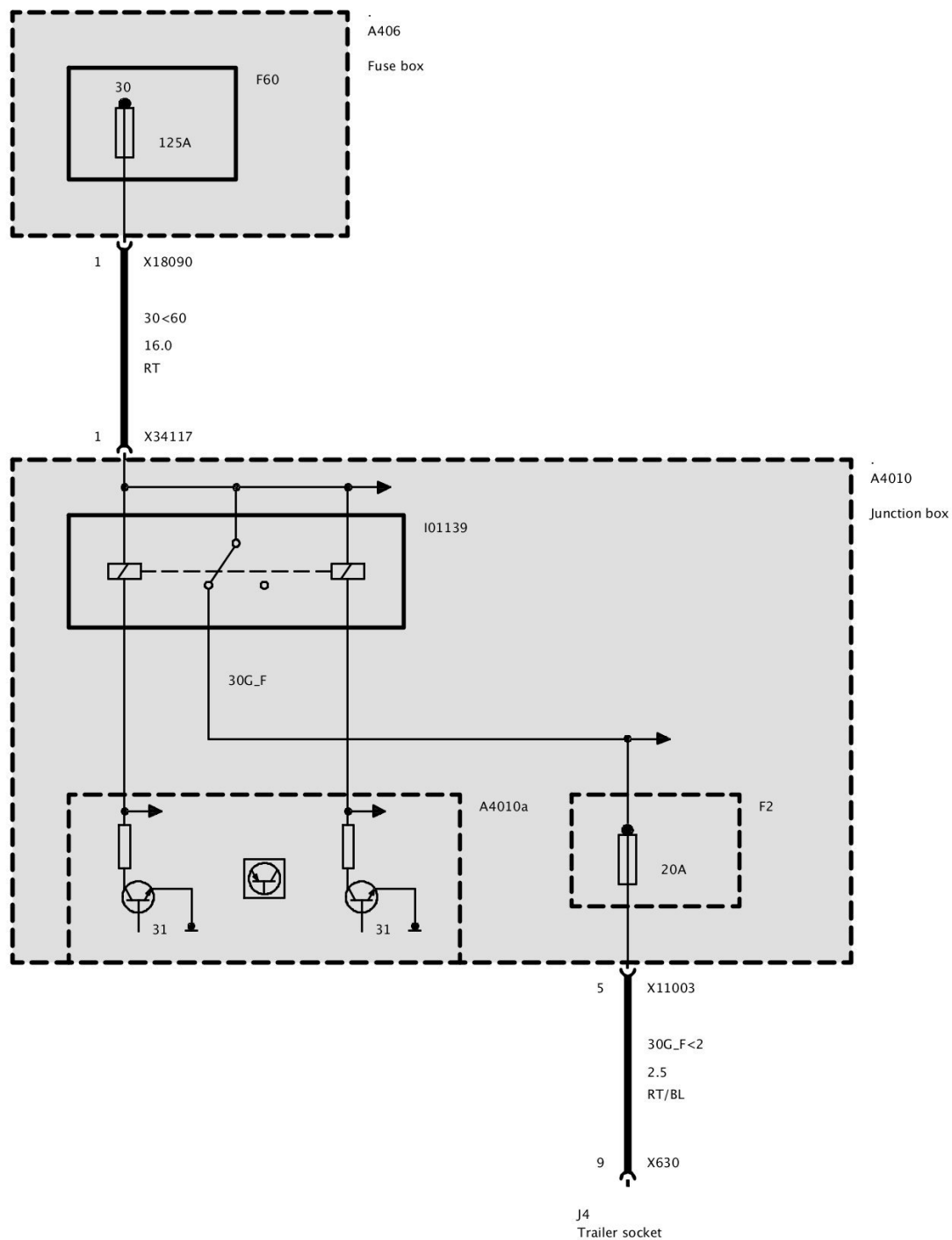


## Part 2

**Fuse F2 (Up to 12/08)**

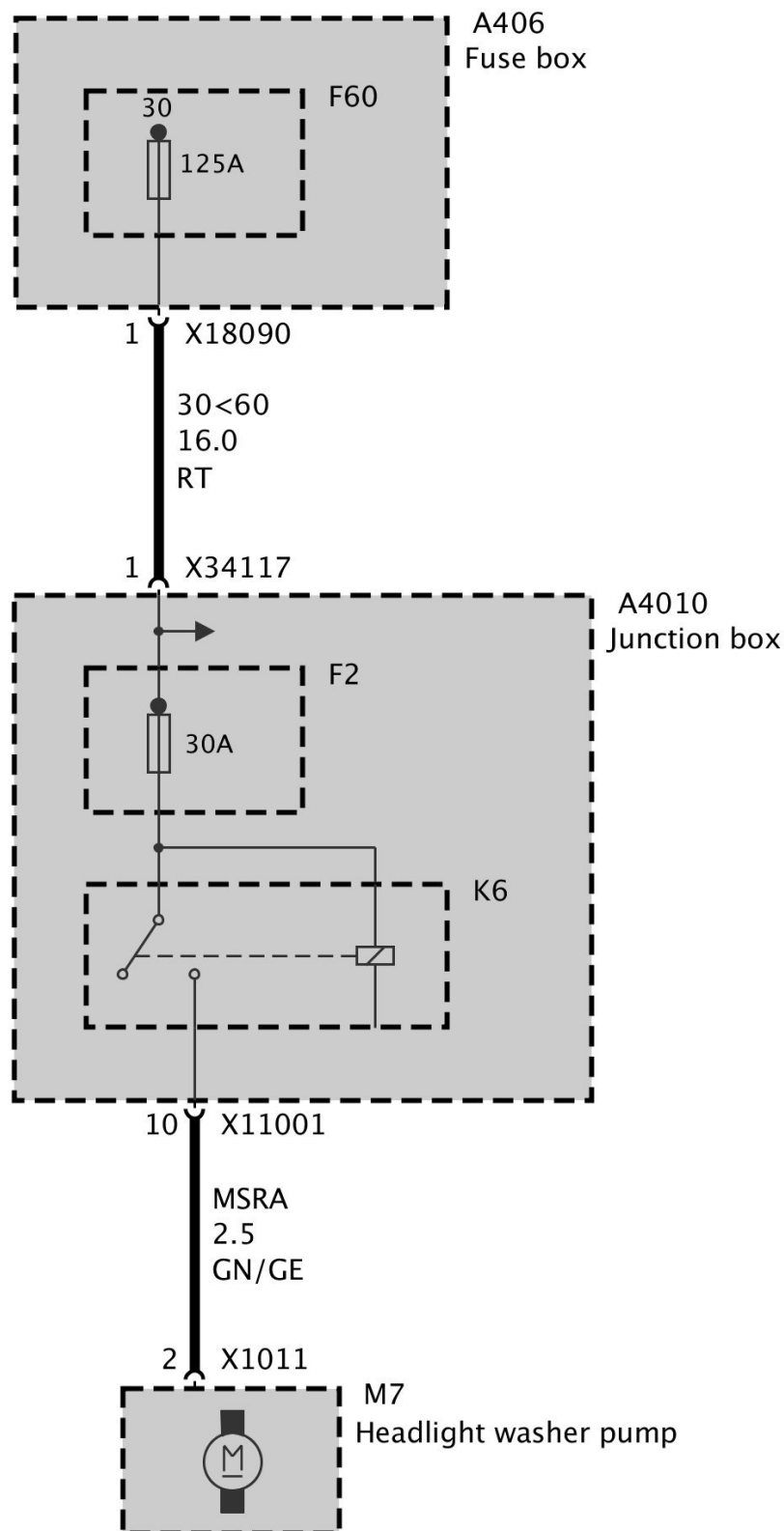
**Fuse F2 (Up to 12/08)**



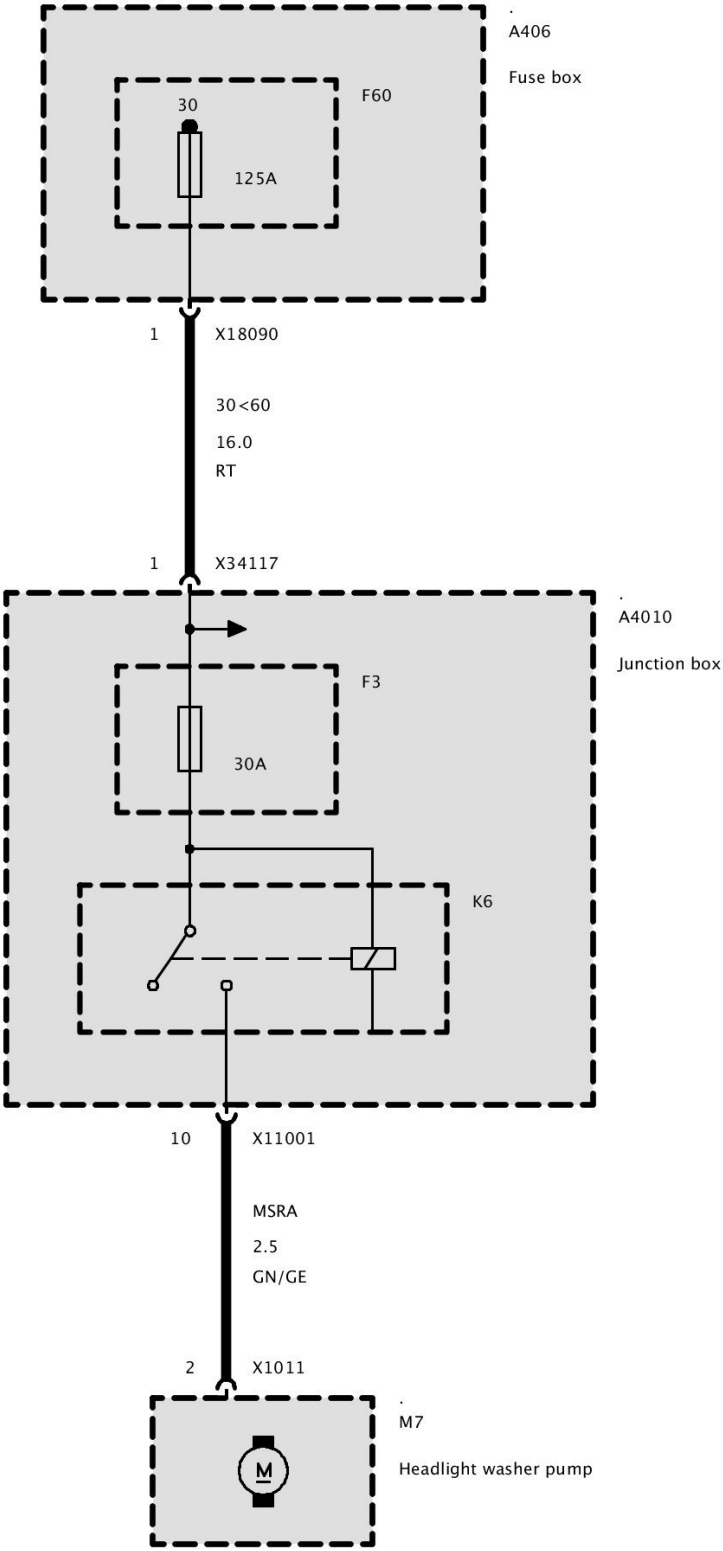


**Fuse F2 (As of 12/08)**

**Fuse F2 (As of 12/08)**

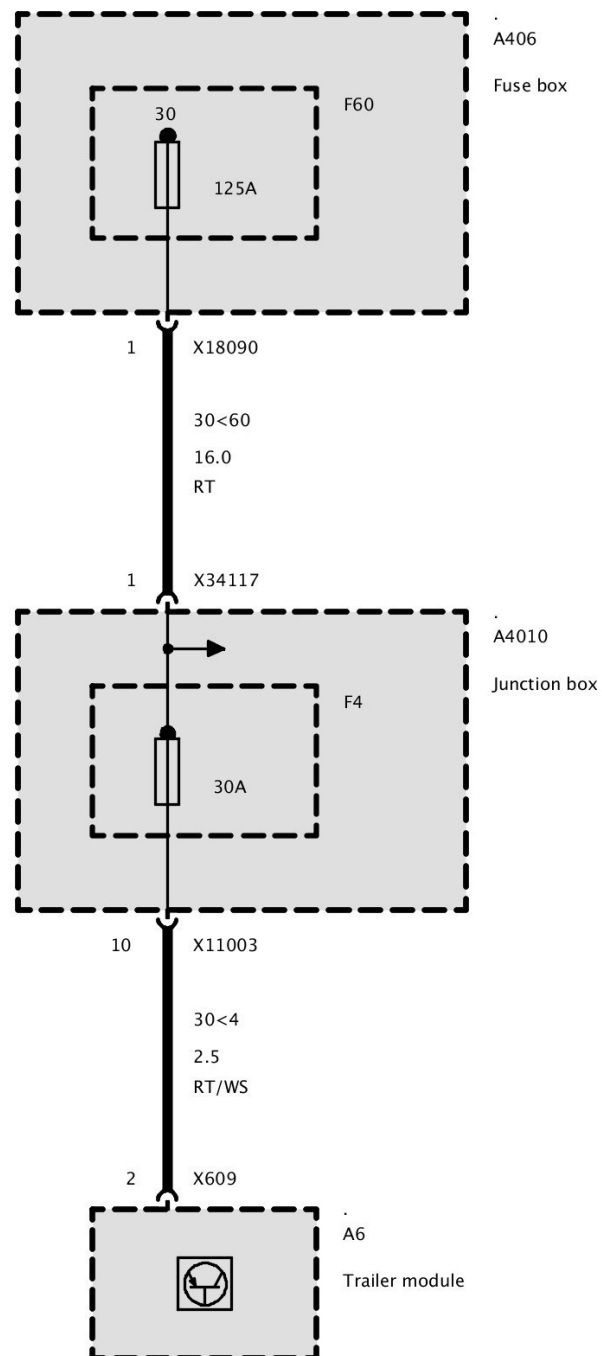
**F3**

Fuse F3 (Up to 12/08)



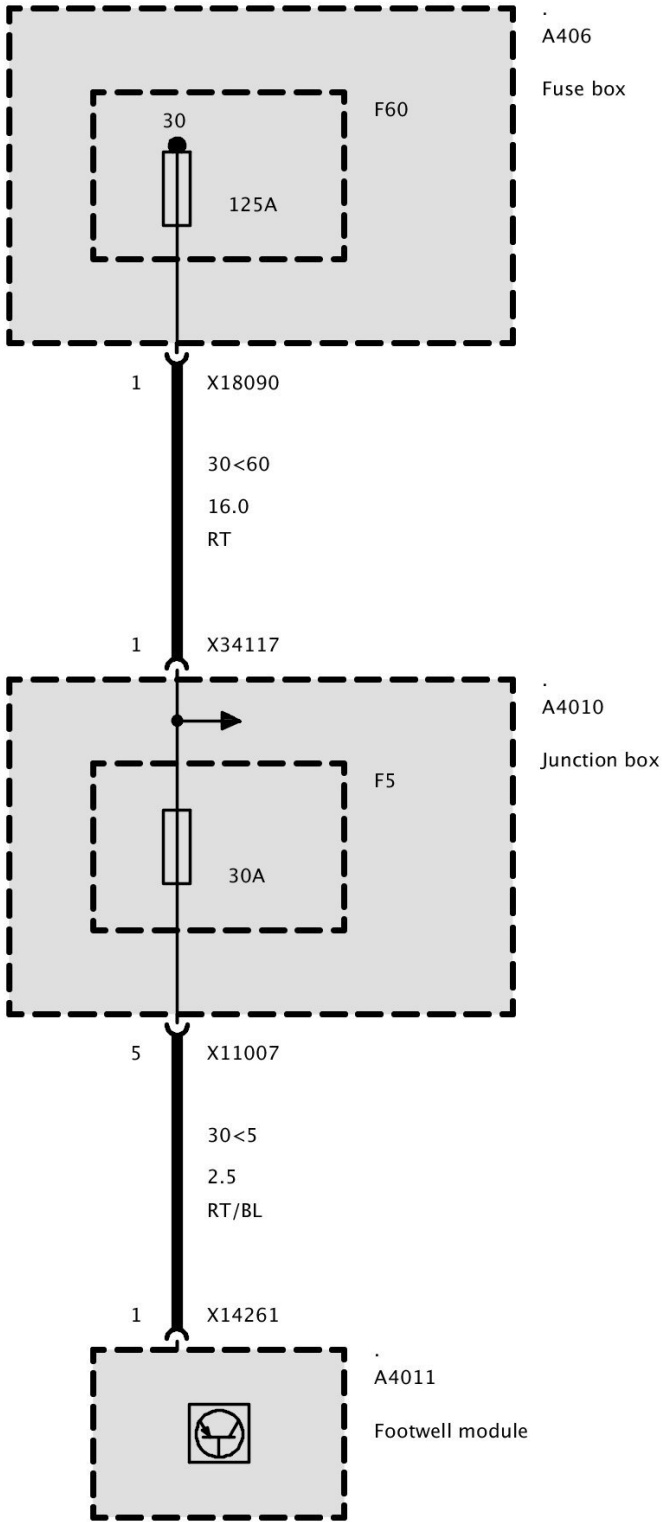
**F4**

Fuse F4



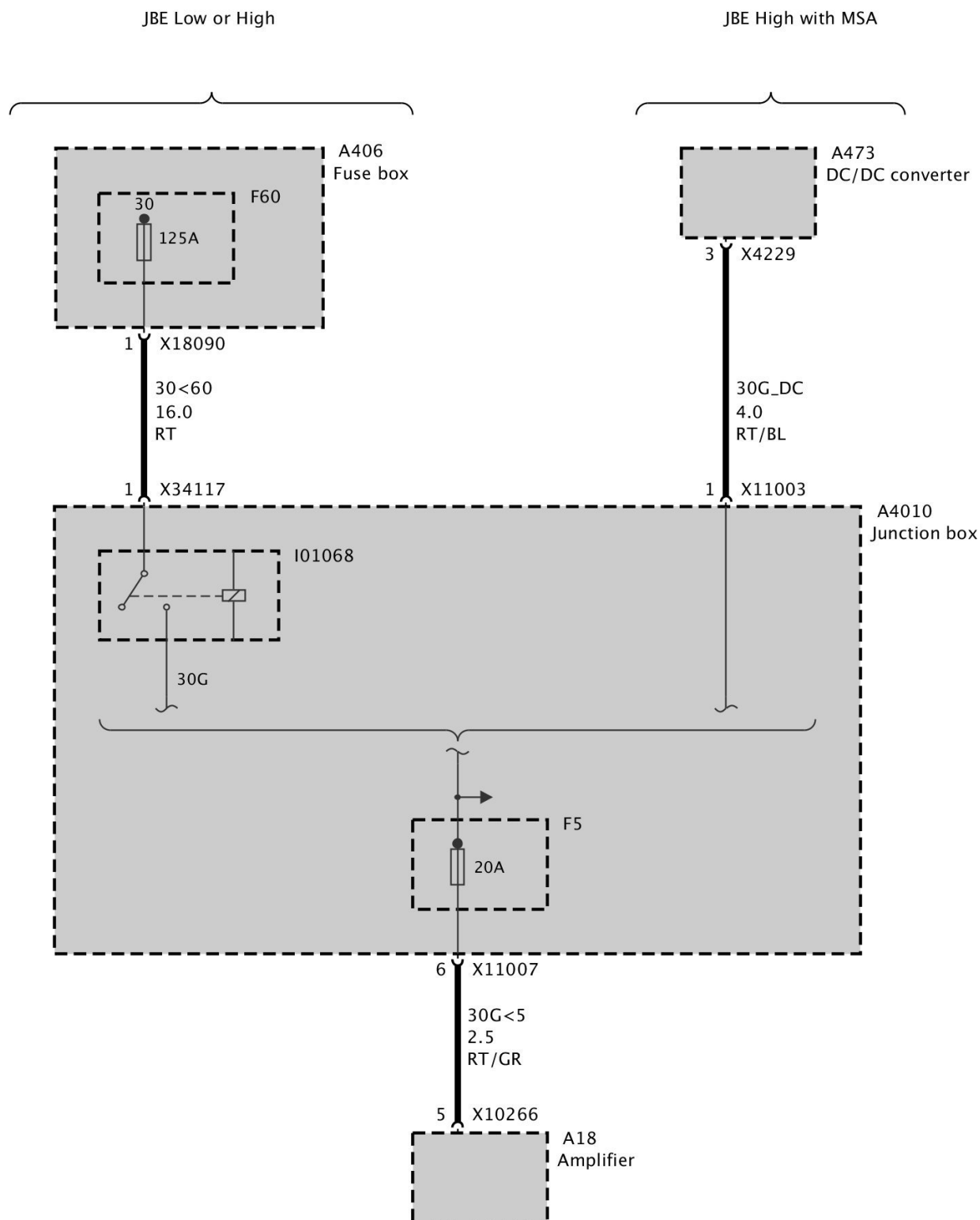
**Fuse F5 (Up to 12/08)**

**Fuse F5 (Up to 12/08)**



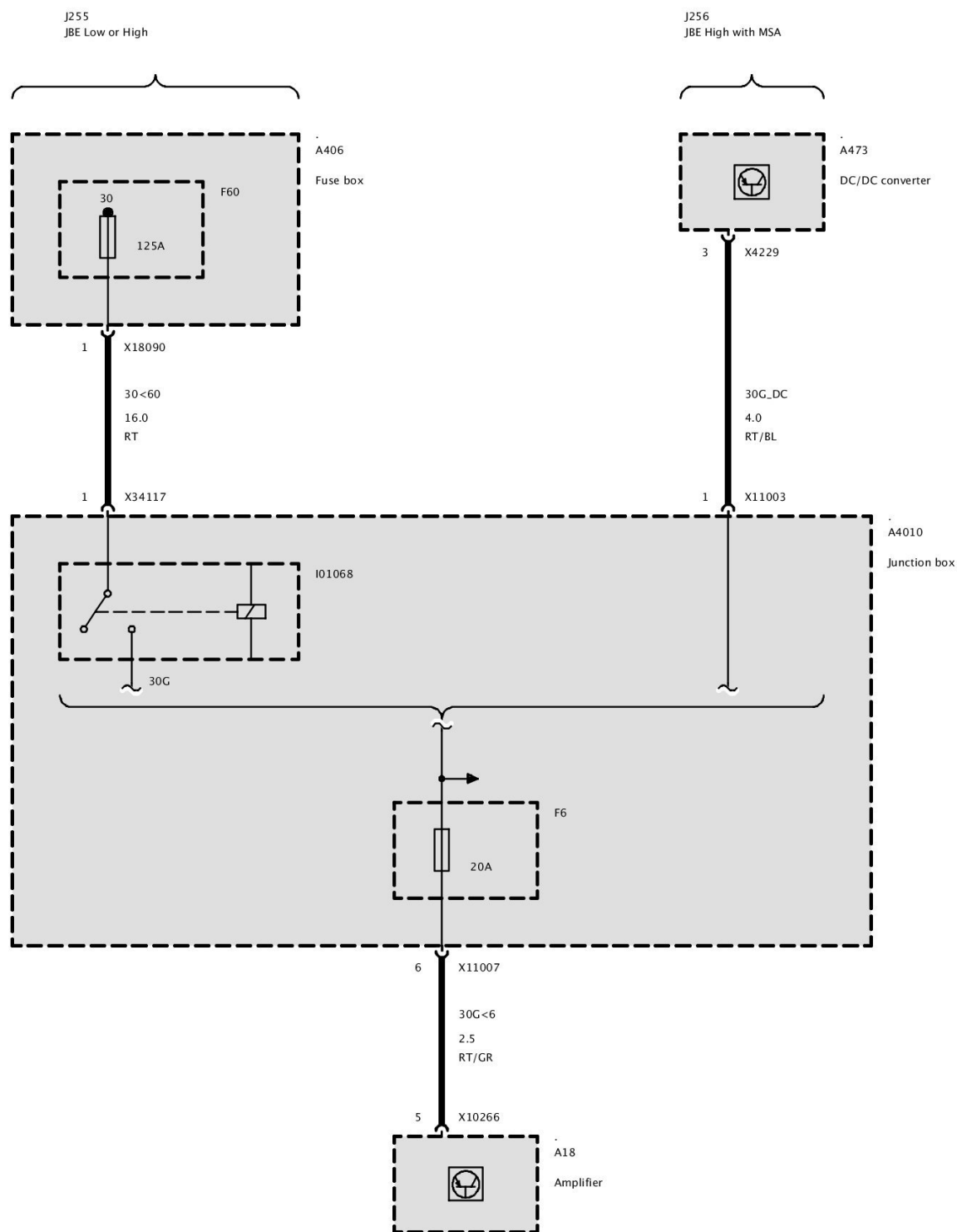
Fuse F5 (As of 12/08)

Fuse F5 (As of 12/08)



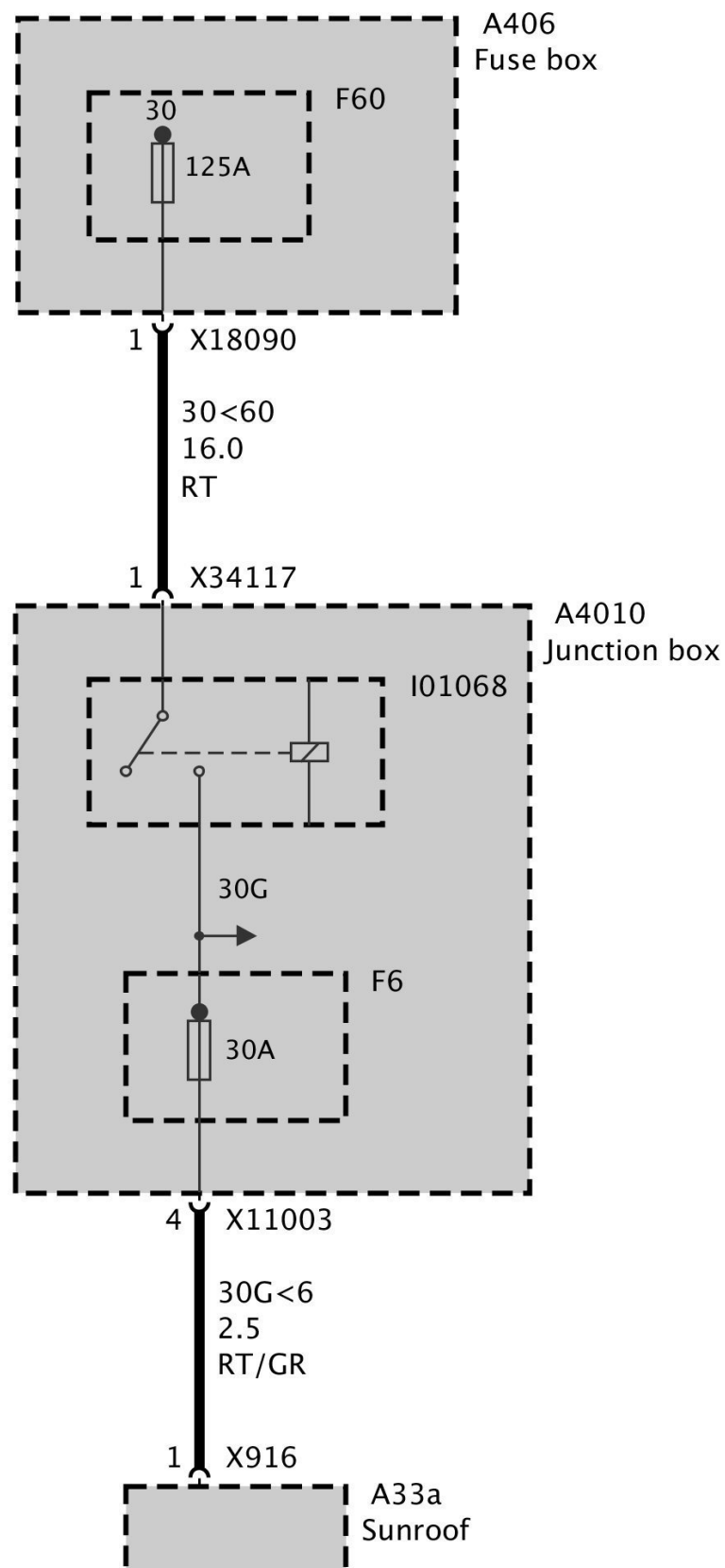
**Fuse F6 (Up to 12/08)**

**Fuse F6 (Up to 12/08)**



**Fuse F6 (Without Convertible As of 12/08)**

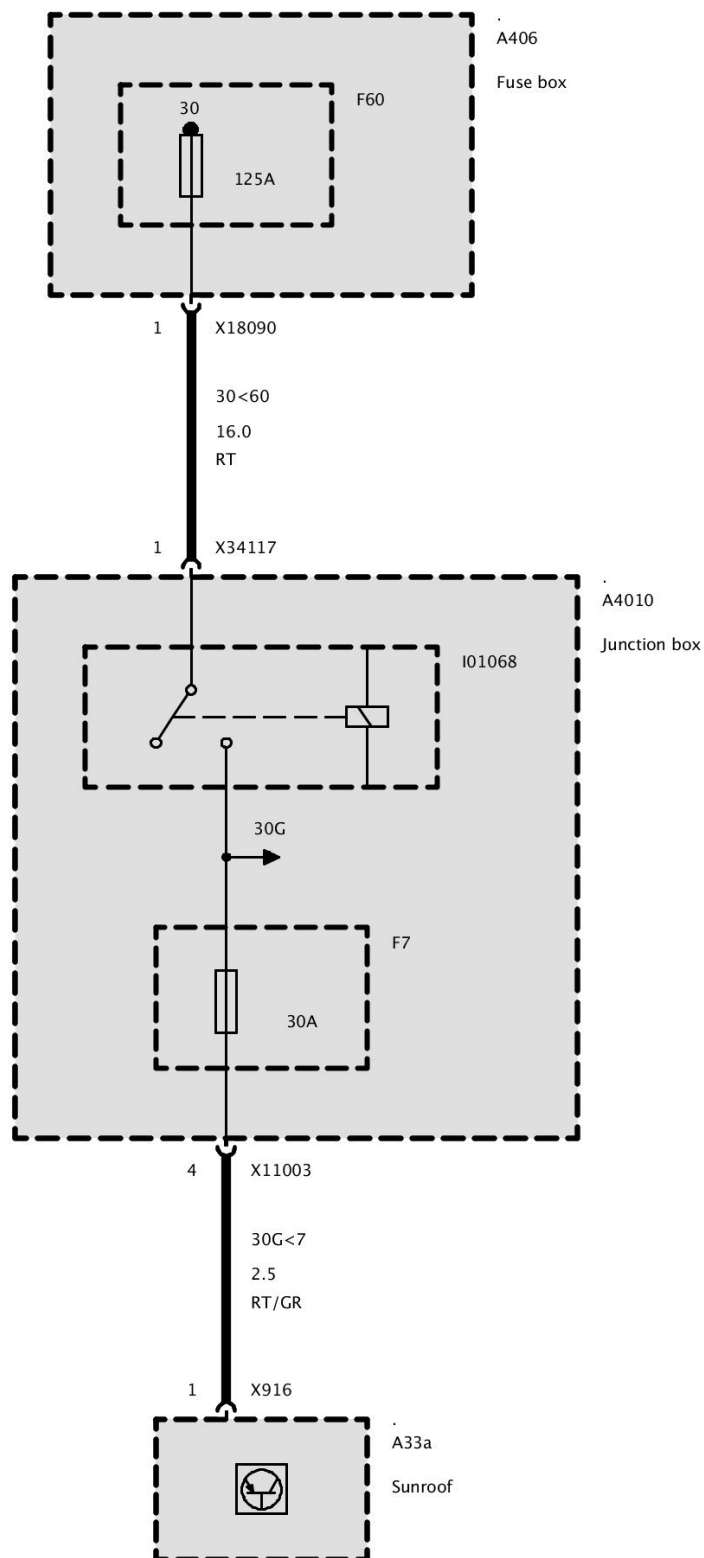
**Fuse F6 (Without Convertible As of 12/08)**



**Fuse F7 (Up to 12/08)**

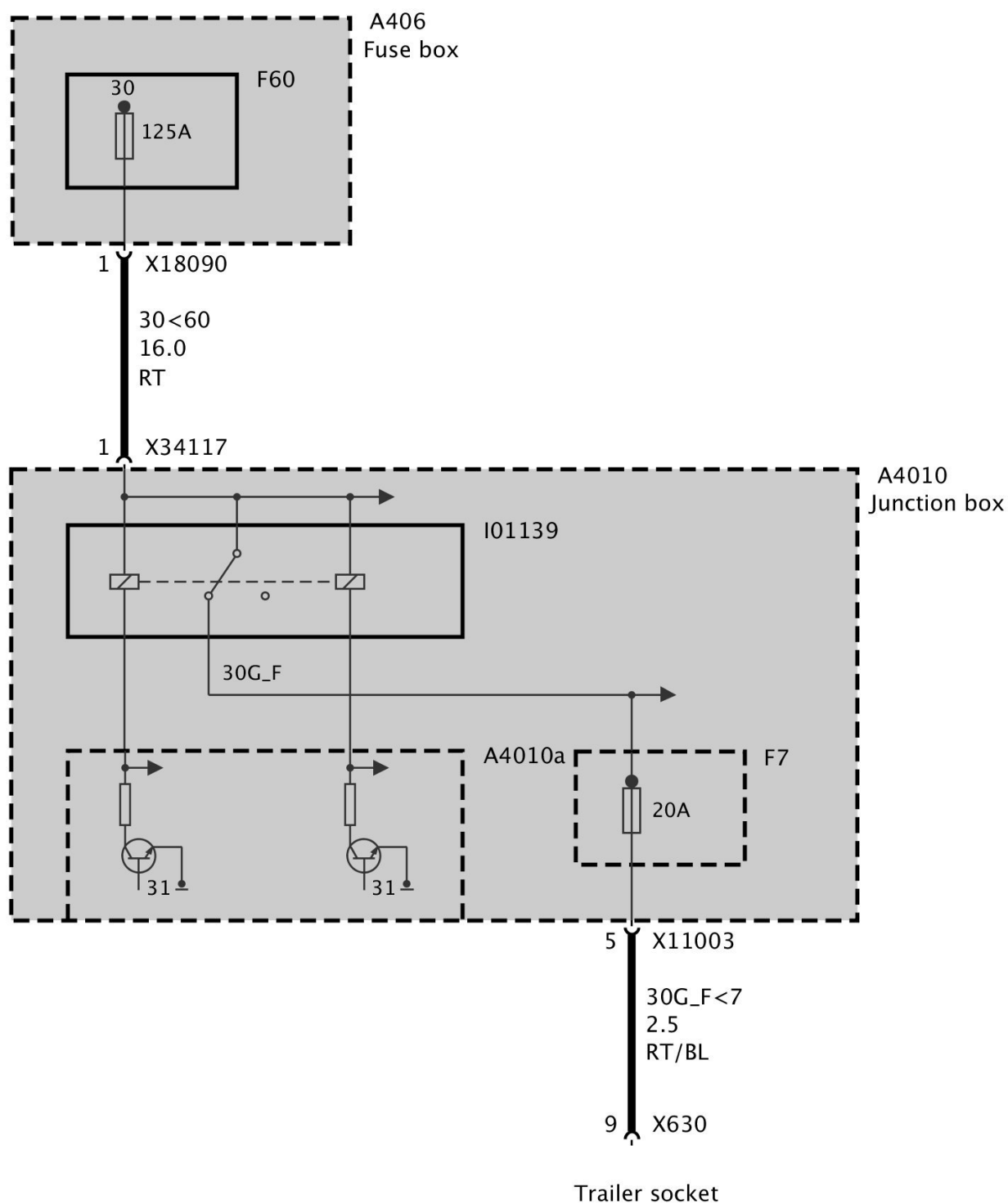
**Fuse F7 (Up to 12/08)**



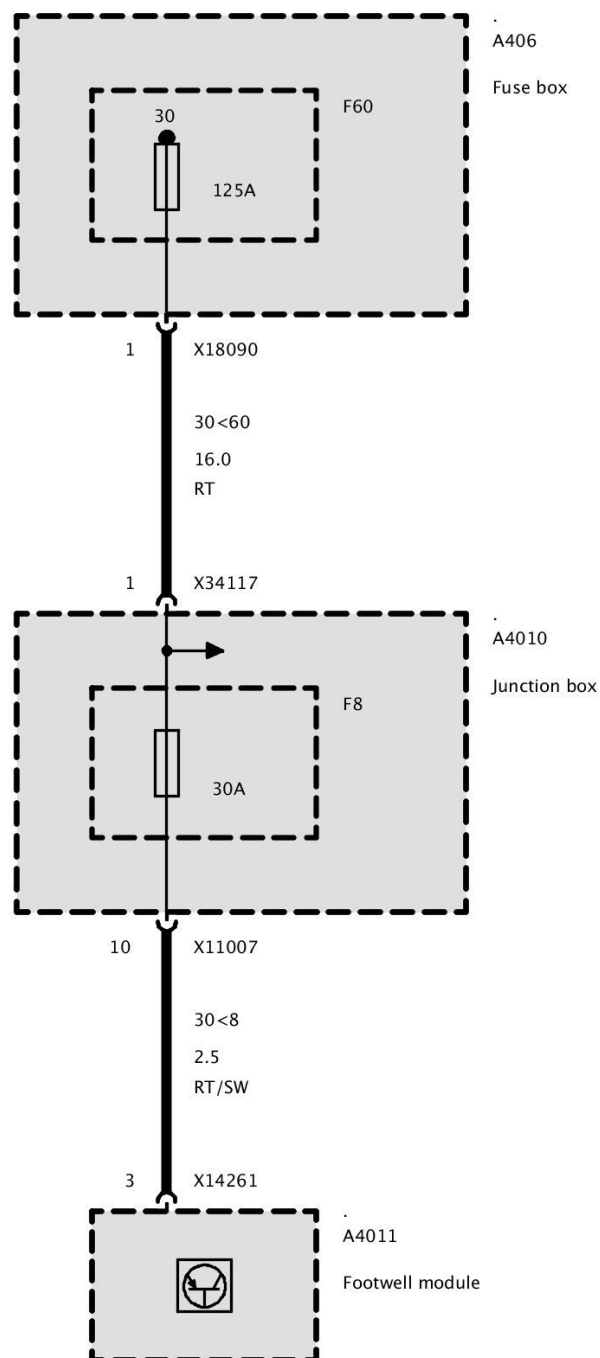


**Fuse F7 (As of 12/08)**

**Fuse F7 (As of 12/08)**

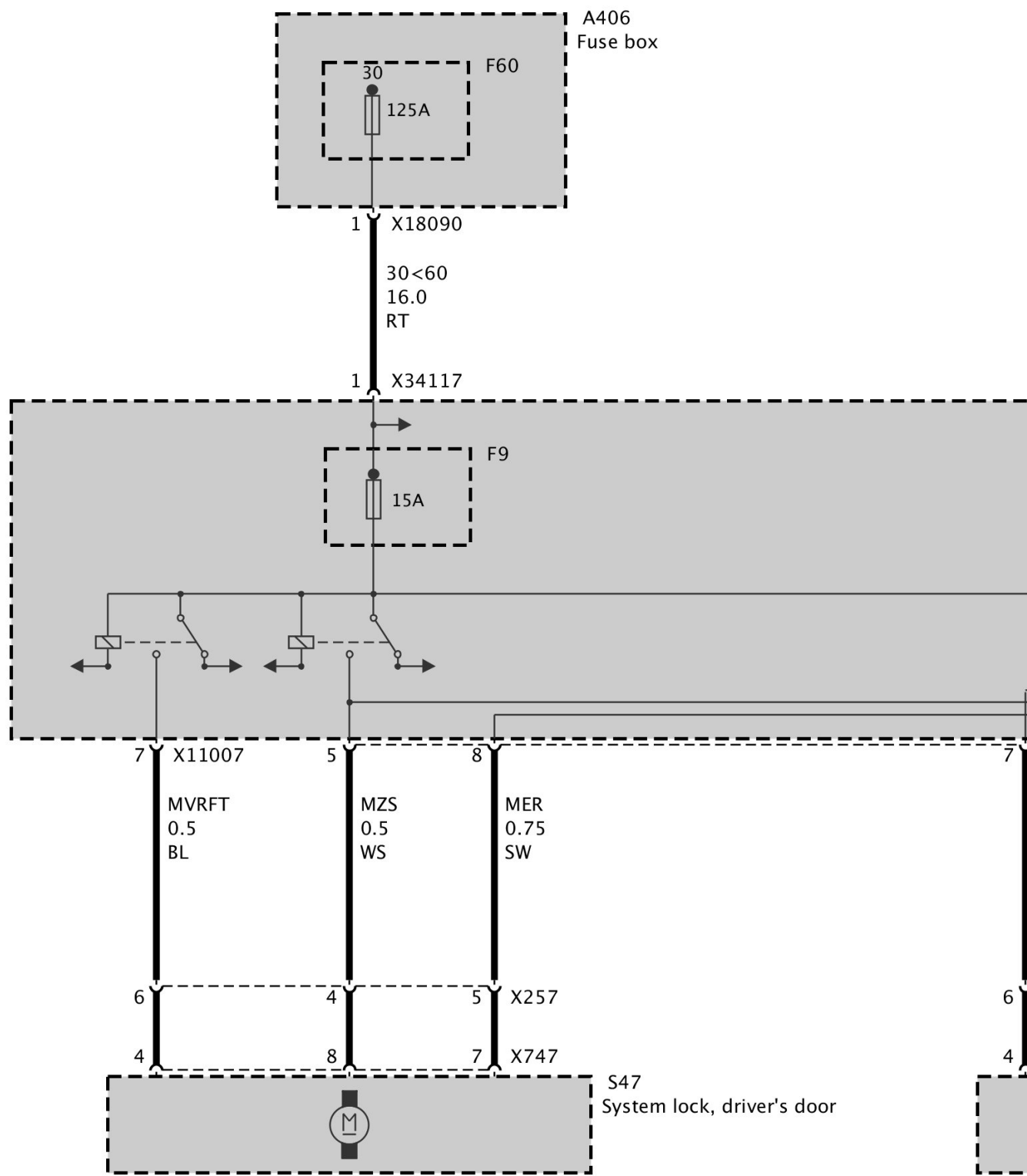
**F8**

Fuse F8

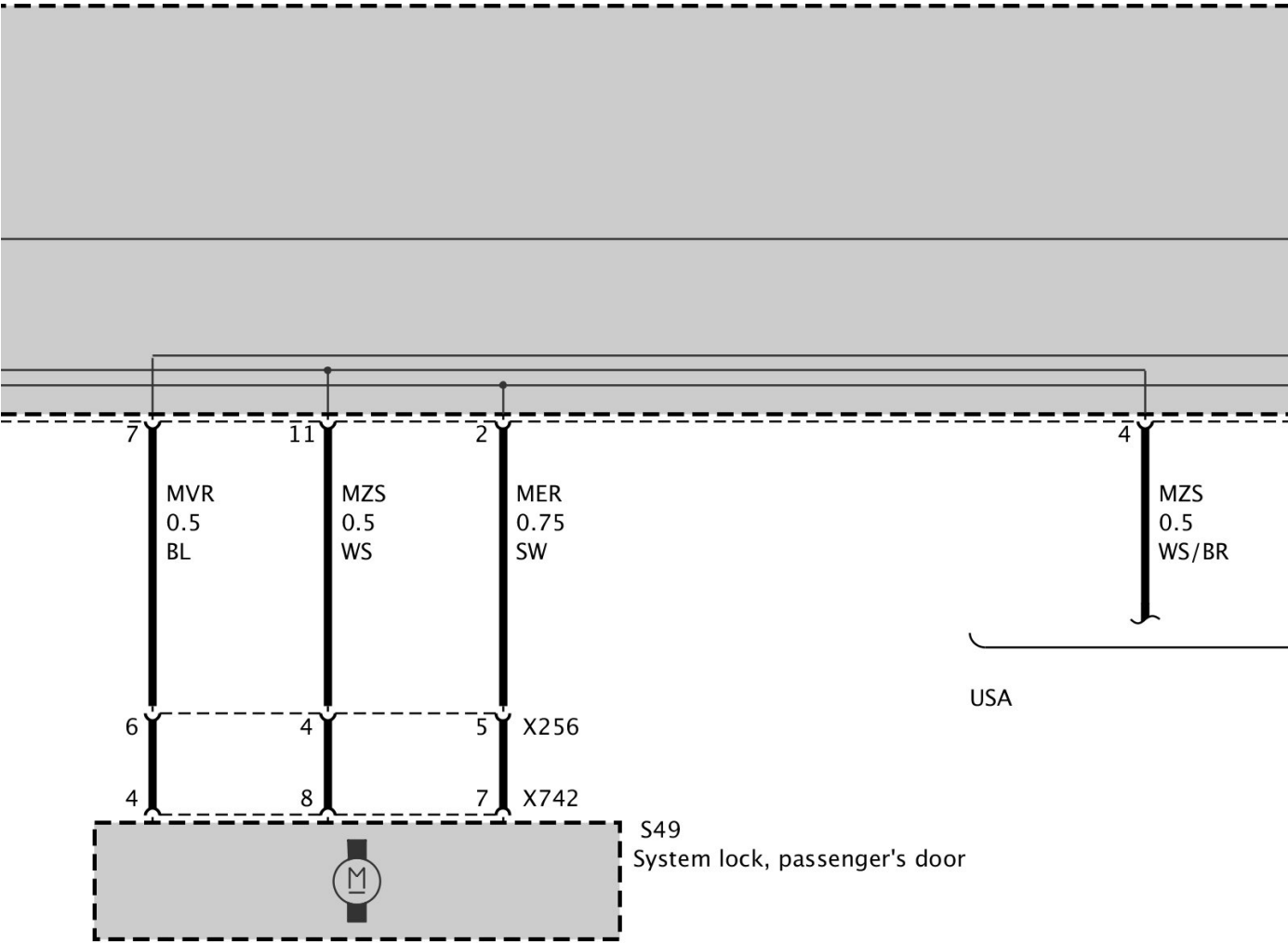


## F9

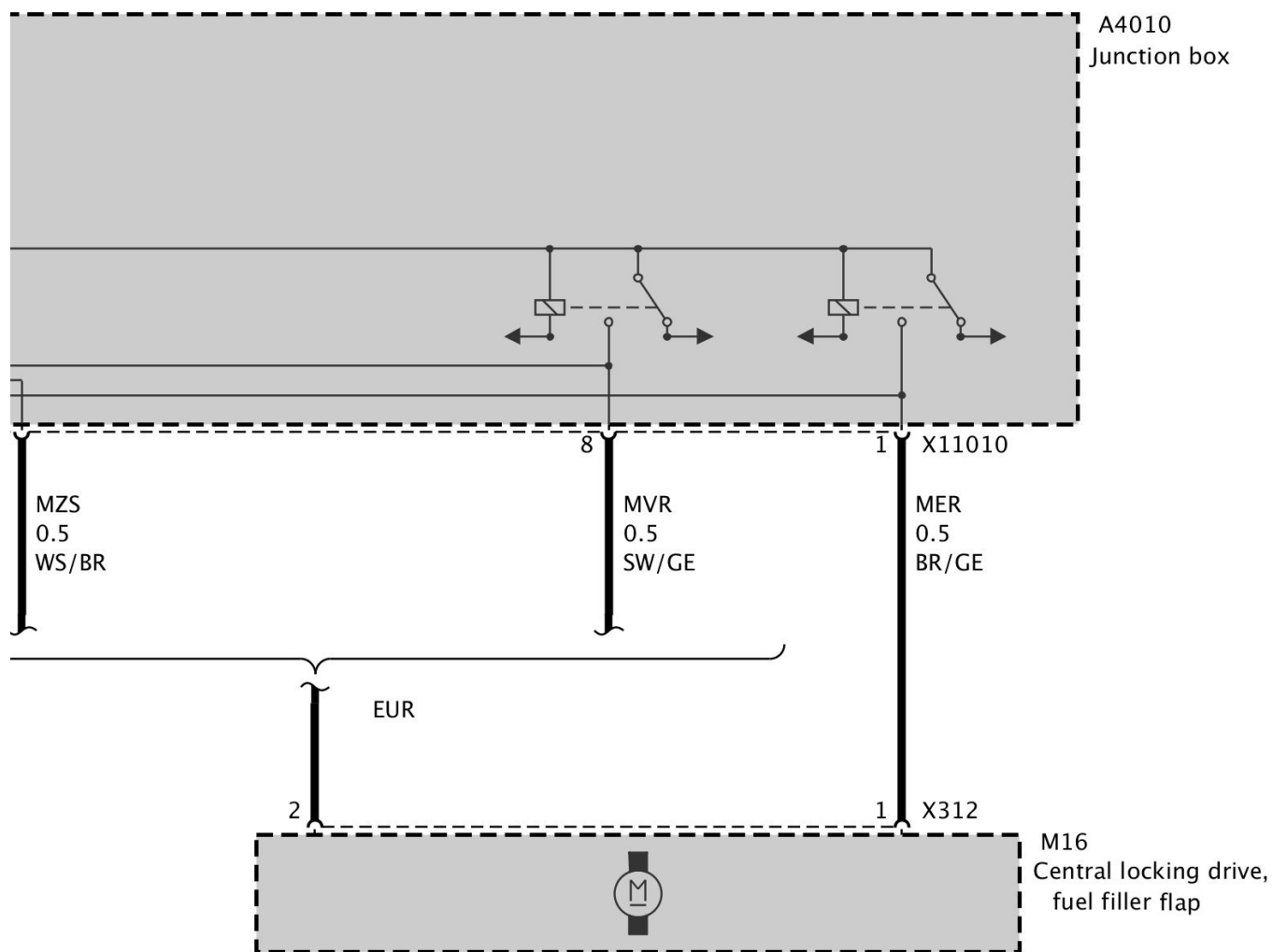
Fuse F9 (Up to 12/08)



Part 1



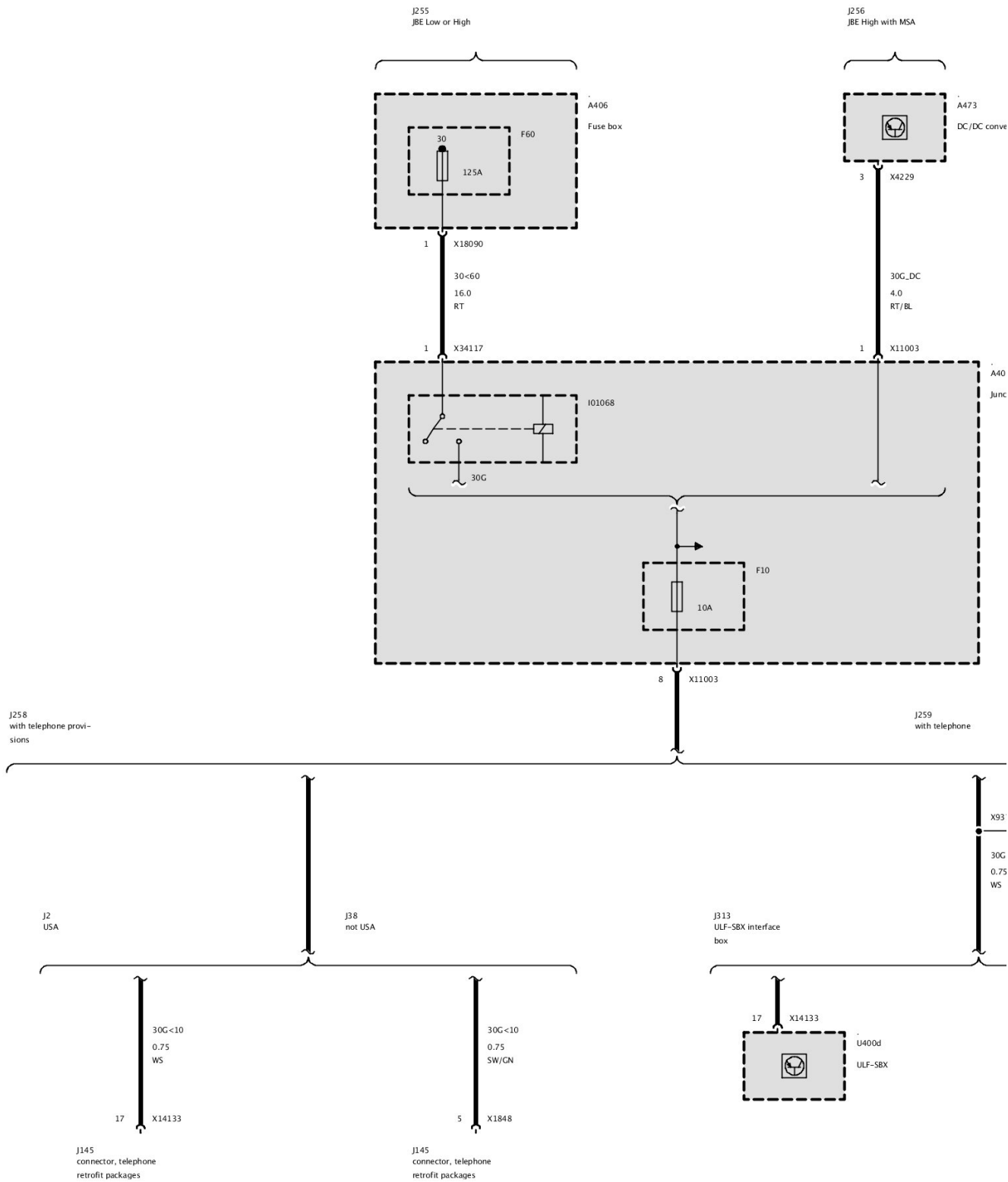
Part 2



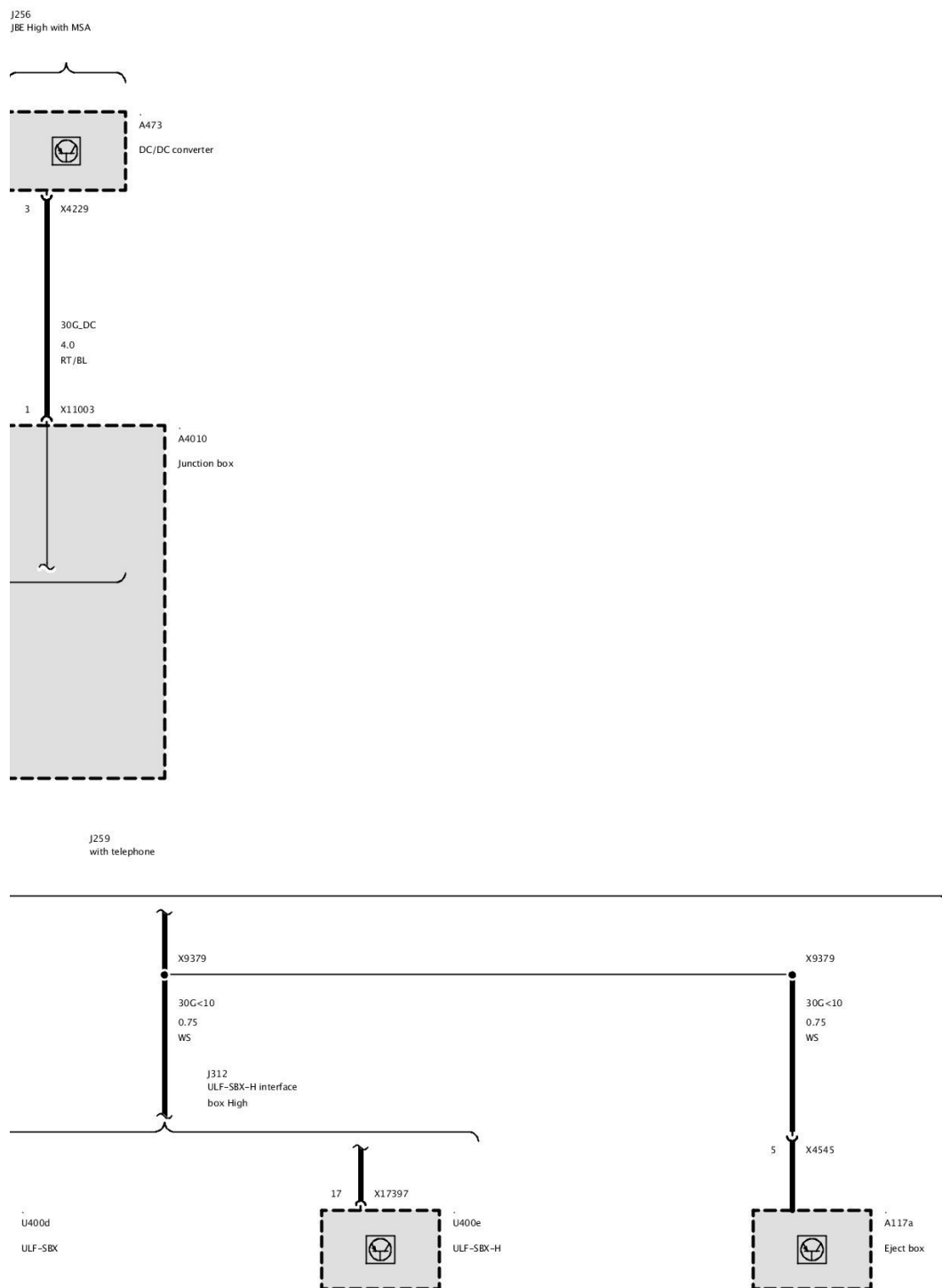
### Part 3

## F10

Fuse F10



Part 1

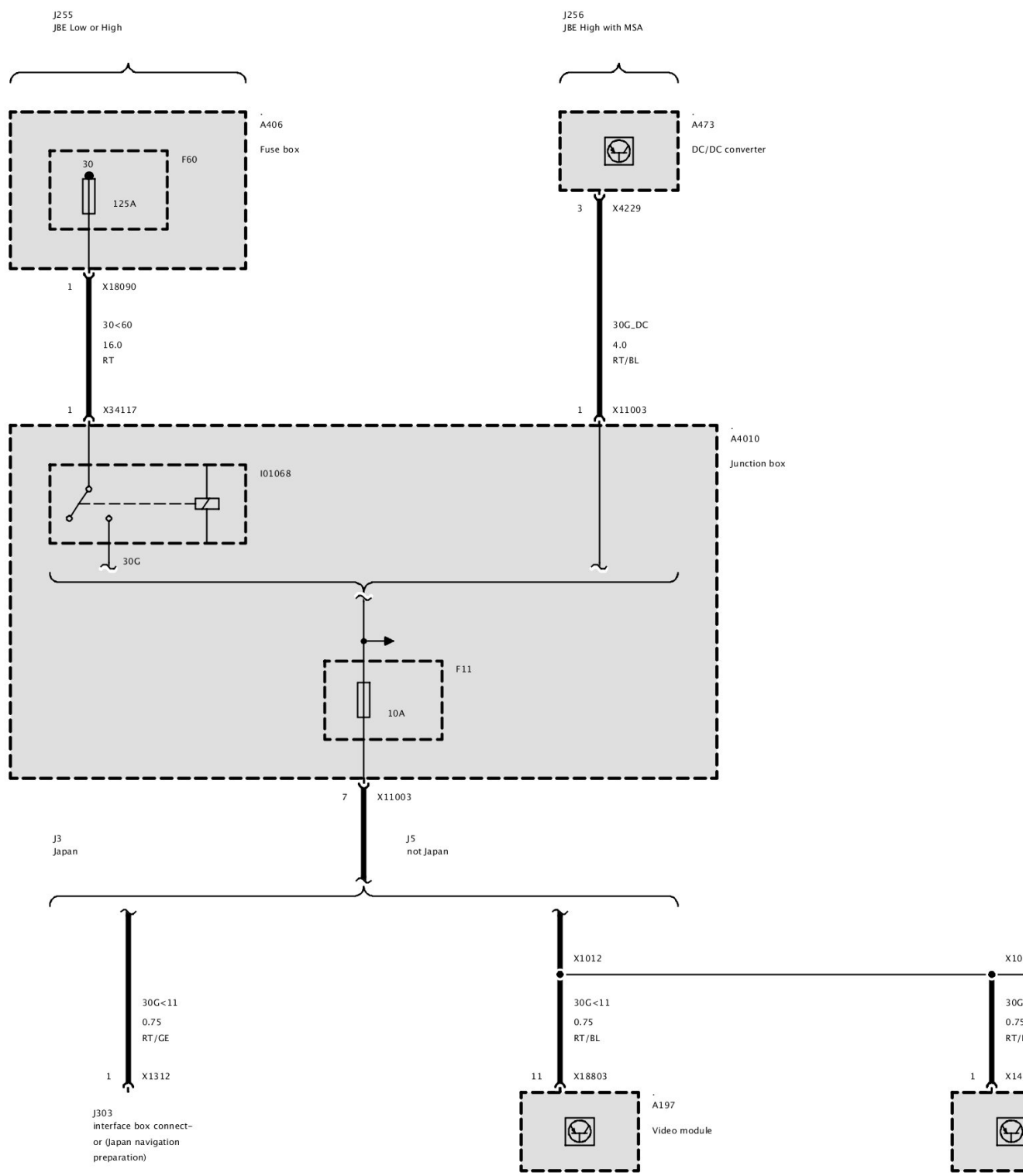


## Part 2

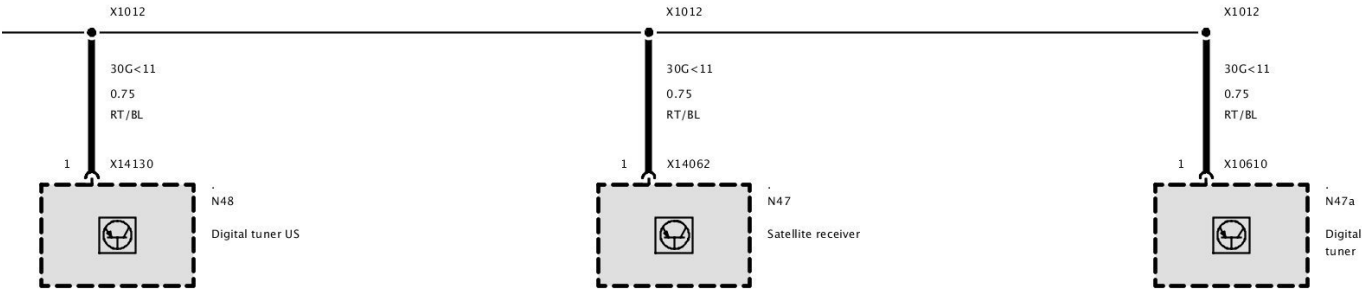
**Fuse F11 (Up to 12/08)**

**Fuse F11 (Up to 12/08)**





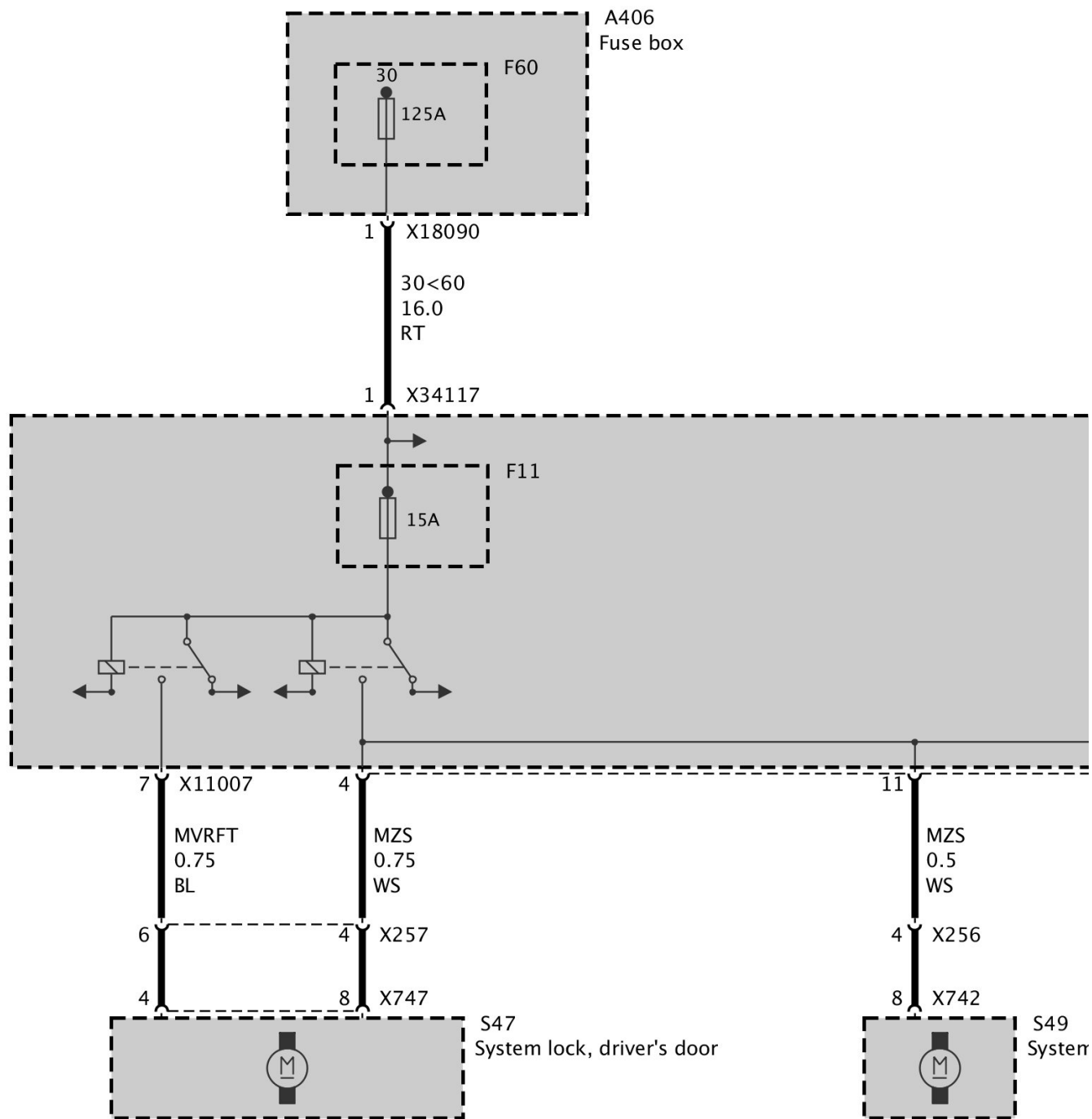
Part 1



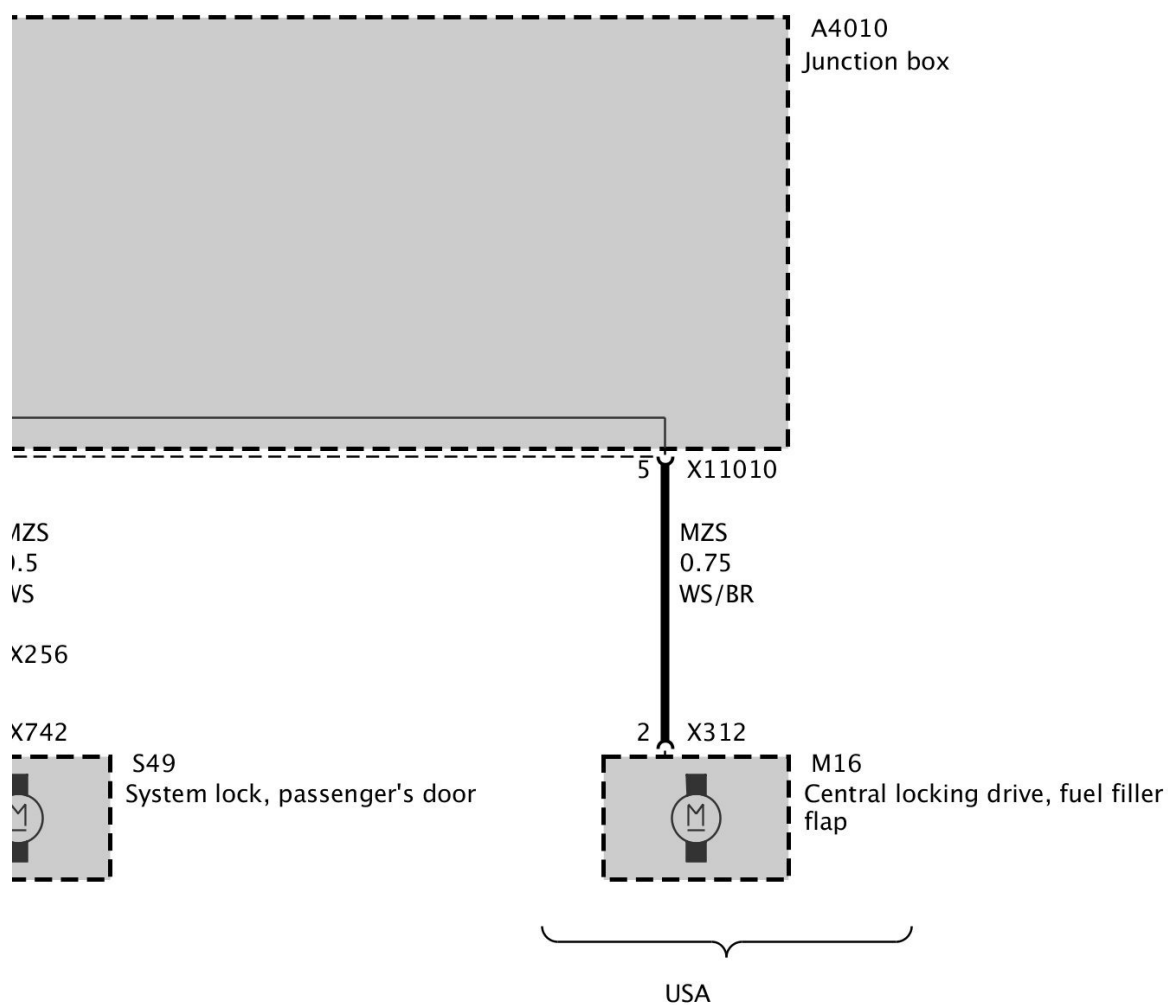
Part 2

Fuse F11 (As of 12/08)

Fuse F11 (As of 12/08)



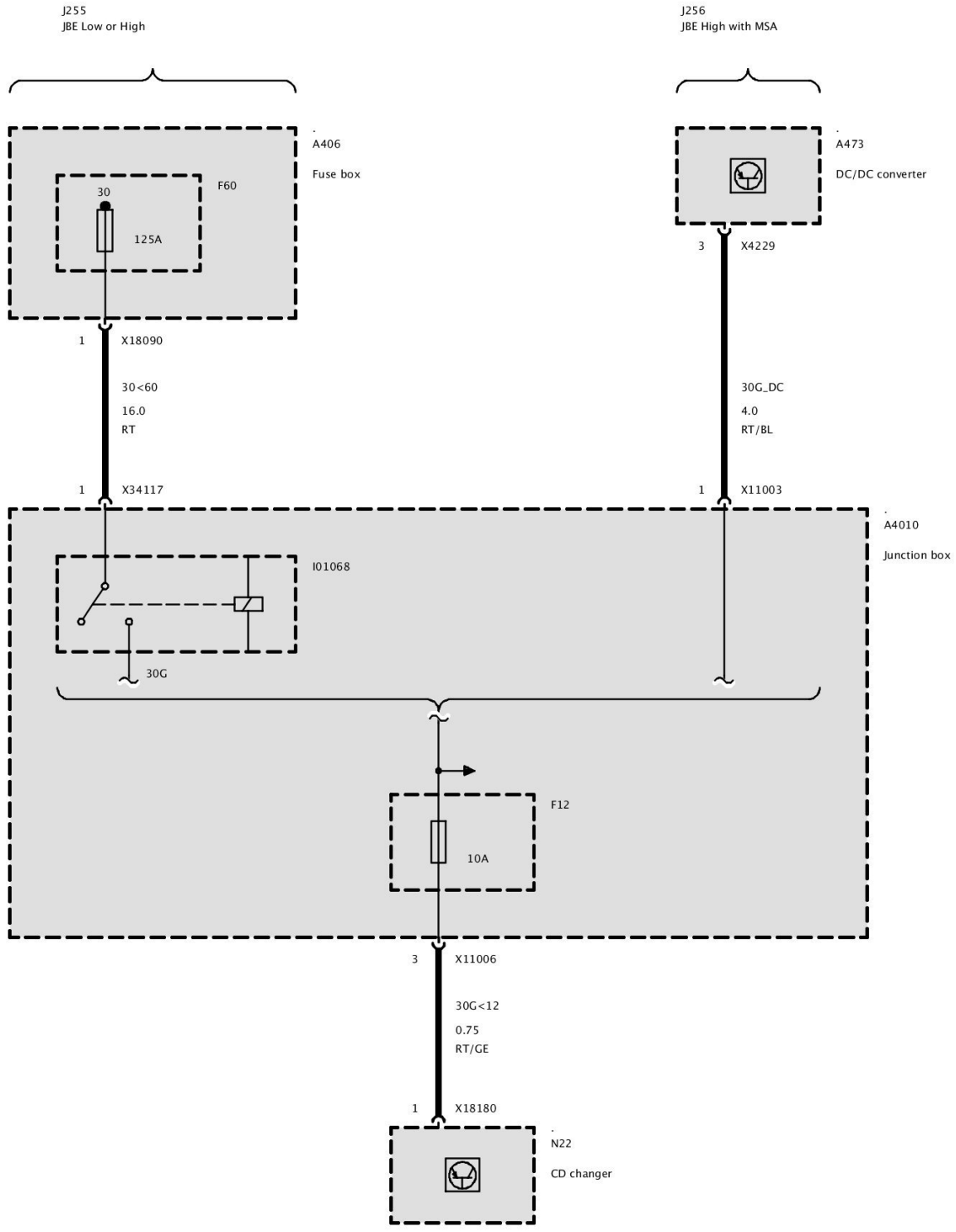
Part 1



## Part 2

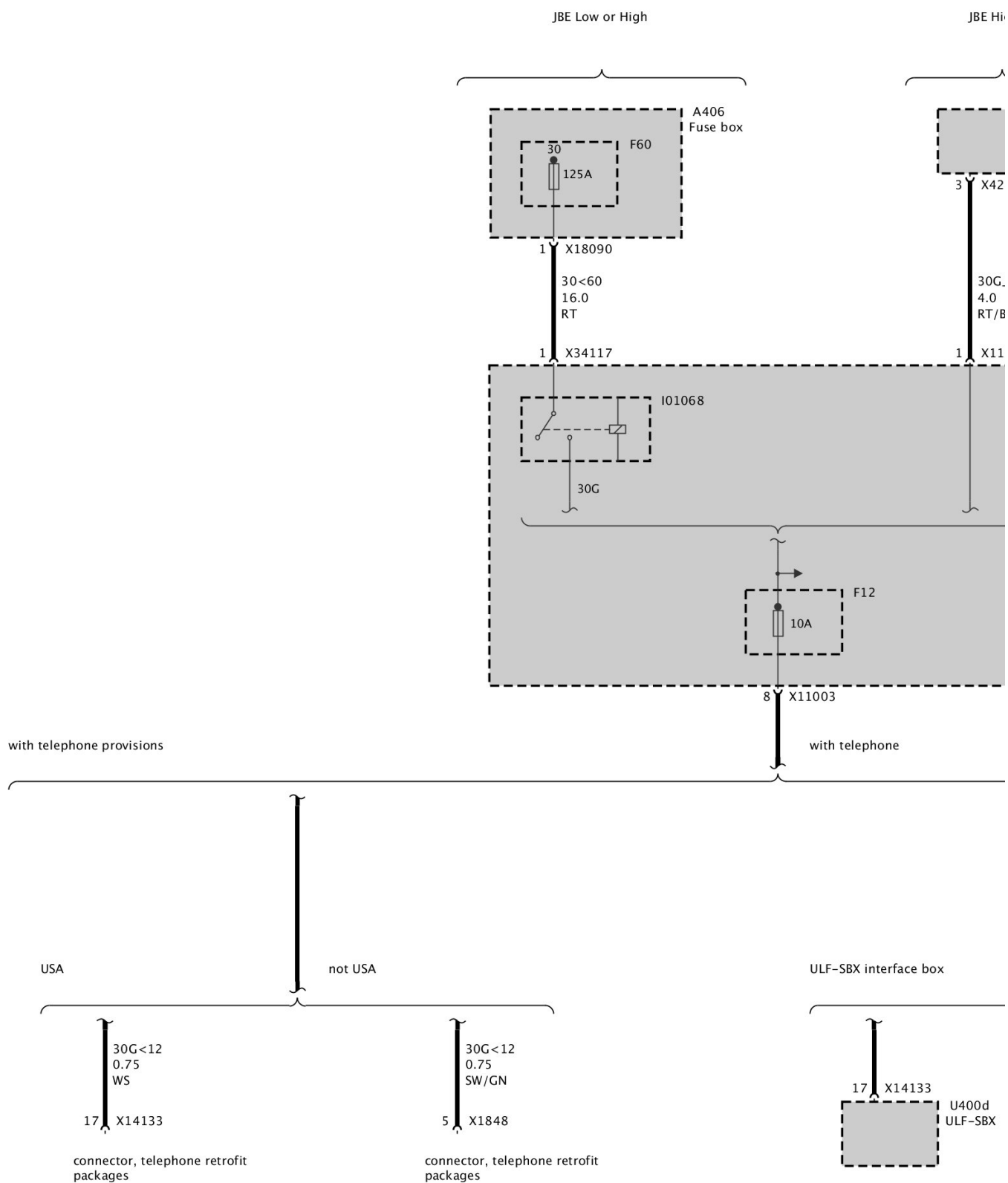
### Fuse F12 (Up to 12/08)

Fuse F12 (Up to 12/08)

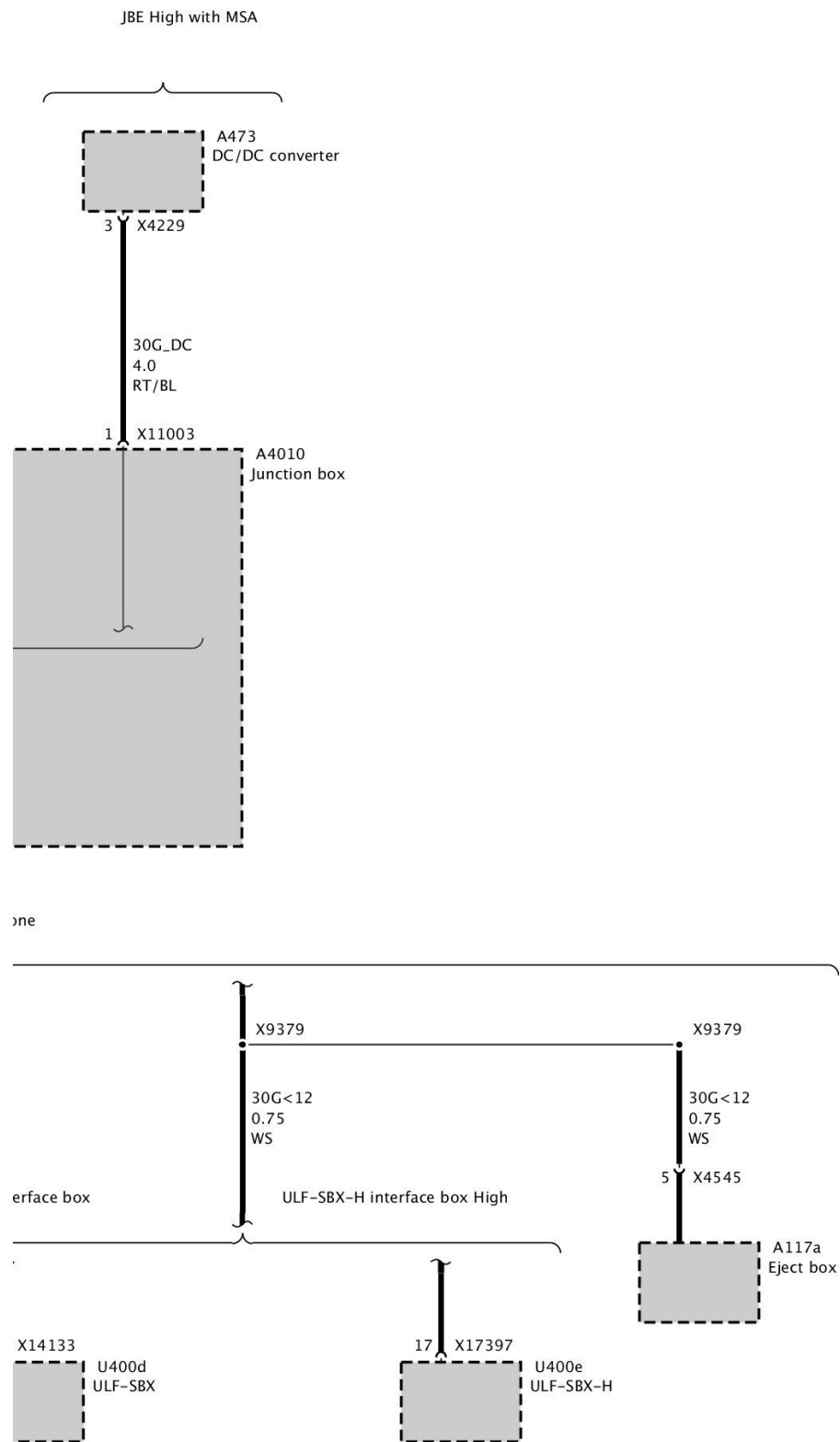


Fuse F12 (As of 12/08)

Fuse F12 (As of 12/08)



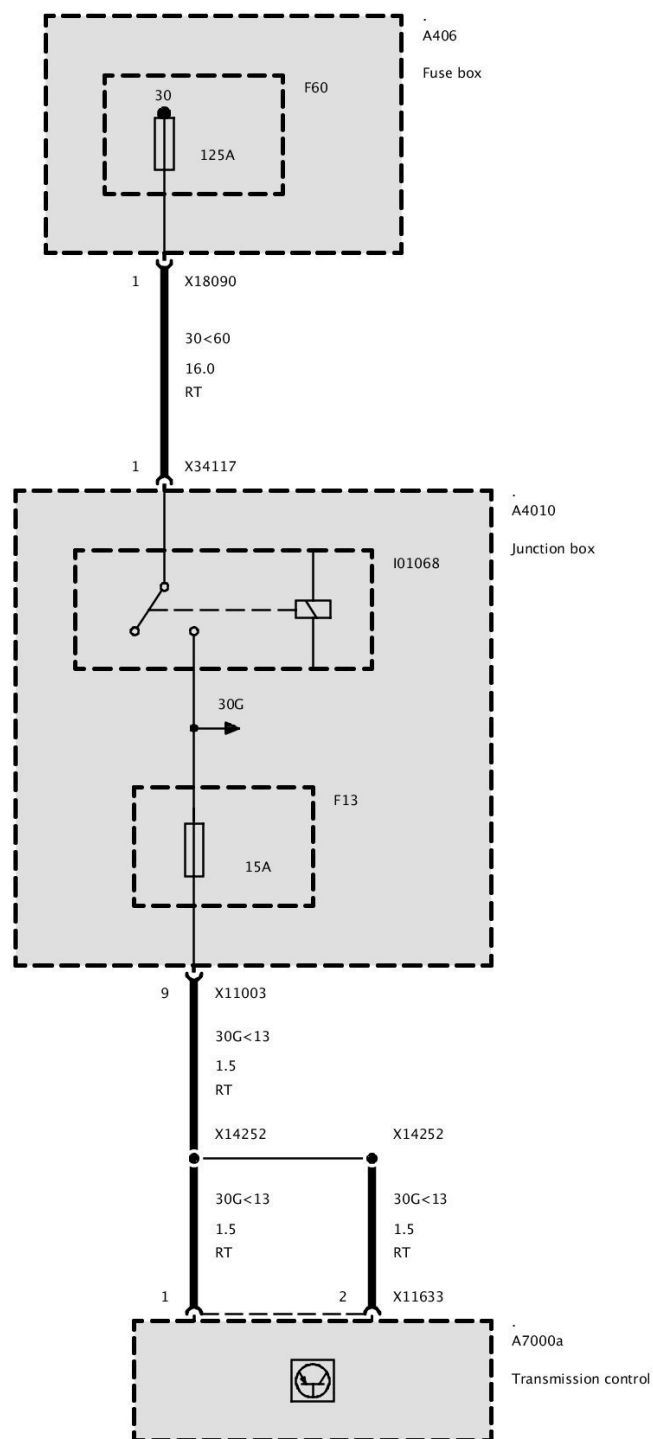
### Part 1



Part 2

Fuse F13 (EGS Electronic Transmission Control Up to 12/08)

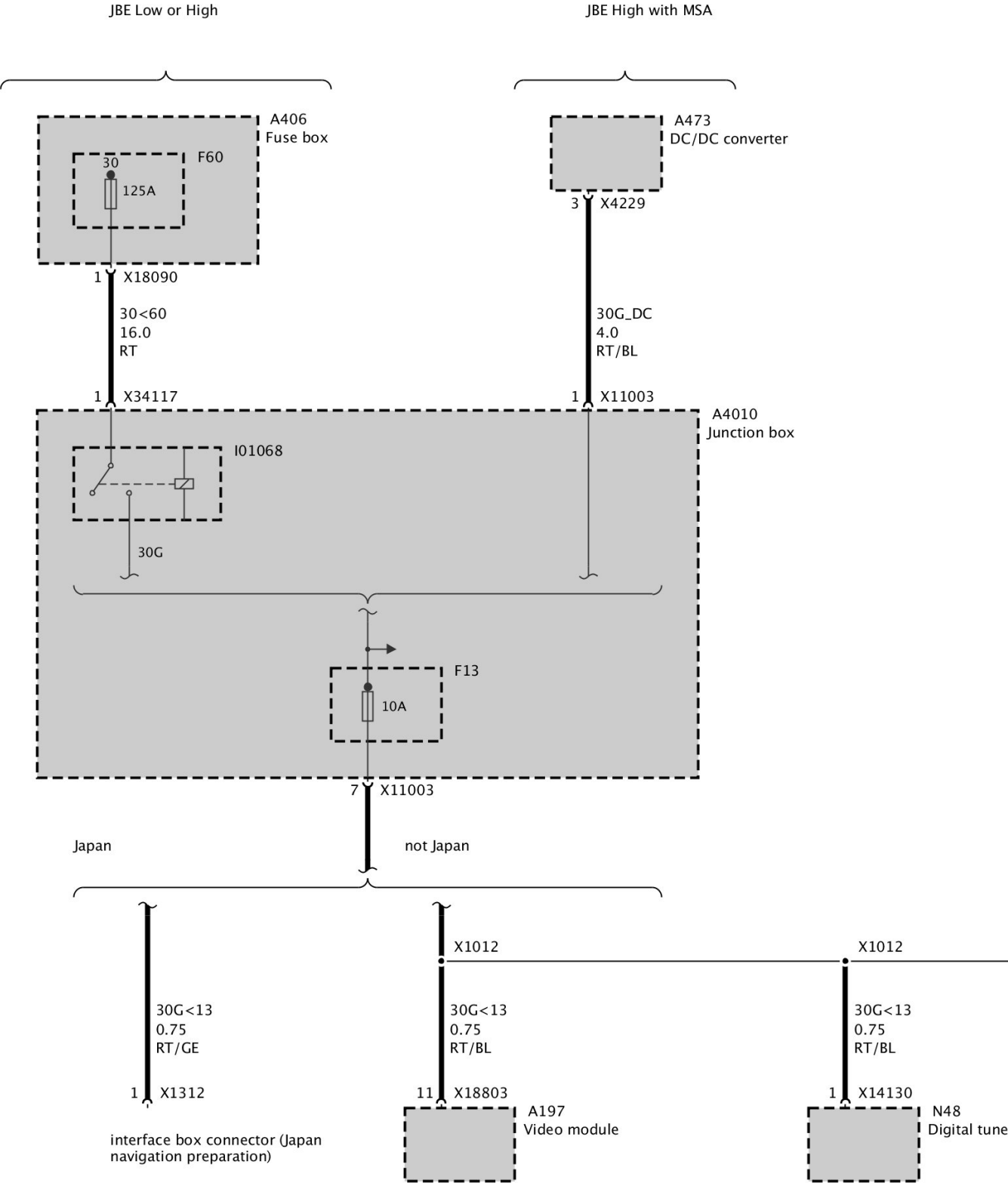
Fuse F13 (EGS Electronic Transmission Control Up to 12/08)



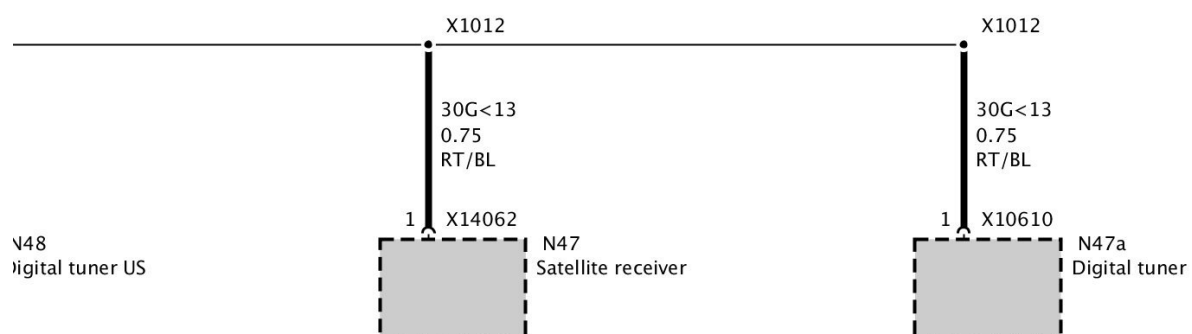
**Fuse F13 (As of 12/08)**

**Fuse F13 (As of 12/08)**





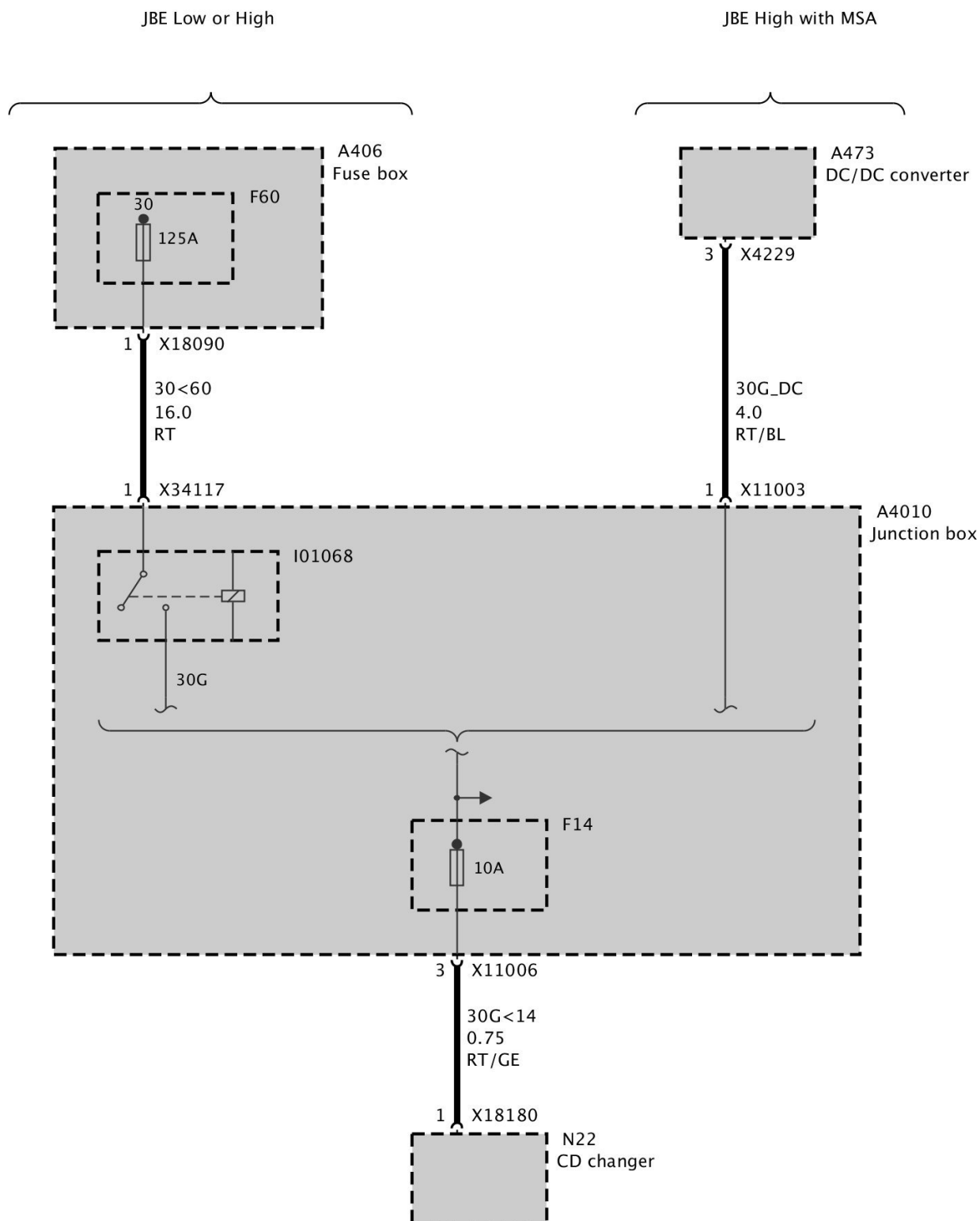
Part 1



## Part 2

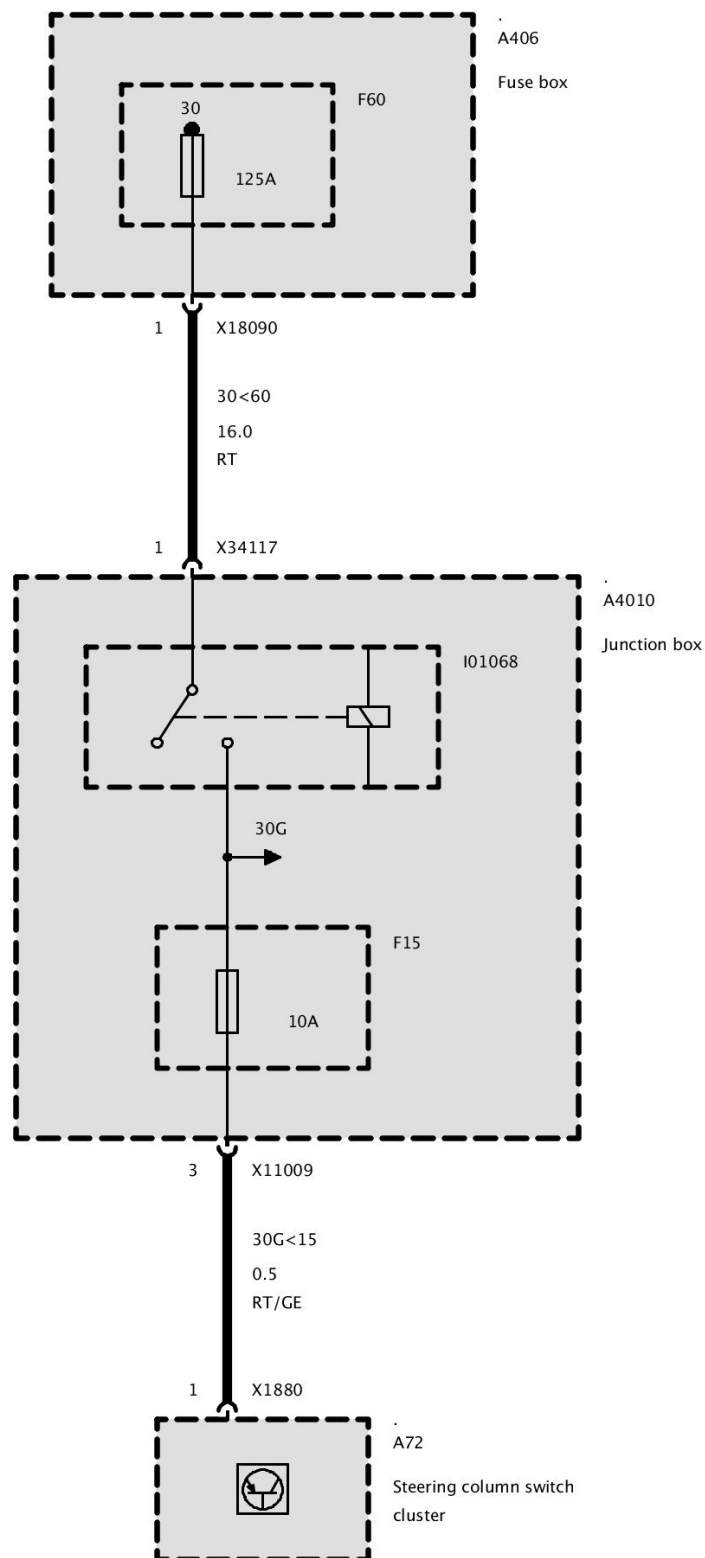
## F14

Fuse F14 (As of 12/08)



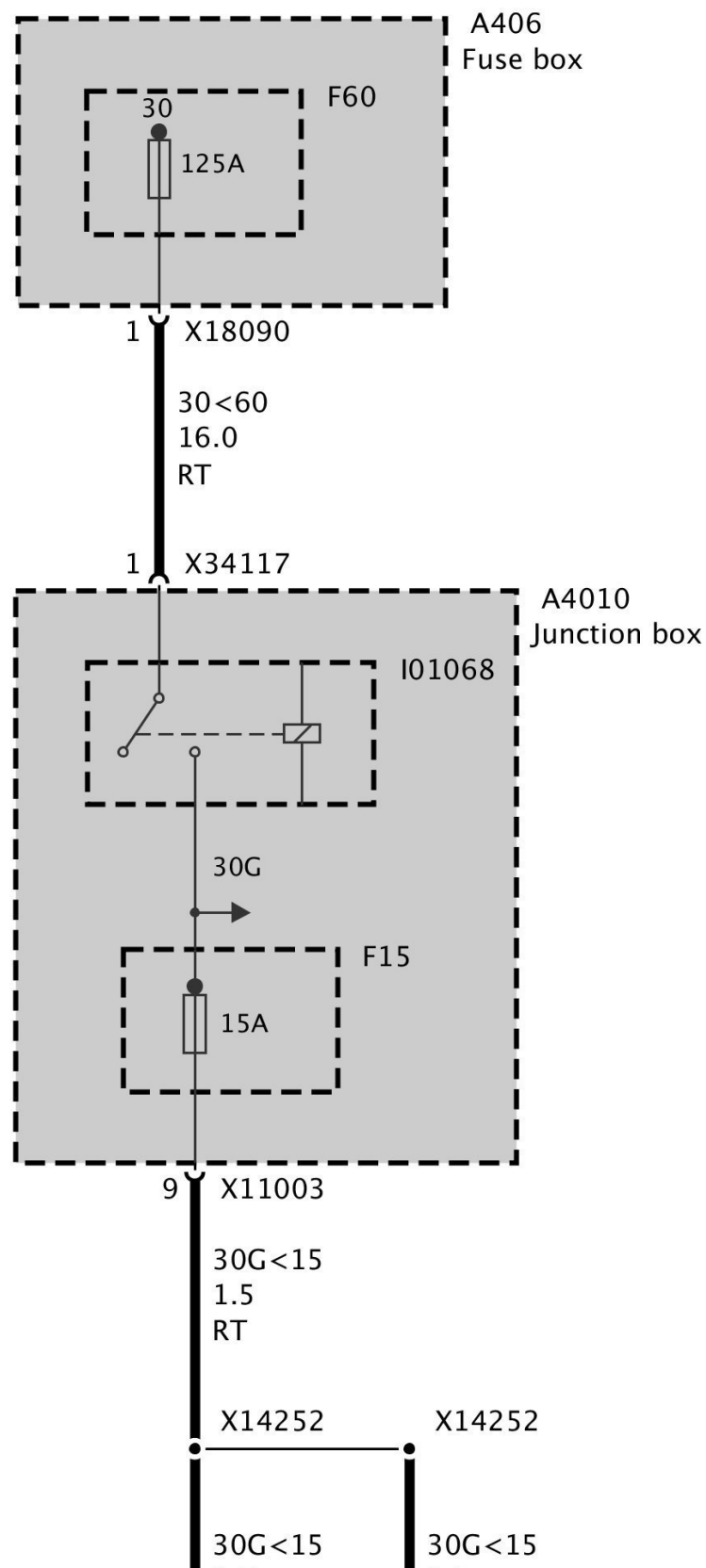
**Fuse F15 (Up to 12/08)**

**Fuse F15 (Up to 12/08)**



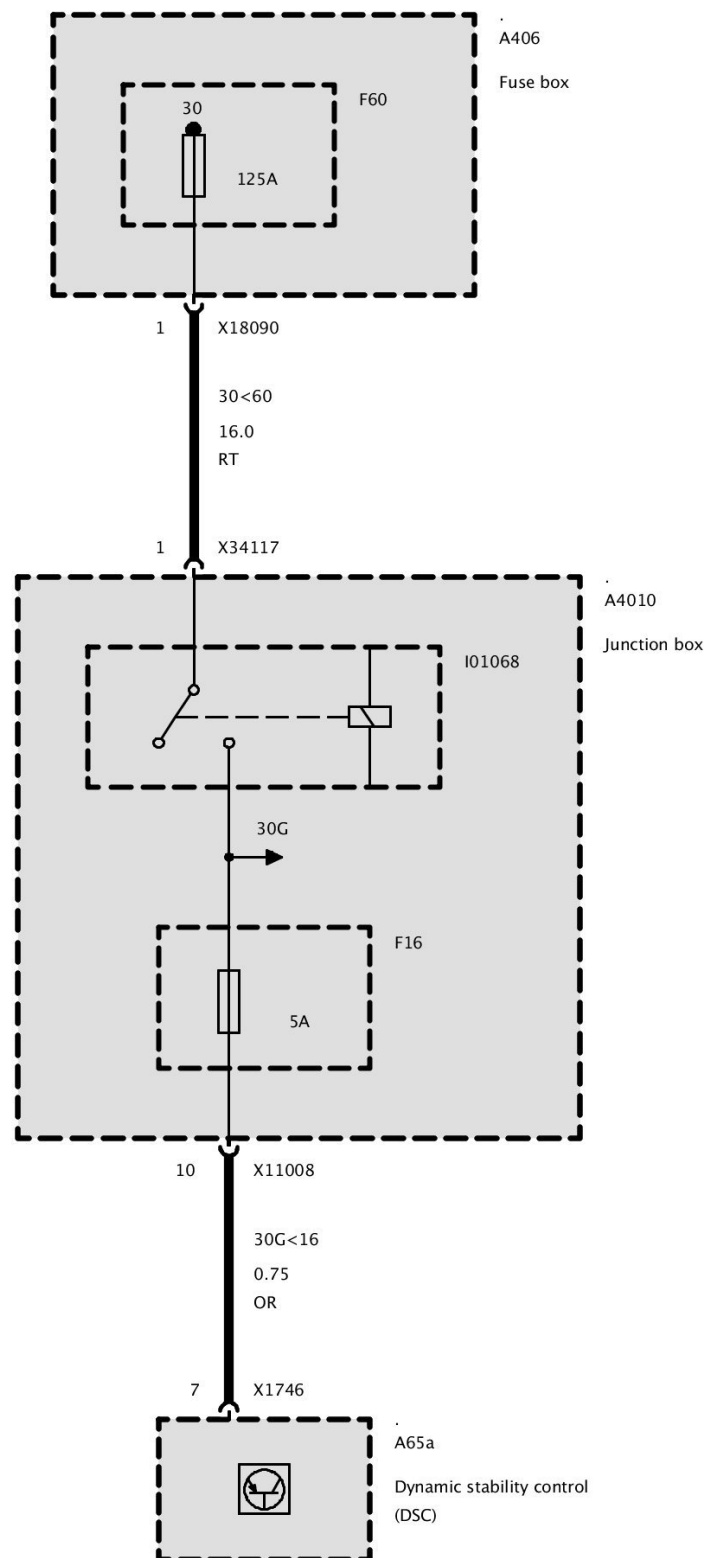
**Fuse F15 (As of 12/08)**

**Fuse F15 (As of 12/08)**



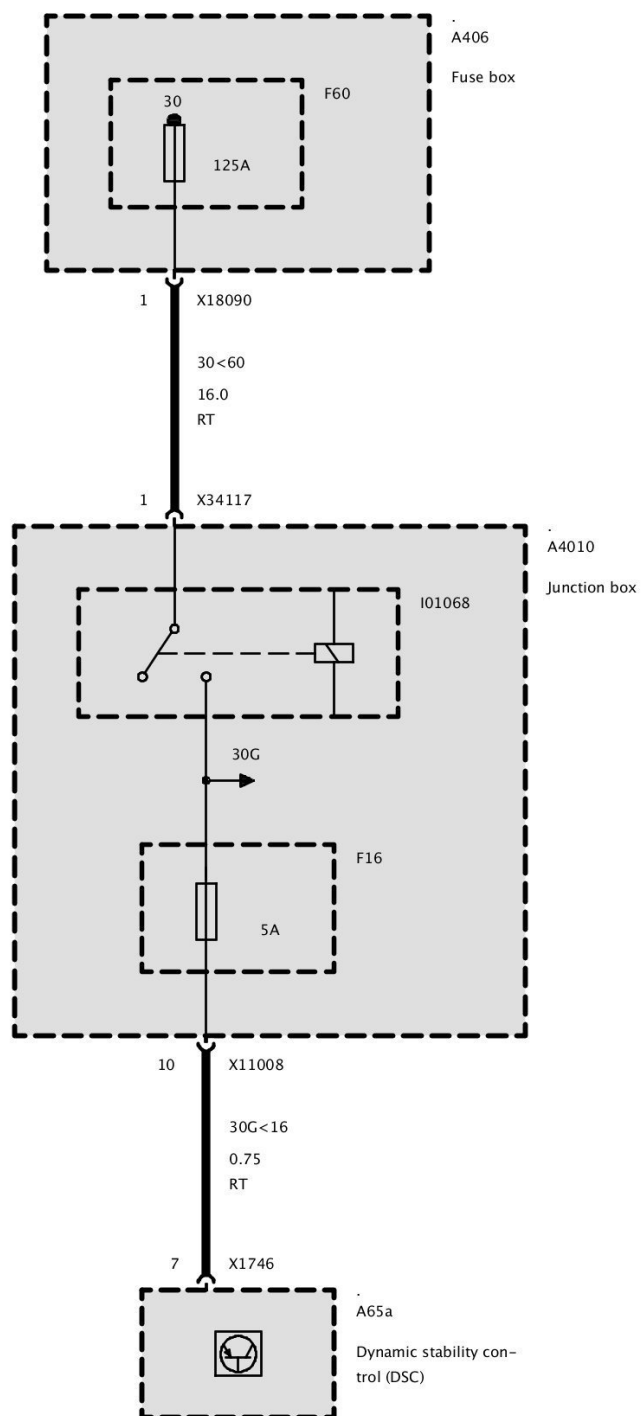
**Fuse F16 (Up to 12/08)**

Fuse F16 (Up to 12/08)



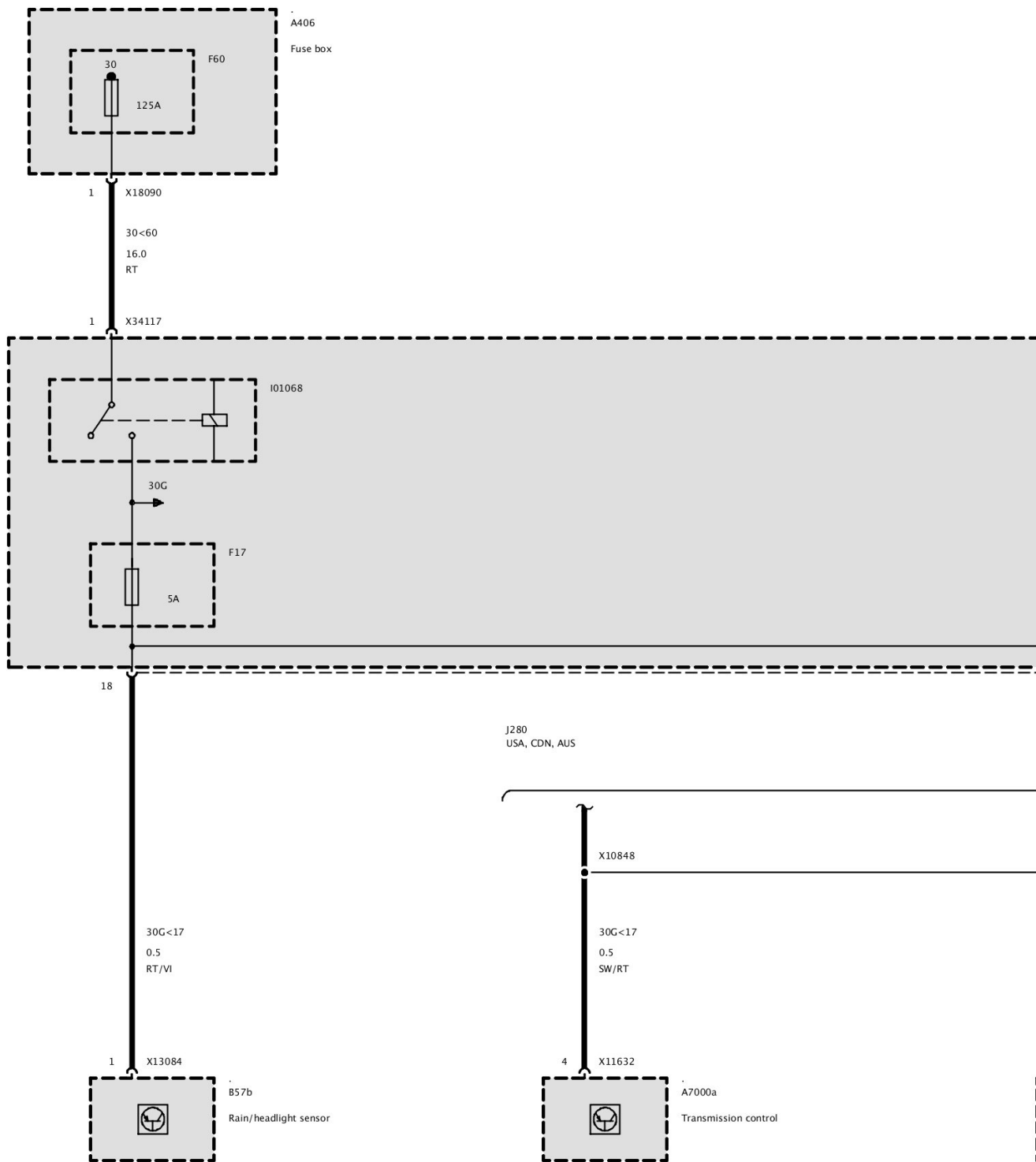
**Fuse F16 (As of 03/08 Up to 12/08)**

**Fuse F16 (As of 03/08 Up to 12/08)**



## Fuse F17 (EGS Electronic Transmission Control Up to 12/08)

Fuse F17 (EGS Electronic Transmission Control Up to 12/08)

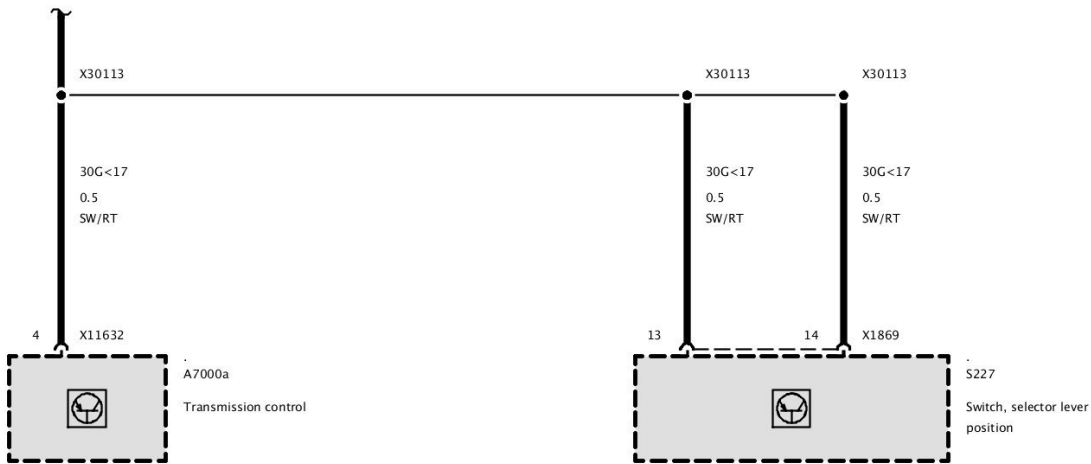


Part 1





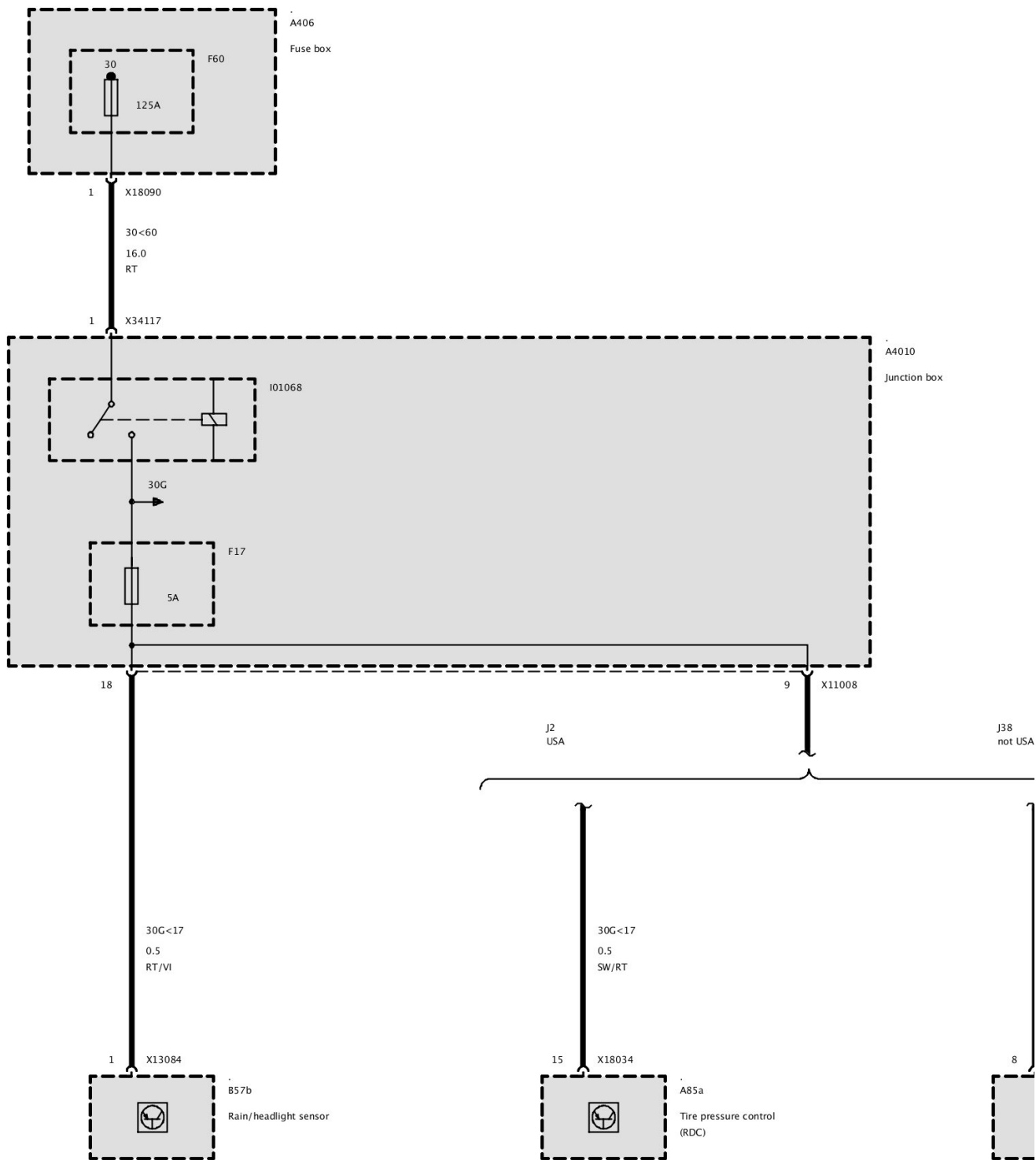
JS



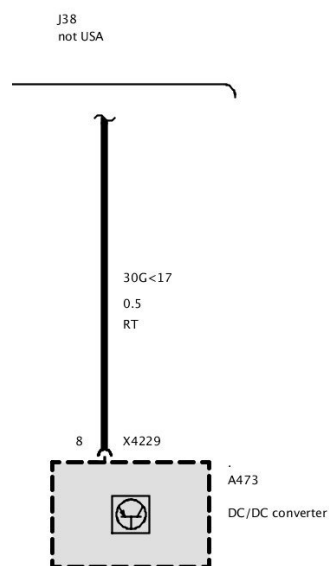
Part 3

Fuse F17 (Without EGS Electronic Transmission Control Up to 12/08)

Fuse F17 (Without EGS Electronic Transmission Control Up to 12/08)



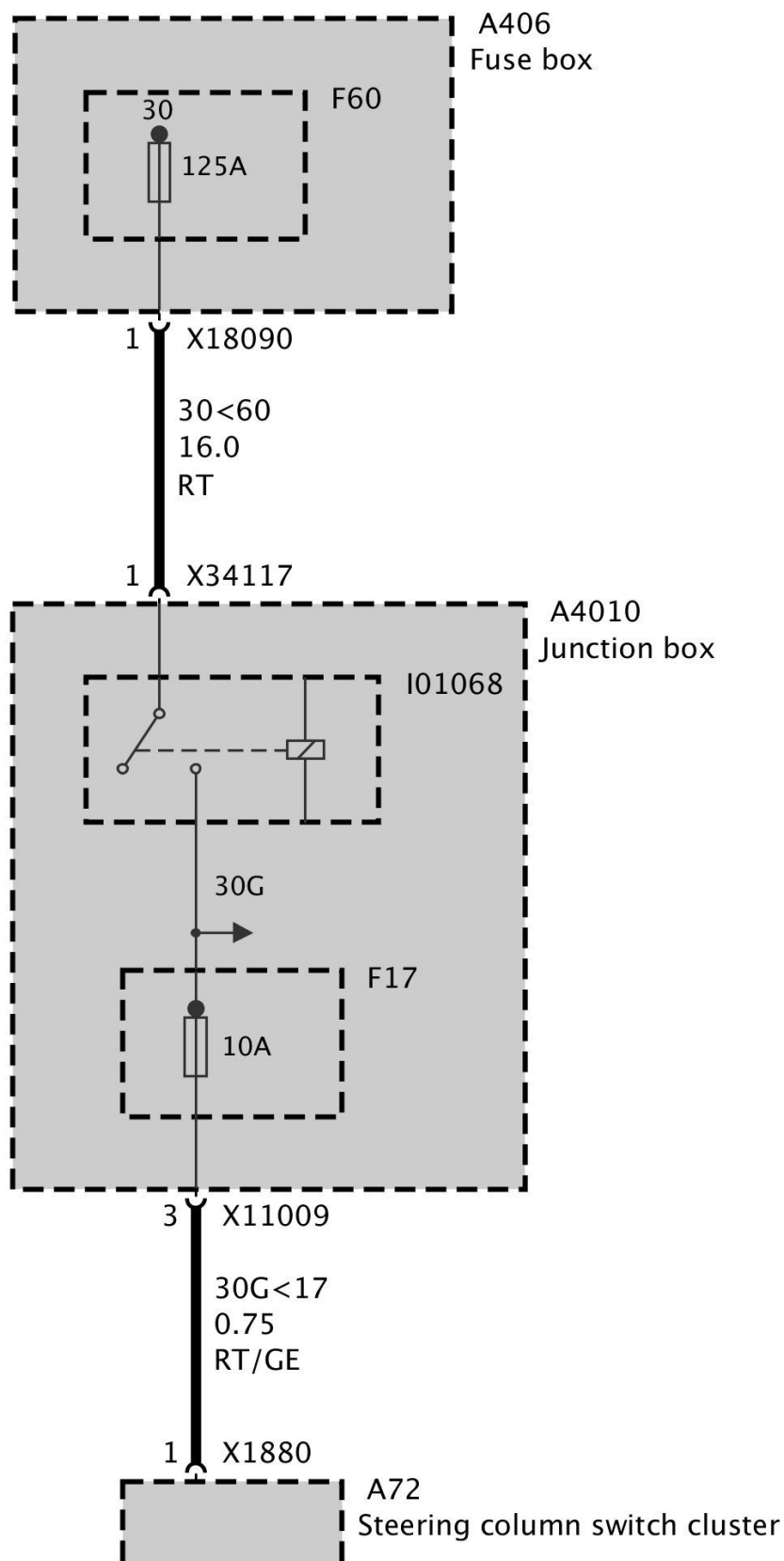
Part 1



## Part 2

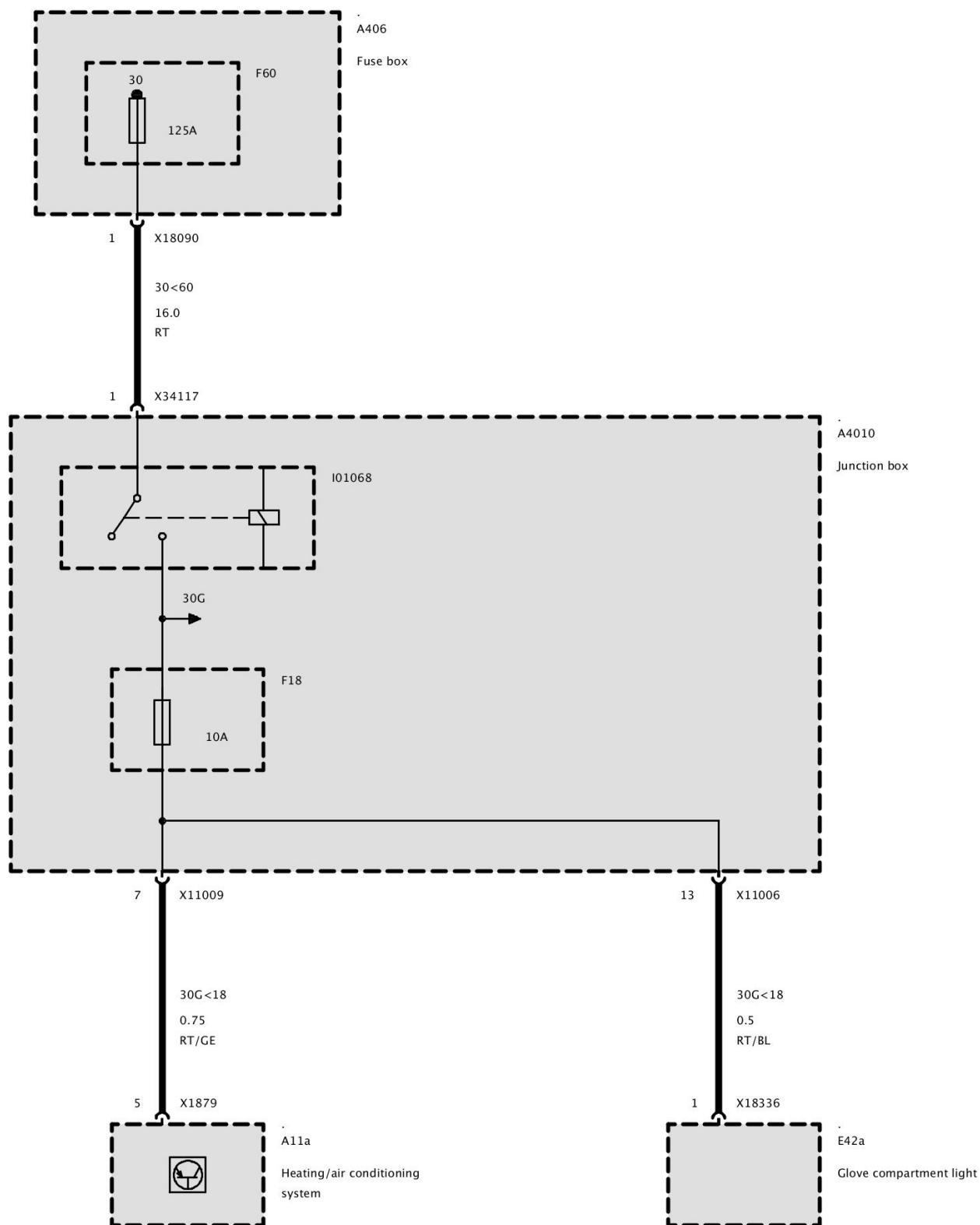
**Fuse F17 (As of 12/08)**

**Fuse F17 (As of 12/08)**



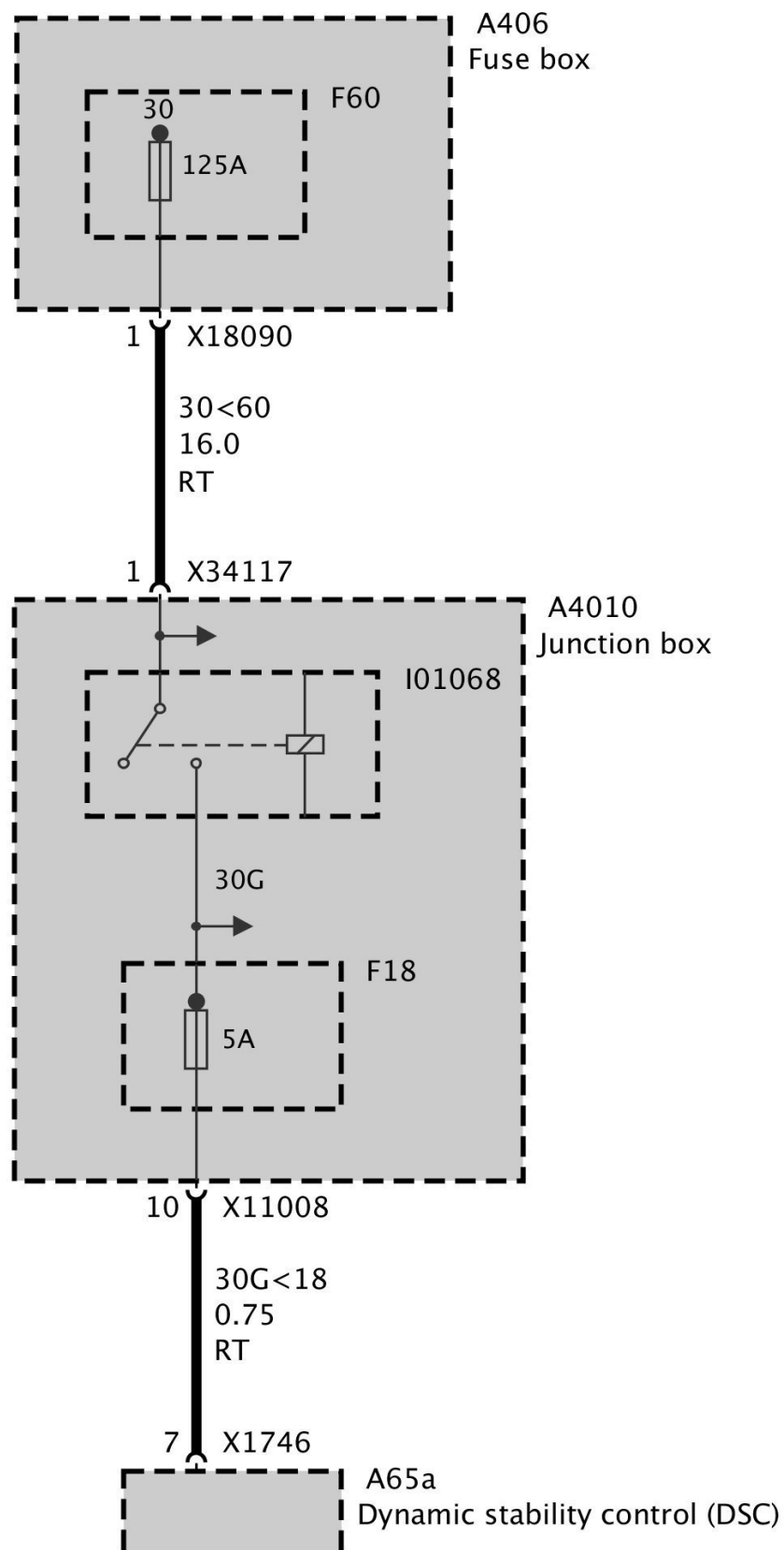
**Fuse F18 (Up to 12/08)**

**Fuse F18 (Up to 12/08)**



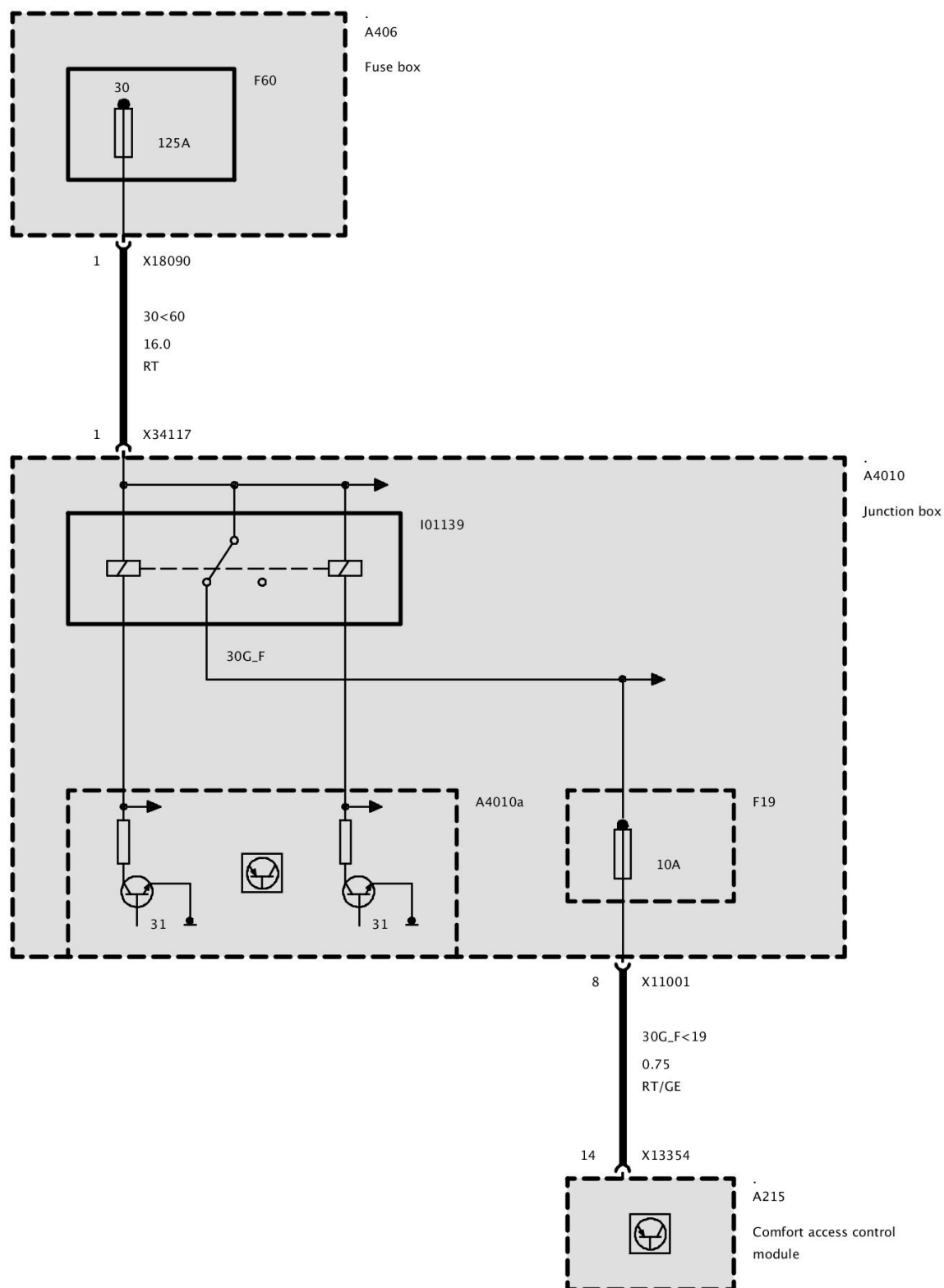
**Fuse F18 (As of 12/08)**

**Fuse F18 (As of 12/08)**



**Fuse F19 (Up to 12/08)**

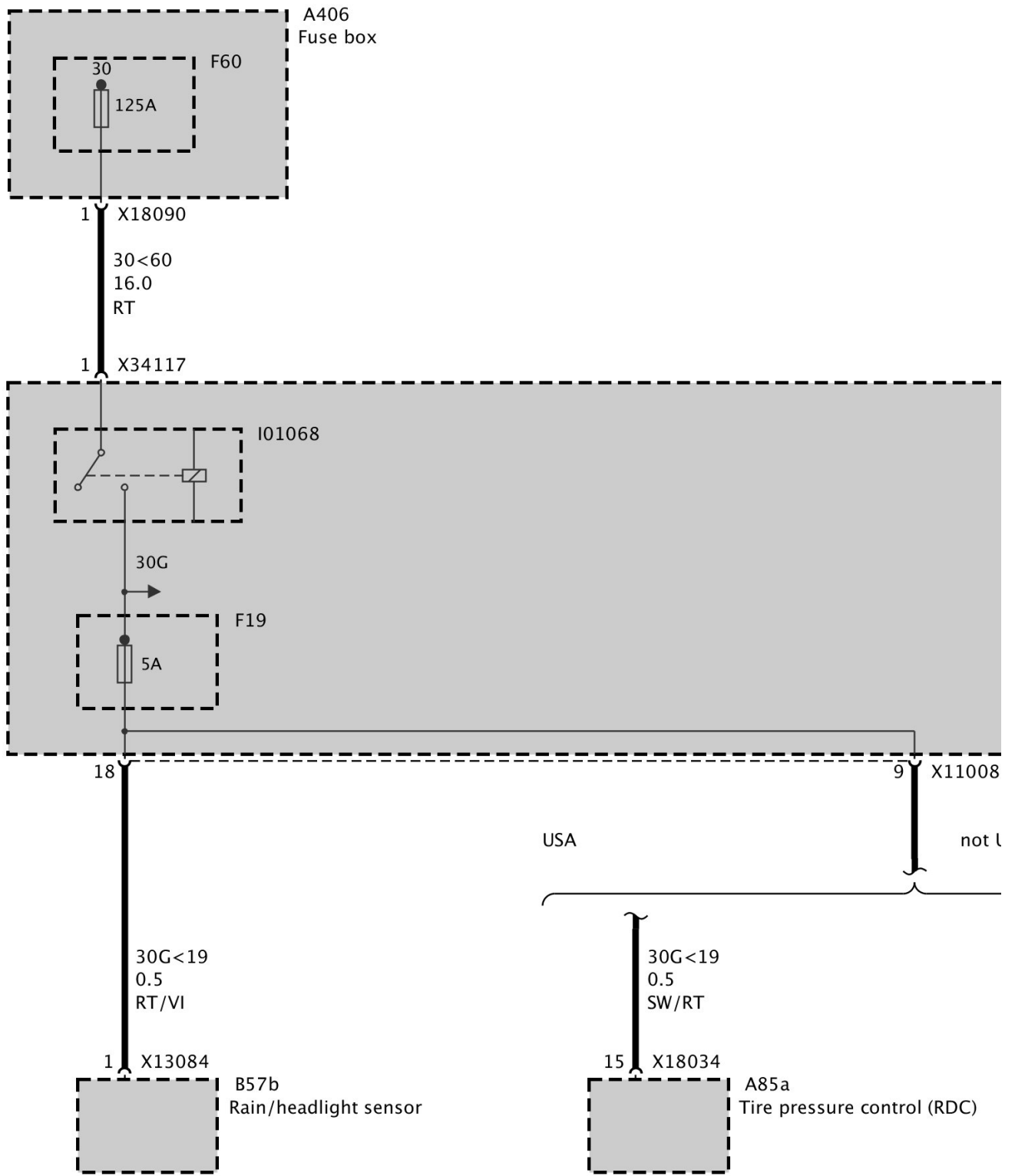
**Fuse F19 (Up to 12/08)**



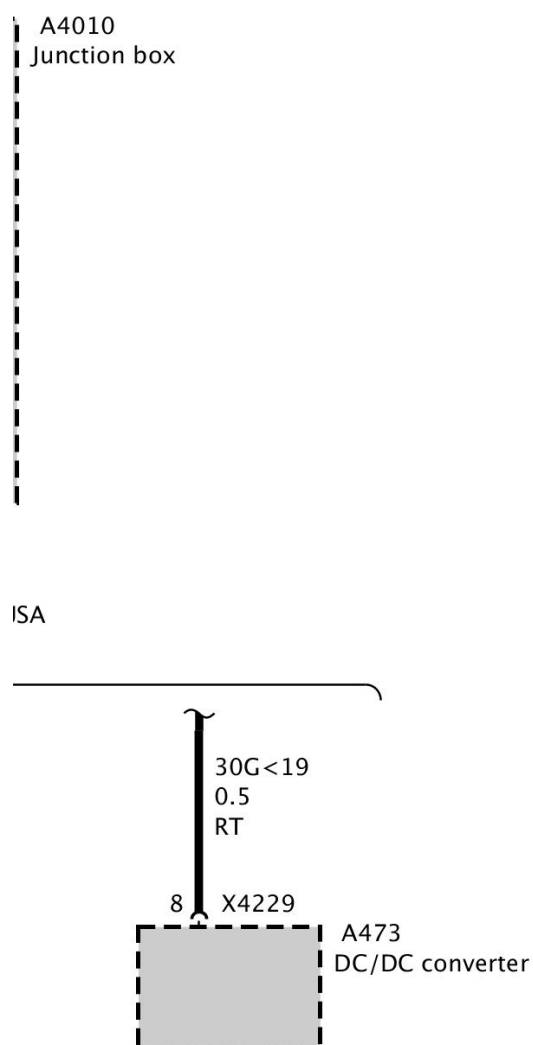
**Fuse F19 (Without EGS Electronic Transmission Control As of 12/08)**

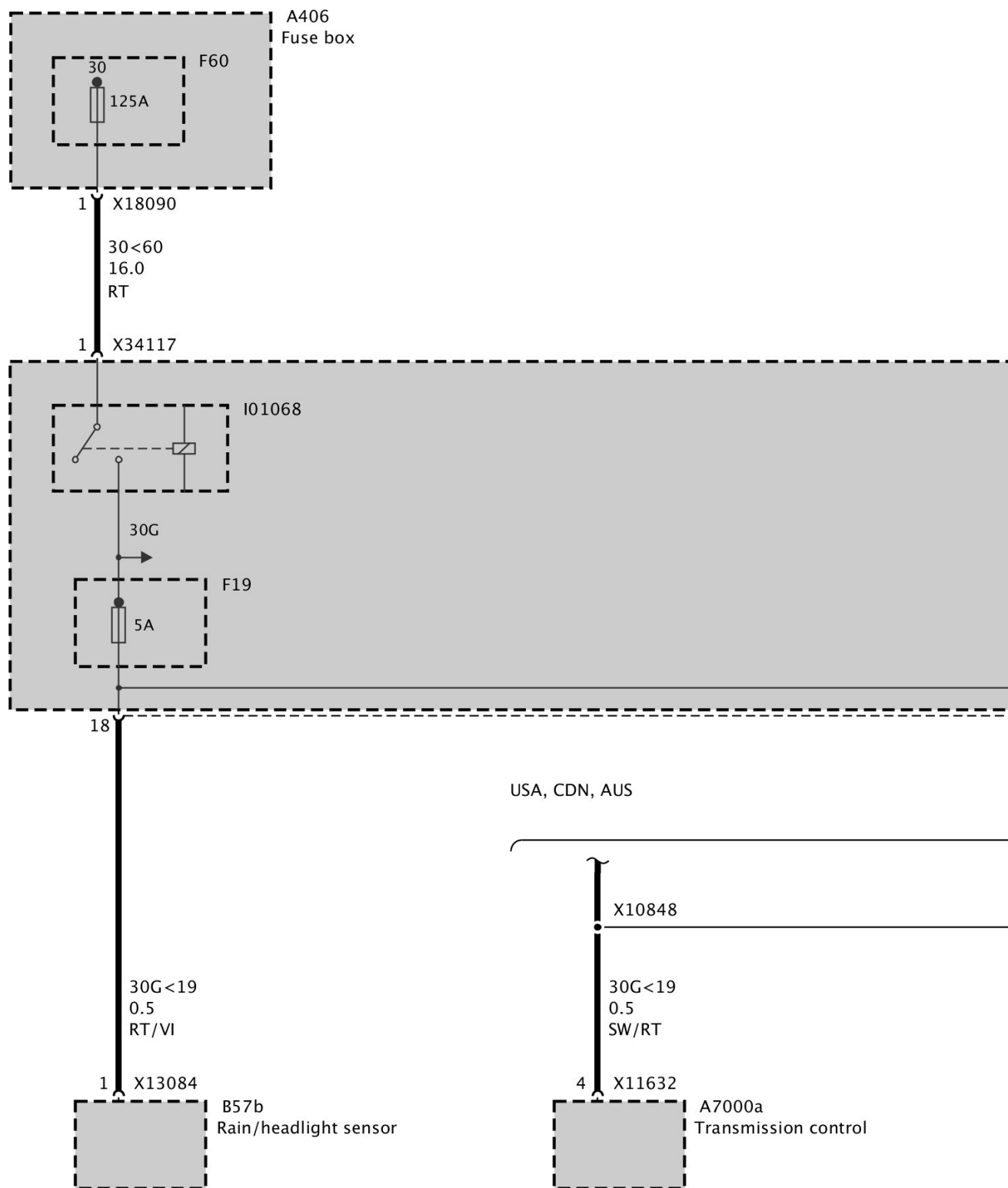
**Fuse F19 (Without EGS Electronic Transmission Control As of 12/08)**



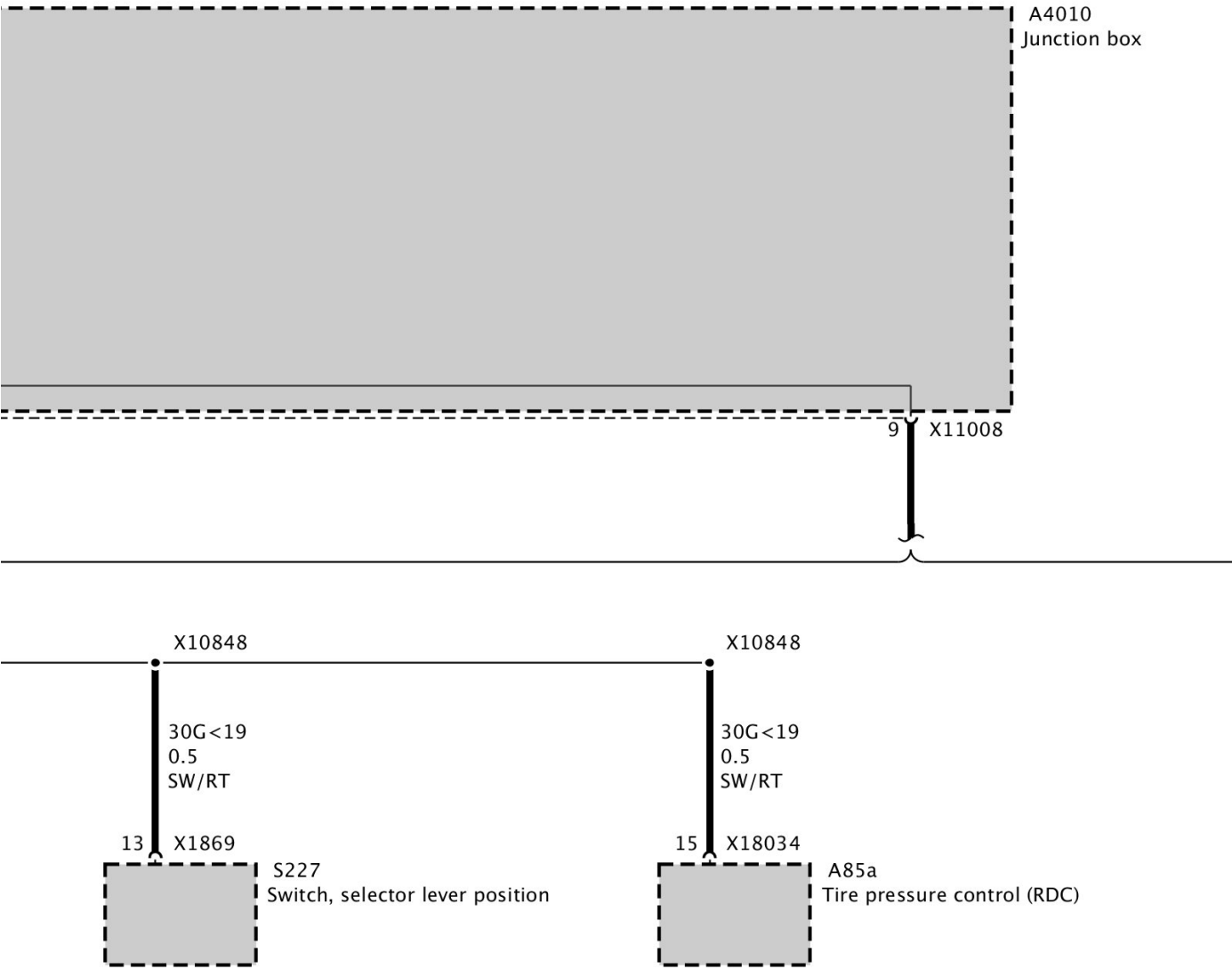


Part 1

**Part 2****Fuse F19 (EGS Electronic Transmission Control As of 12/08)****Fuse F19 (EGS Electronic Transmission Control As of 12/08)**

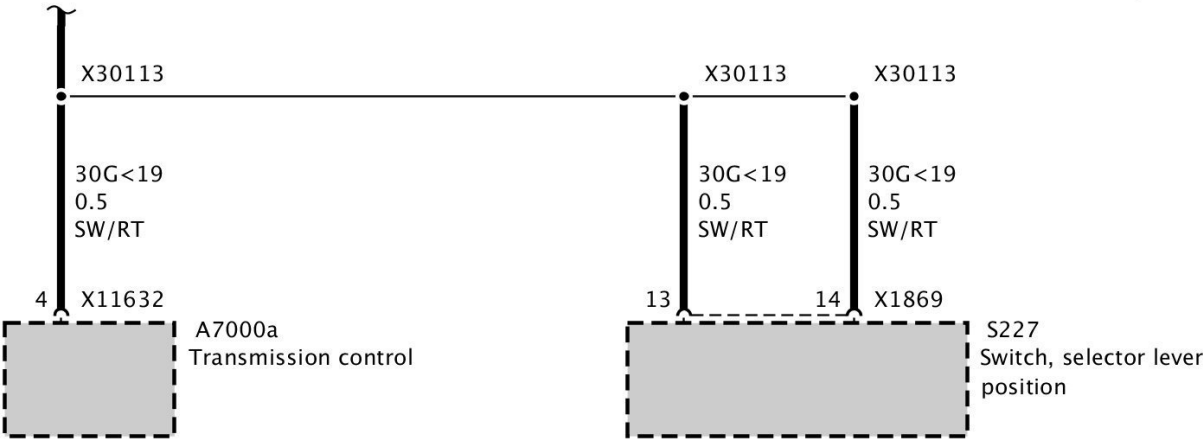


Part 1



Part 2

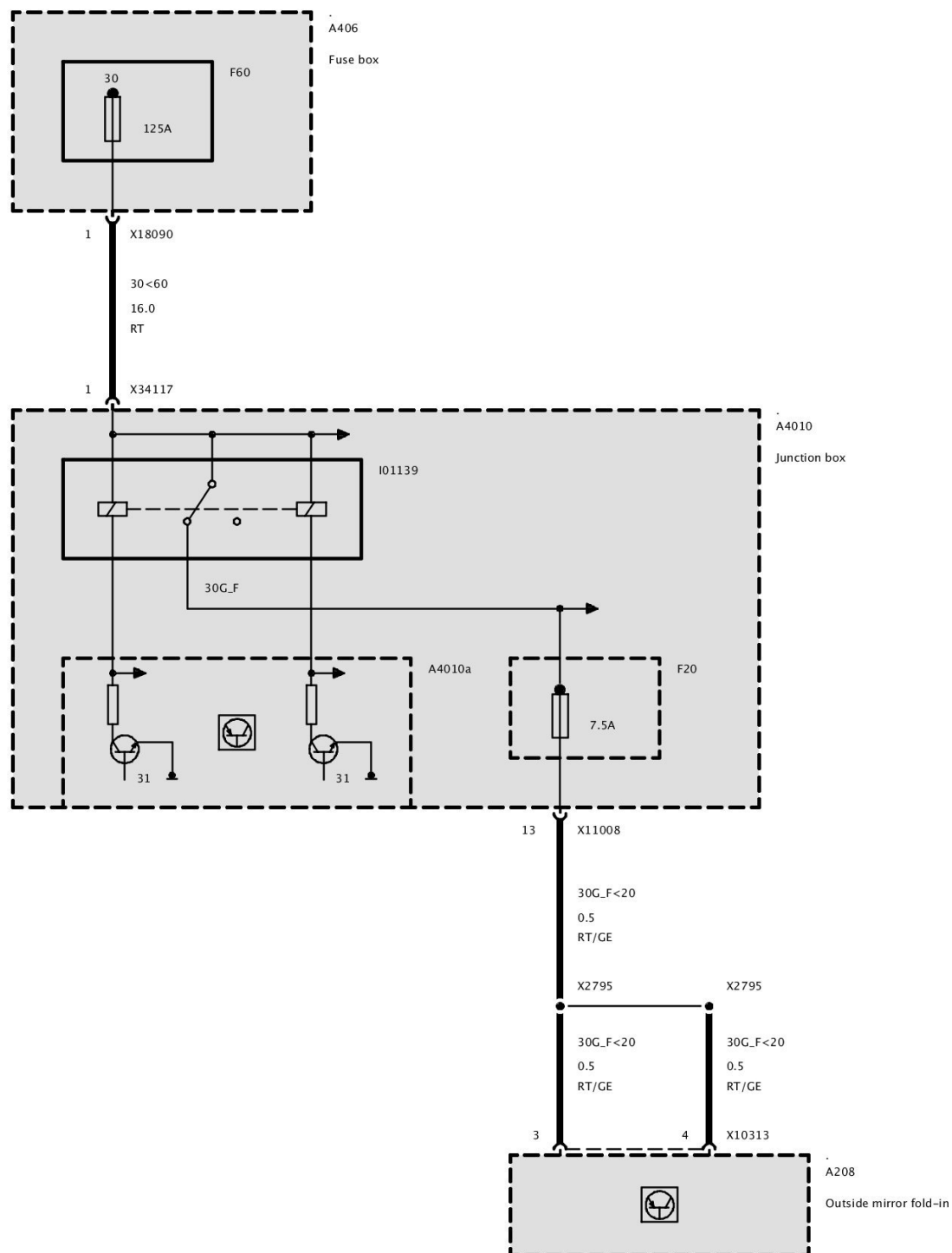
not USA, CDN, AUS



Part 3

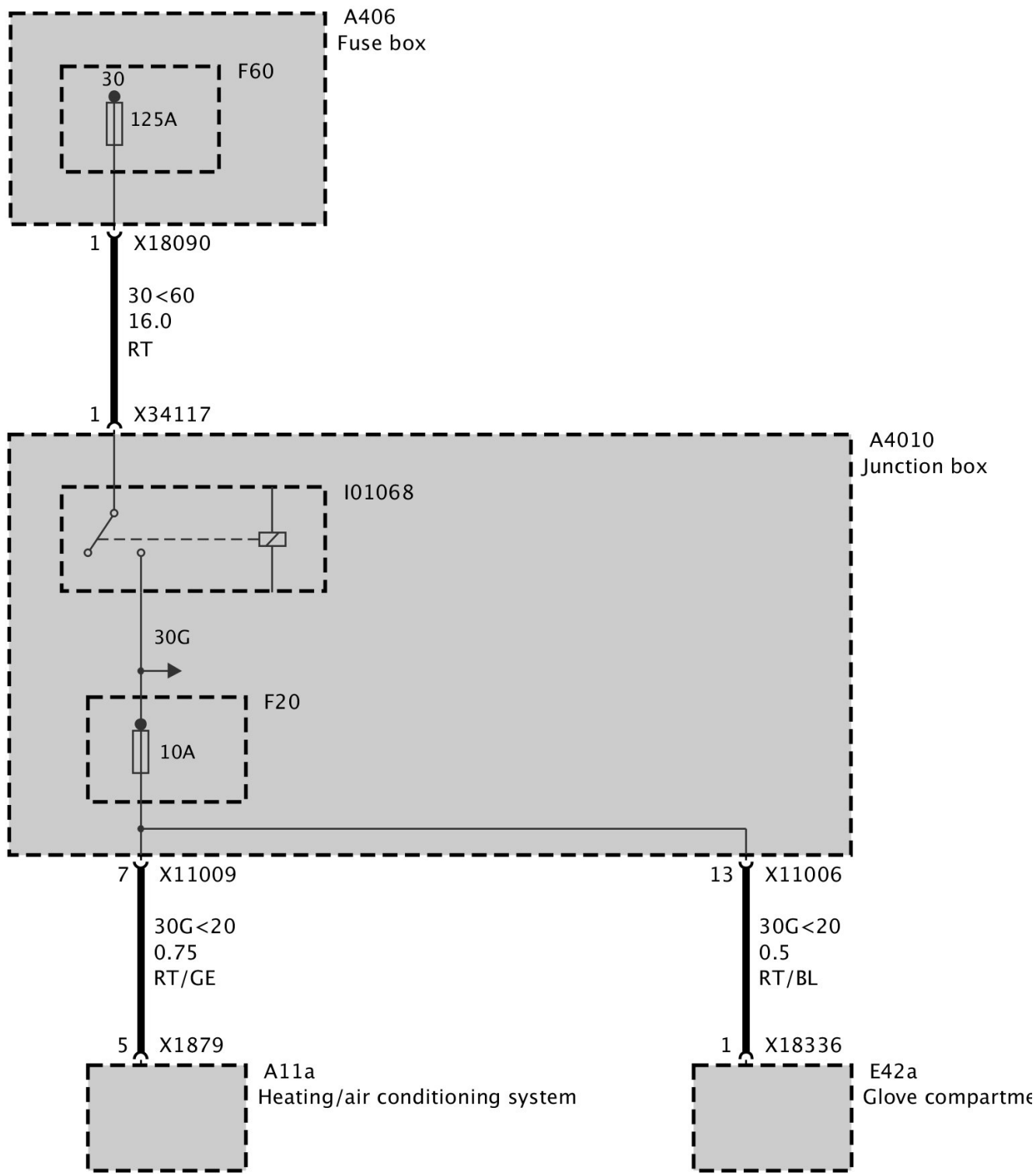
Fuse F20 (As of 03/08 Up to 12/08)

Fuse F20 (As of 03/08 Up to 12/08)



**Fuse F20 (As of 12/08)**

**Fuse F20 (As of 12/08)**



Part 1

x

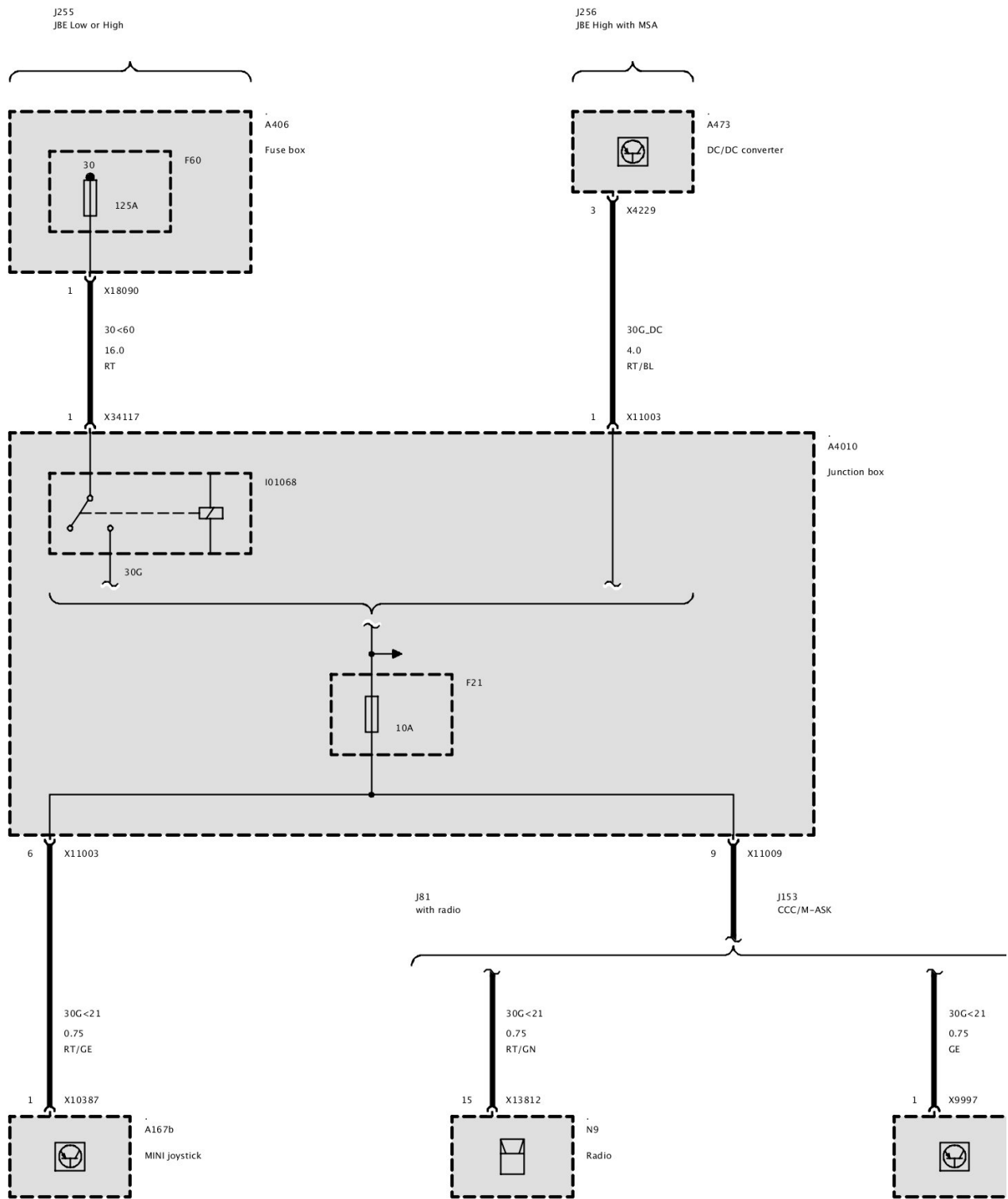
artment light

**Part 2**

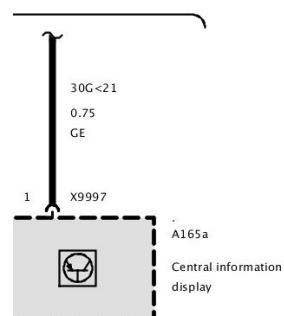
**Fuse F21 (Up to 12/08)**

**Fuse F21 (Up to 12/08)**





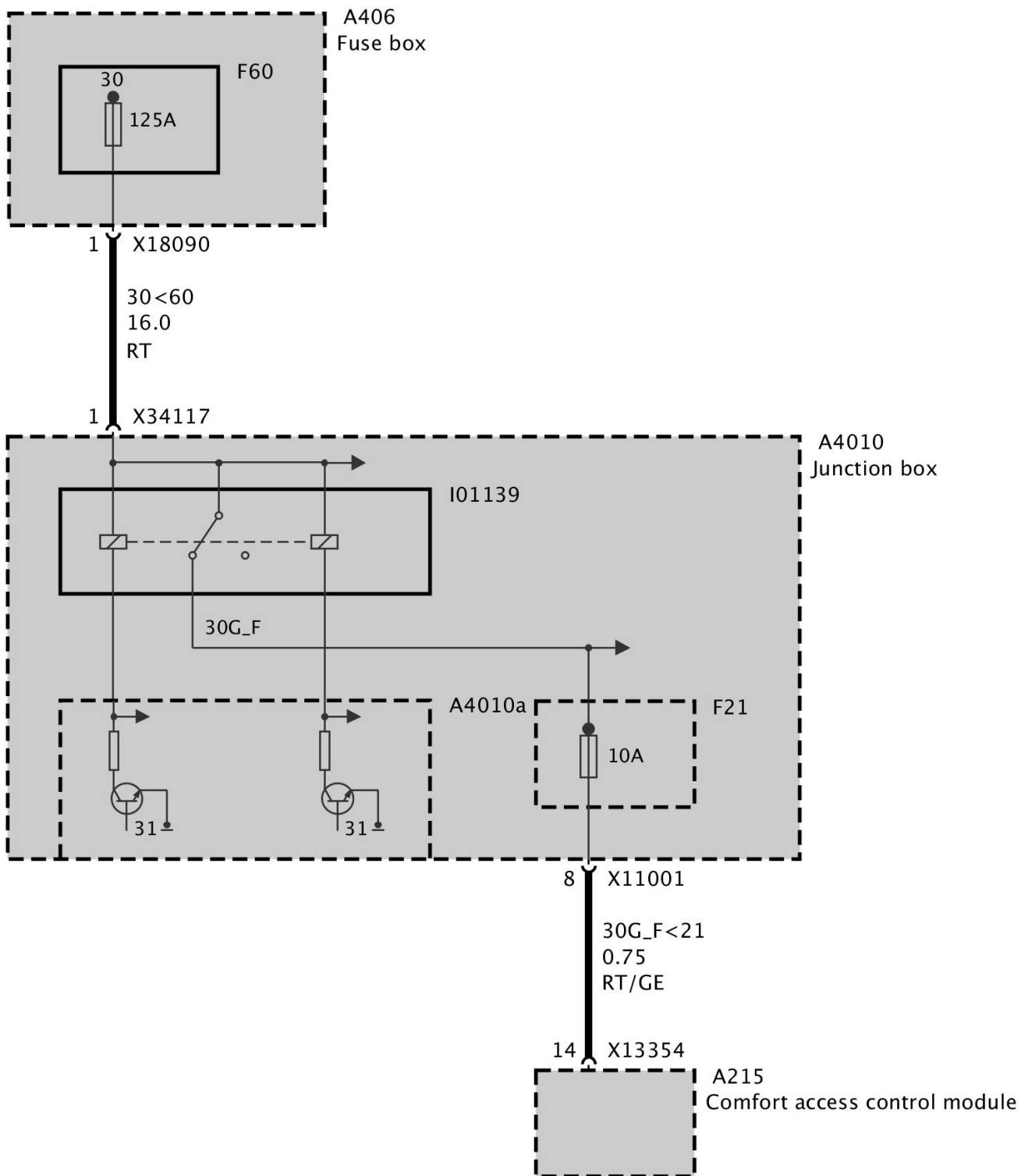
Part 1



## Part 2

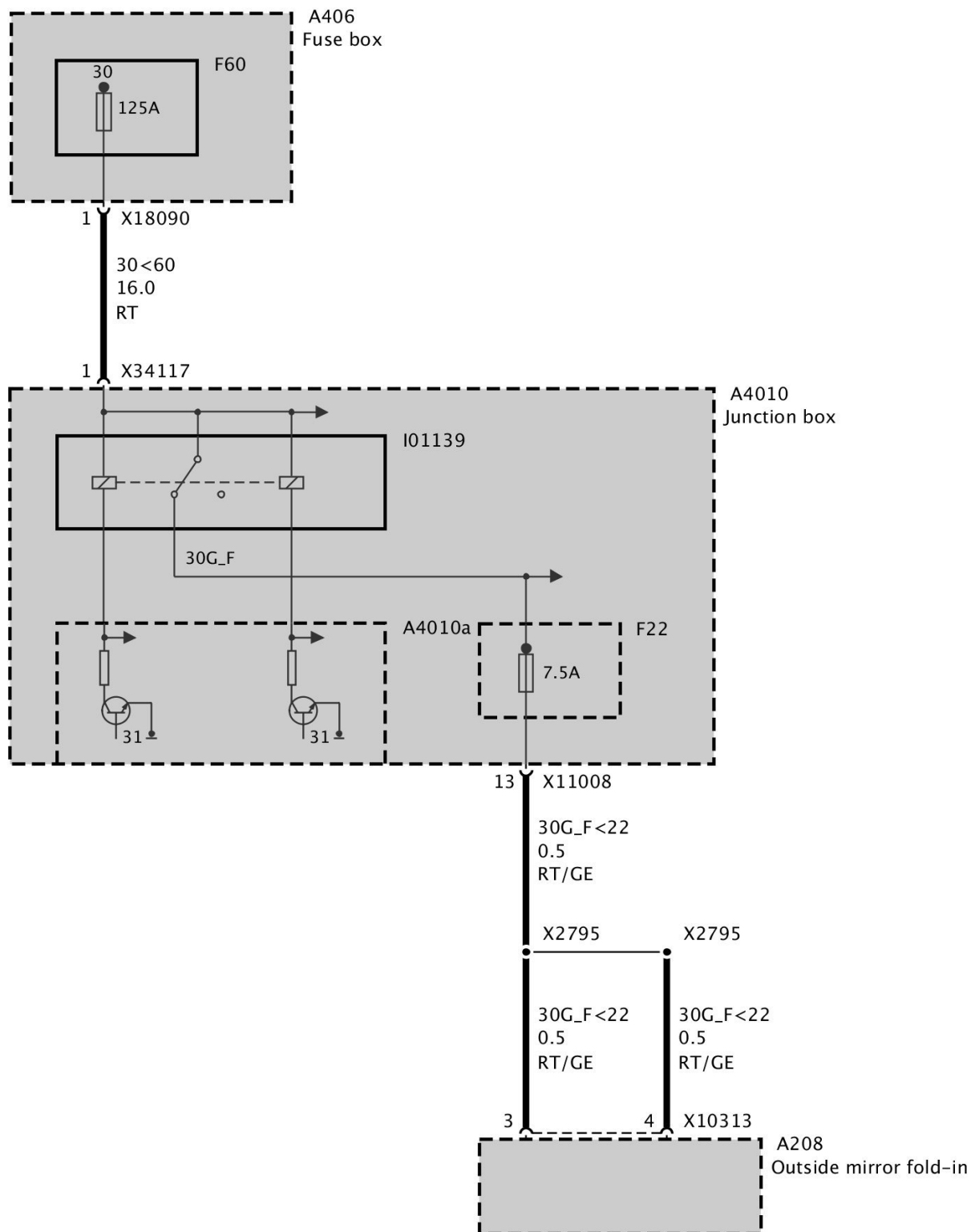
### Fuse F21 (As of 12/08)

### Fuse F21 (As of 12/08)



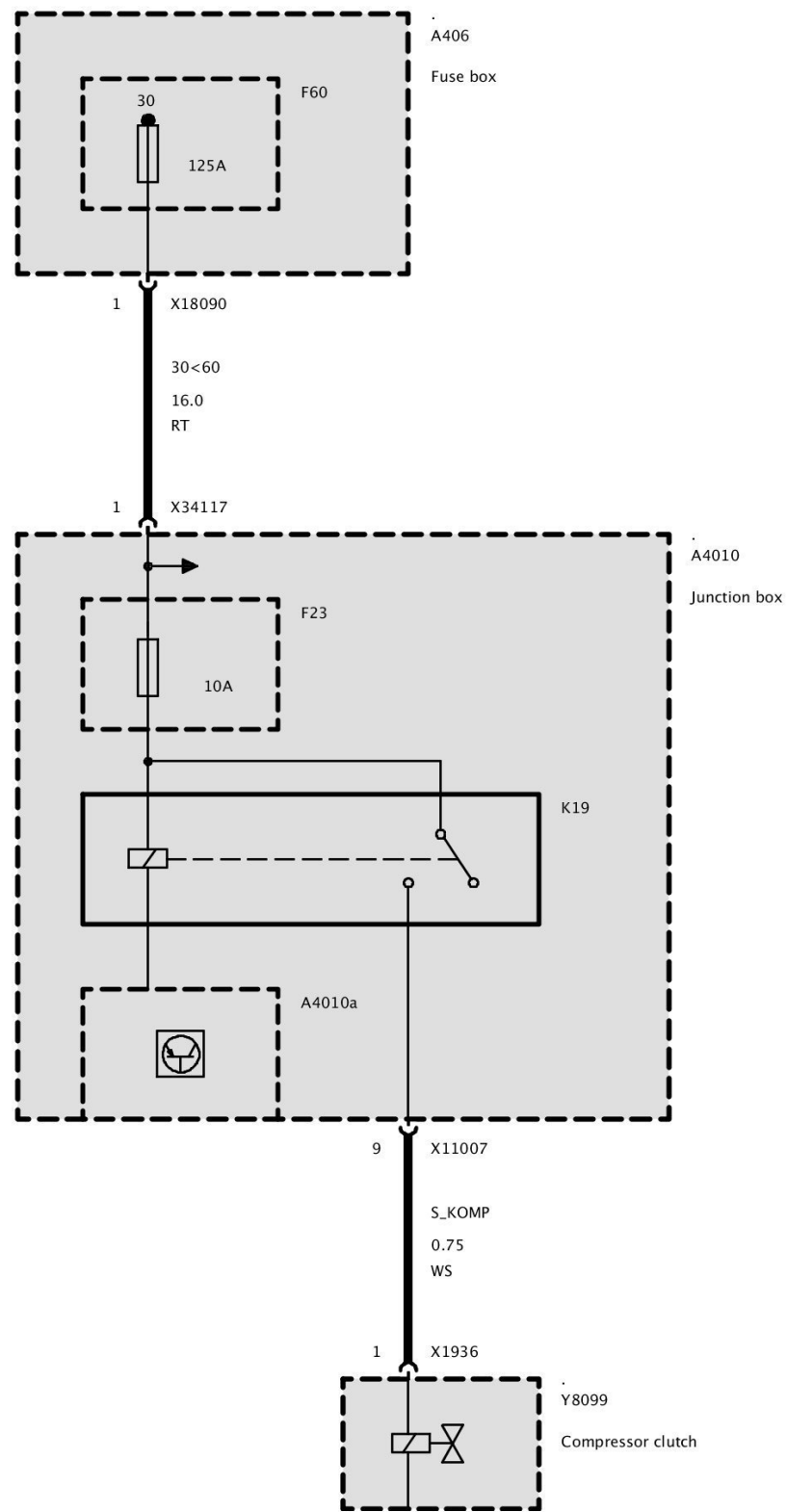
## F22

Fuse F22 (As of 12/08)



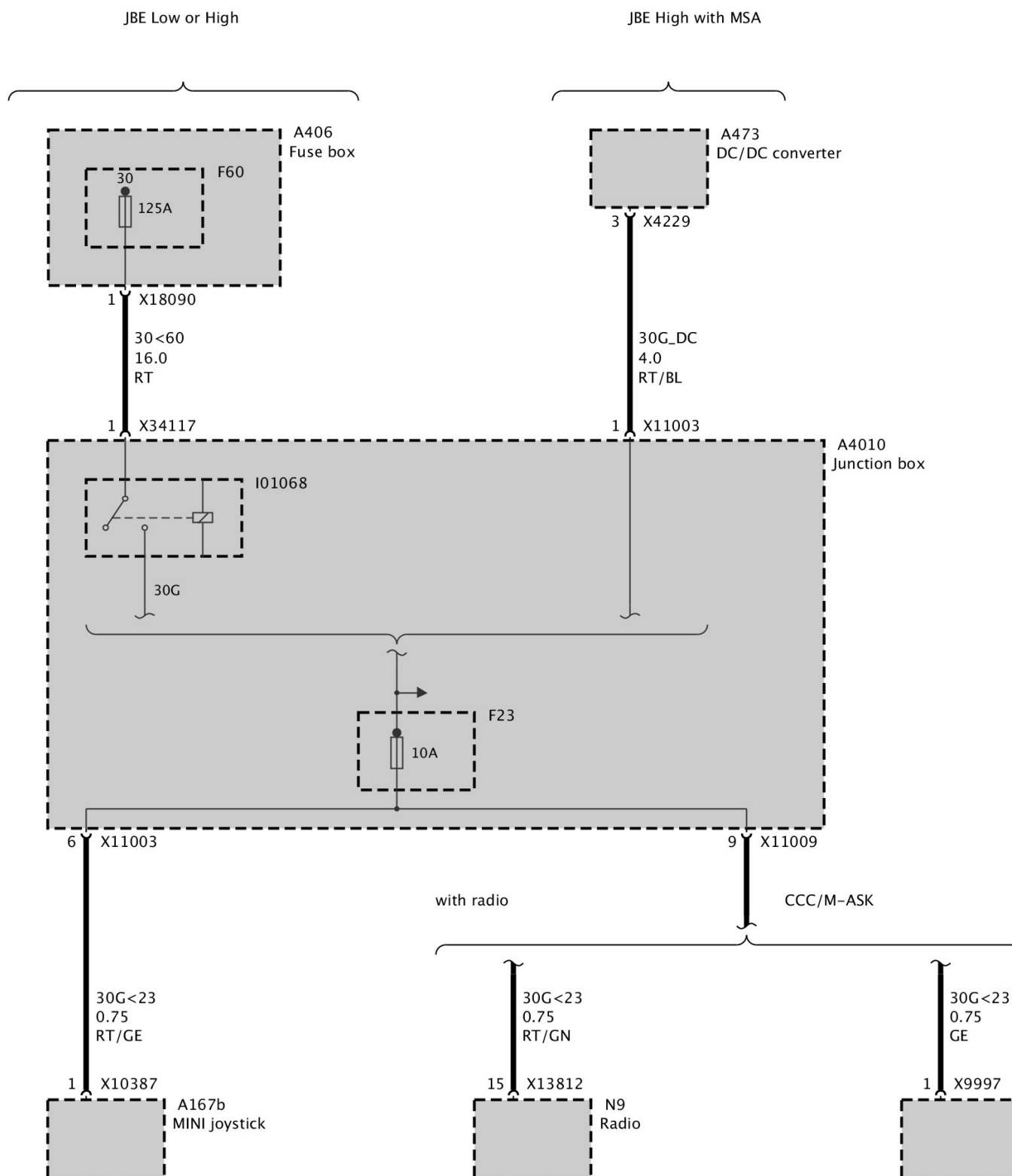
**Fuse F23 (Up to 12/08)**

**Fuse F23 (Up to 12/08)**

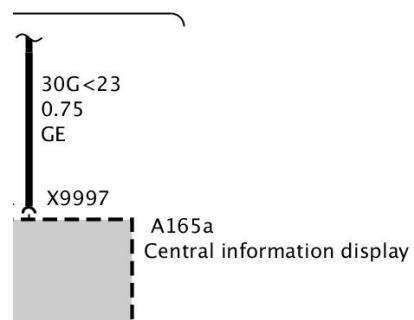


Fuse F23 (As of 12/08)

Fuse F23 (As of 12/08)



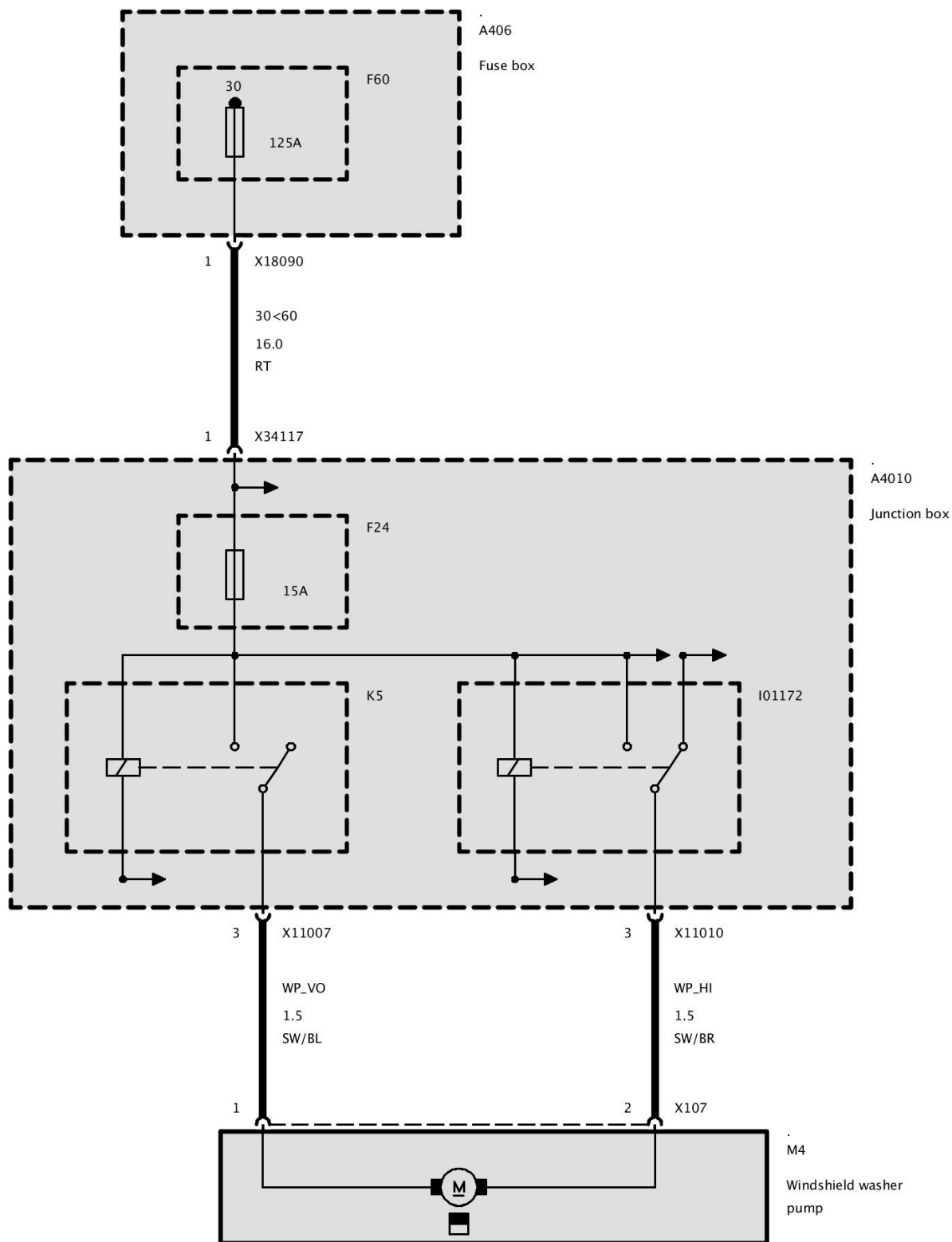
## Part 1



## Part 2

### Fuse F24 (Up to 12/08)

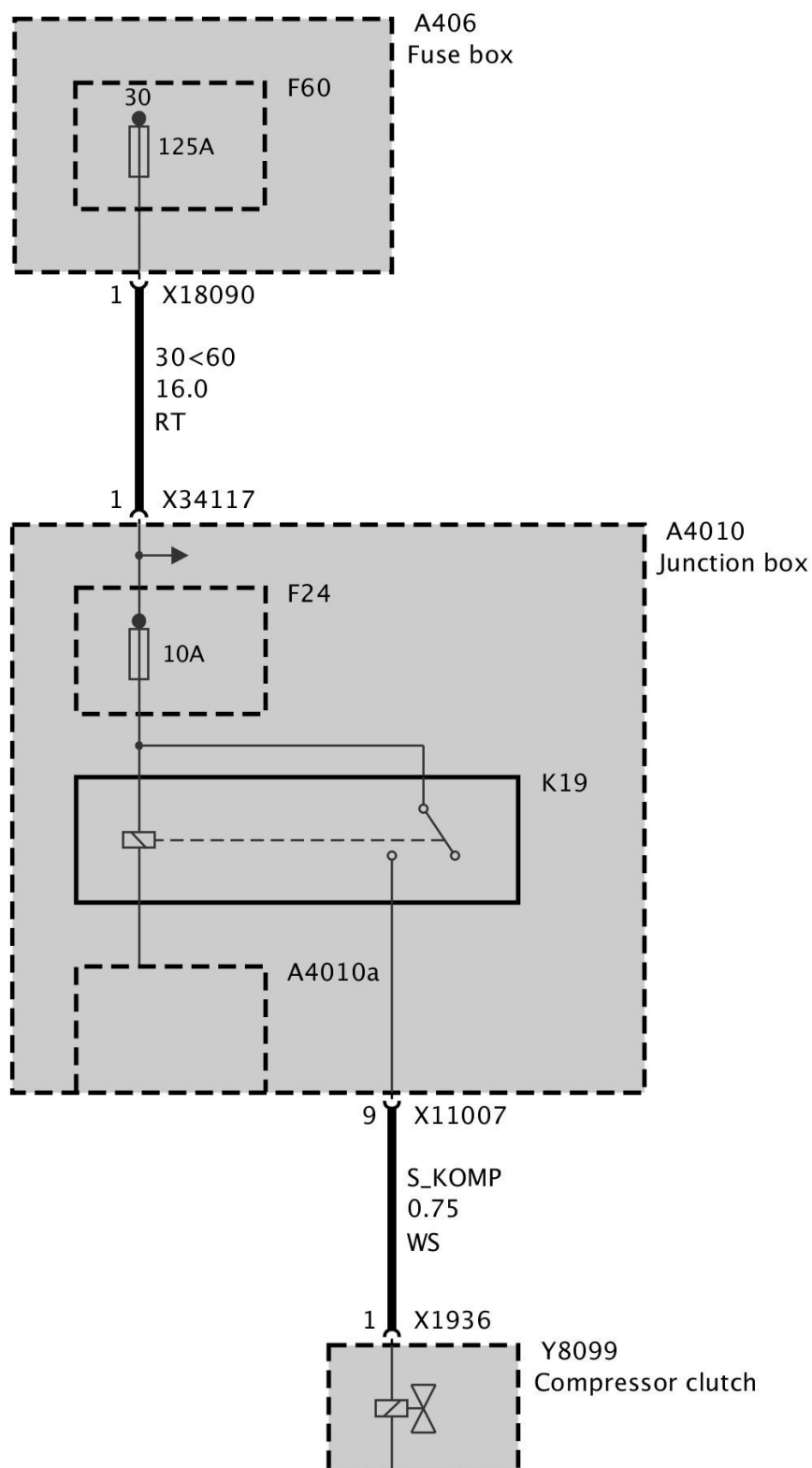
Fuse F24 (Up to 12/08)



**Fuse F24 (As of 12/08)**

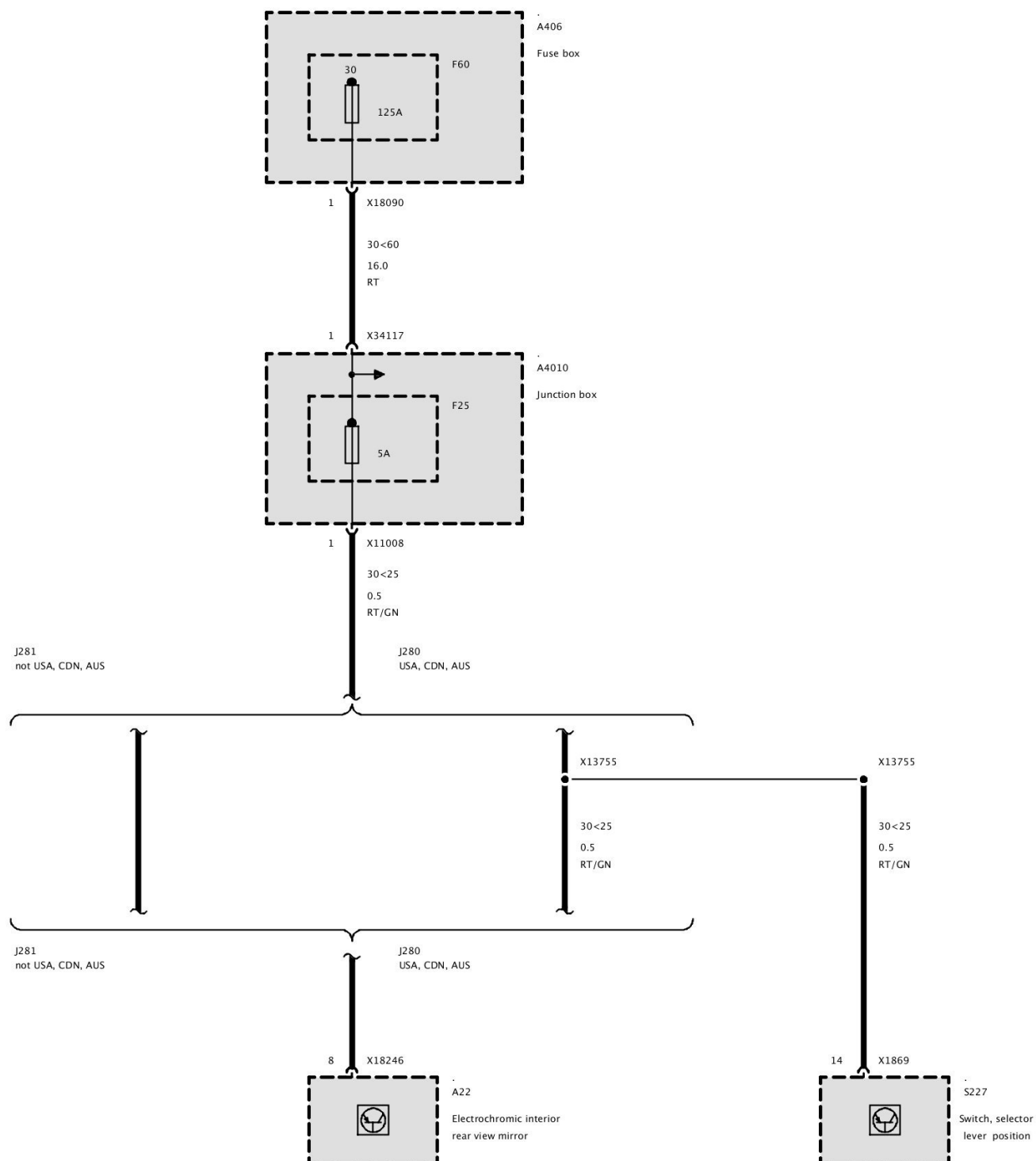
**Fuse F24 (As of 12/08)**



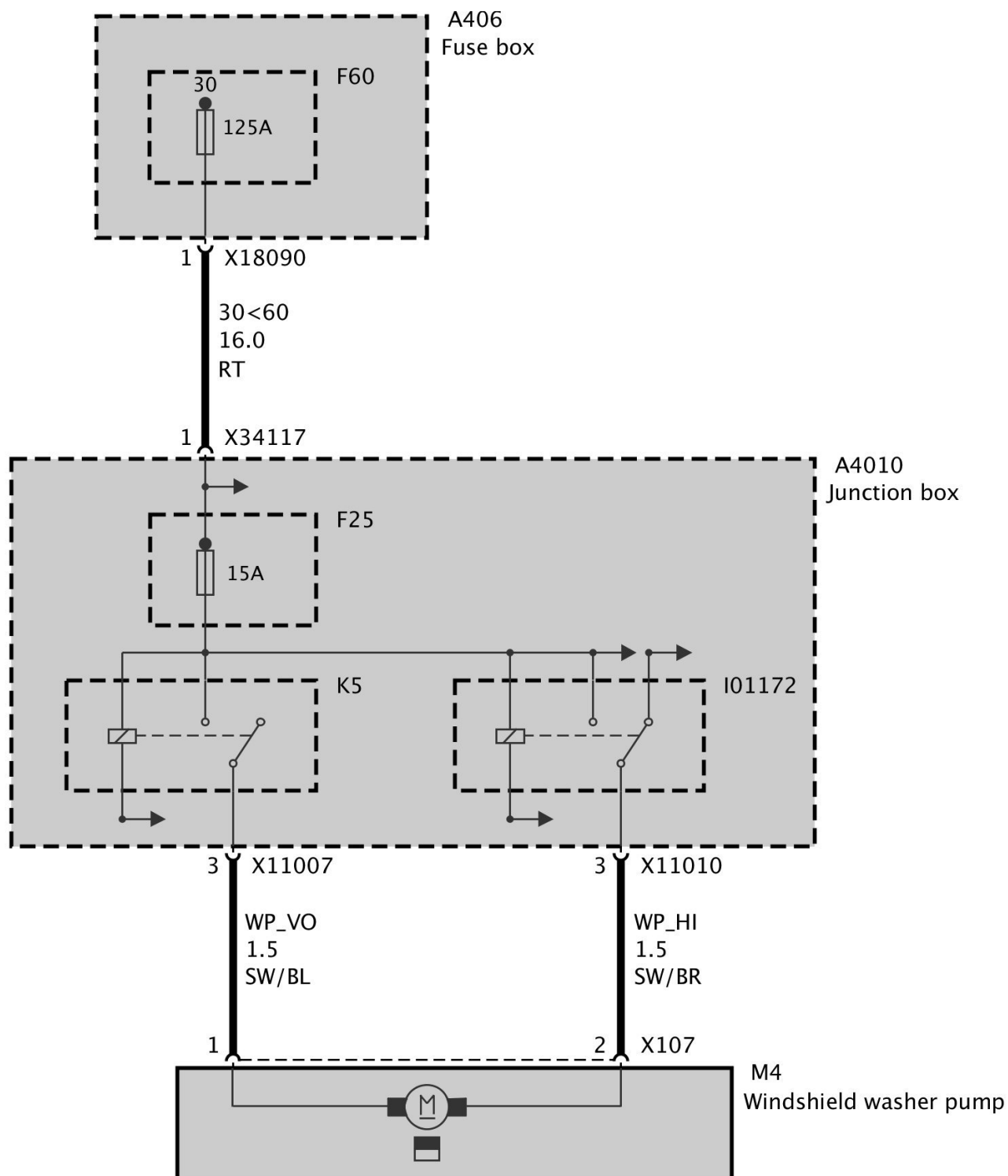


**Fuse F25 (Up to 12/08)**

Fuse F25 (Up to 12/08)

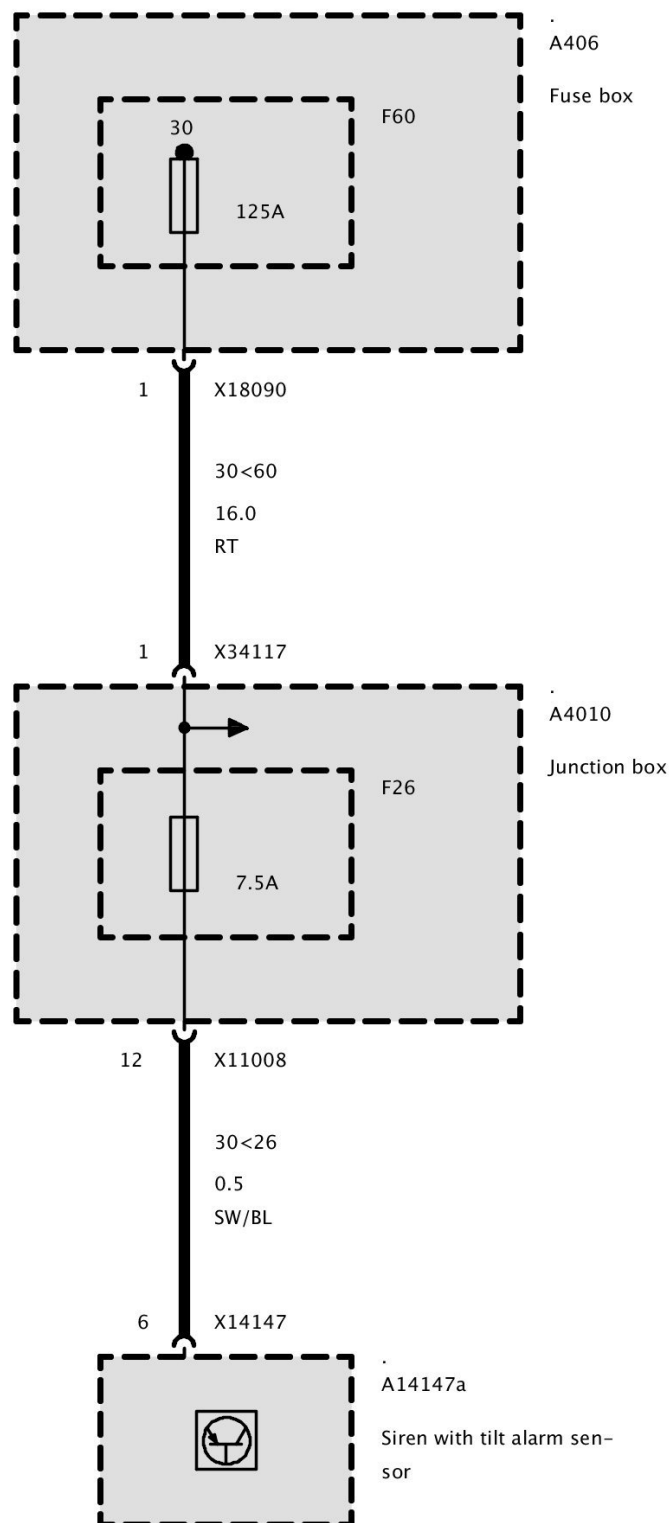


### Fuse F25 (As of 12/08)



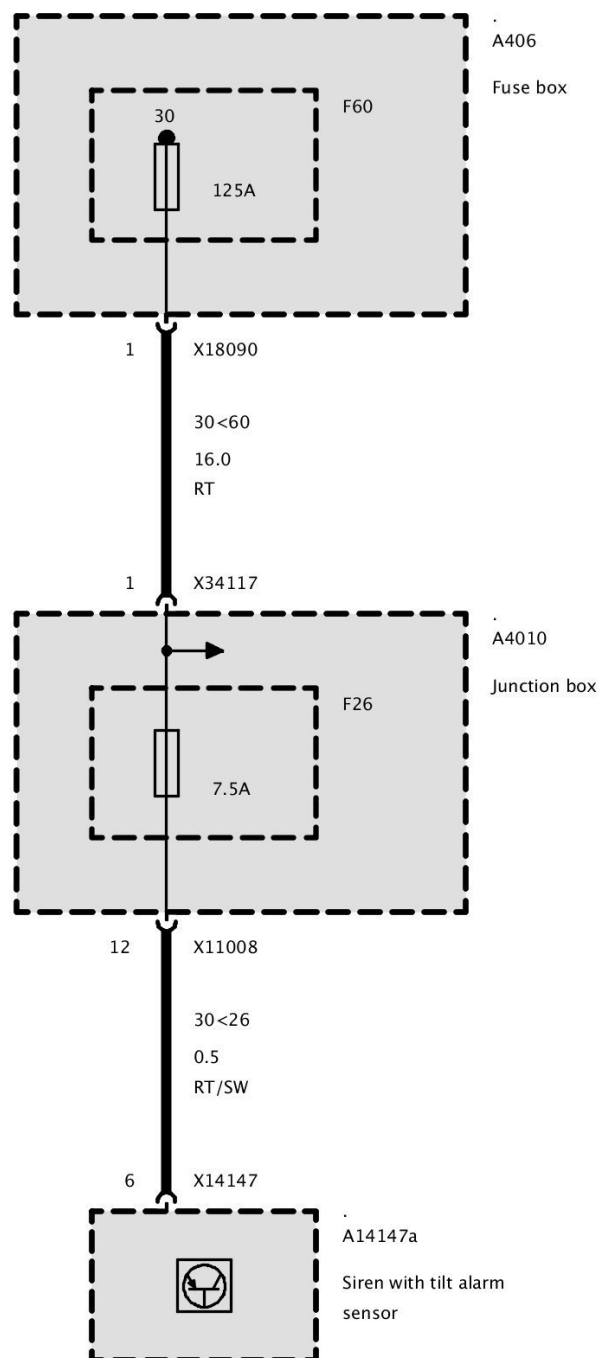
**Fuse F26 (Up to 03/08)**

**Fuse F26 (Up to 03/08)**



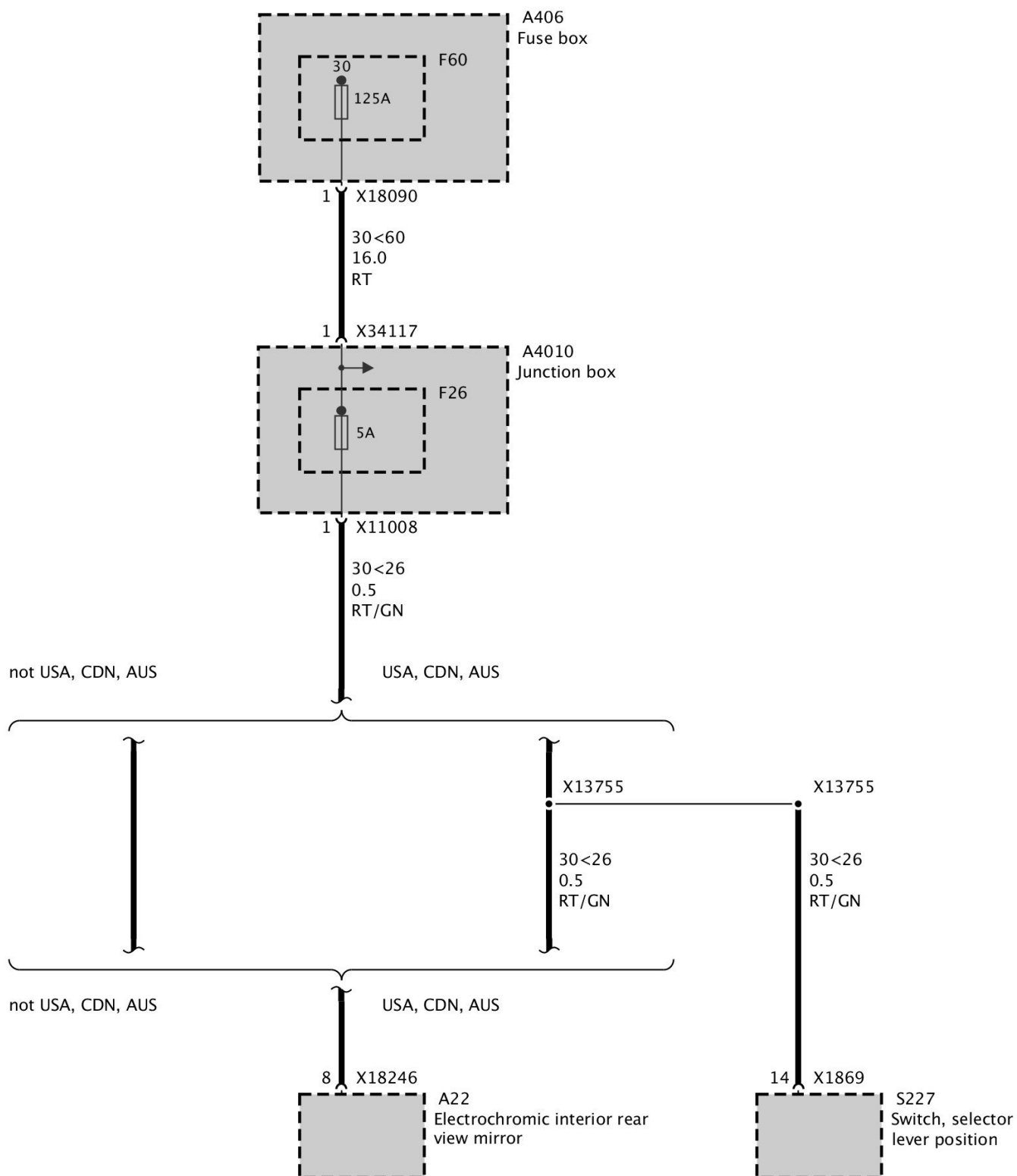
**Fuse F26 (As of 03/08 Up to 12/08)**

**Fuse F26 (As of 03/08 Up to 12/08)**



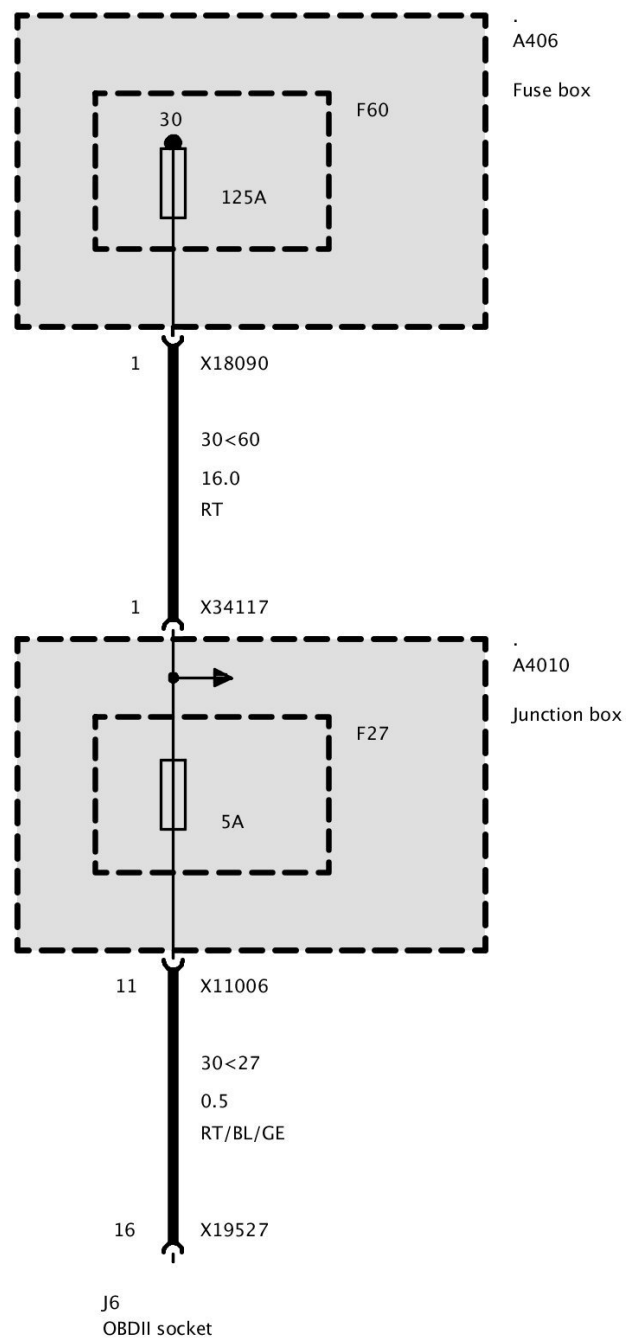
**Fuse F26 (As of 12/08)**

**Fuse F26 (As of 12/08)**



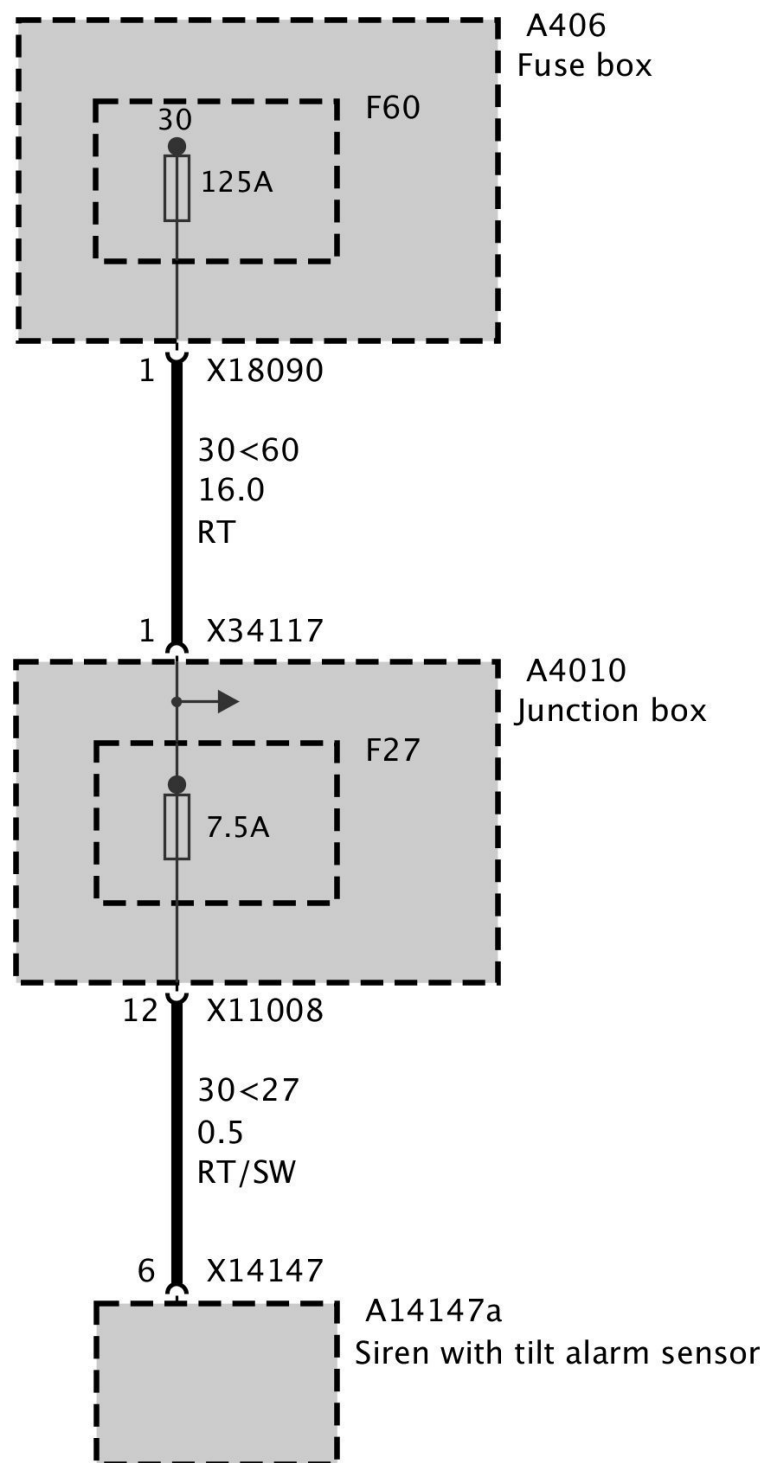
## Fuse F27 (Up to 12/08)

Fuse F27 (Up to 12/08)



**Fuse F27 (As of 12/08)**

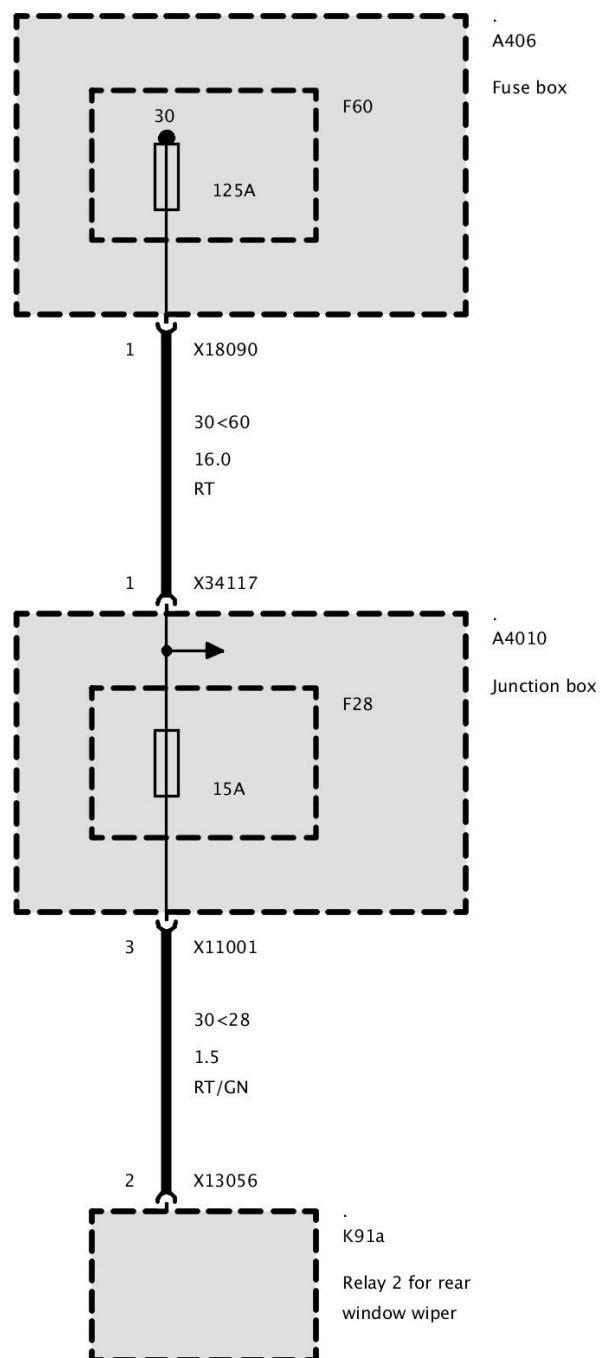
**Fuse F27 (As of 12/08)**



**Fuse F28 (Up to 12/08)**

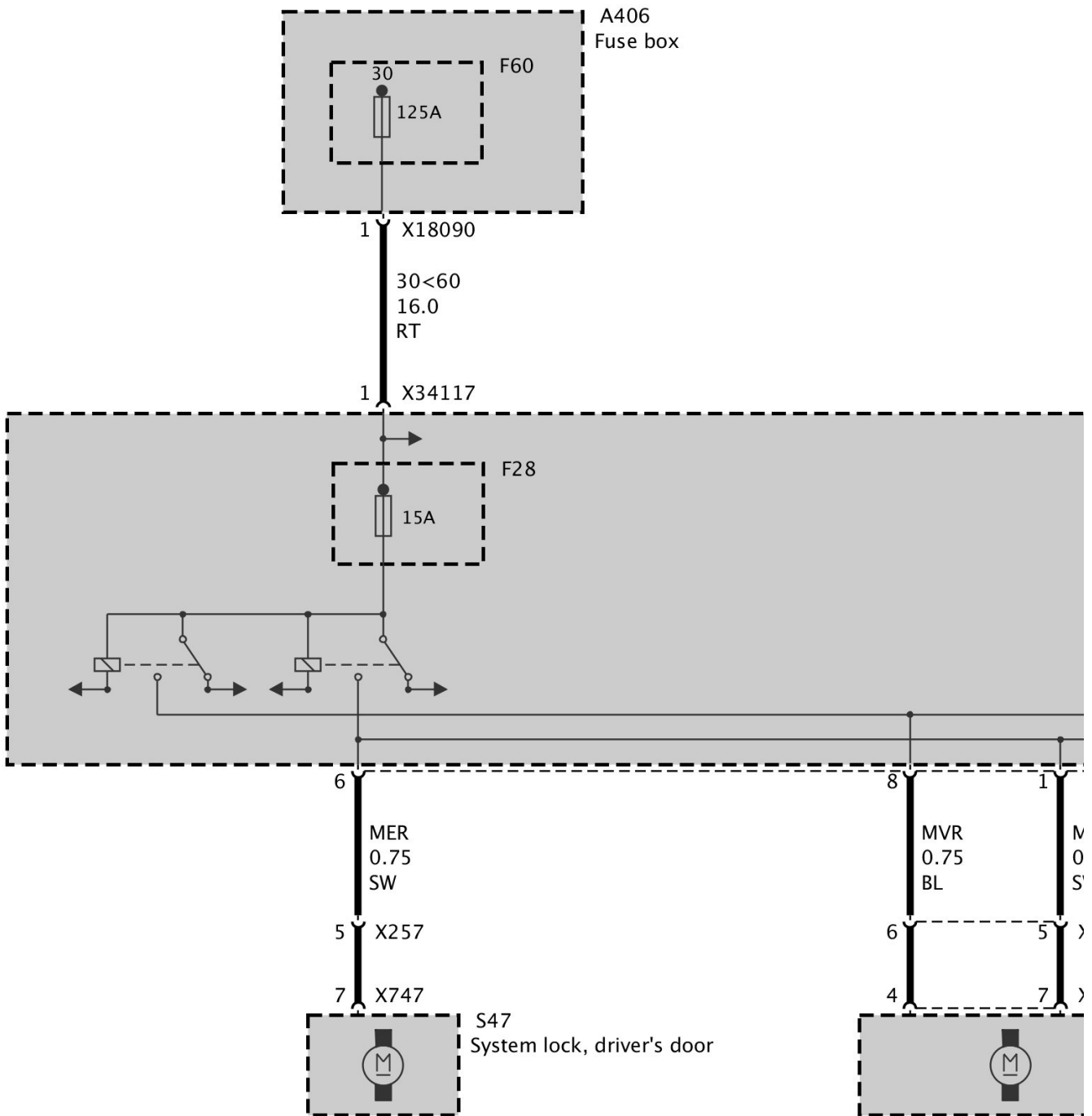
Fuse F28 (Up to 12/08)



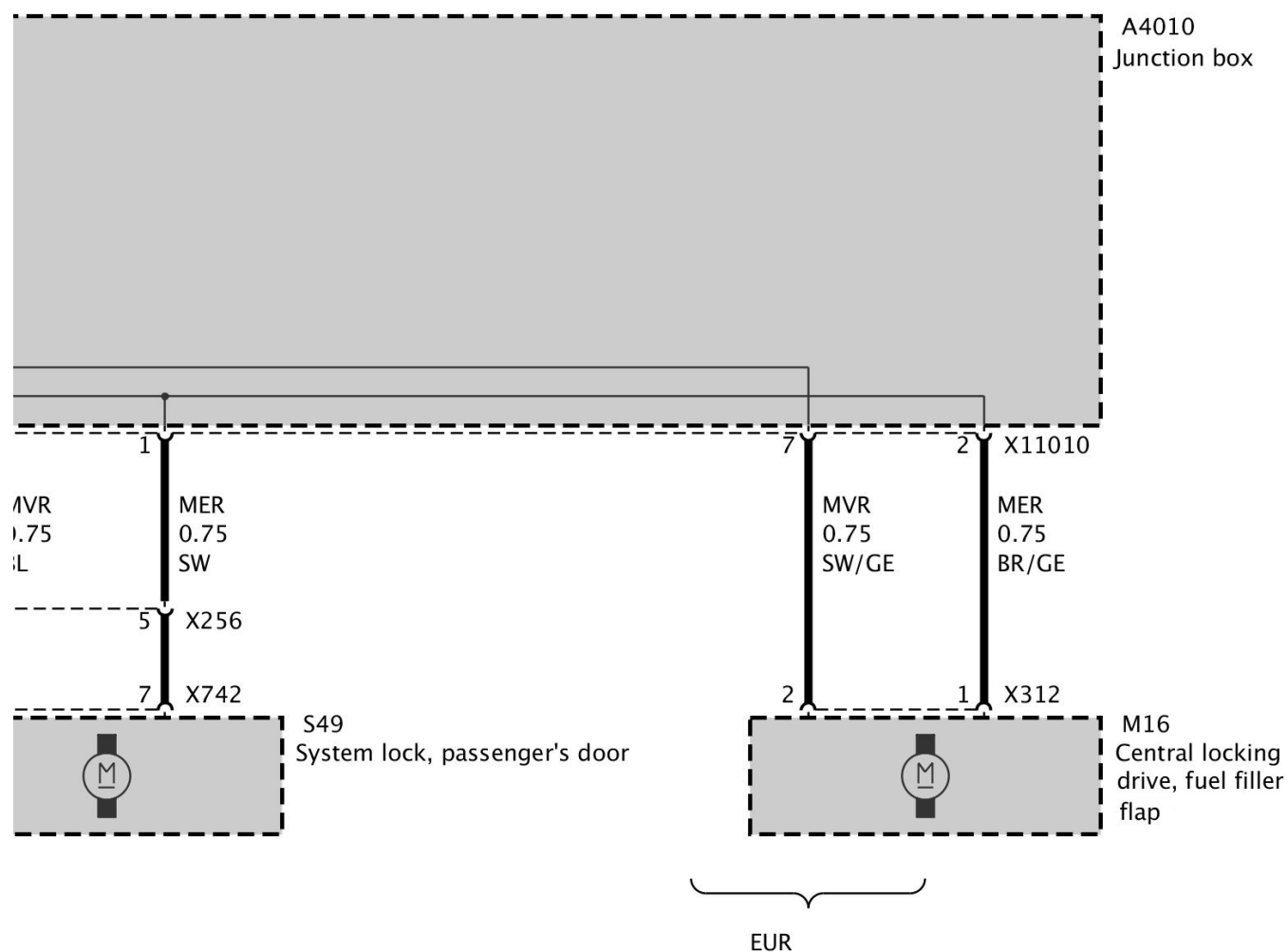


**Fuse F28 (As of 12/08)**

**Fuse F28 (As of 12/08)**



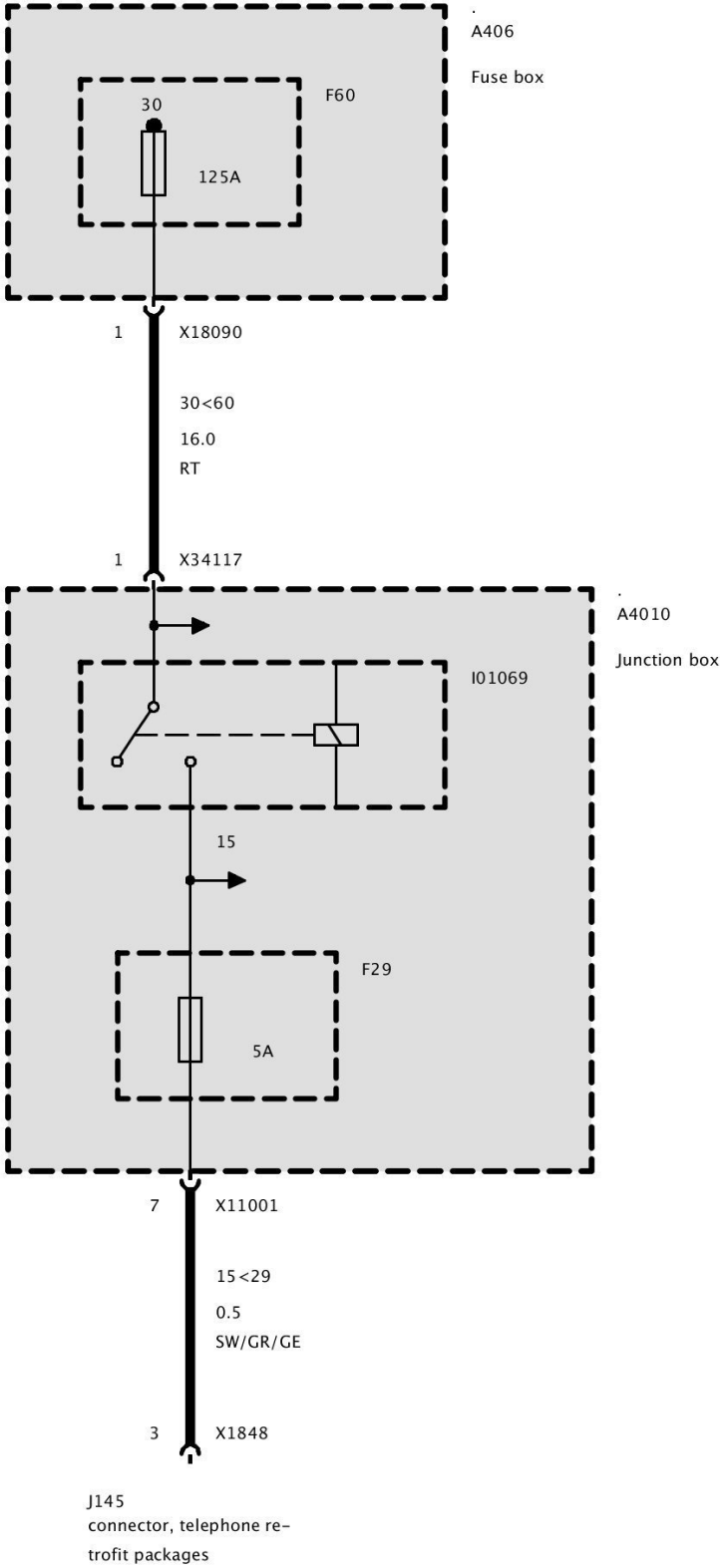
Part 1



## Part 2

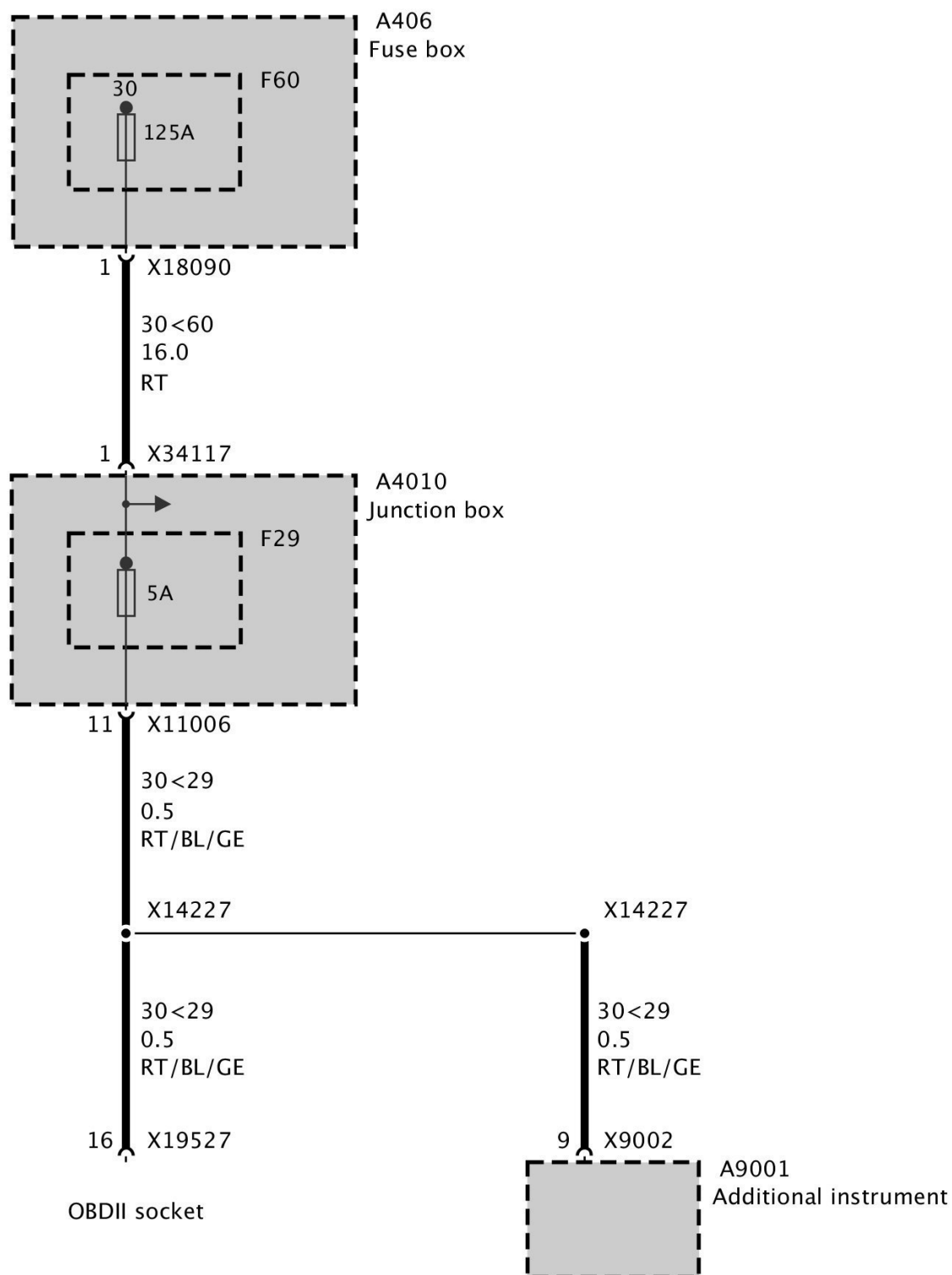
### Fuse F29 (Petrol Engine Up to 12/08)

Fuse F29 (Petrol Engine Up to 12/08)



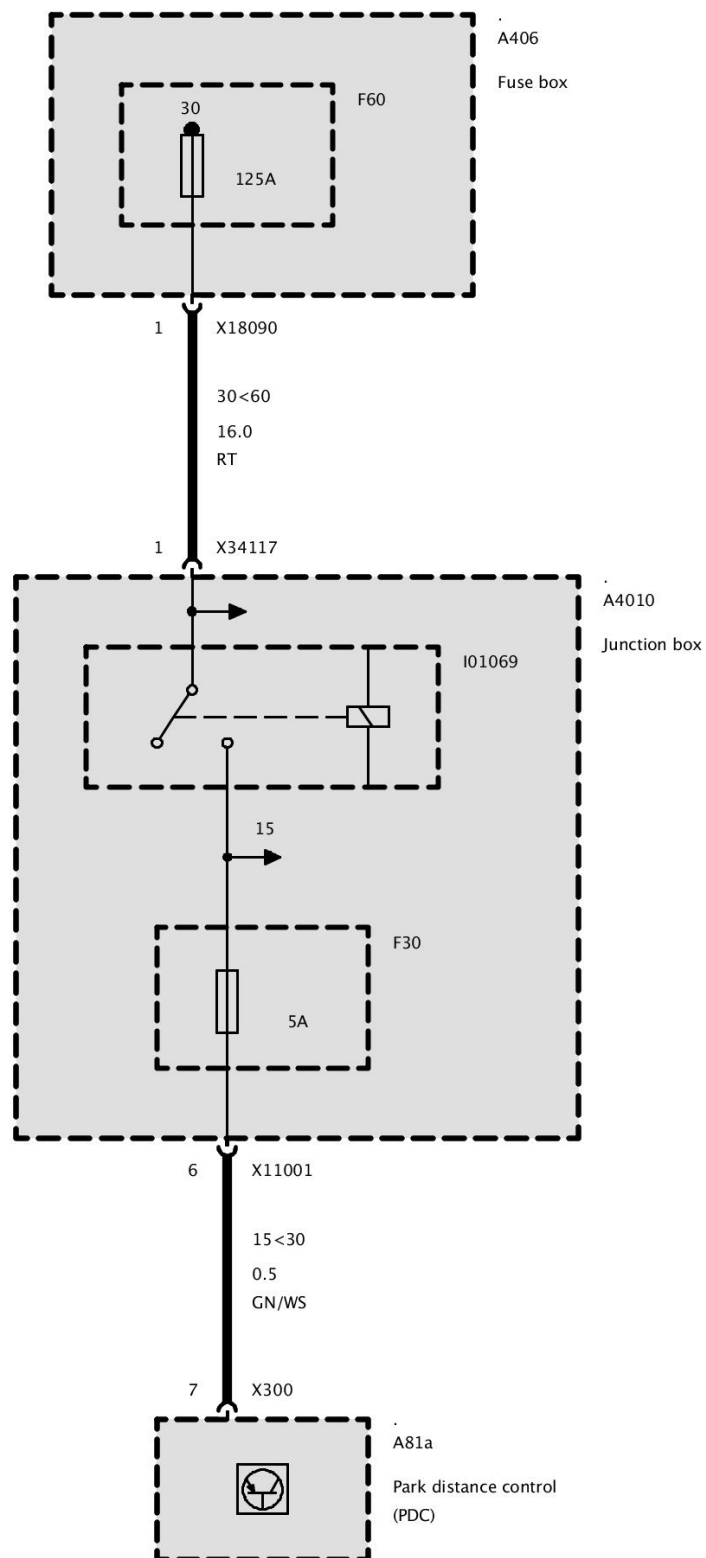
Fuse F29 (As of 12/08)

Fuse F29 (As of 12/08)



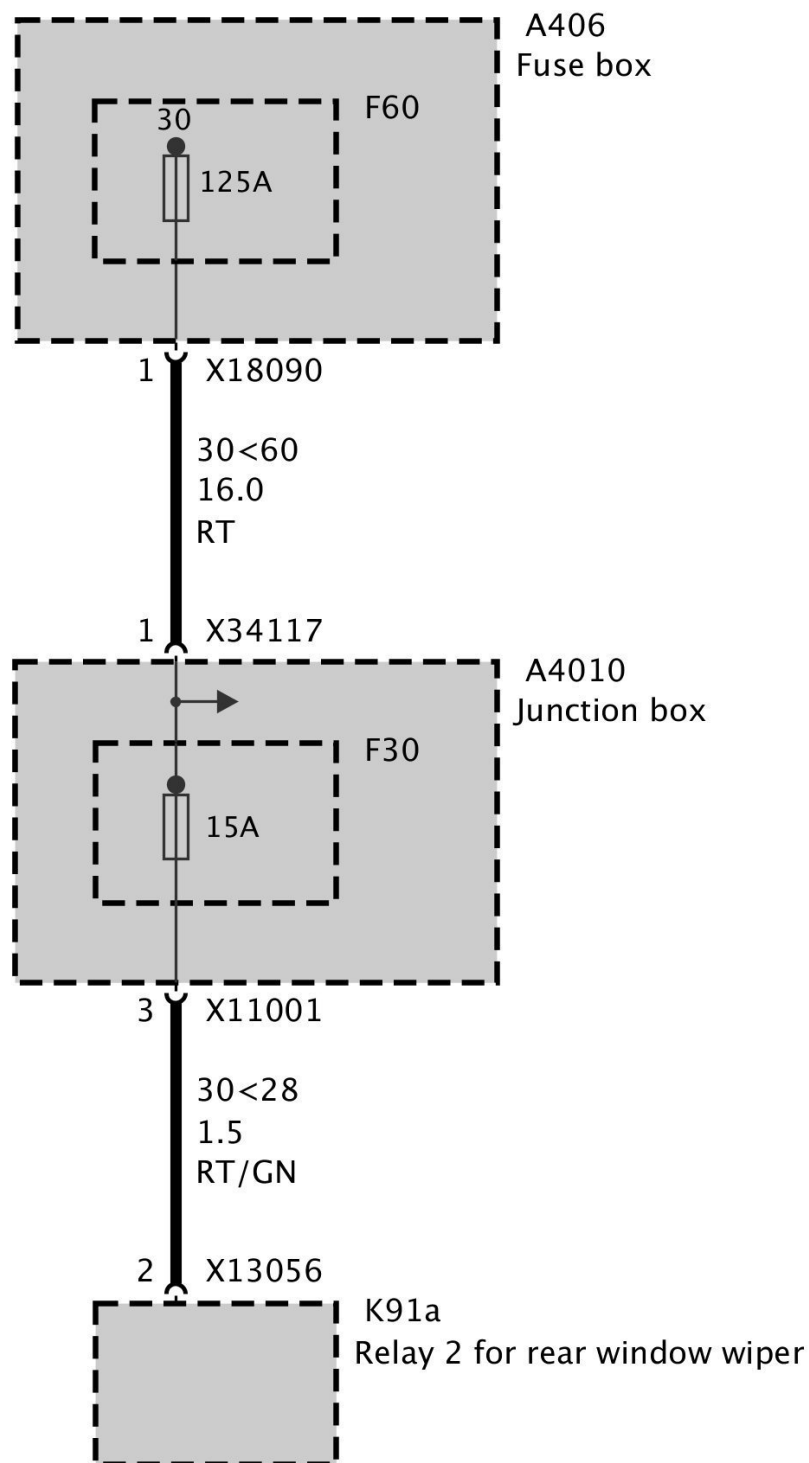
**Fuse F30 (Up to 12/08)**

**Fuse F30 (Up to 12/08)**



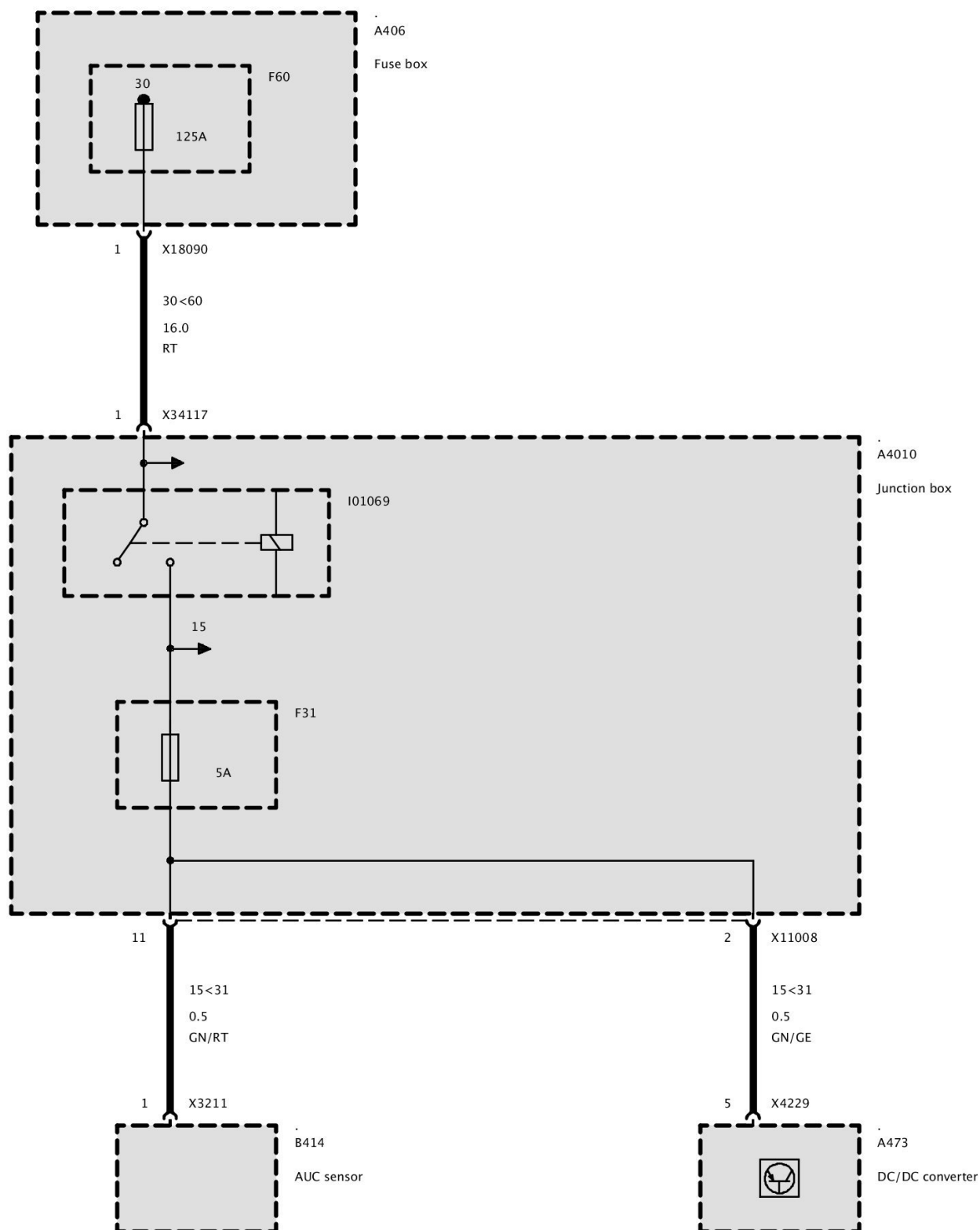
**Fuse F30 (As of 12/08)**

**Fuse F30 (As of 12/08)**



**Fuse F31 (Up to 12/08)**

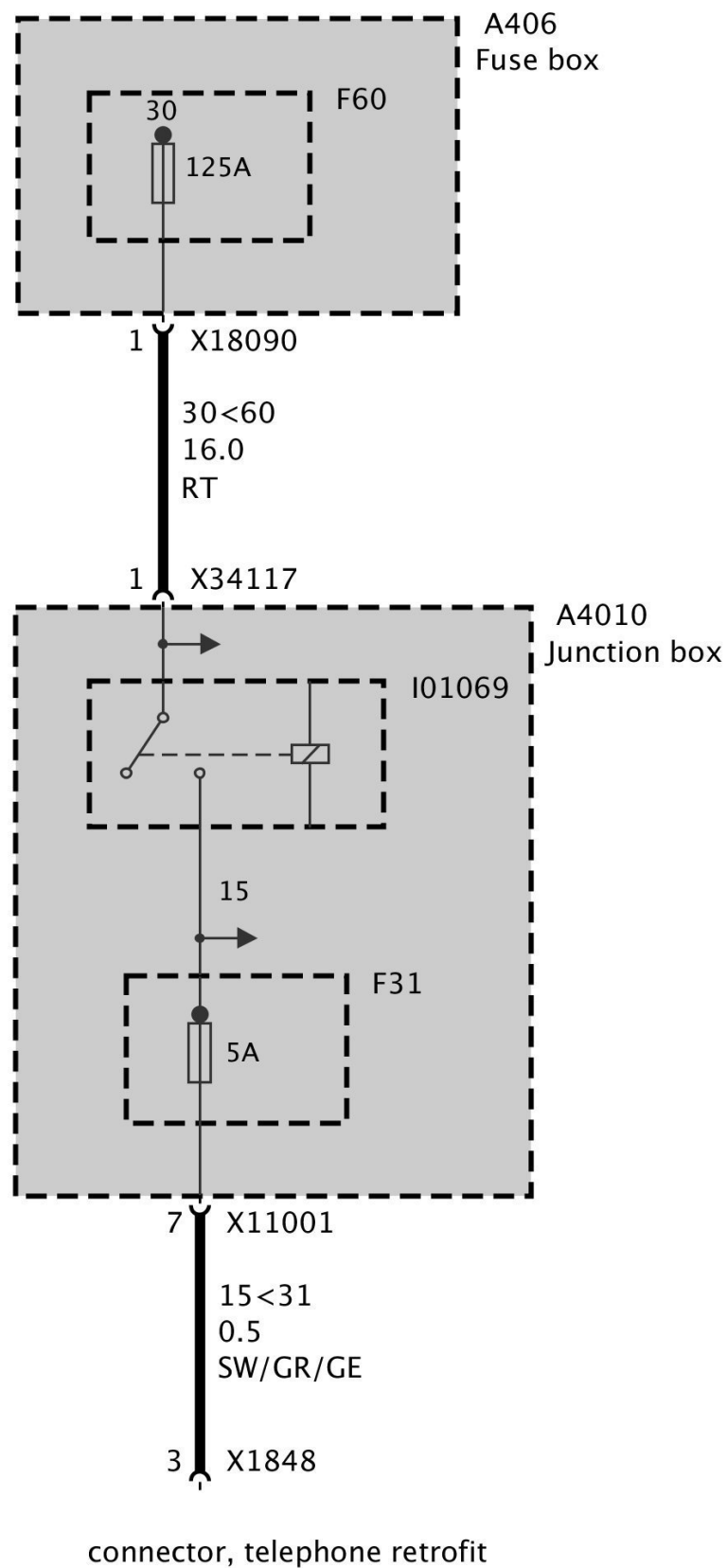
Fuse F31 (Up to 12/08)



**Fuse F31 ((N12 Engine or N14 Engine) As of 12/08)**

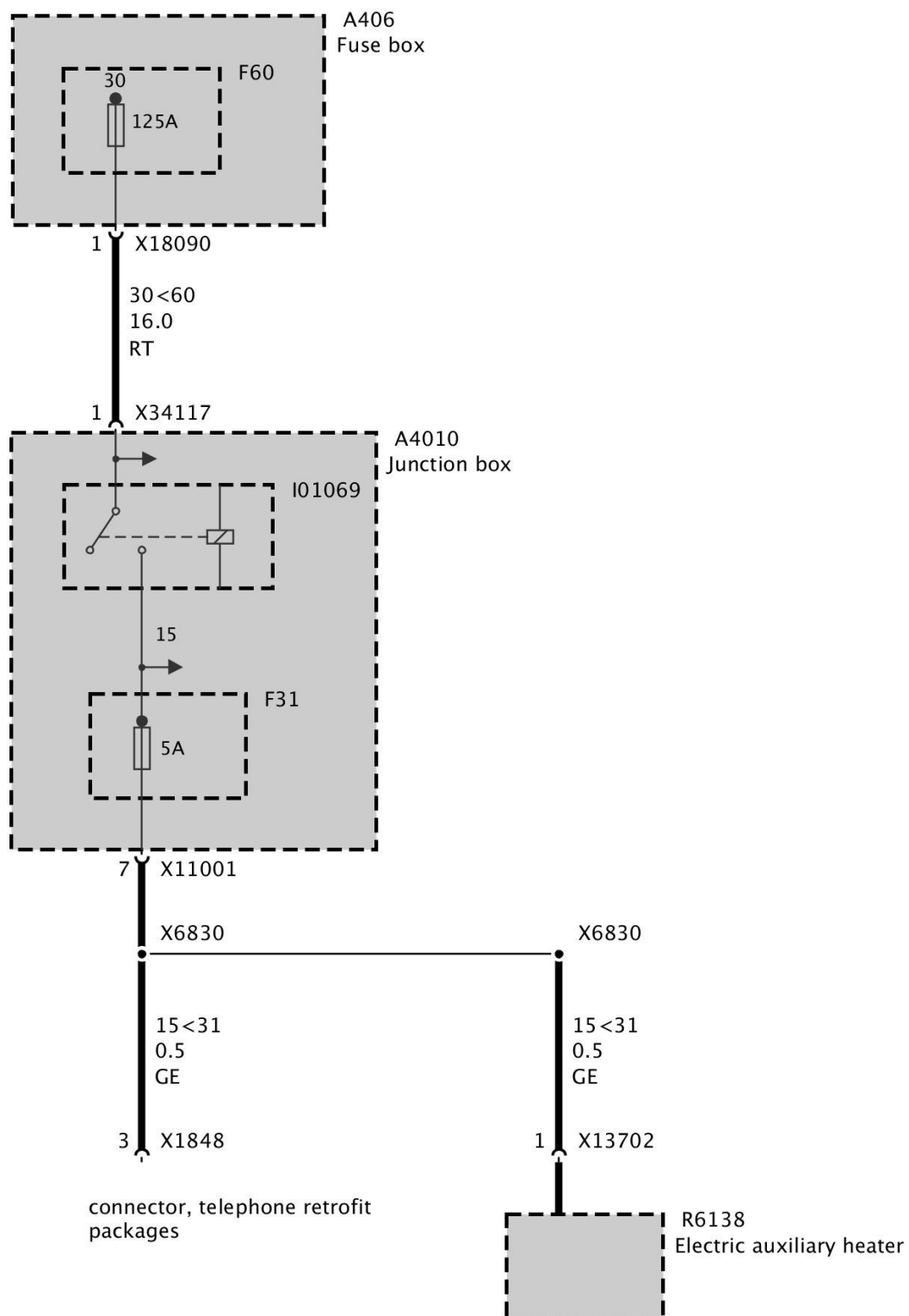
**Fuse F31 ((N12 Engine or N14 Engine) As of 12/08)**





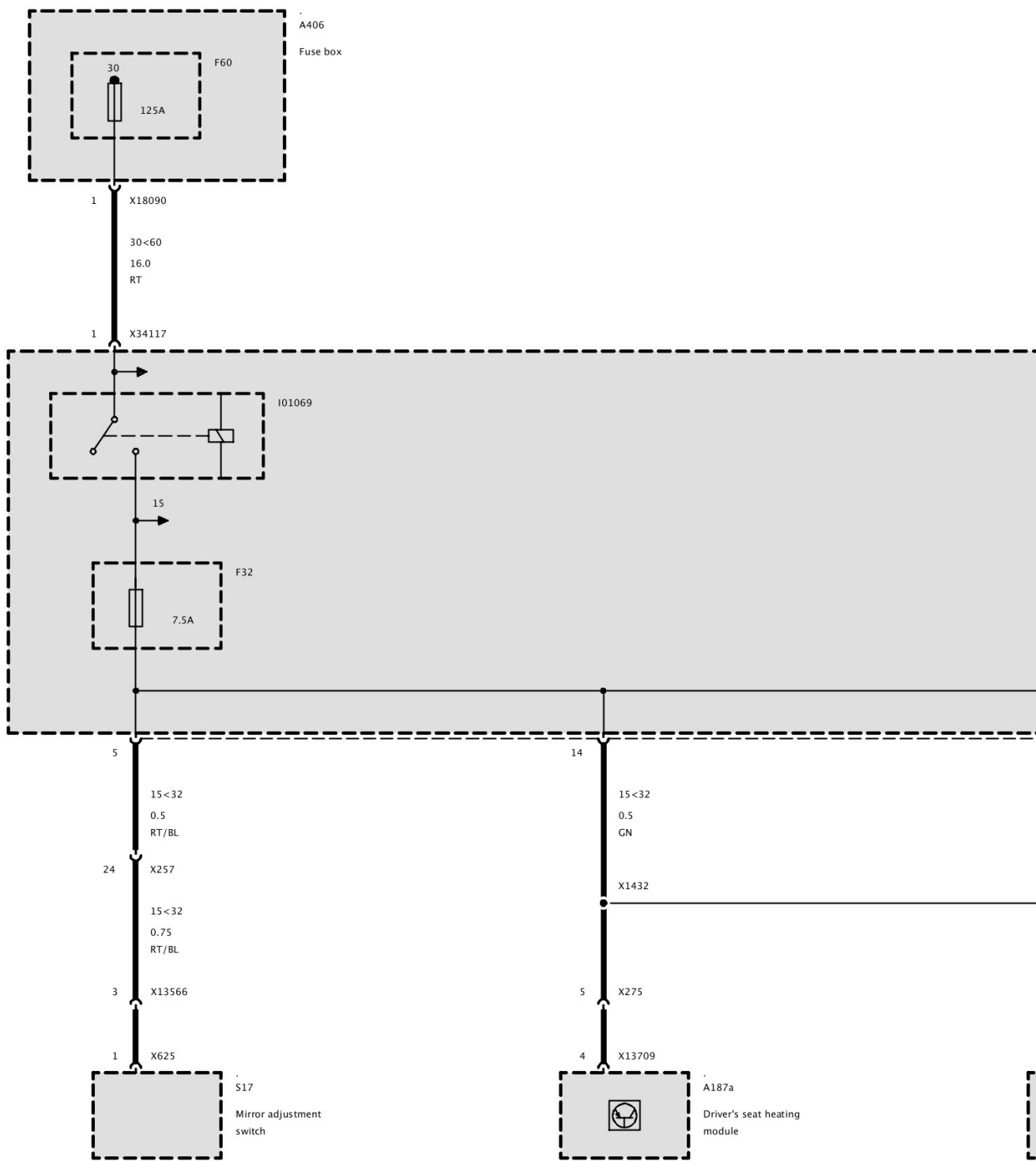
**Fuse F31 (Engine As of 12/08)**

Fuse F31 (Engine As of 12/08)

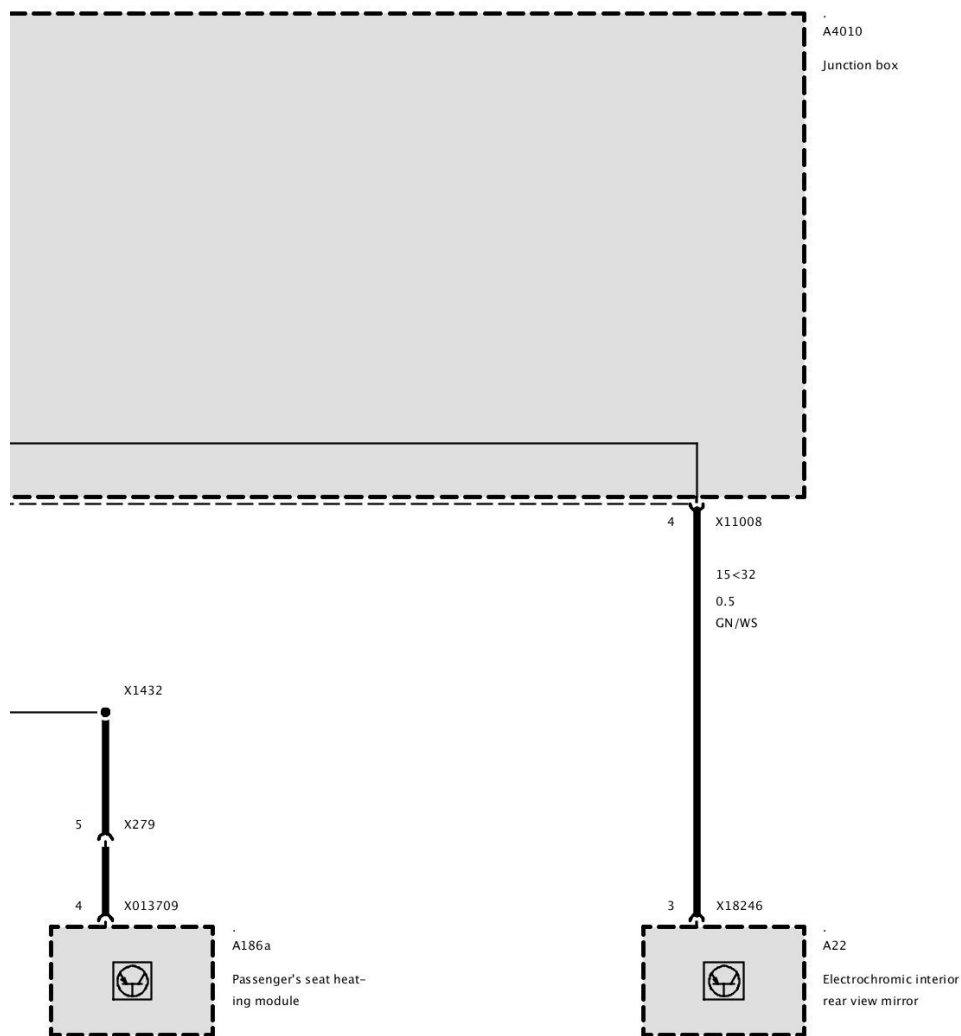


## Fuse F32 (Up to 12/08)

Fuse F32 (Up to 12/08)



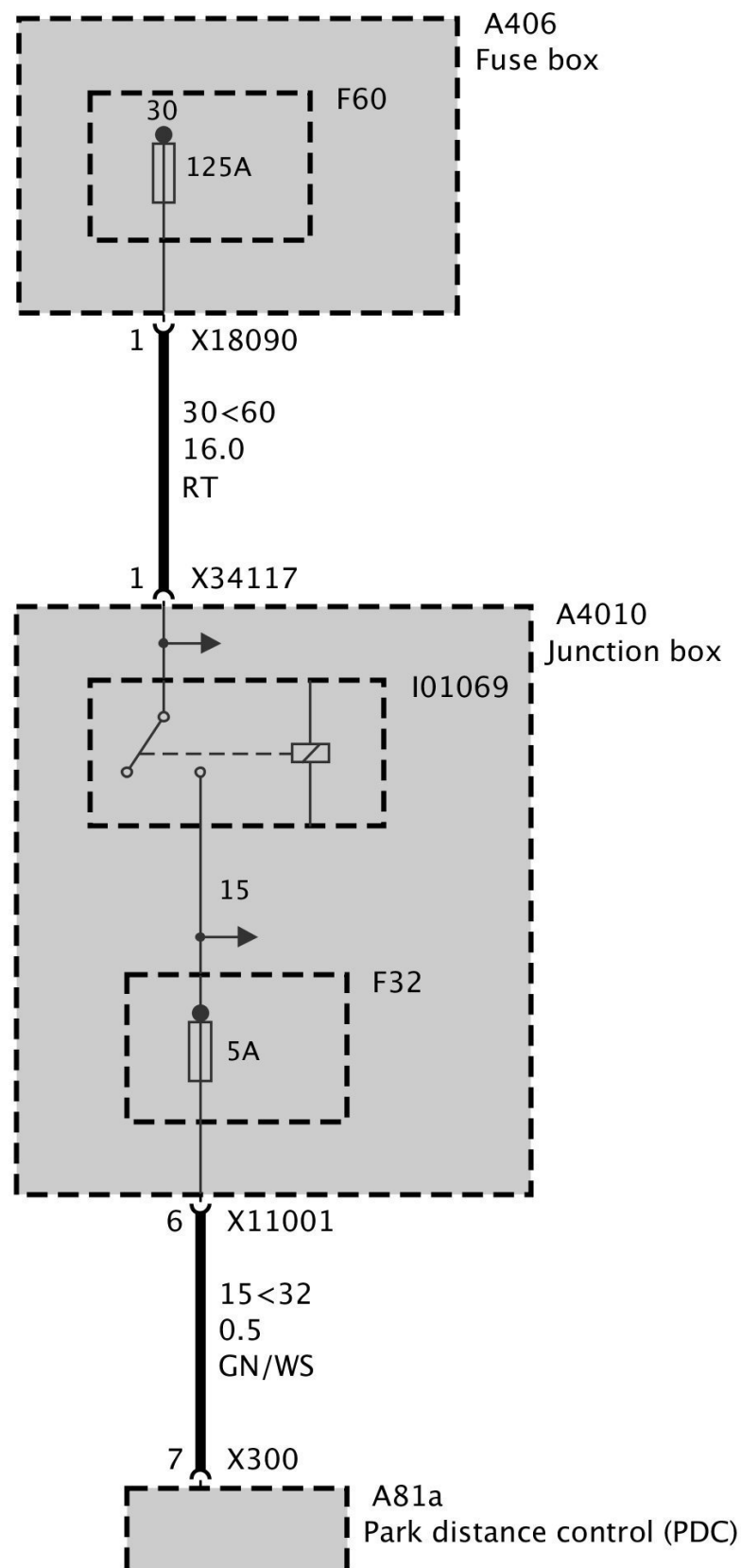
Part 1



Part 2

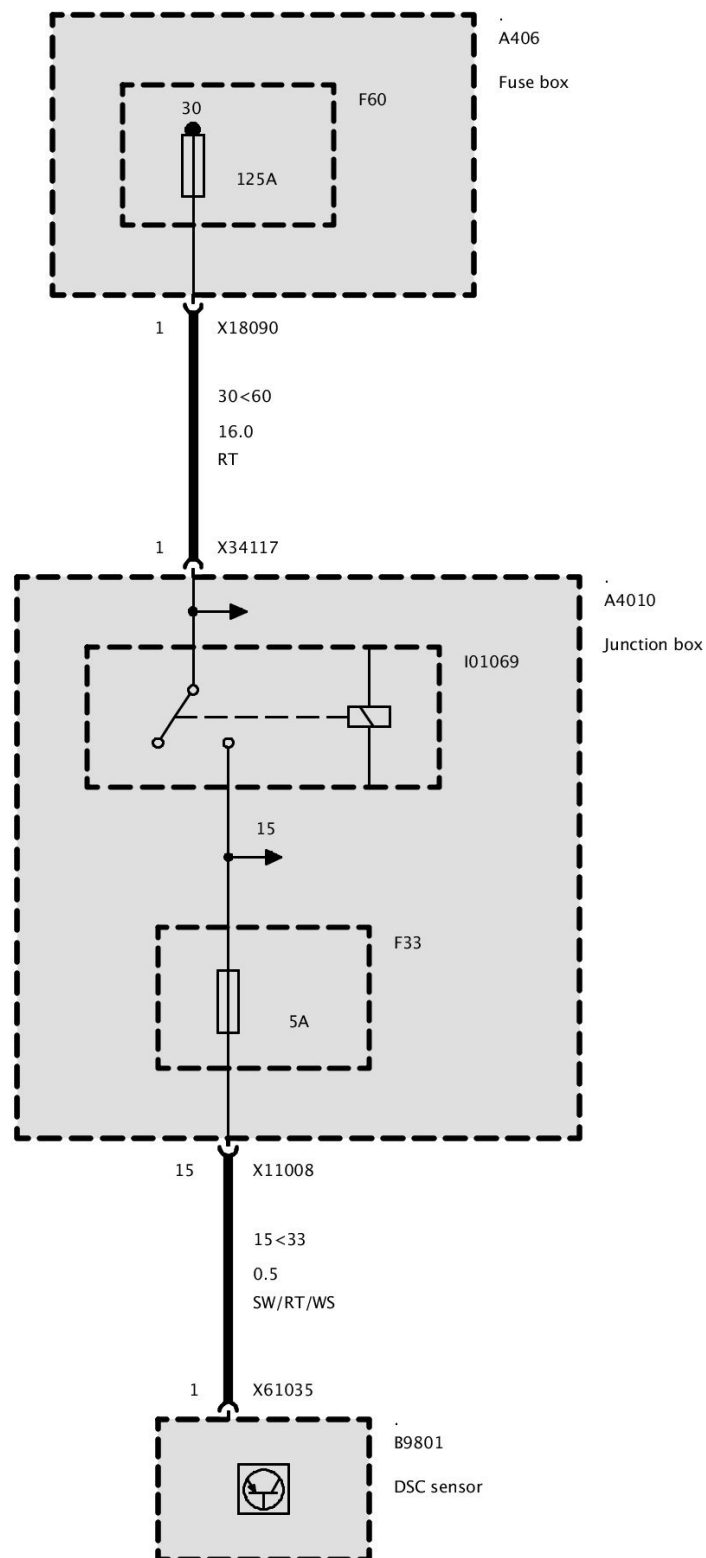
Fuse F32 (As of 12/08)

Fuse F32 (As of 12/08)



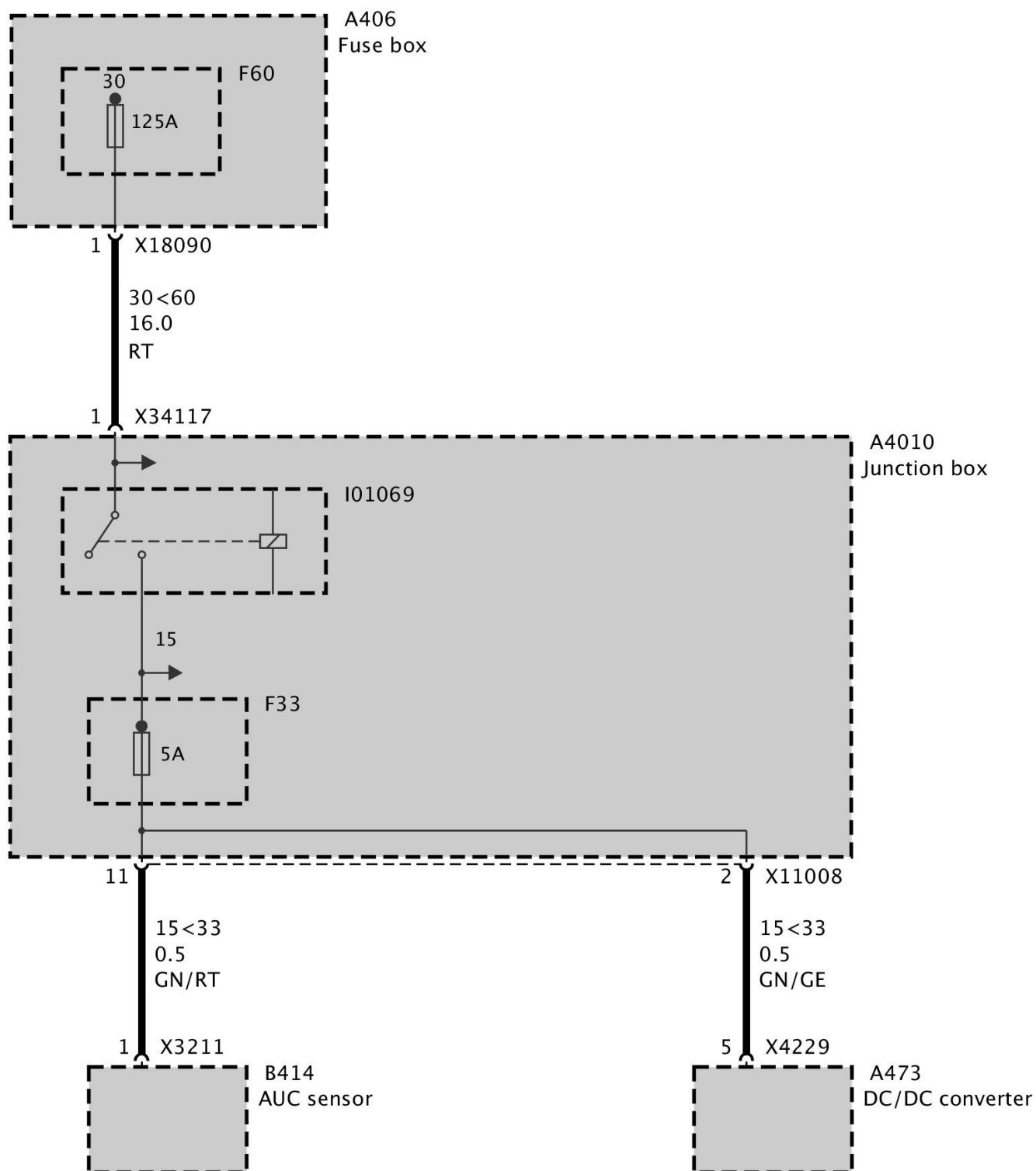
**Fuse F33 (ABS/ASC/DSC Dynamic Stability Control Up to 12/08)**

Fuse F33 (ABS/ASC/DSC Dynamic Stability Control Up to 12/08)



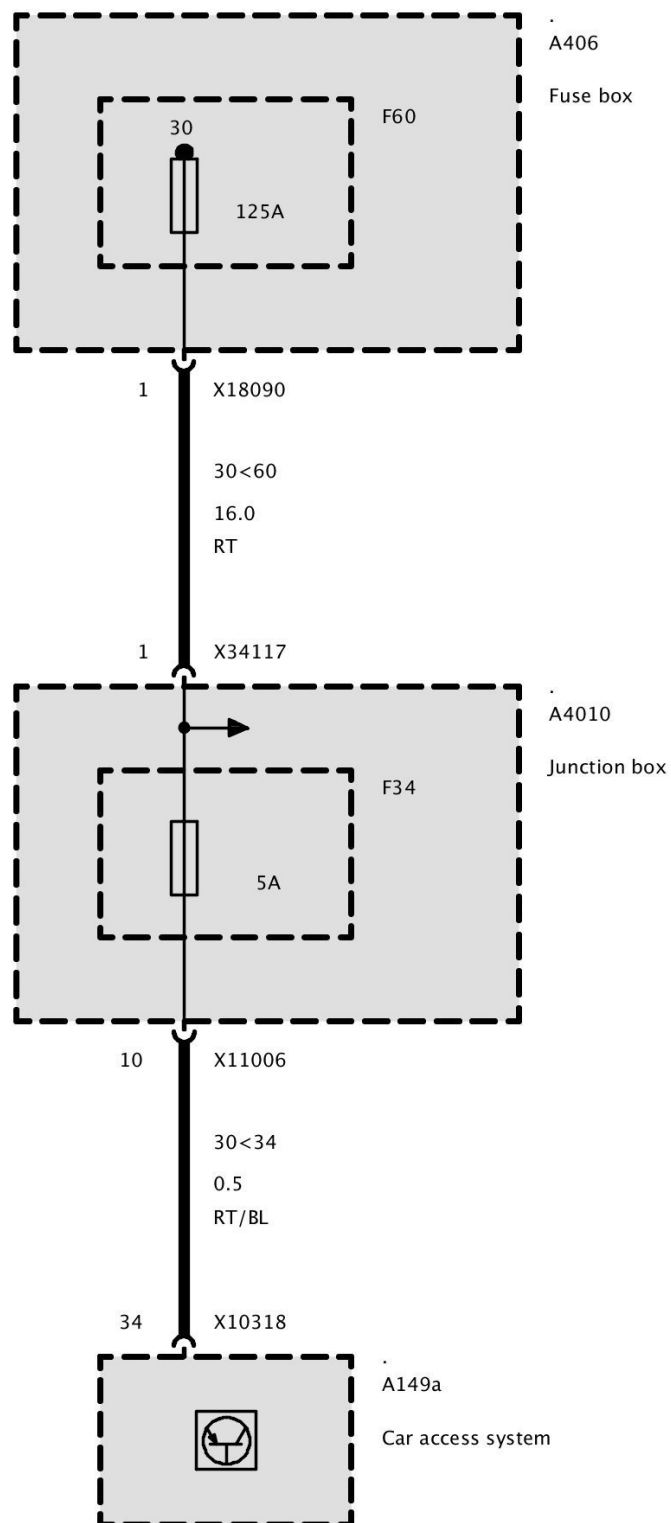
**Fuse F33 (As of 12/08)**

**Fuse F33 (As of 12/08)**



**Fuse F34 (Up to 12/08)**

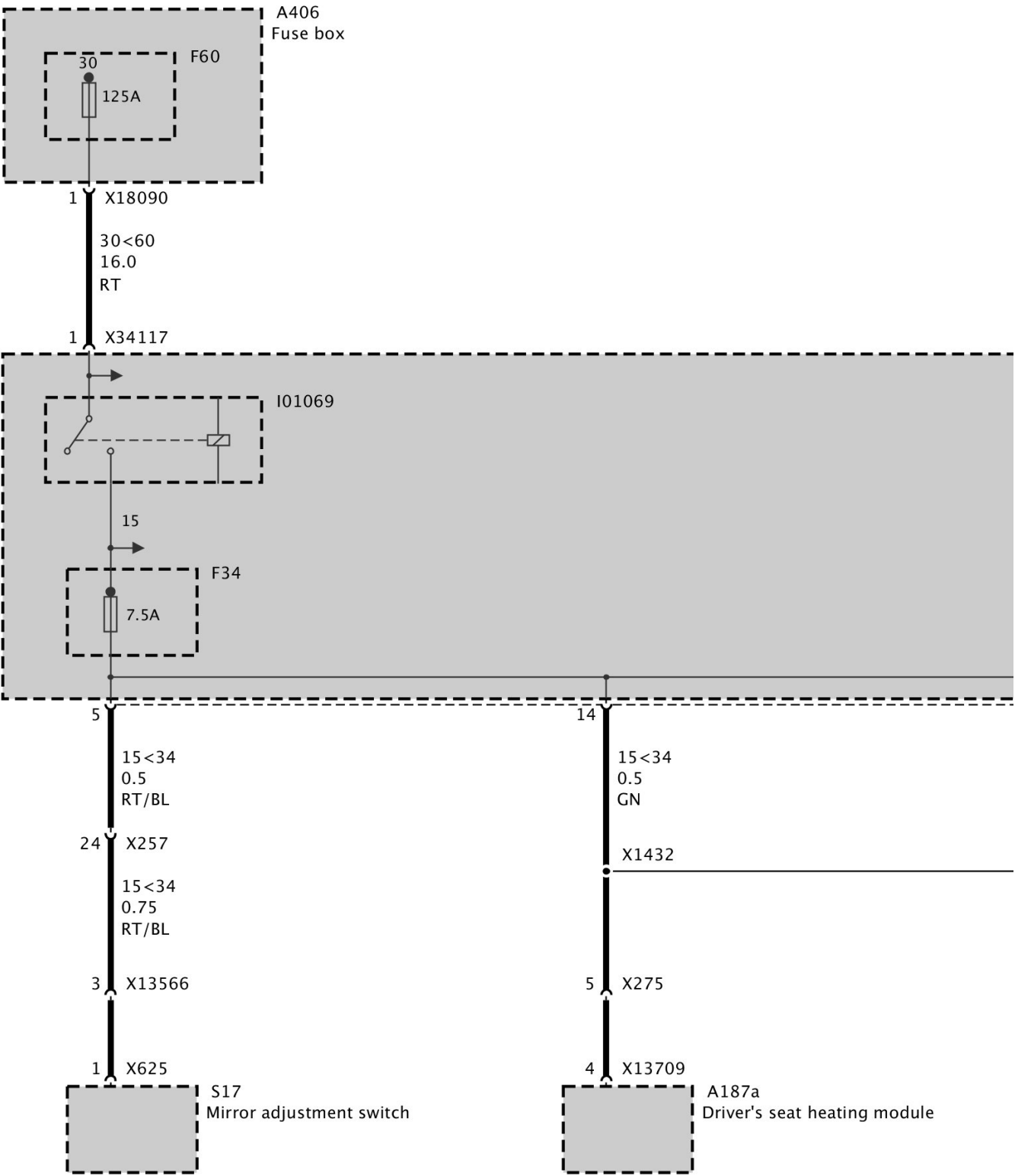
**Fuse F34 (Up to 12/08)**



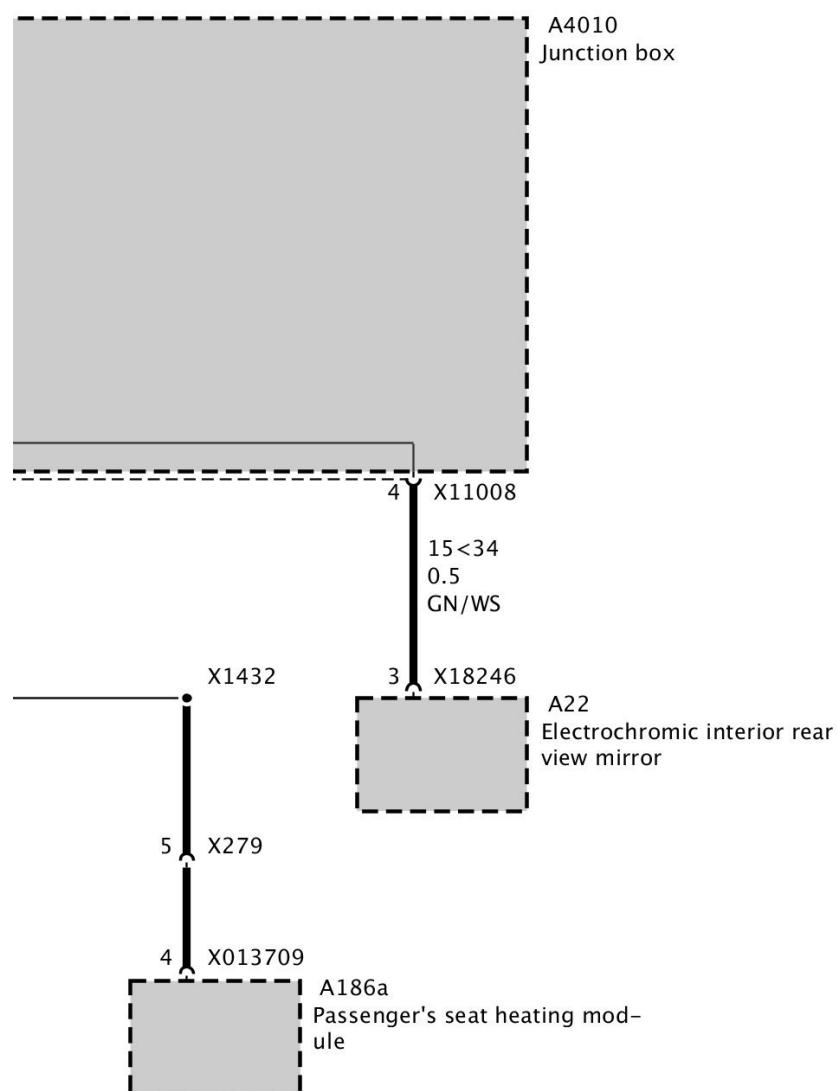
**Fuse F34 (As of 12/08)**

**Fuse F34 (As of 12/08)**





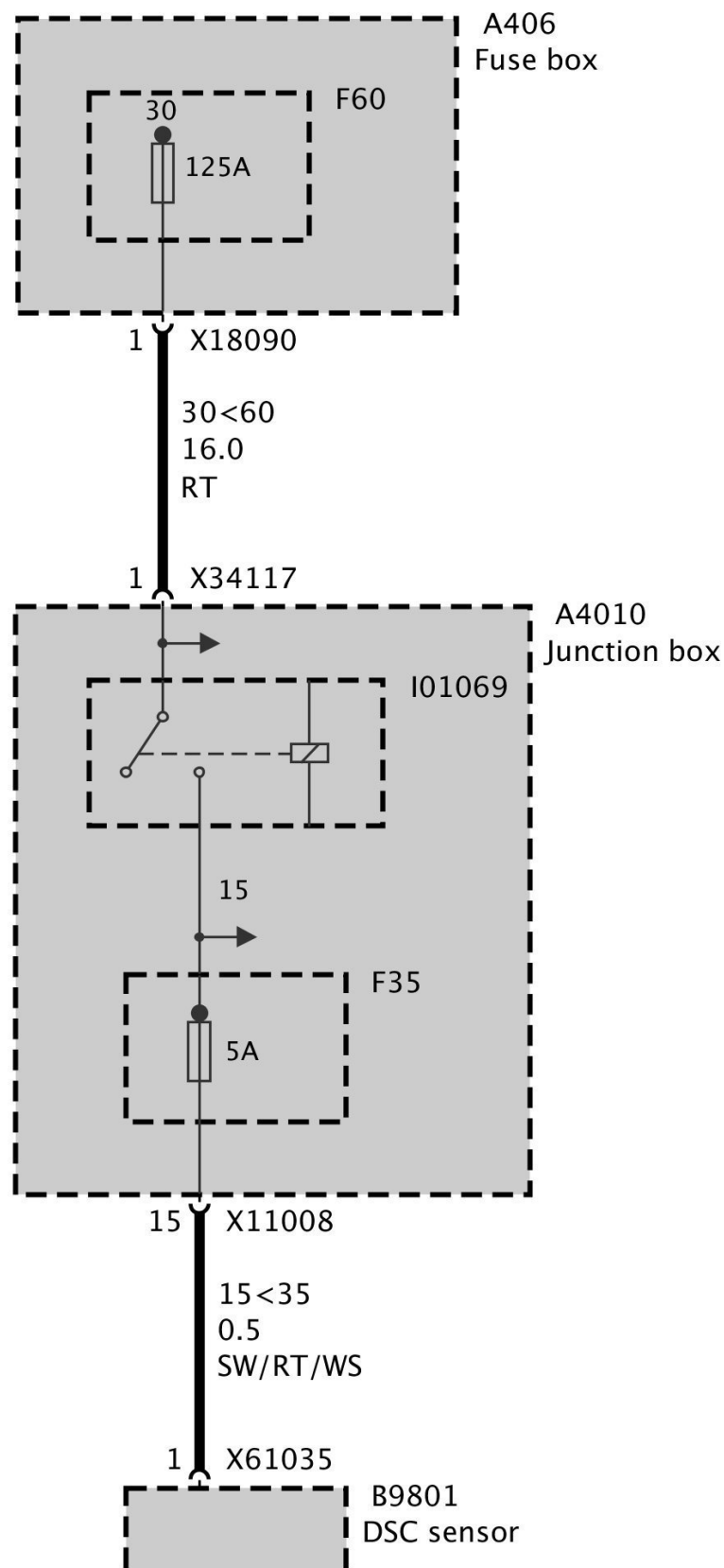
Part 1



## Part 2

## F35

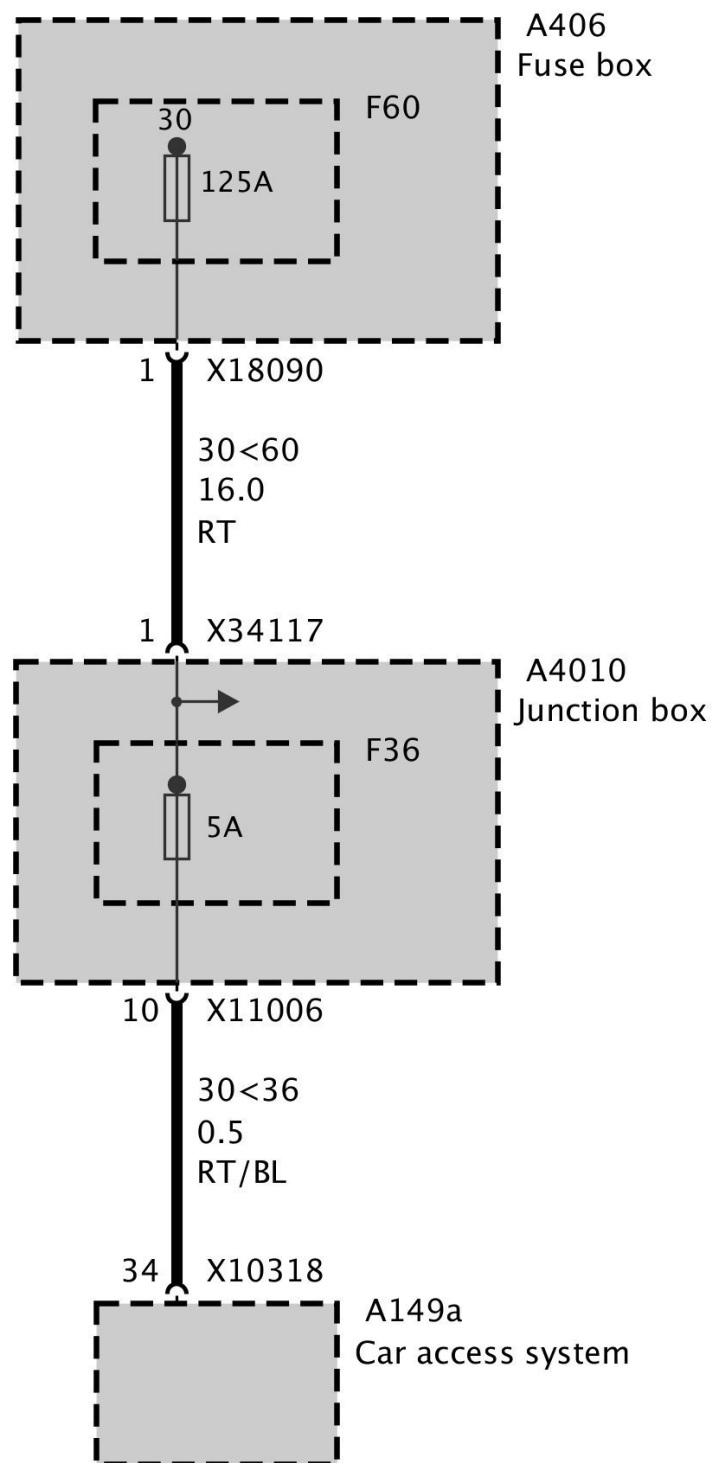
Fuse F35 (As of 12/08)



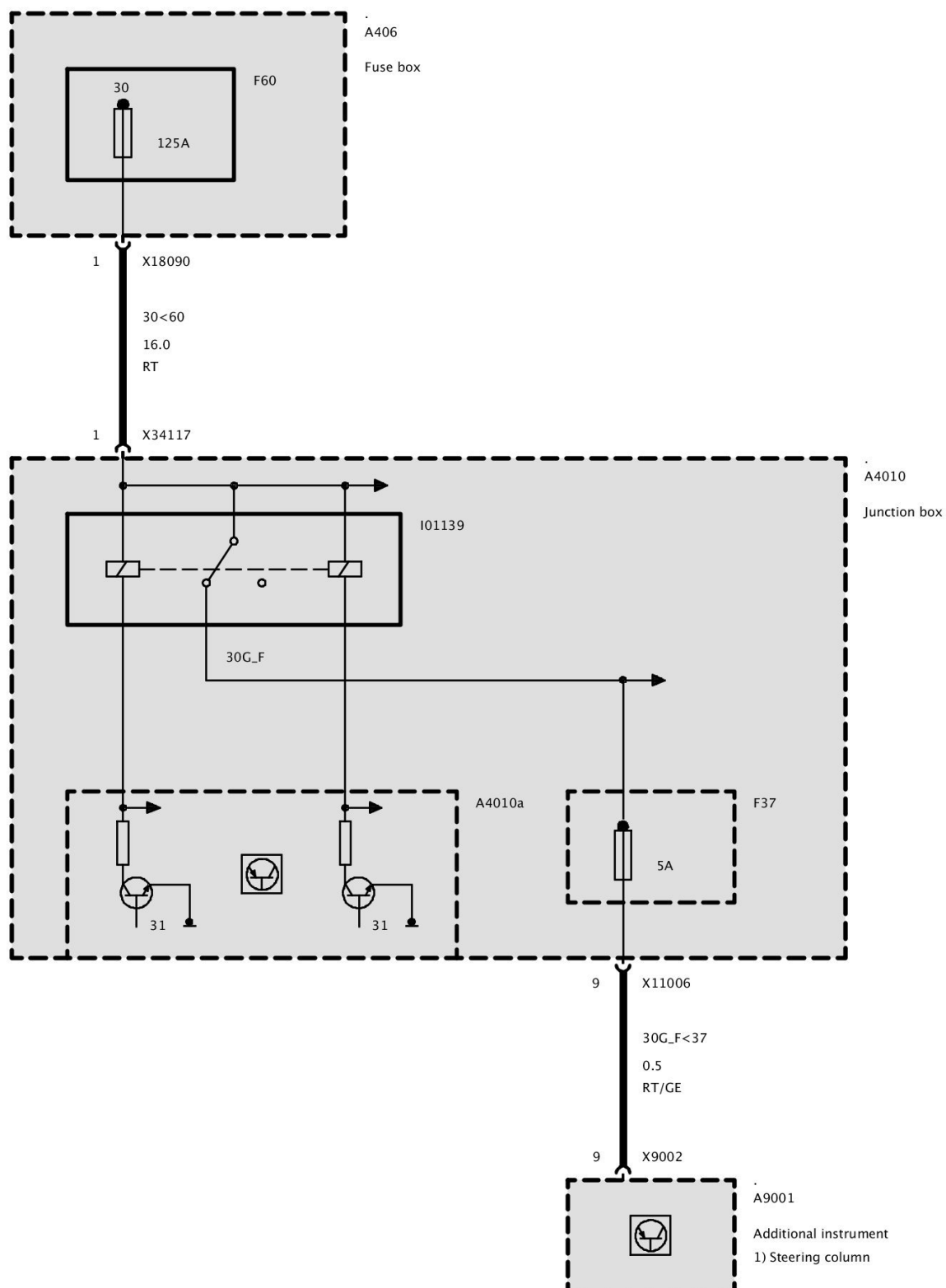
**Fuse F36 (Up to 12/08)**

Fuse F36 (Up to 12/08)



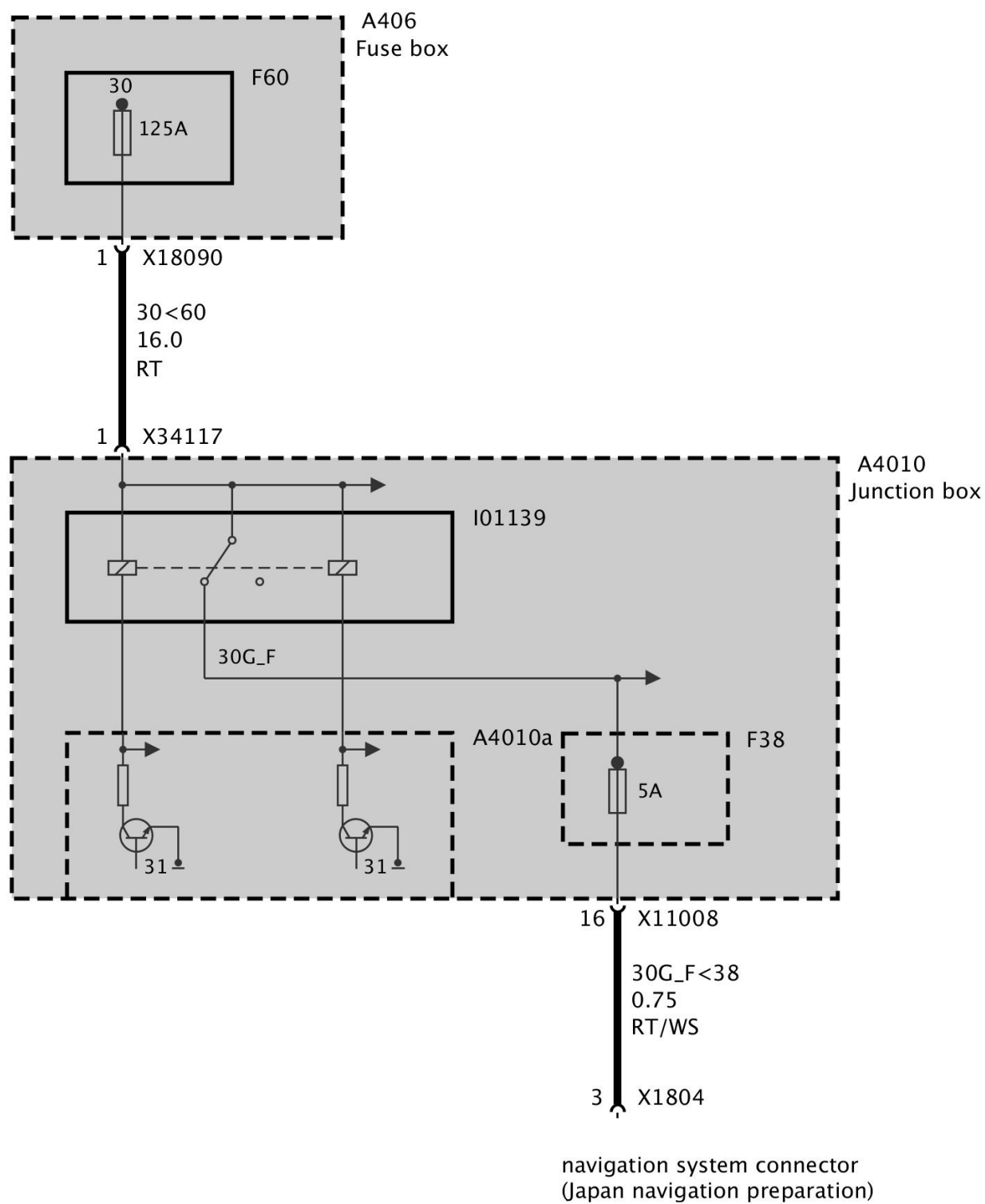
**F37**

Fuse F37



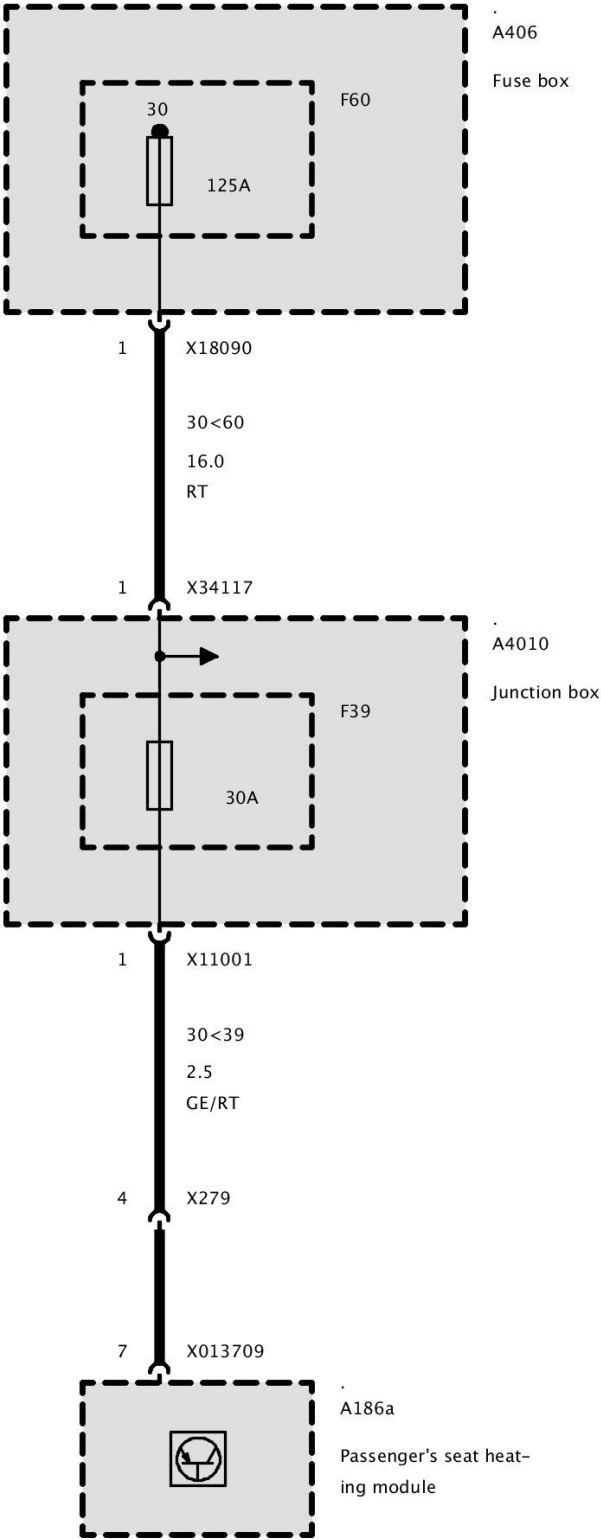
## F38

Fuse F38 (As of 12/08)



## F39

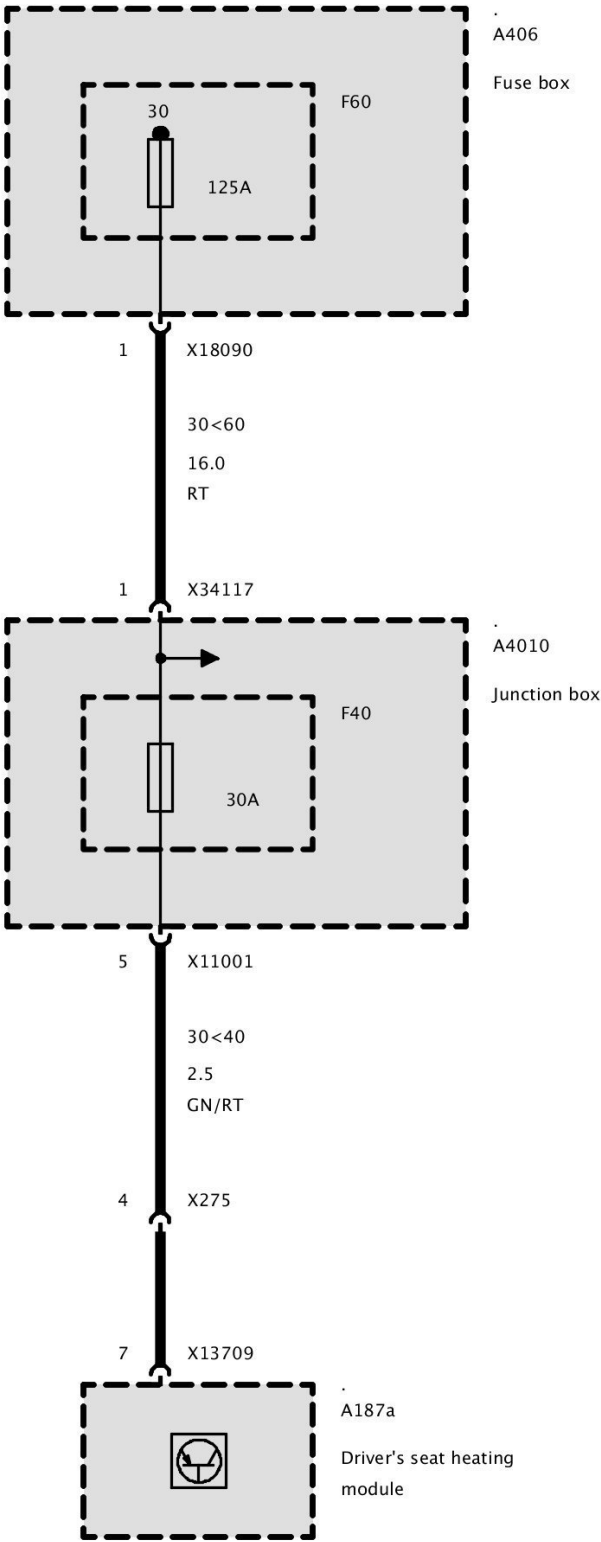
Fuse F39



F40

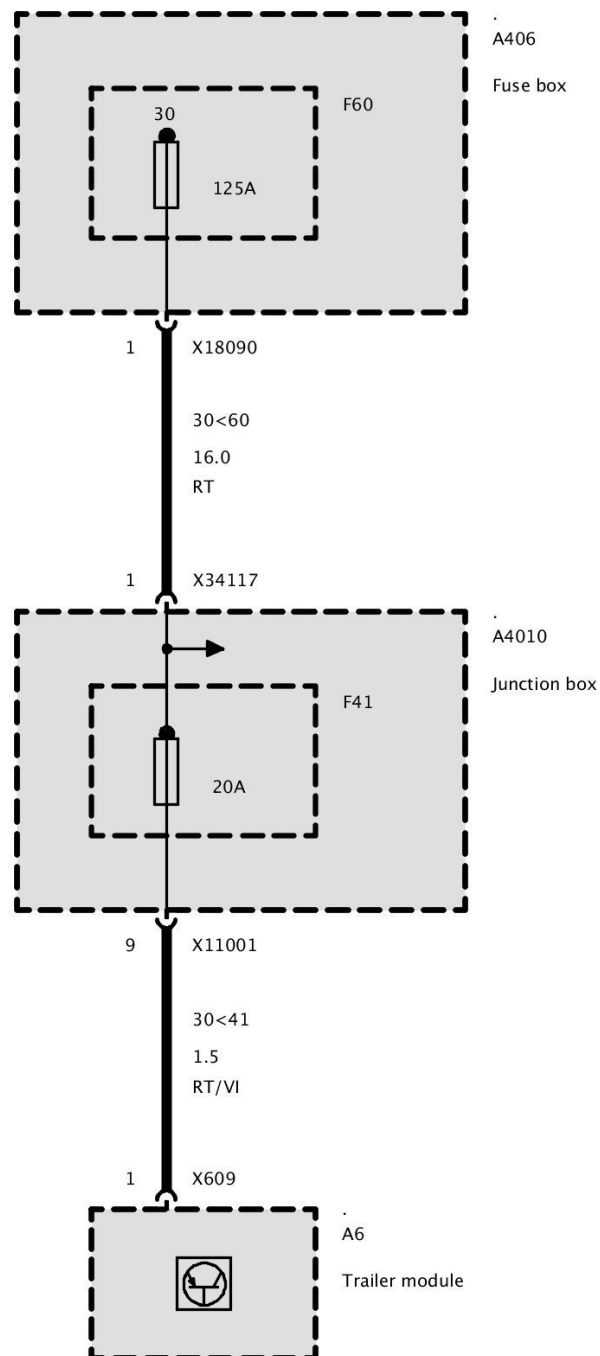
Fuse F40 (Up to 12/08)





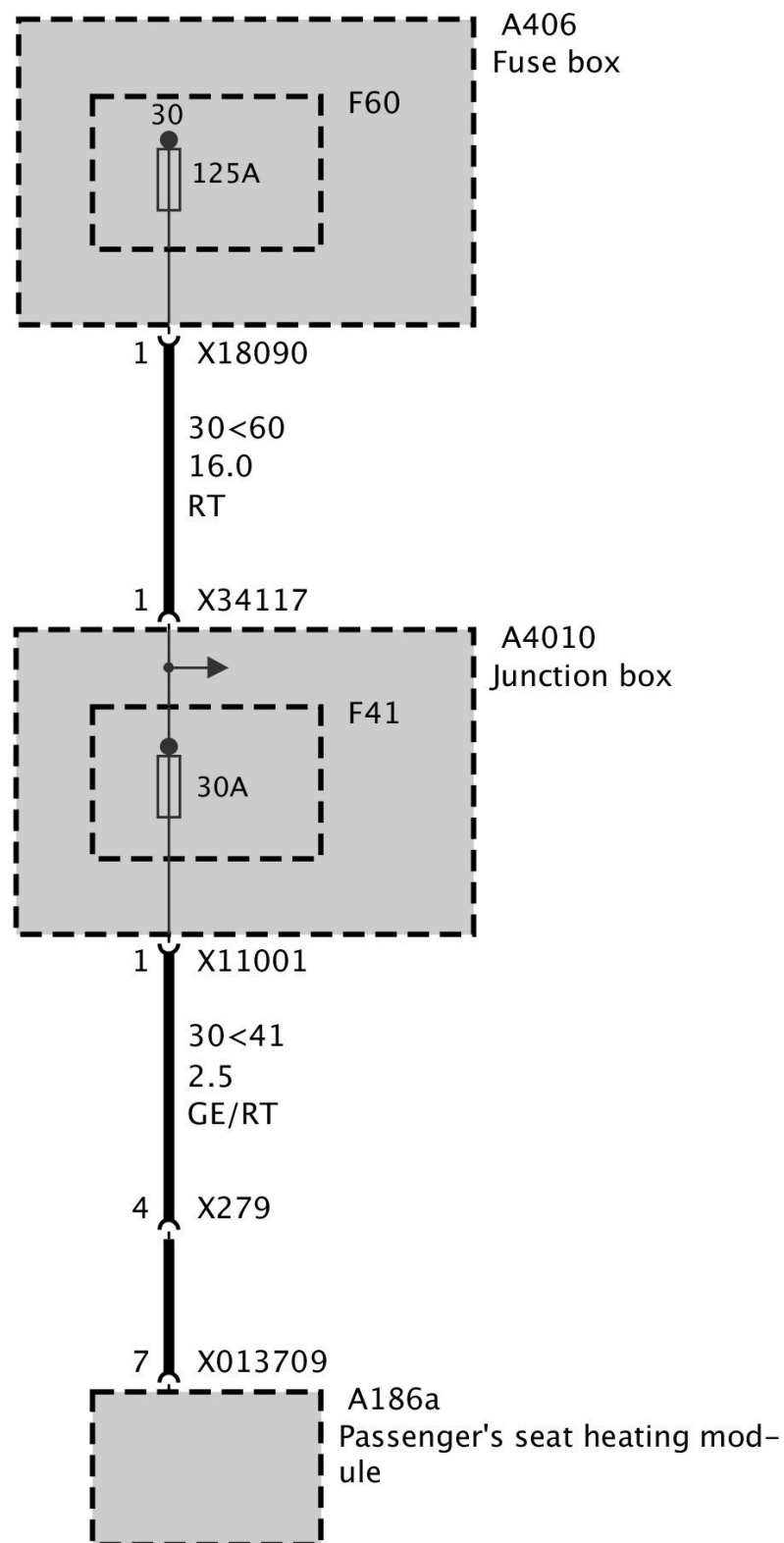
Fuse F41 (Up to 12/08)

Fuse F41 (Up to 12/08)

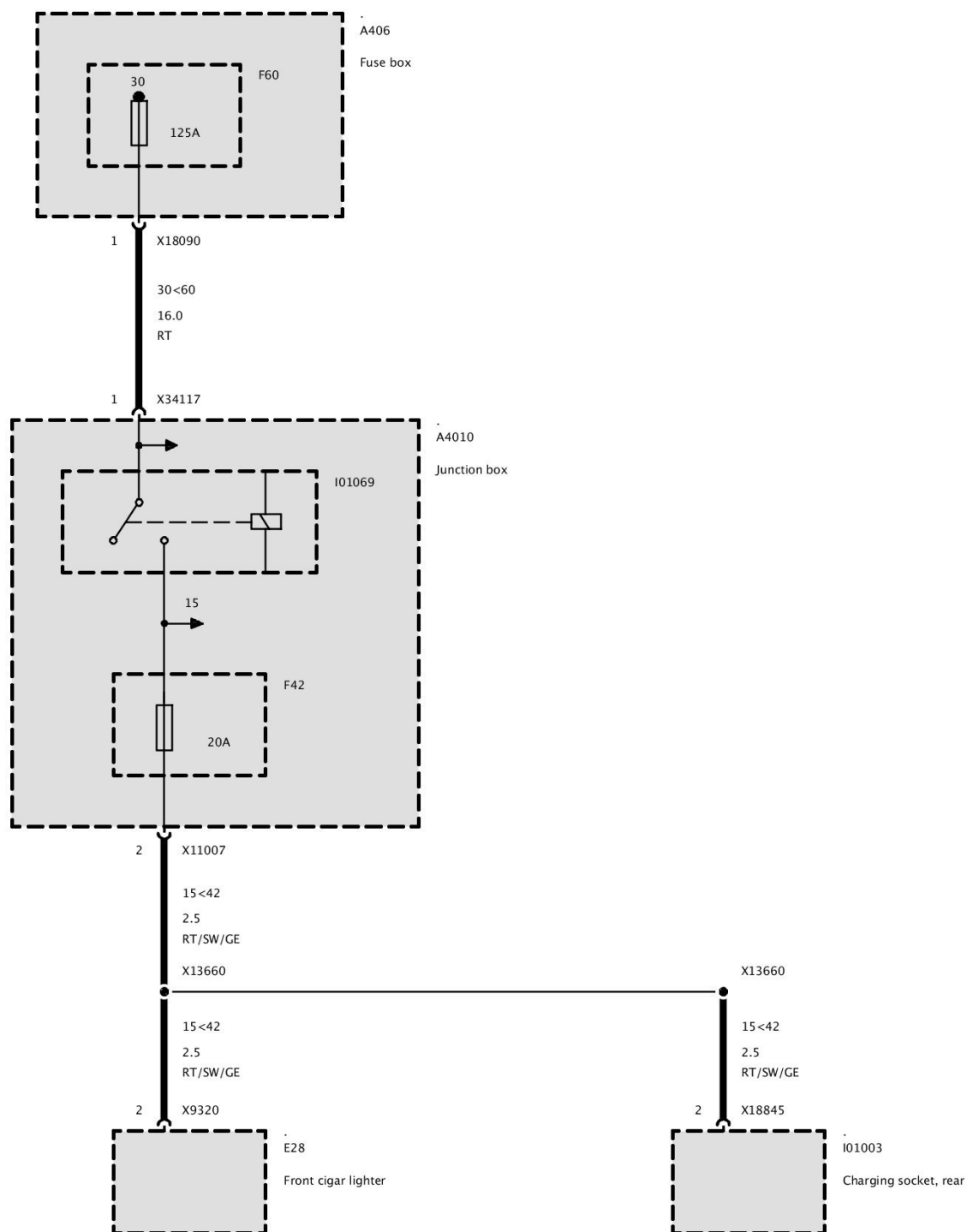


**Fuse F41 (As of 12/08)**

**Fuse F41 (As of 12/08)**

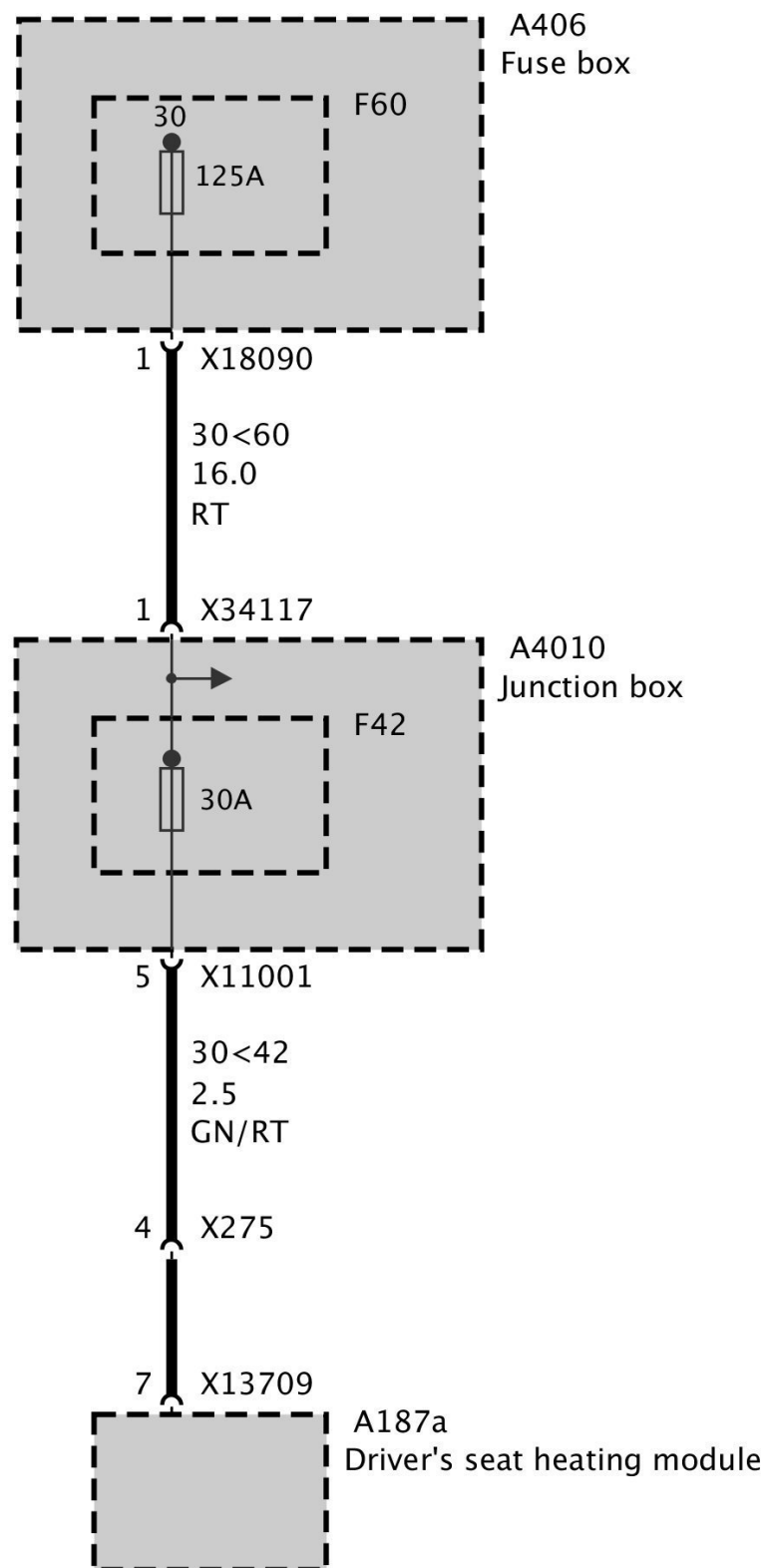
**Fuse F42 (Up to 12/08)**

Fuse F42 (Up to 12/08)



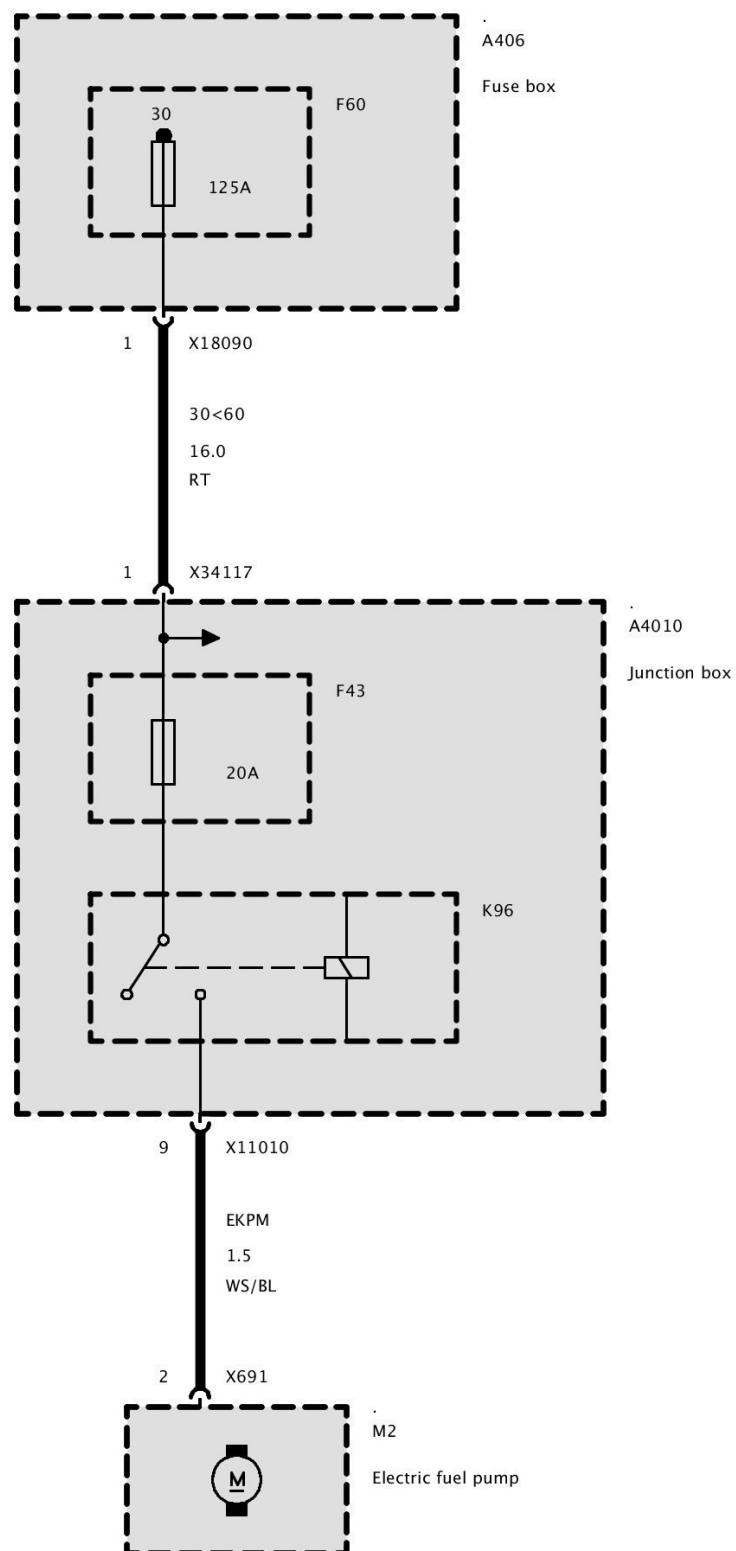
**Fuse F42 (As of 12/08)**

**Fuse F42 (As of 12/08)**



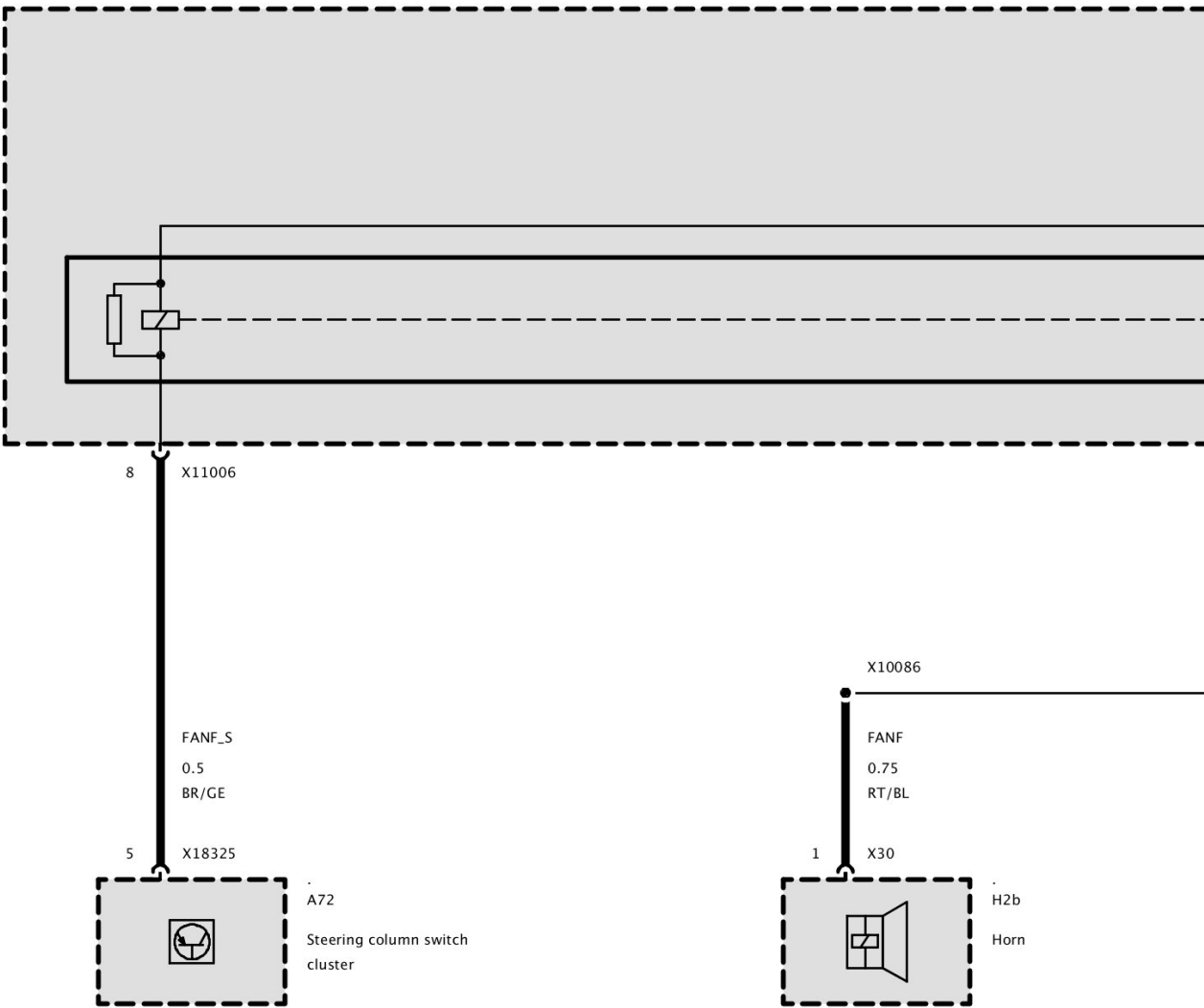
## F43

Fuse F43 (Up to 12/08)

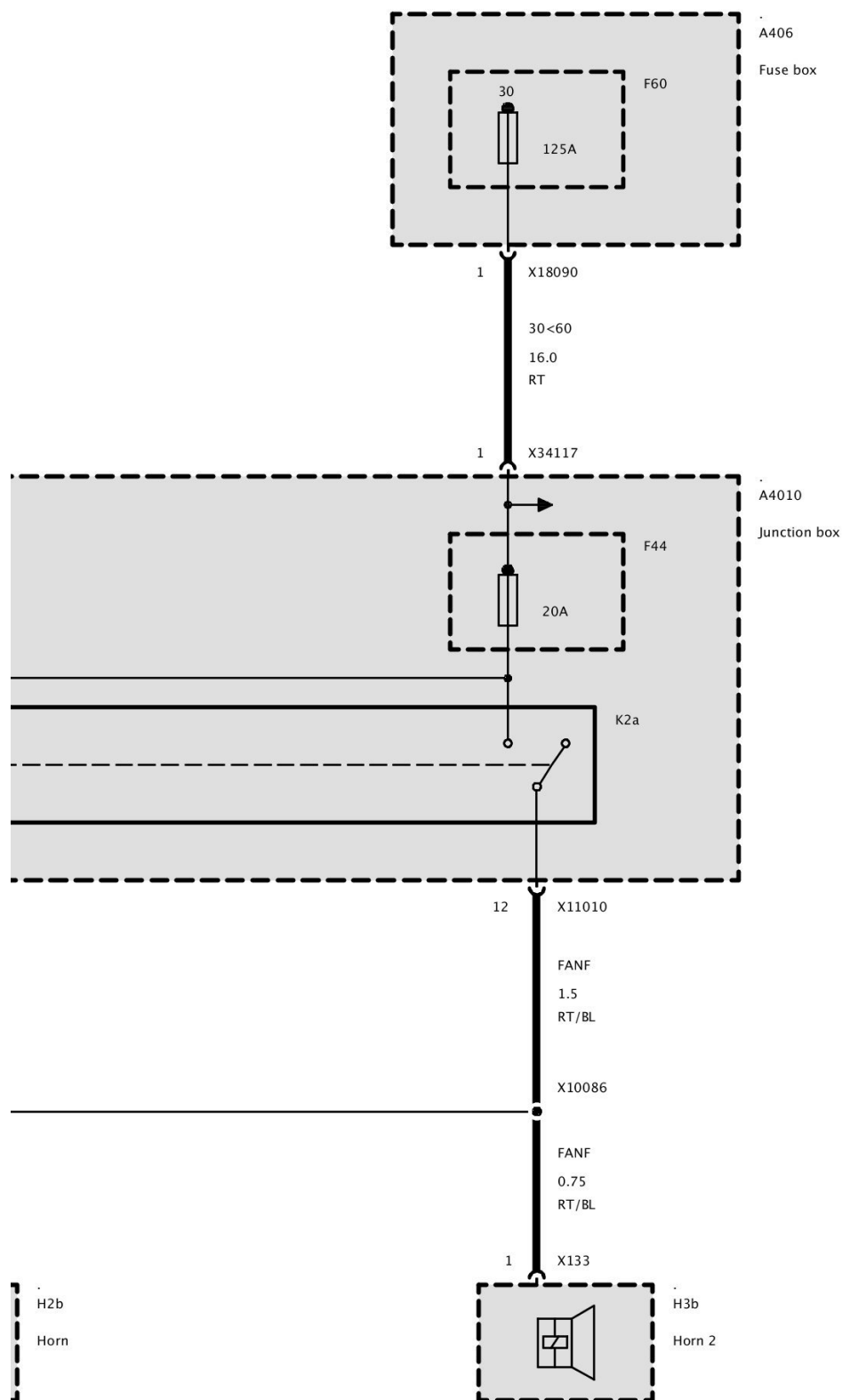


**Fuse F44 (Up to 12/08)**

**Fuse F44 (Up to 12/08)**



Part 1

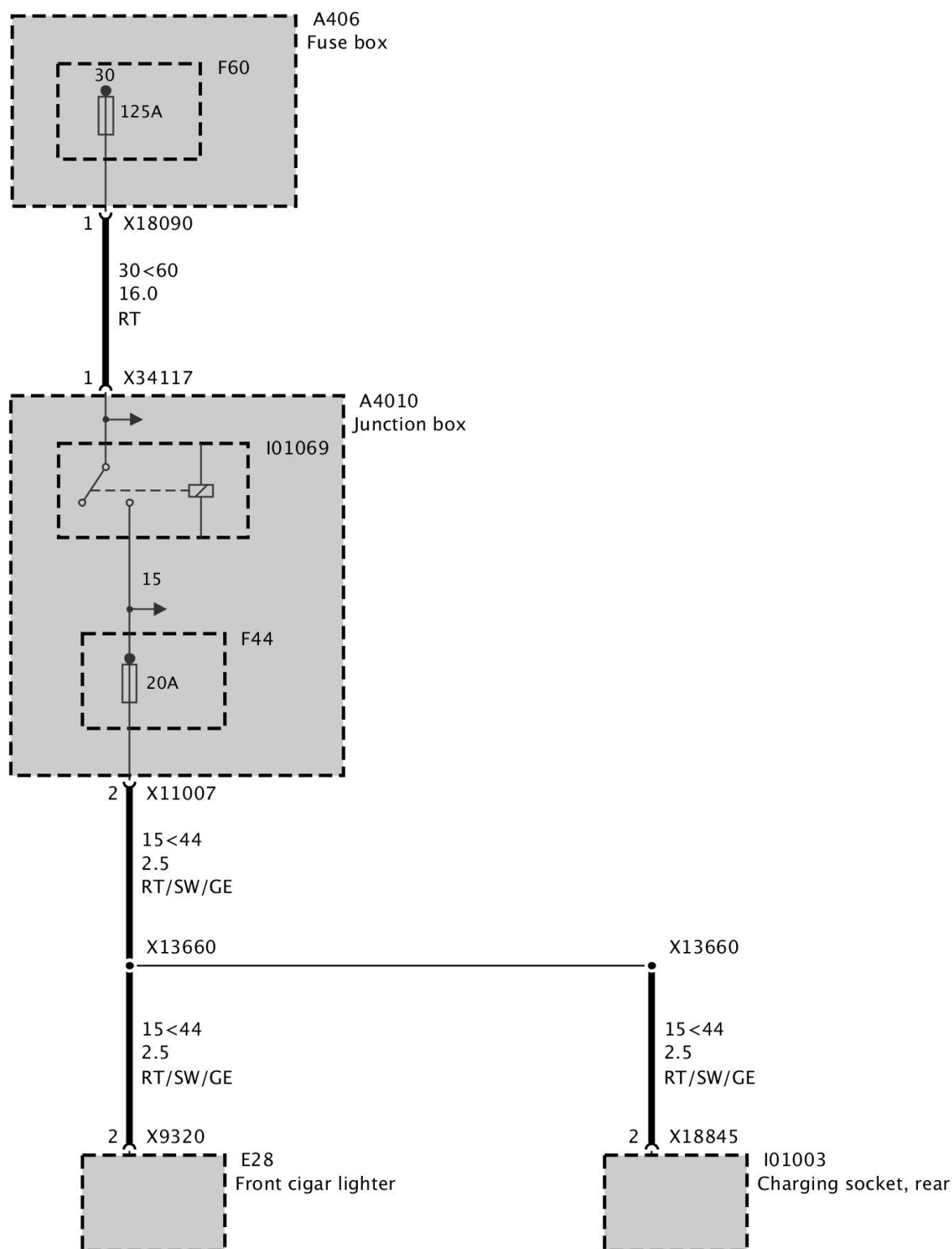


## Part 2

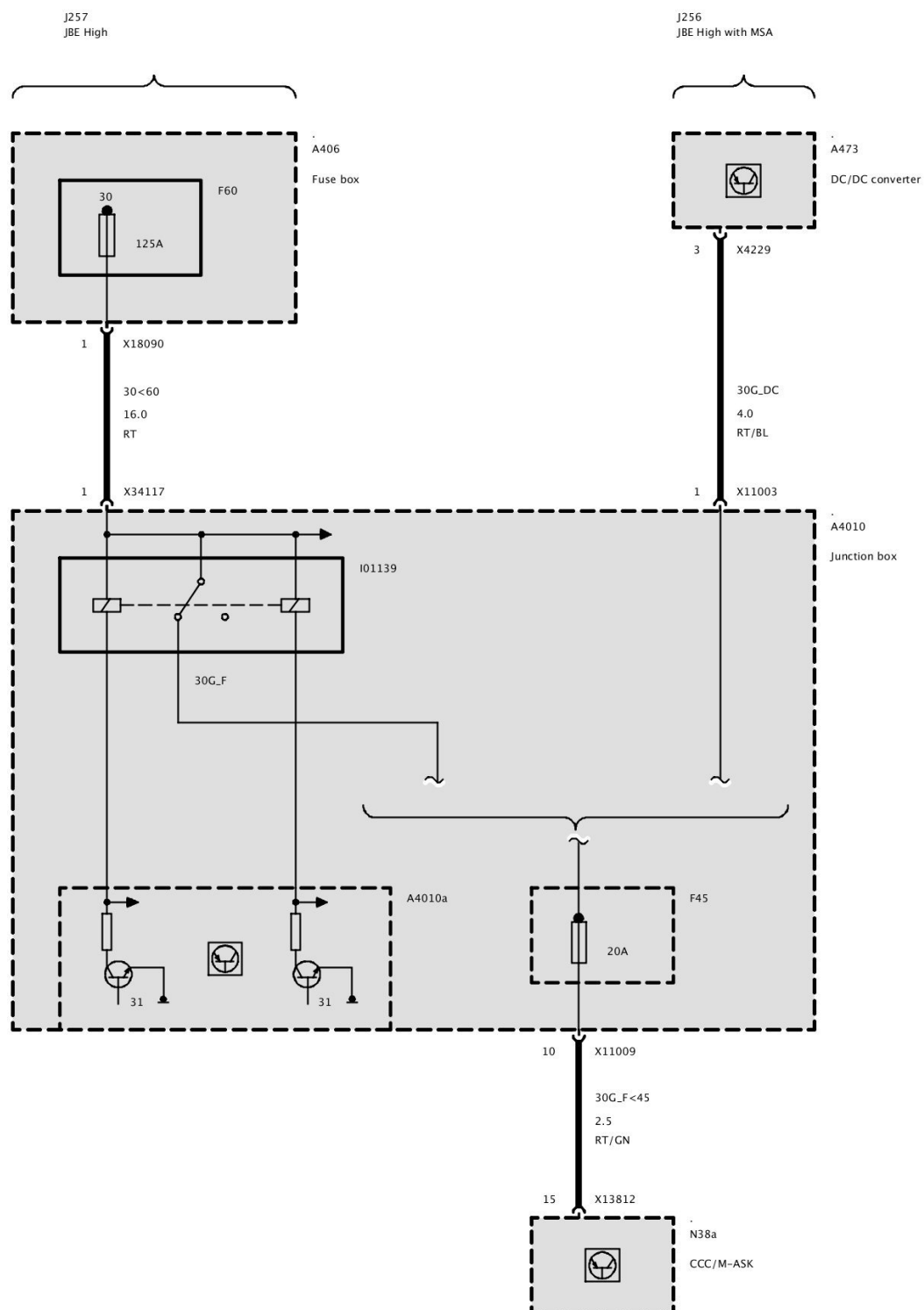
**Fuse F44 (As of 12/08)**

**Fuse F44 (As of 12/08)**



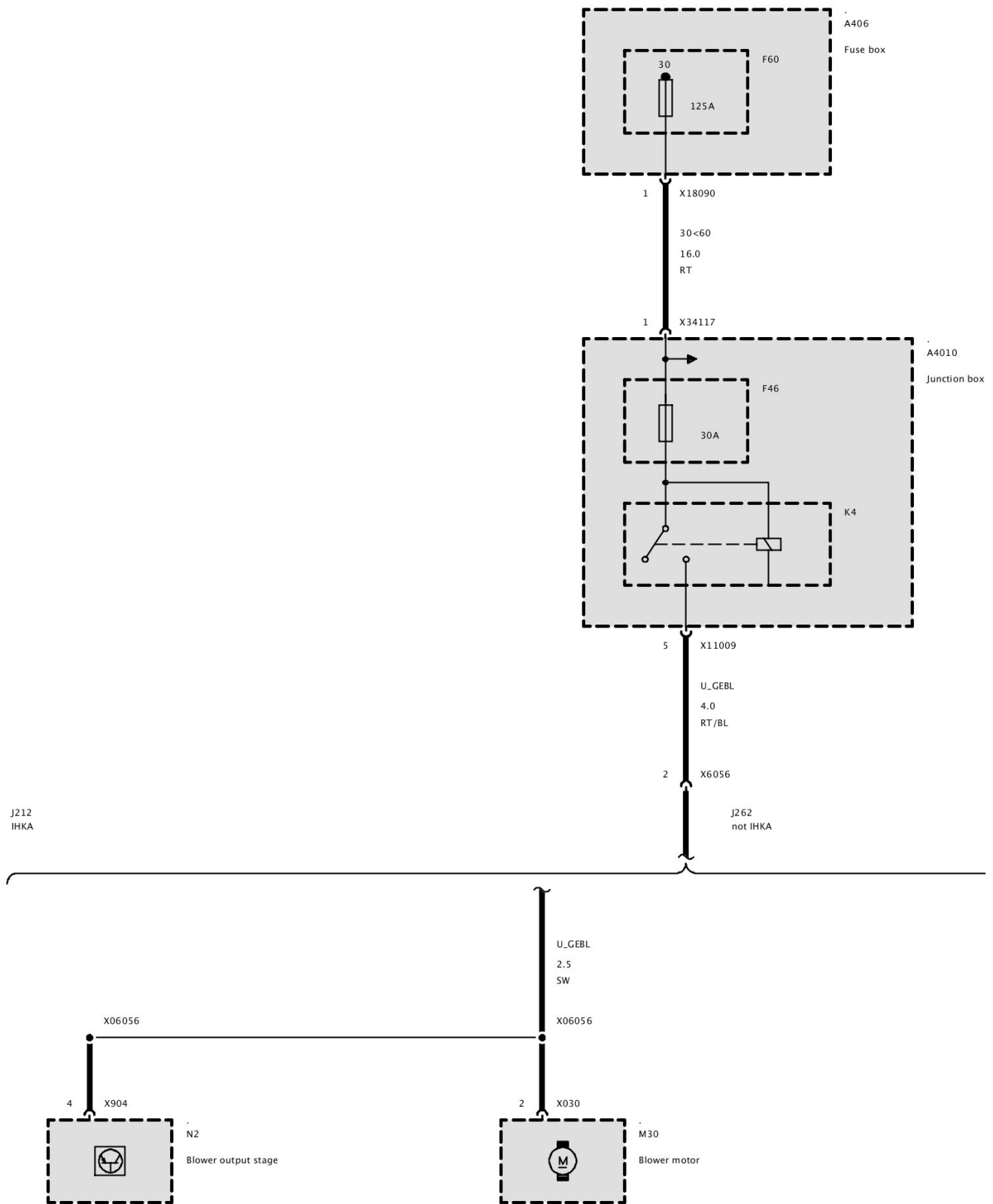
**F45**

Fuse F45

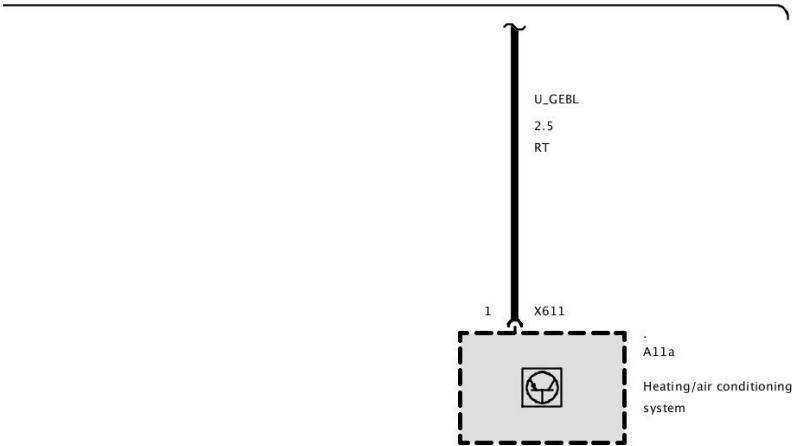
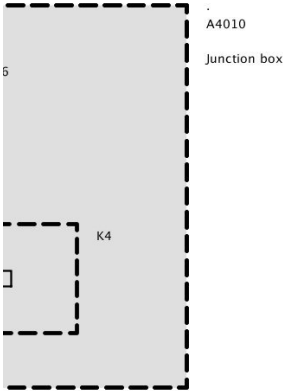
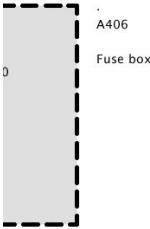


**Fuse F46 (Up to 12/08)**

**Fuse F46 (Up to 12/08)**



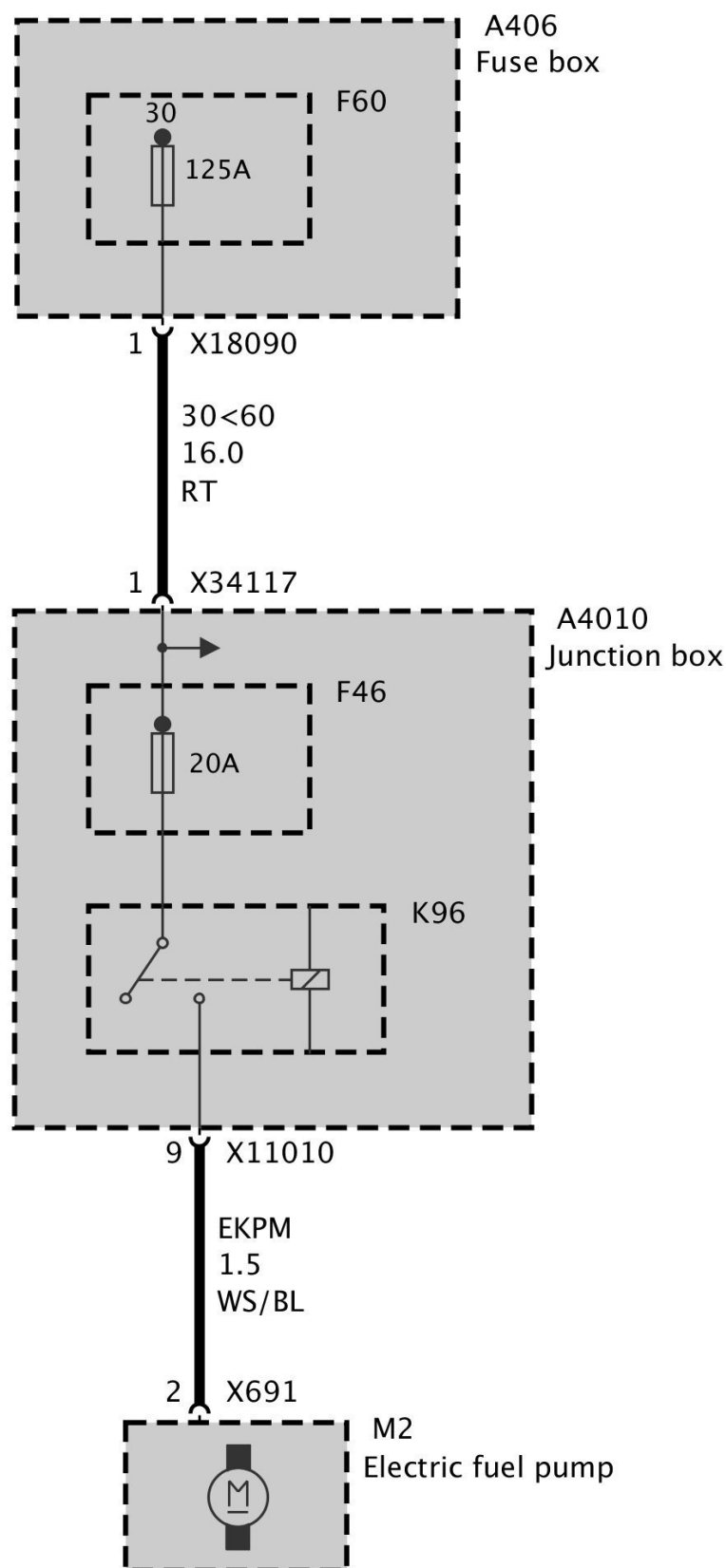
Part 1



Part 2

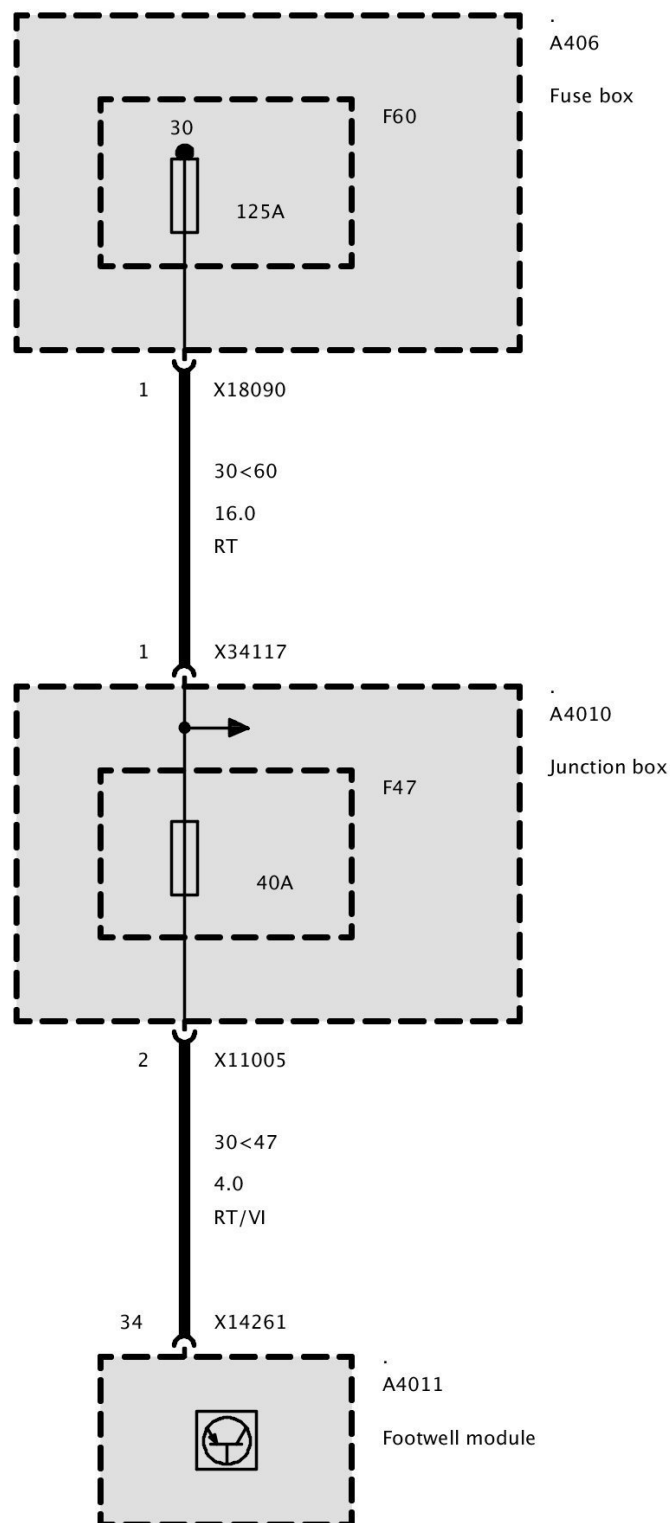
Fuse F46 (As of 12/08)

Fuse F46 (As of 12/08)



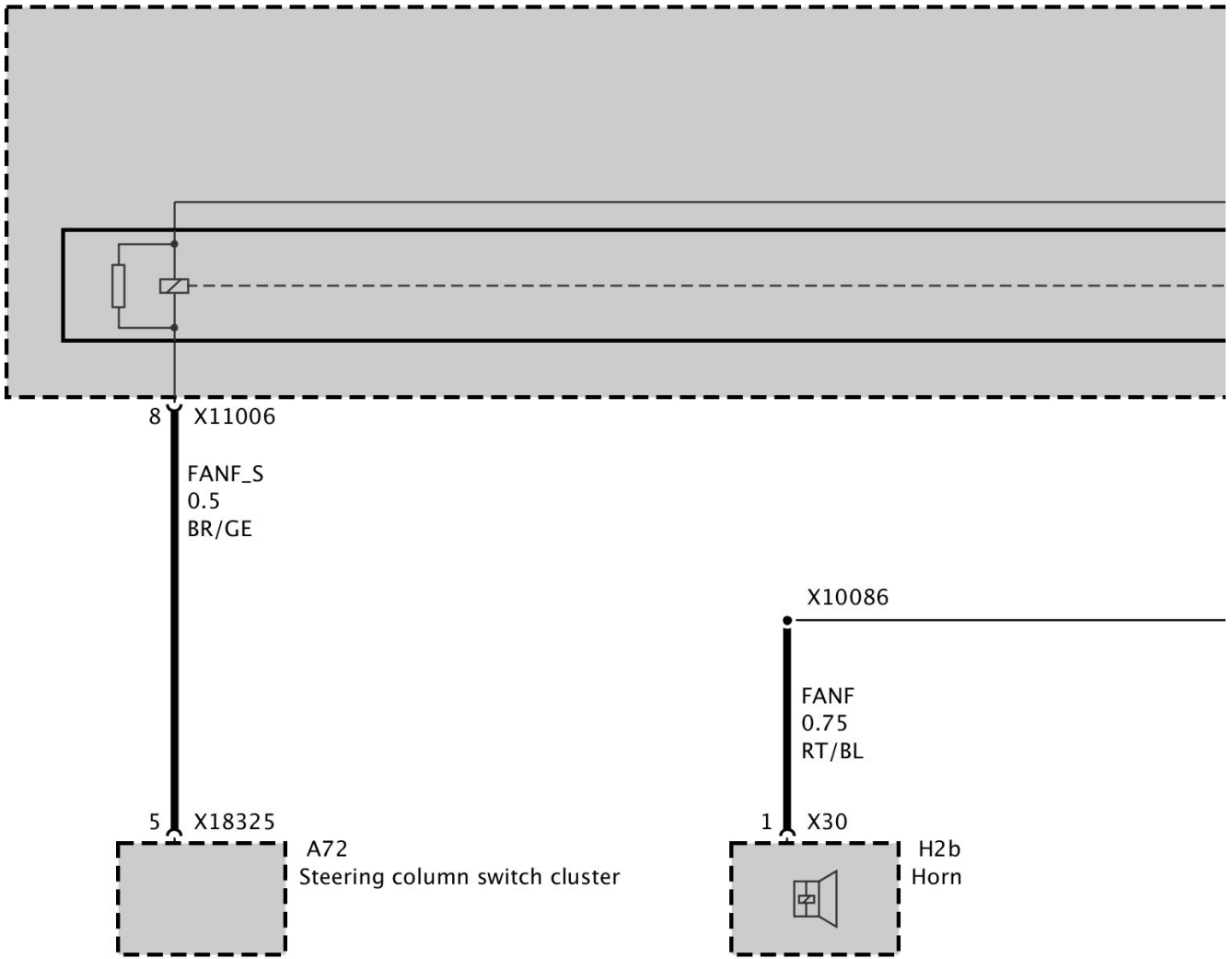
**Fuse F47 (Up to 12/08)**

**Fuse F47 (Up to 12/08)**

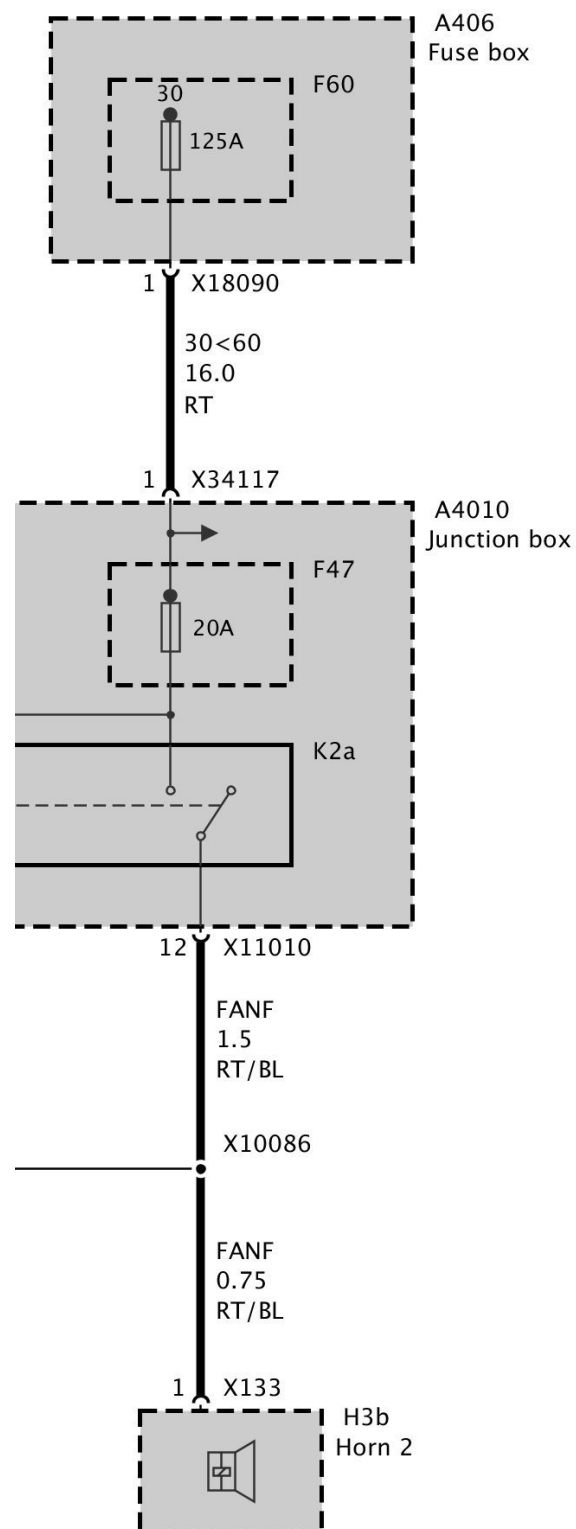


**Fuse F47 (As of 12/08)**

**Fuse F47 (As of 12/08)**



Part 1

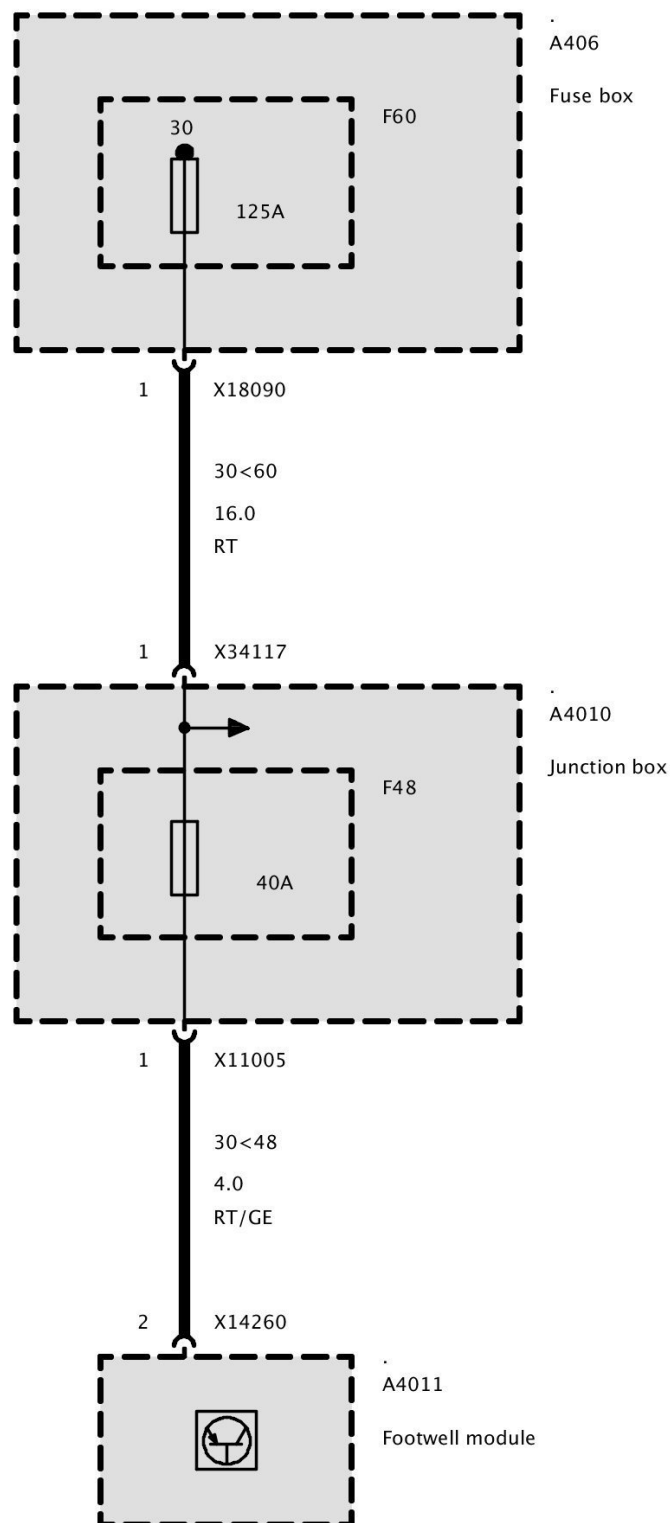


## Part 2

**Fuse F48 (Up to 12/08)**

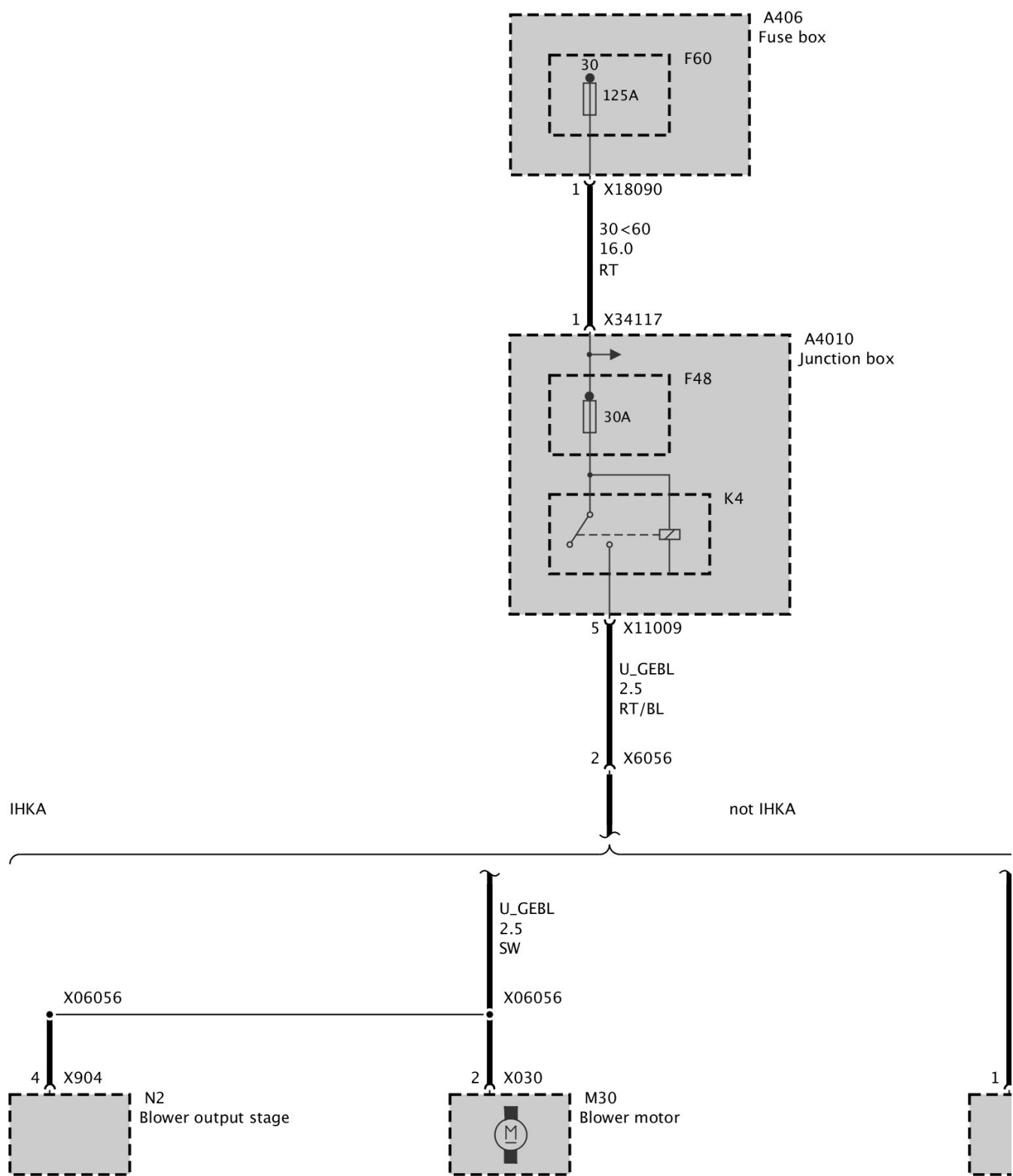
**Fuse F48 (Up to 12/08)**



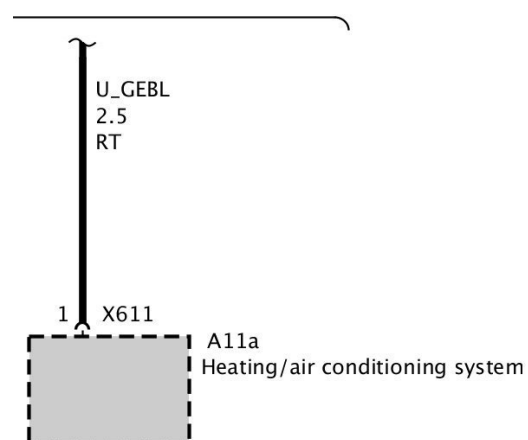


**Fuse F48 (As of 12/08)**

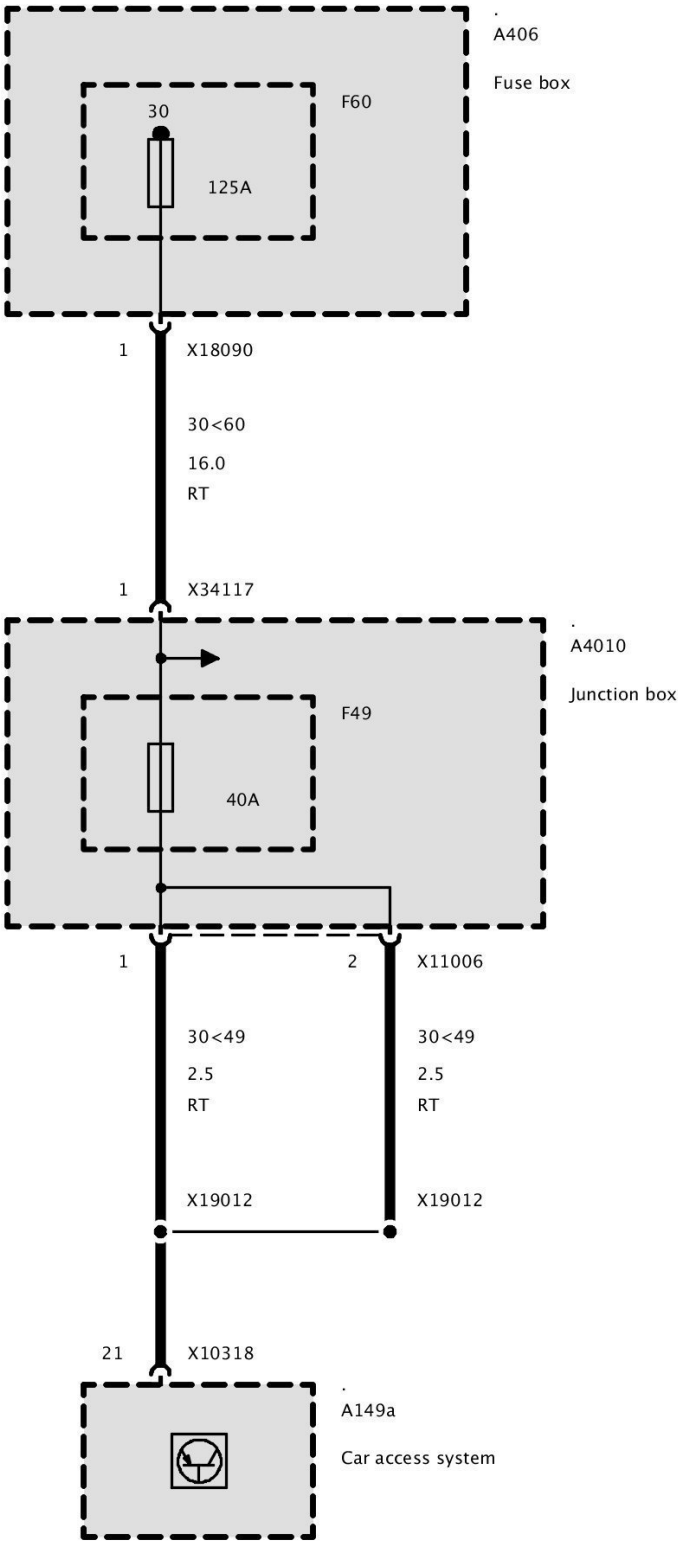
**Fuse F48 (As of 12/08)**



Part 1

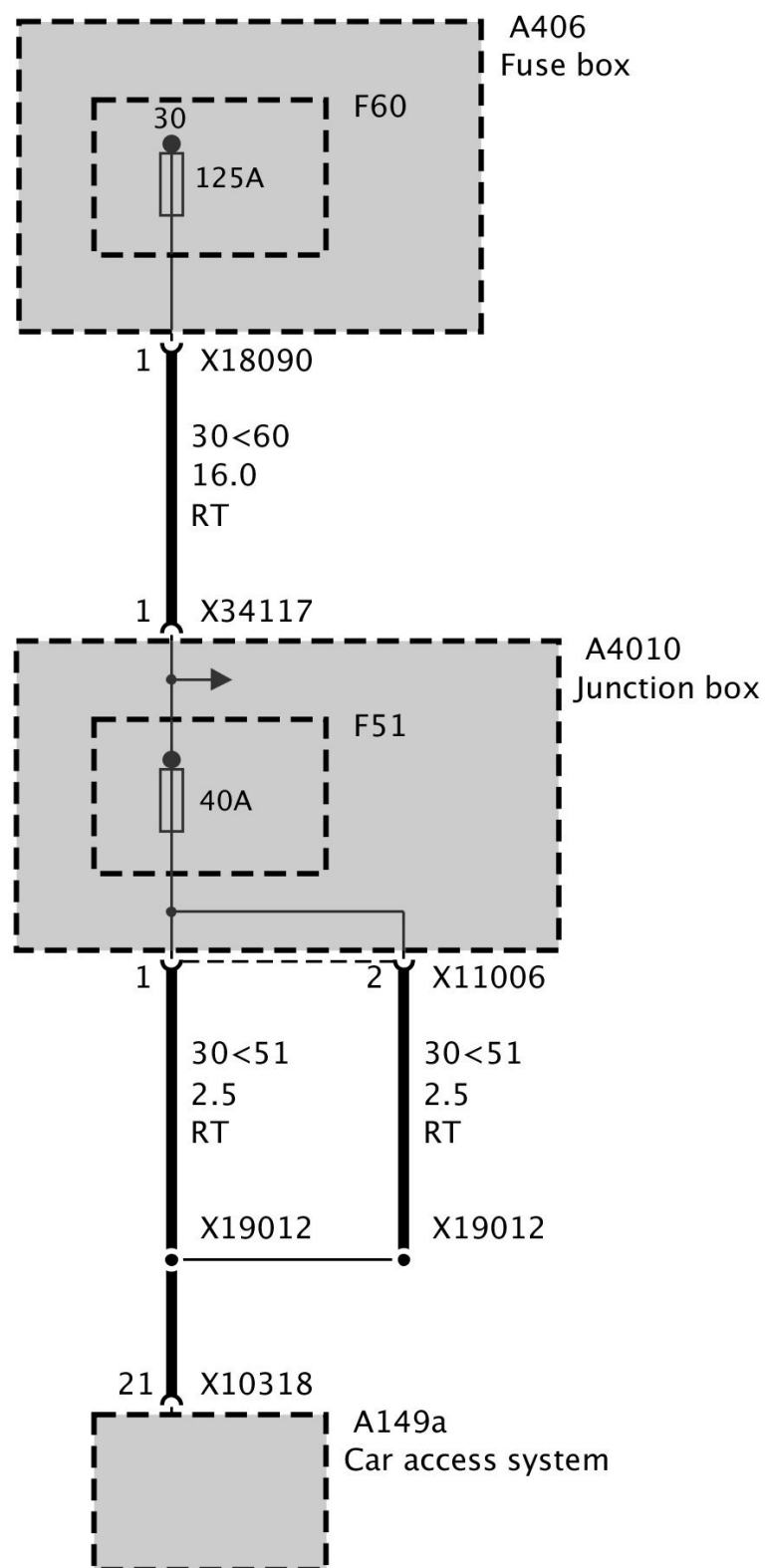
**Part 2****F49**

Fuse F49



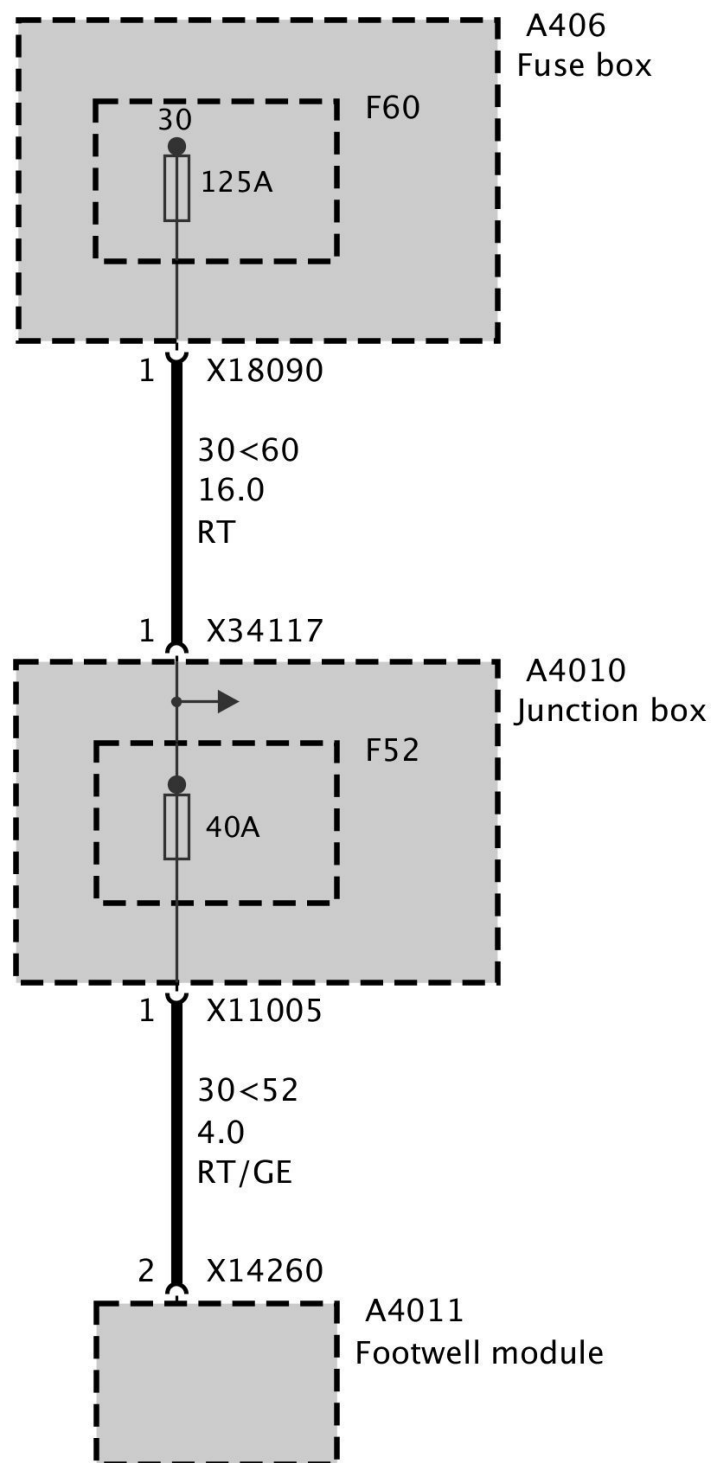
F51

Fuse F51 (As of 12/08)



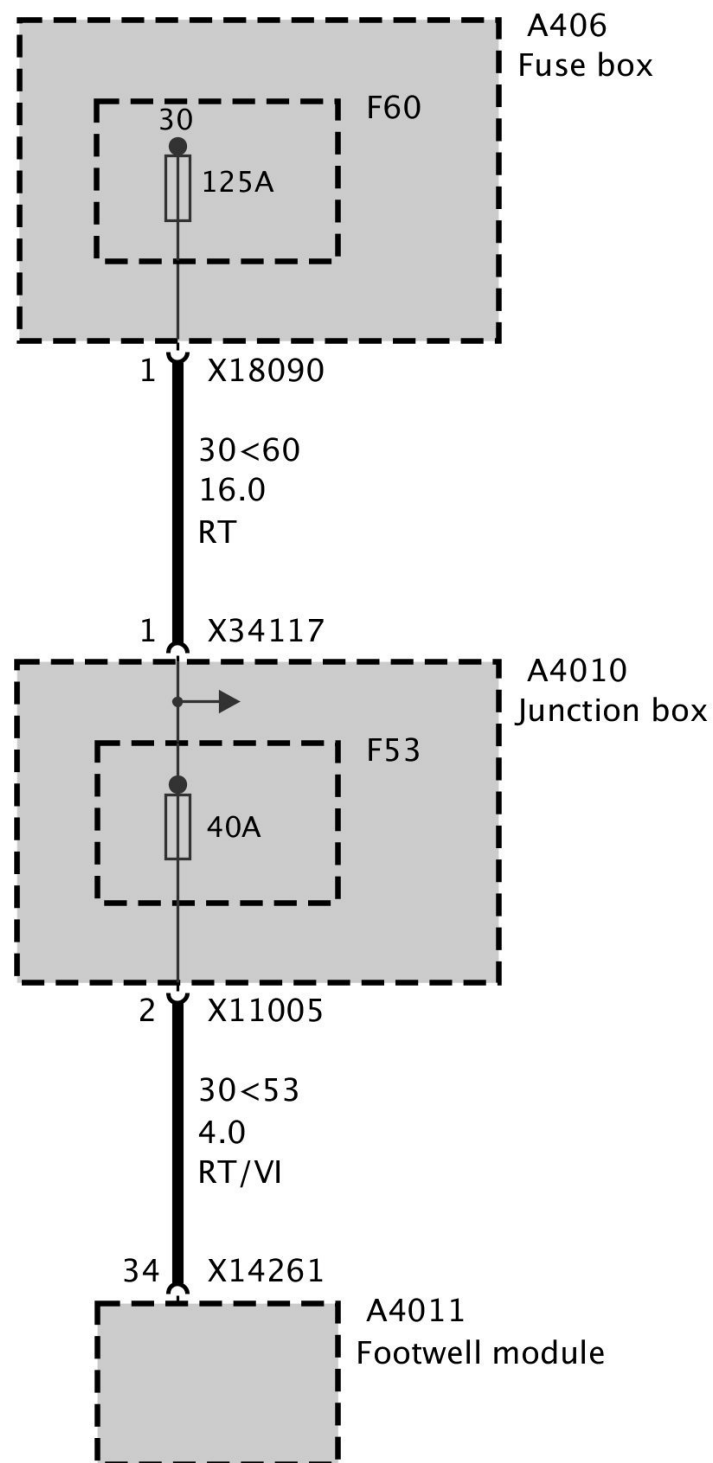
## F52

Fuse F52 (As of 12/08)

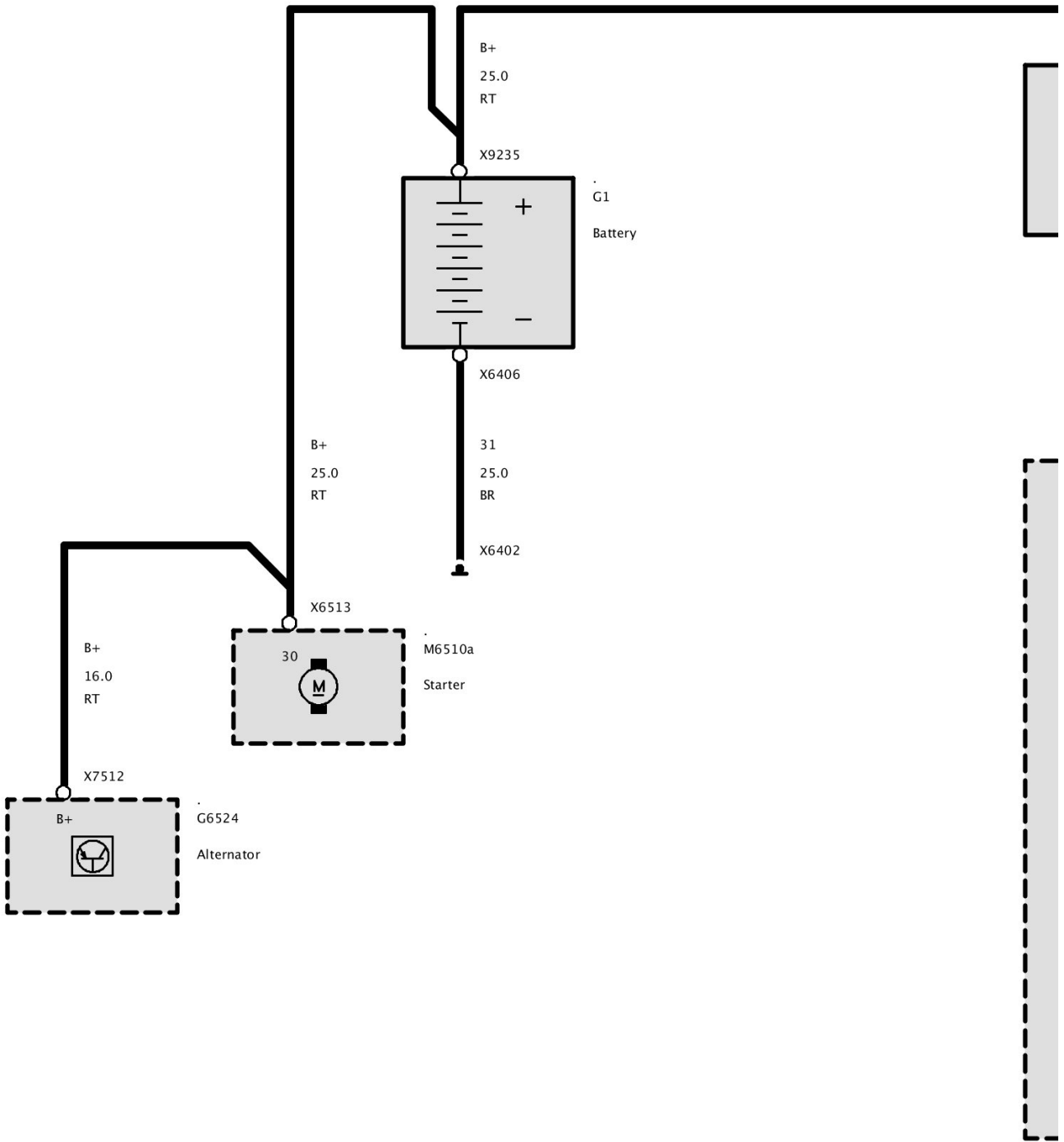


## F53

Fuse F53 (As of 12/08)

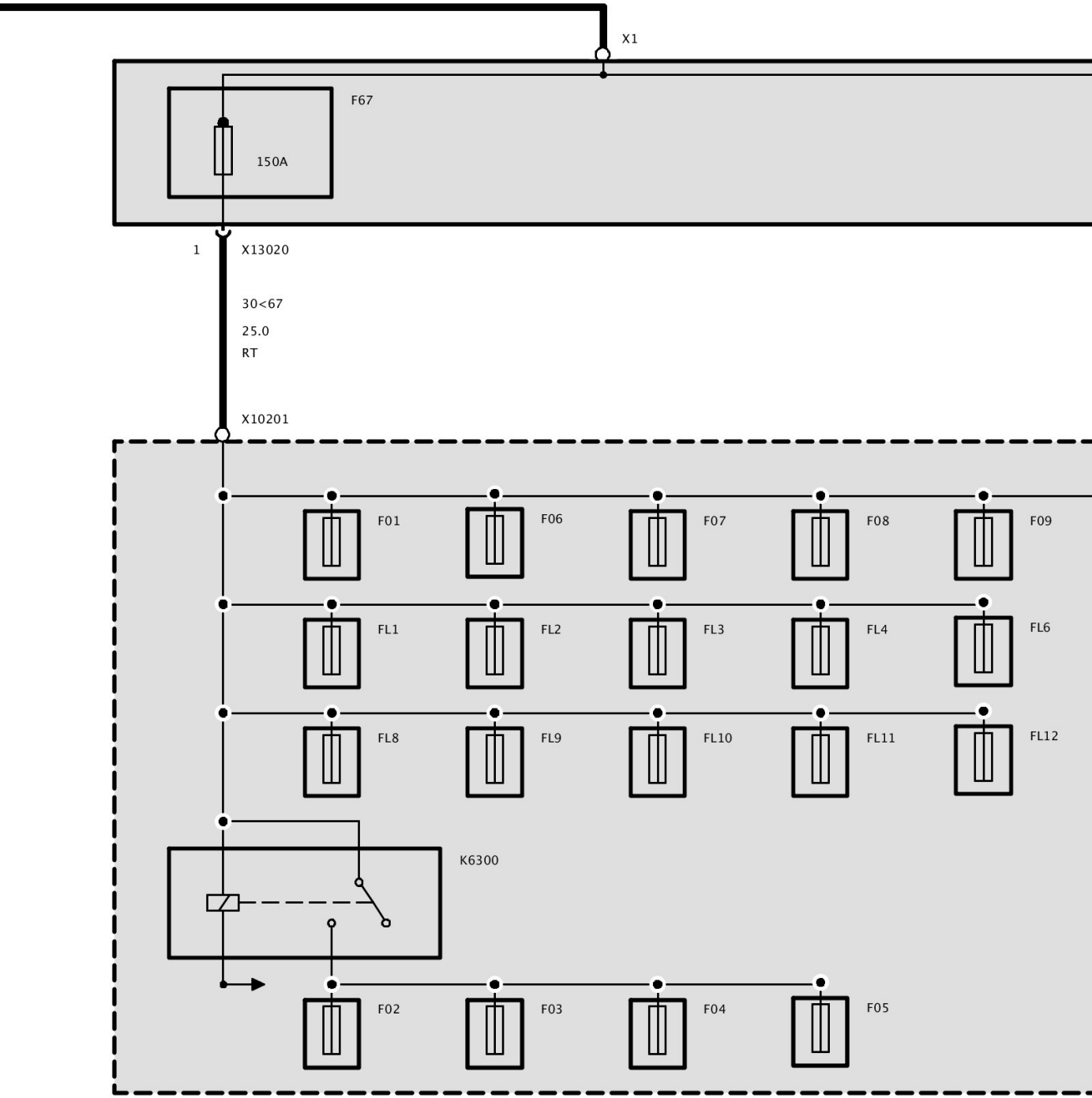
**F60**

Fuse Supply, Terminal 30

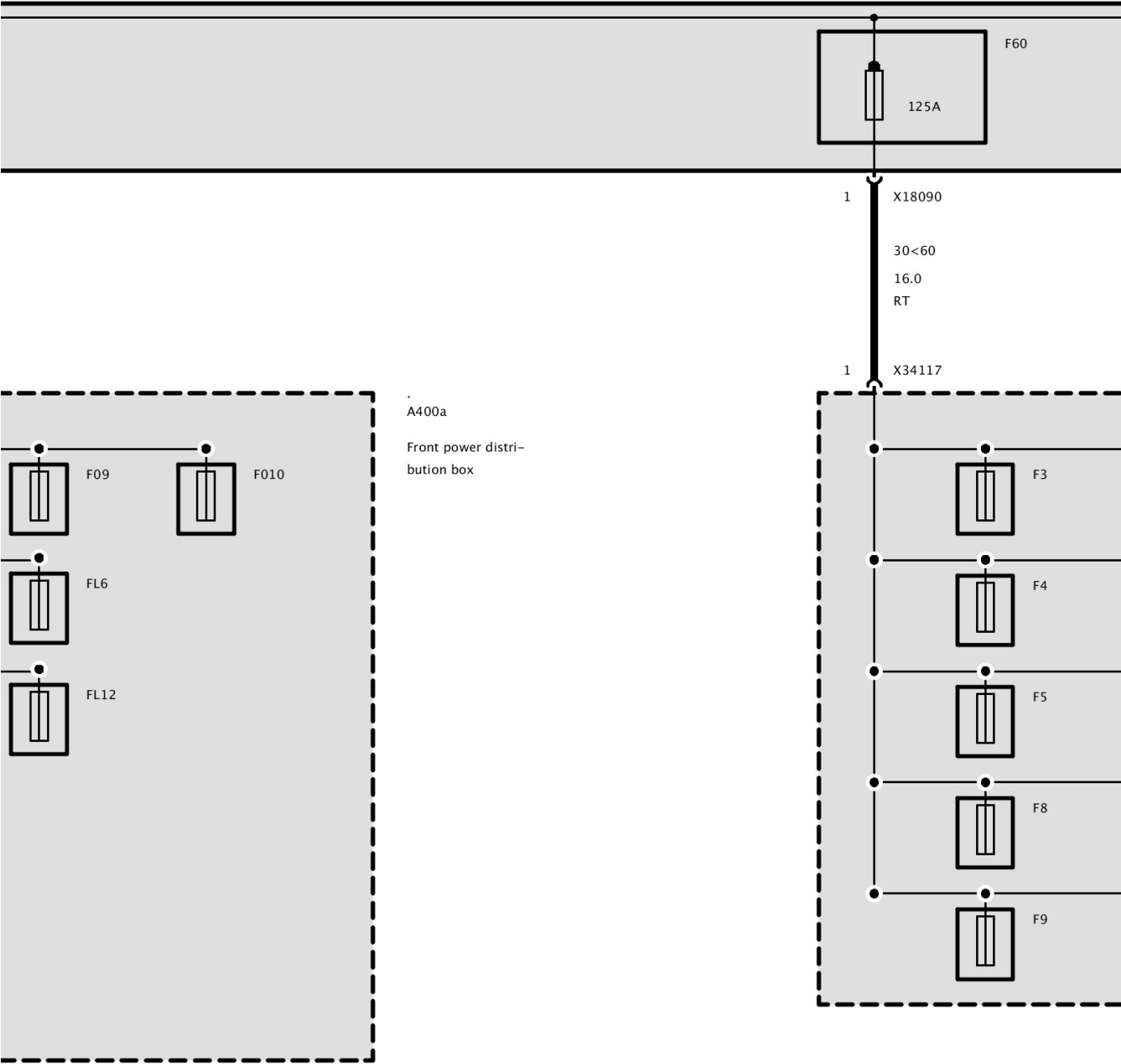


Part 1

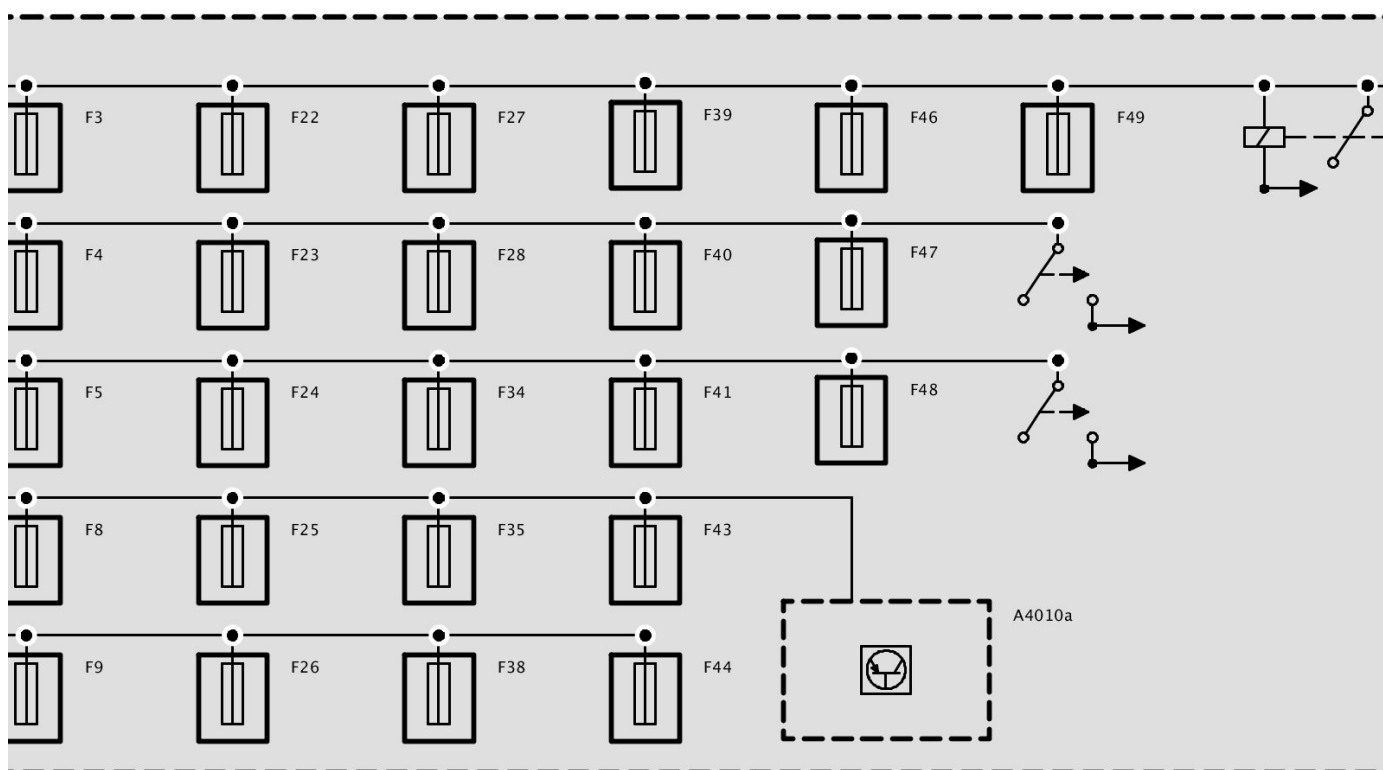
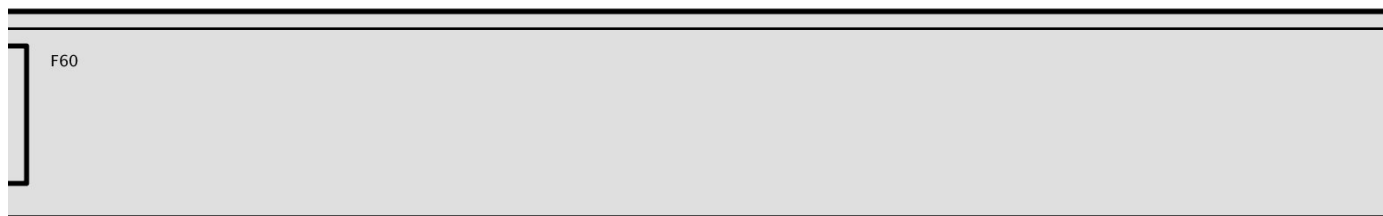




Part 2

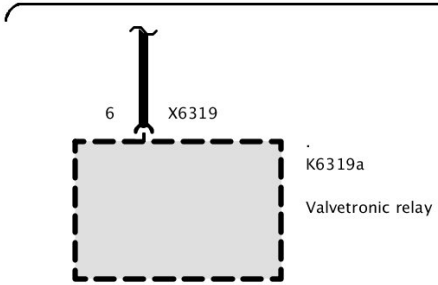


Part 3

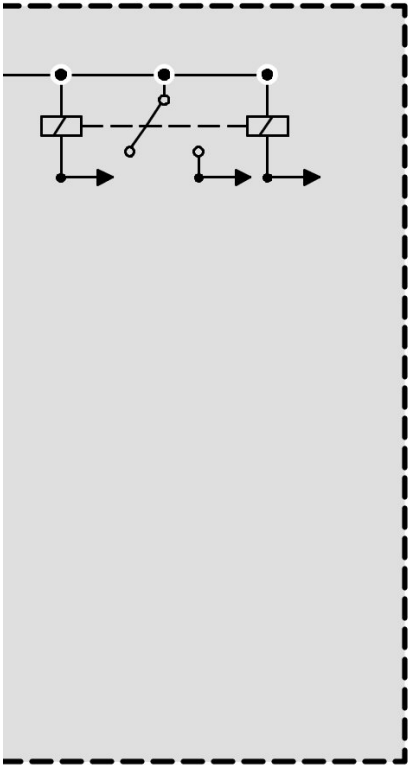


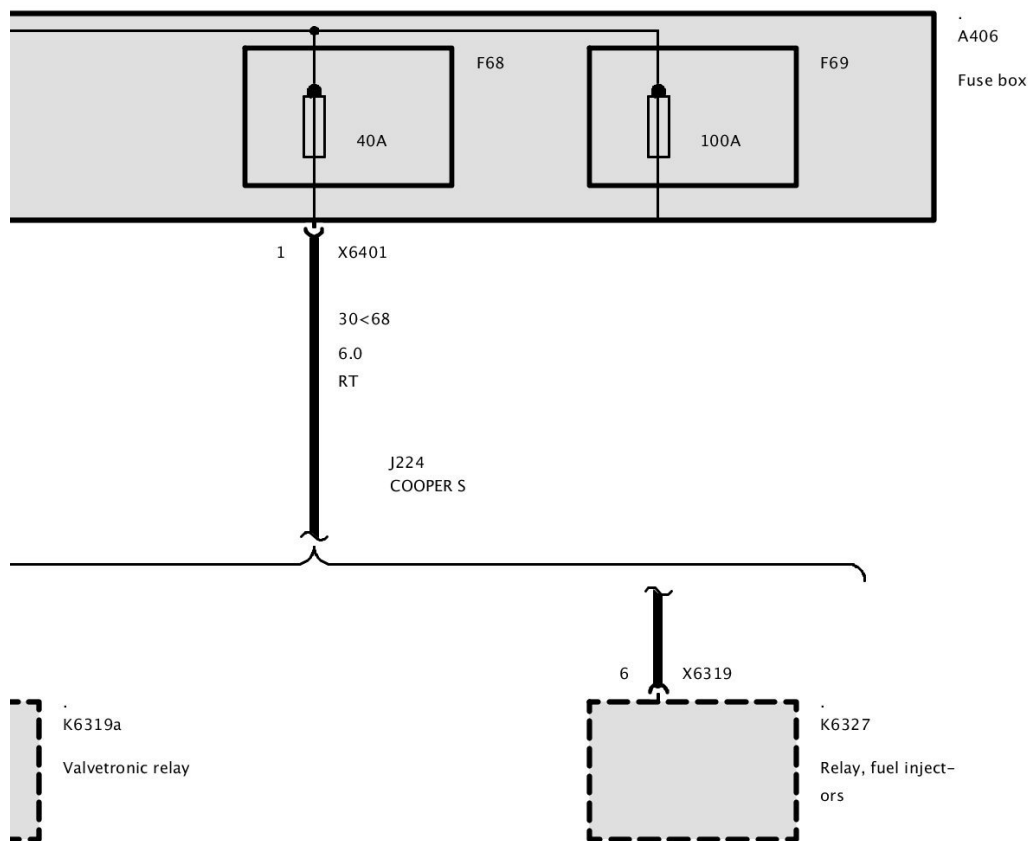
#### Part 4

J225  
not COOPER S



A4010  
Junction box

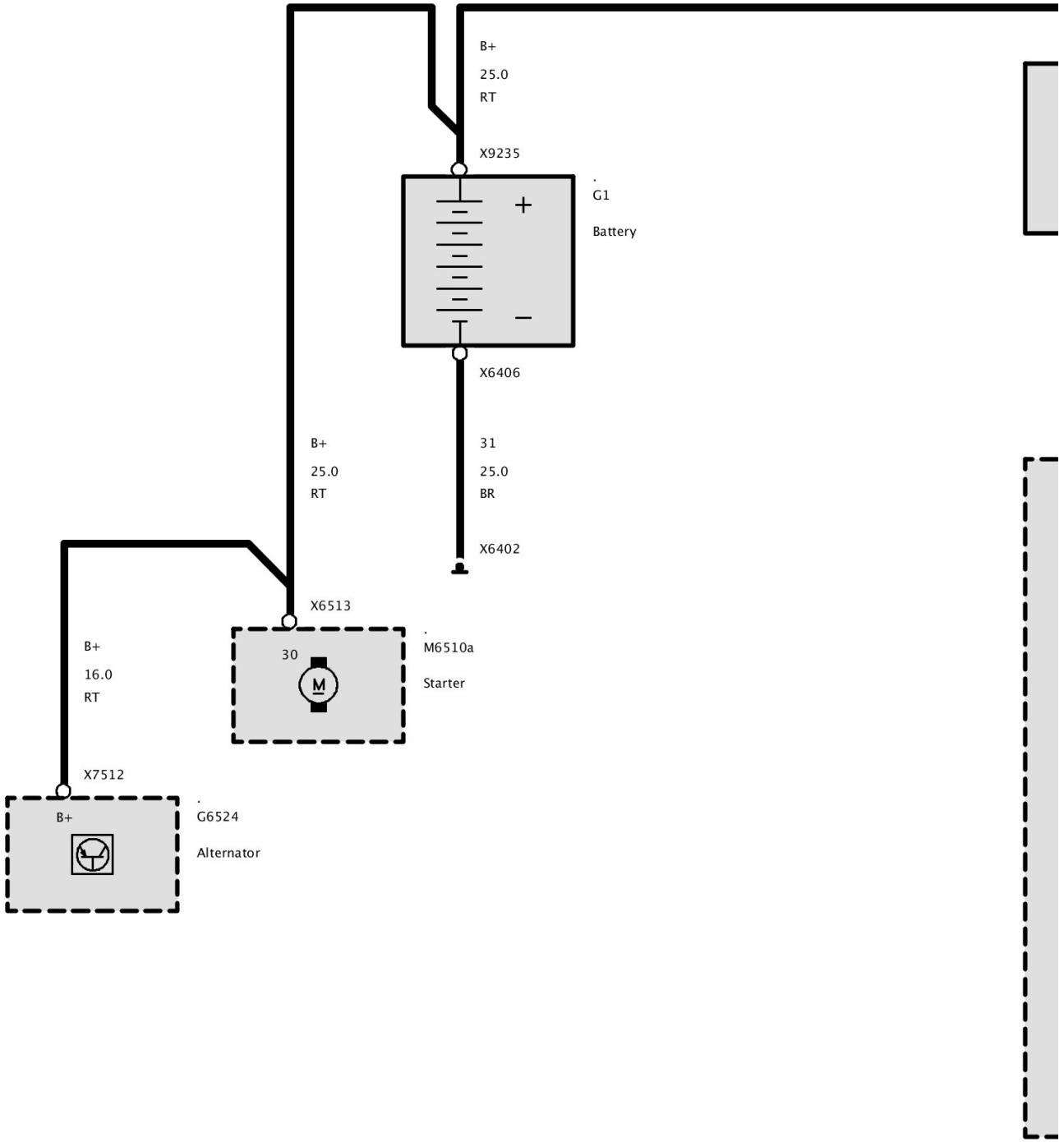




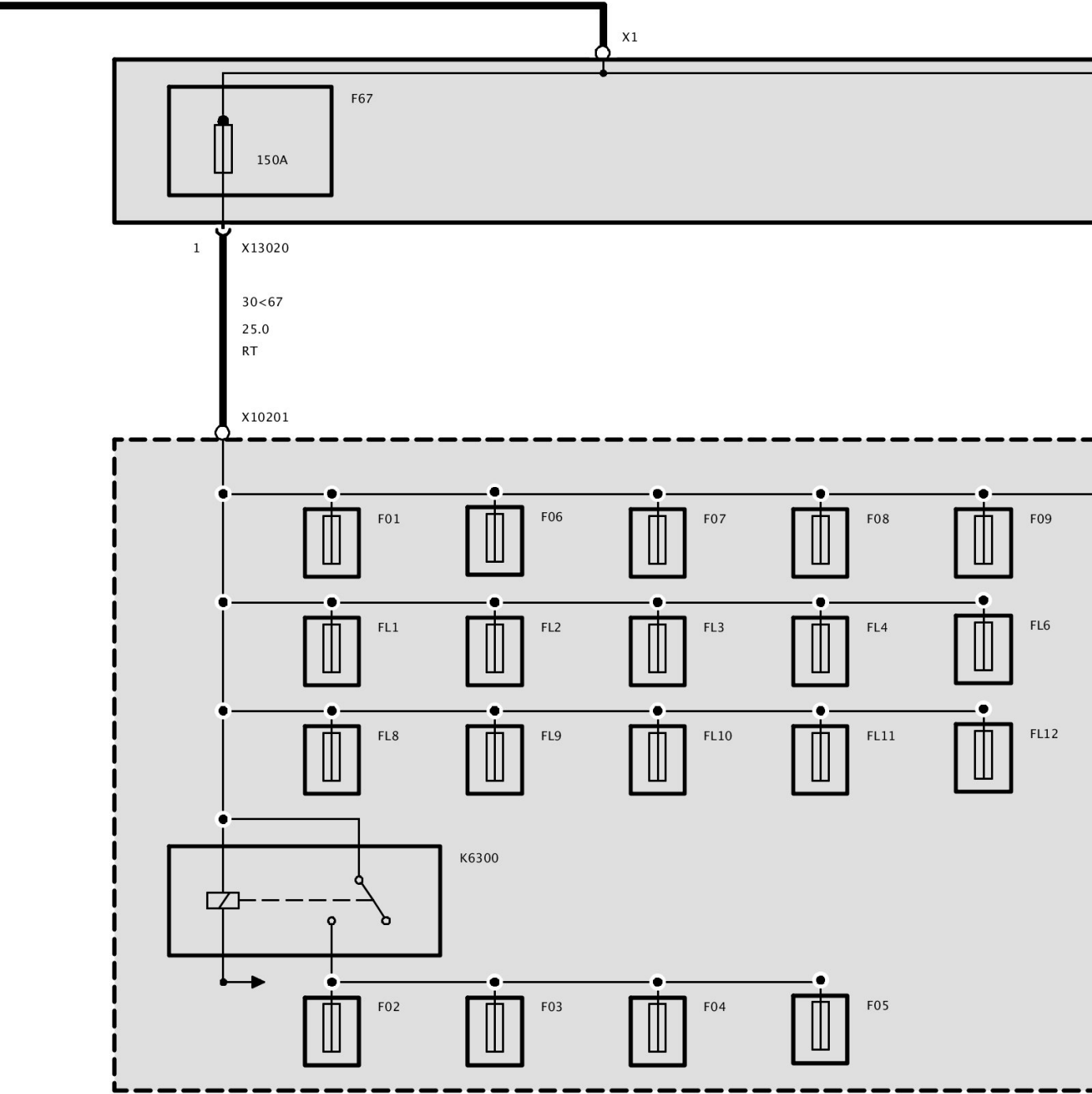
Part 6

F67

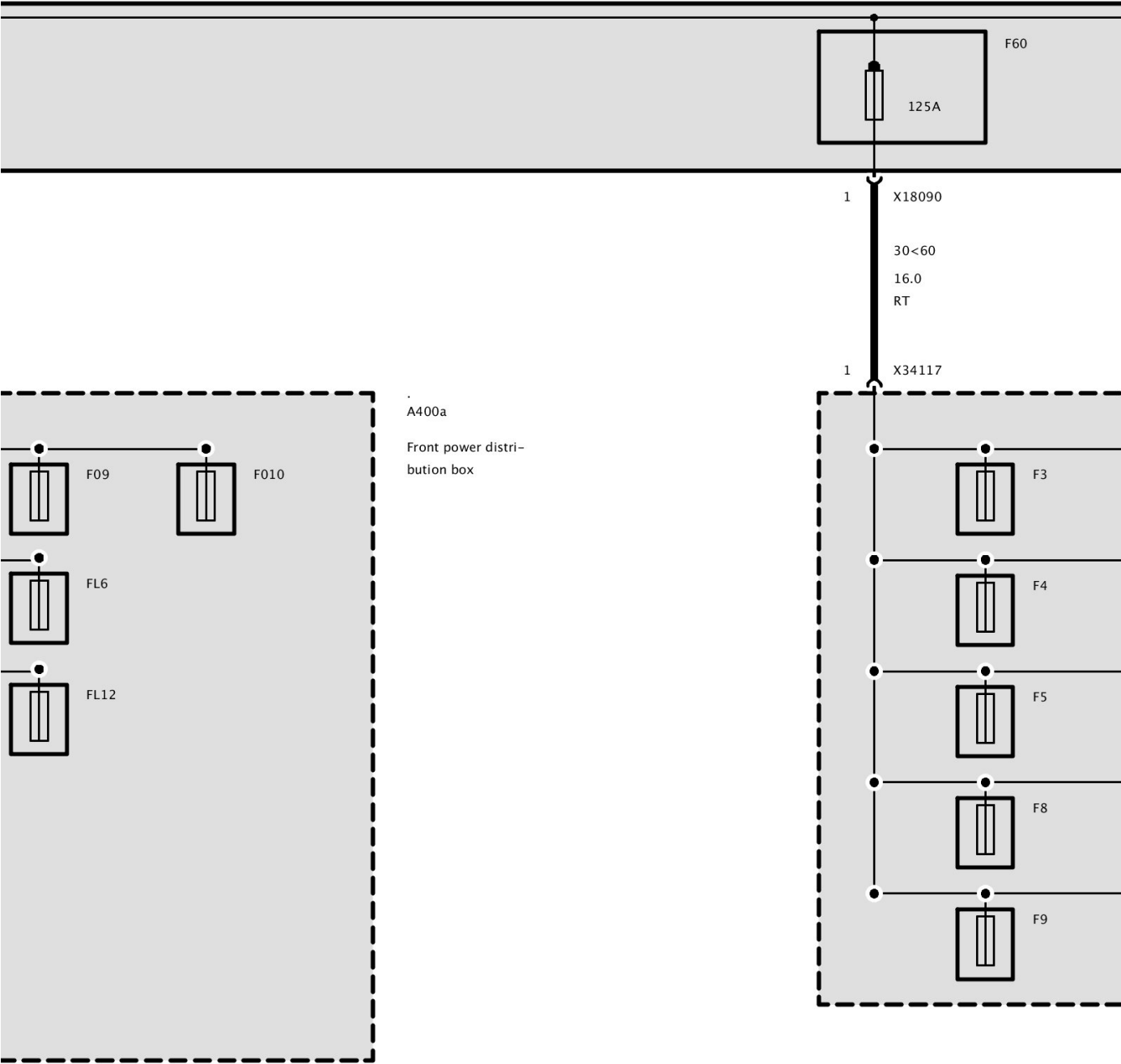
Fuse Supply, Terminal 30



Part 1

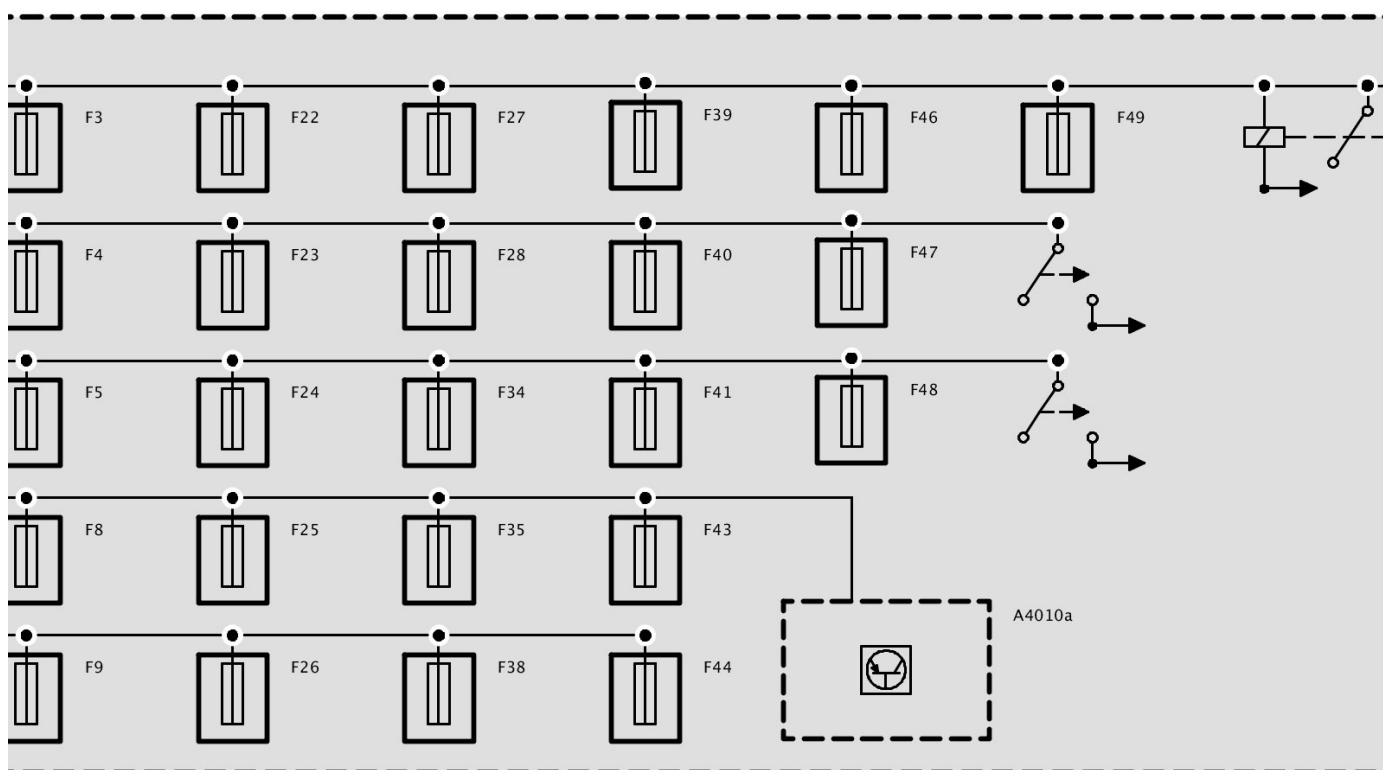
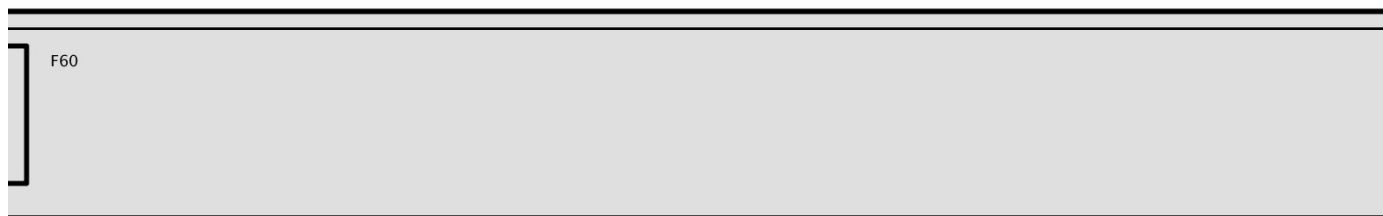


Part 2



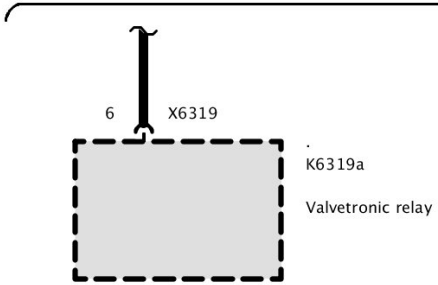
Part 3



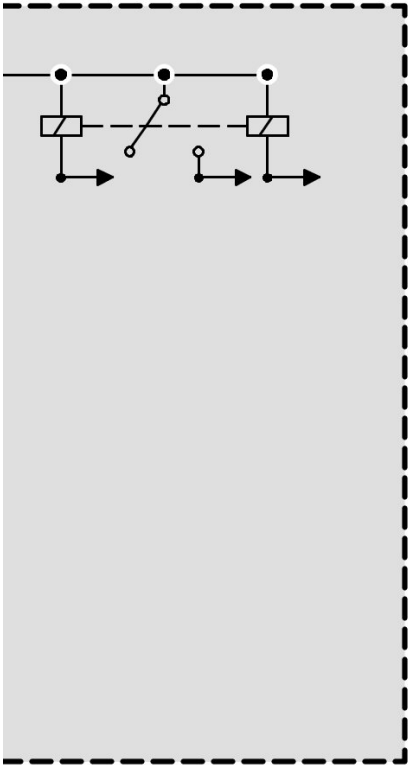


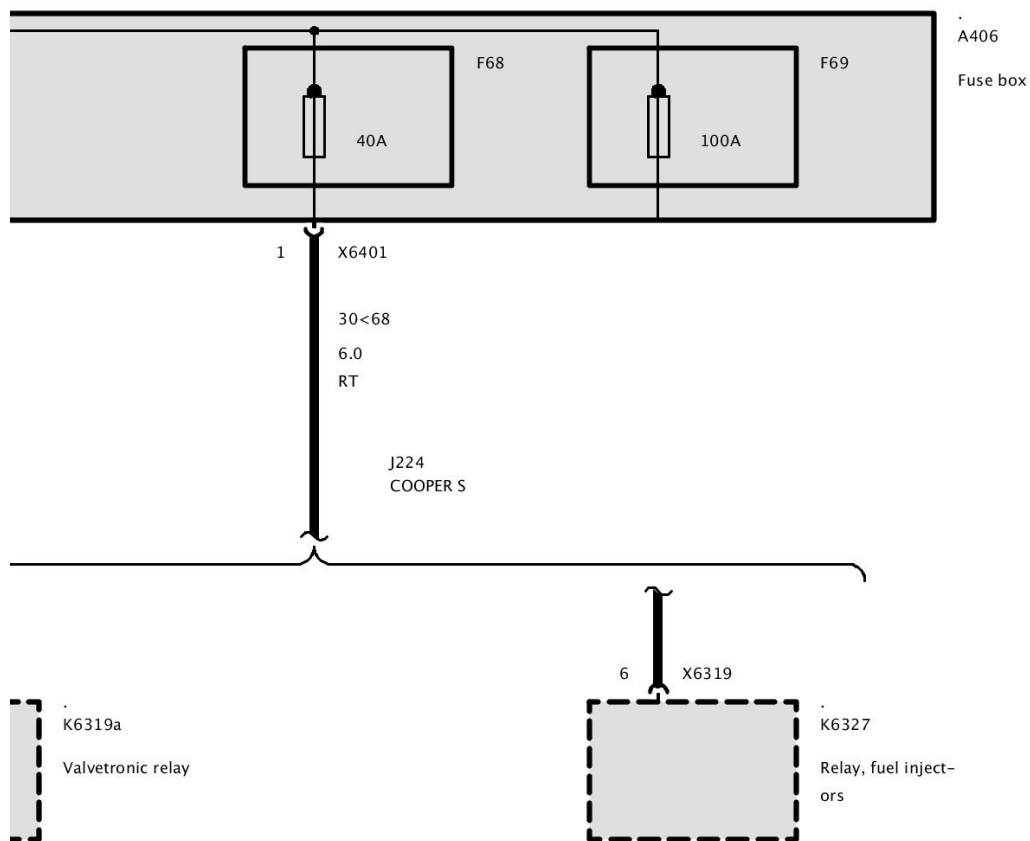
#### Part 4

J225  
not COOPER S



A4010  
Junction box

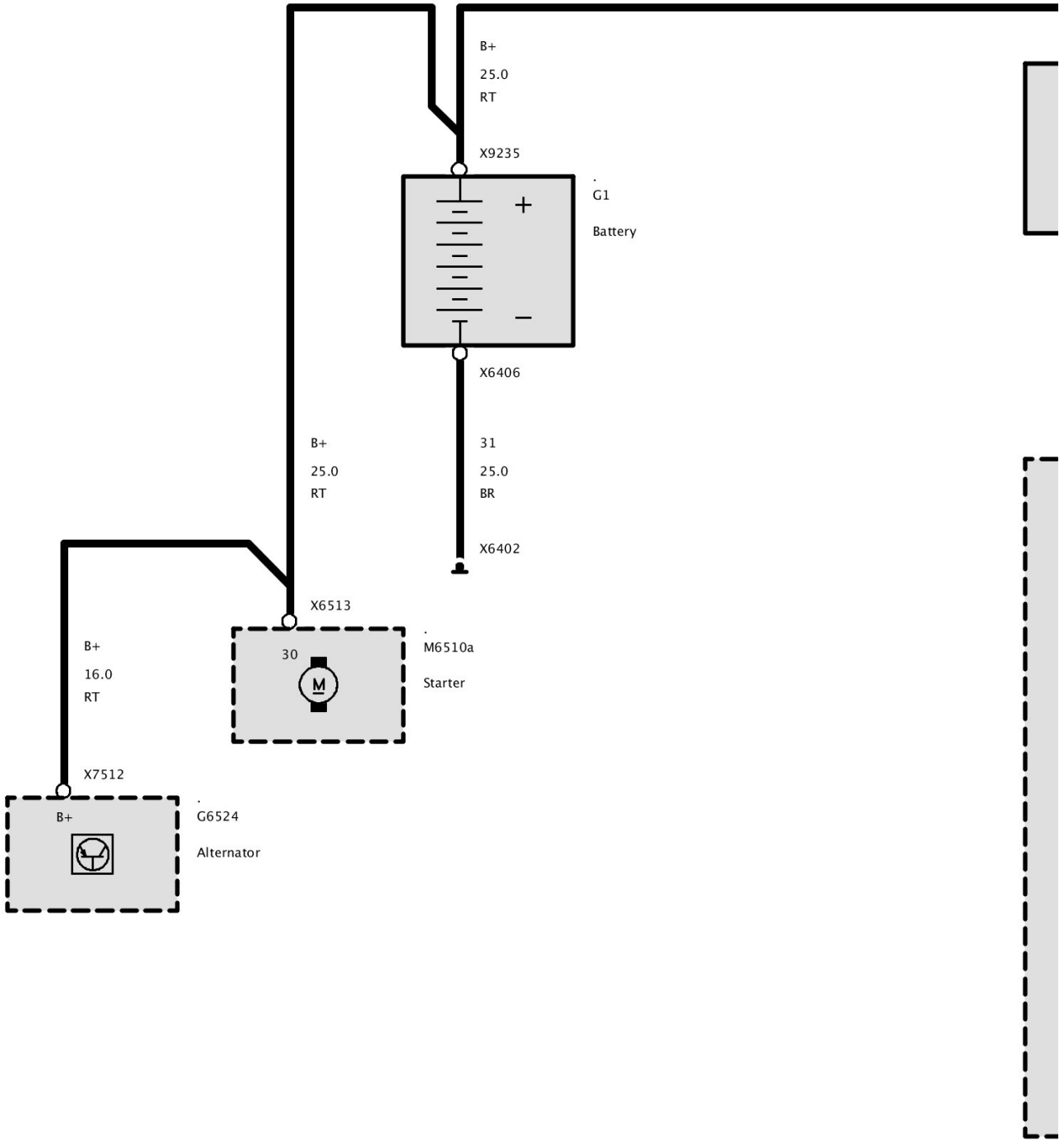




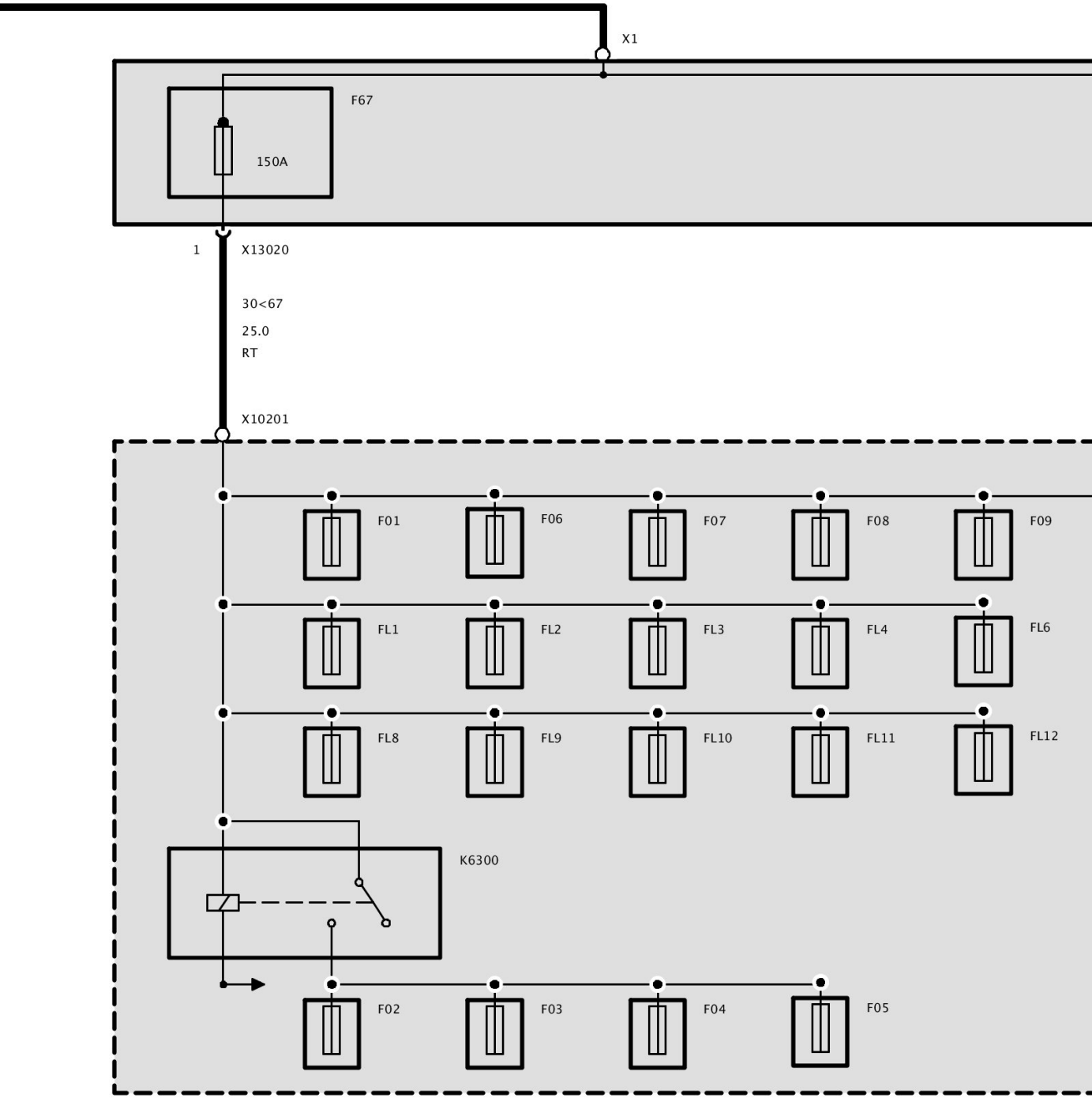
Part 6

F68

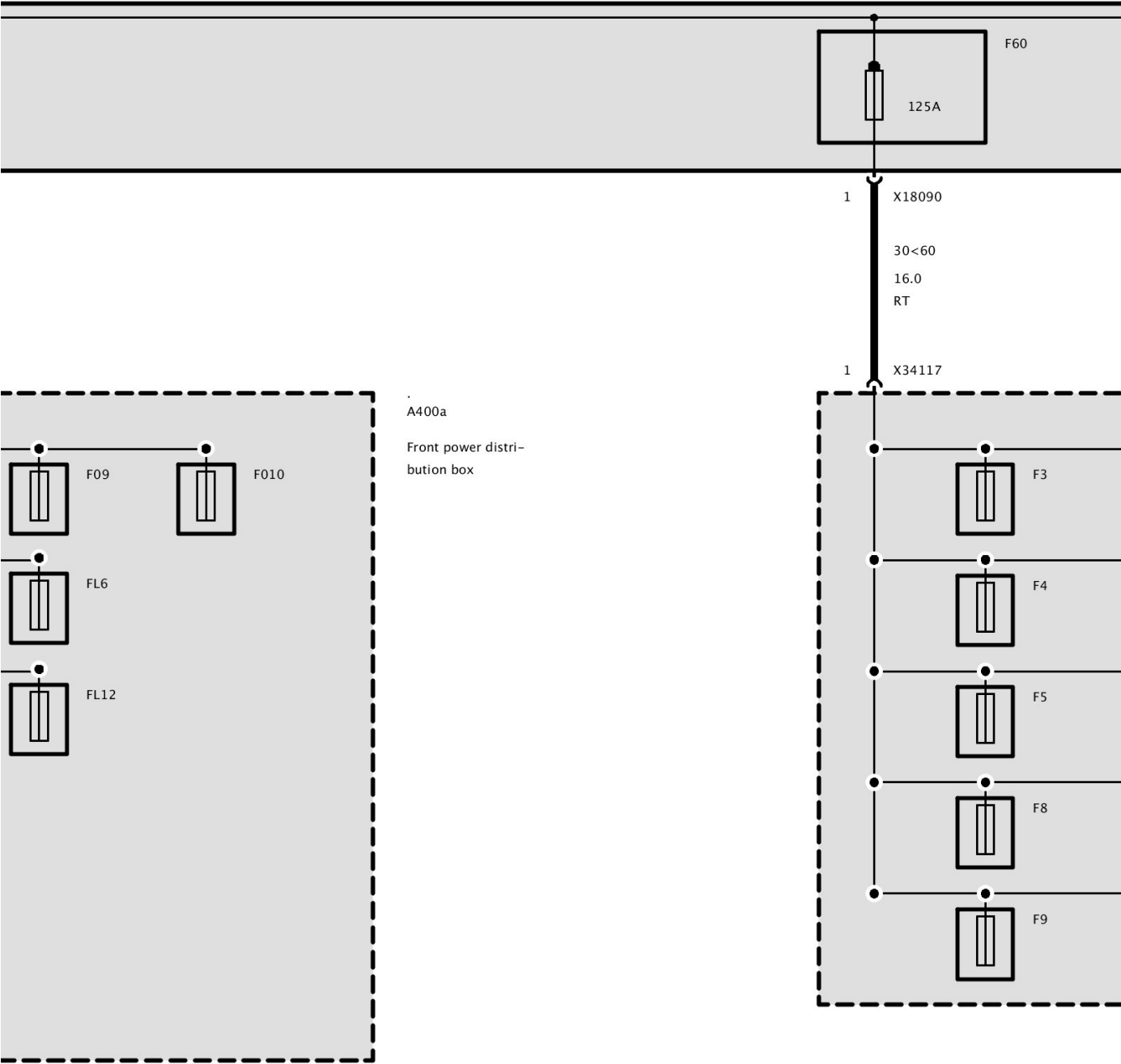
Fuse Supply, Terminal 30



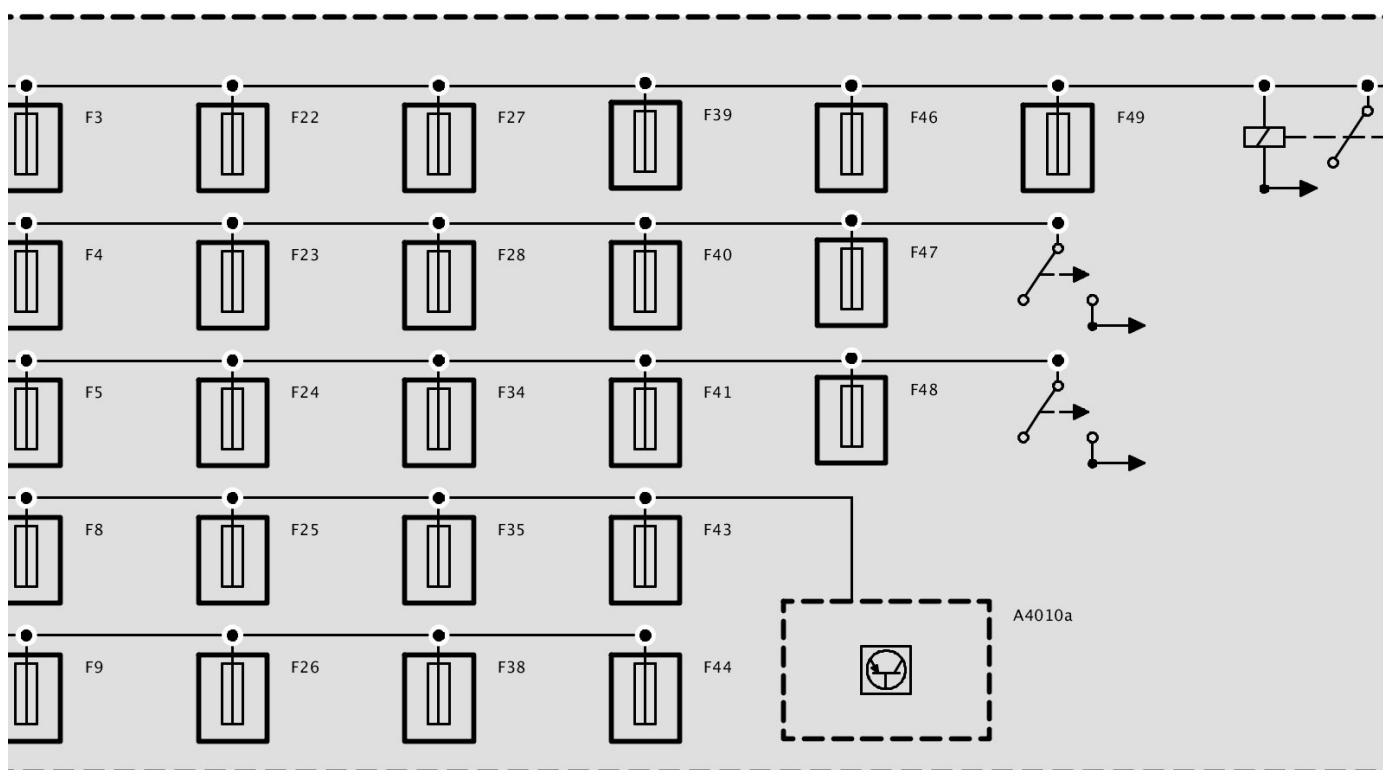
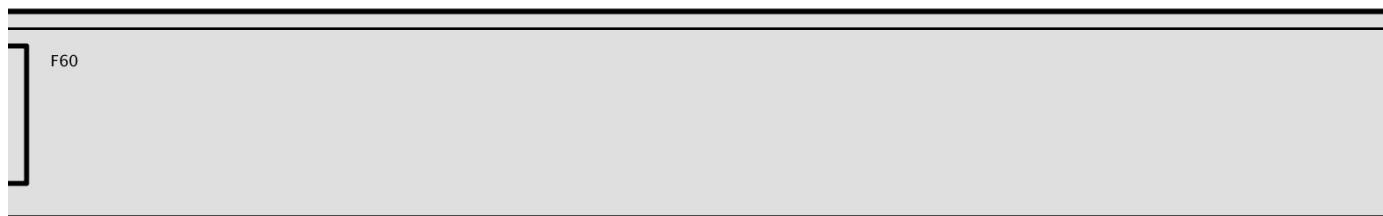
Part 1



Part 2

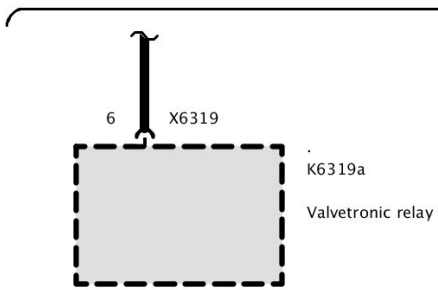


Part 3

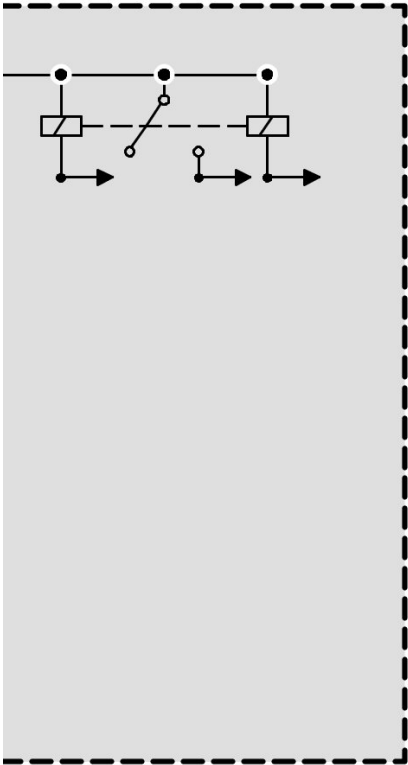


#### Part 4

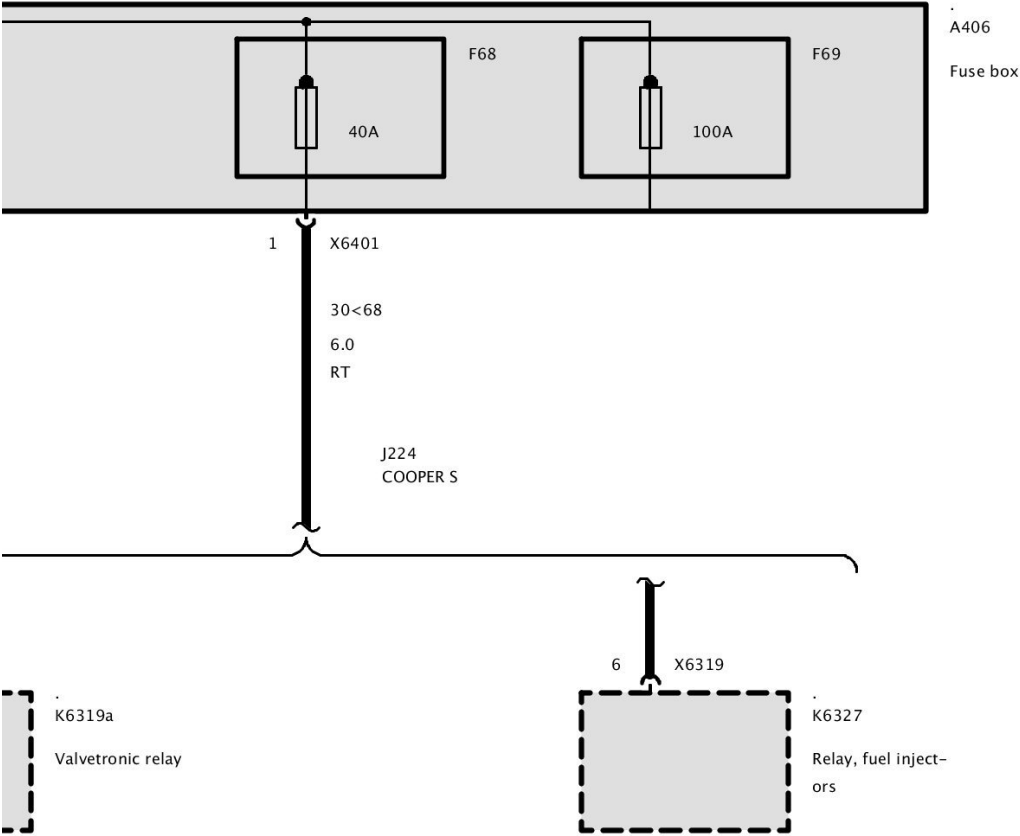
J225  
not COOPER S



A4010  
Junction box



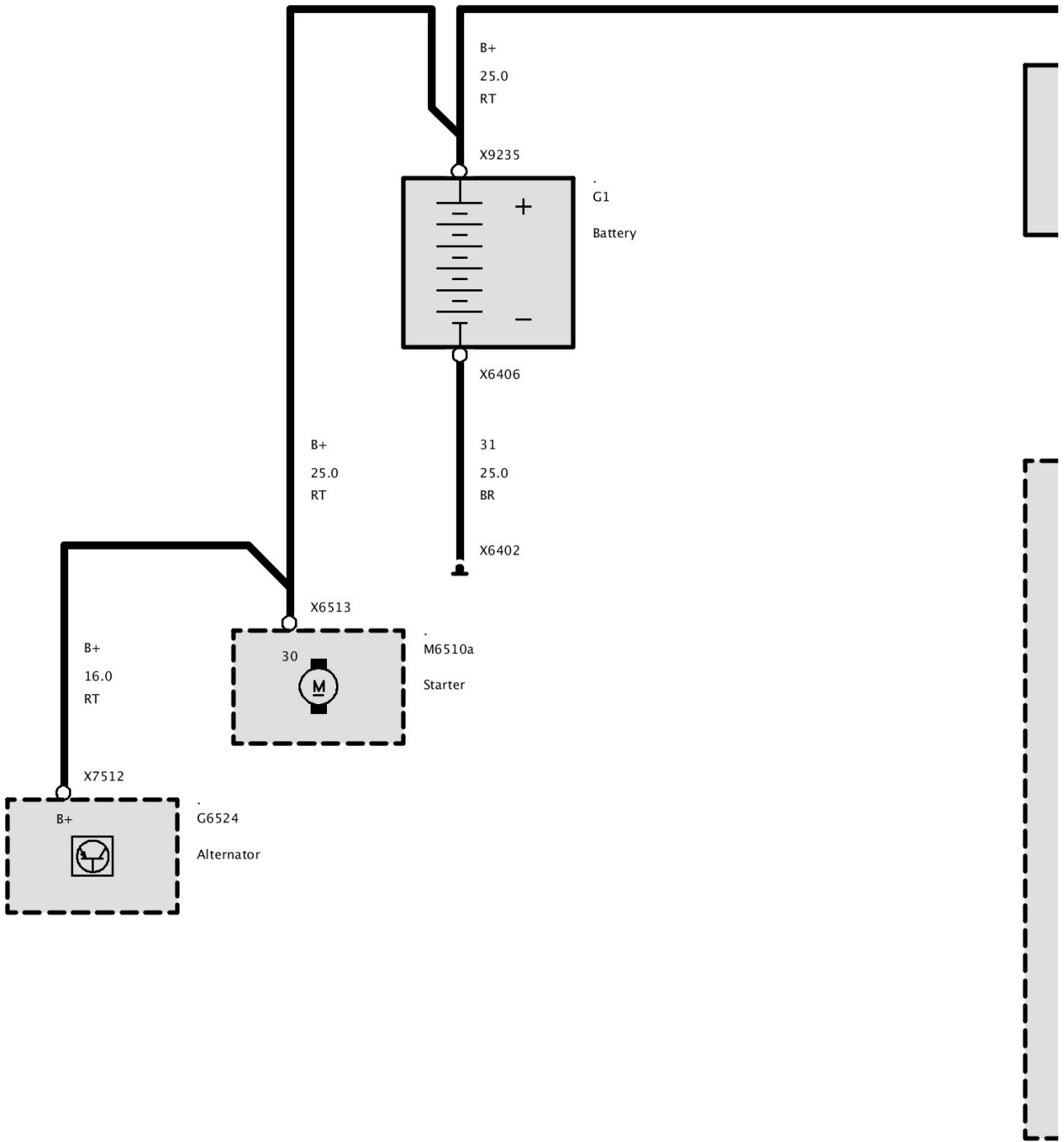




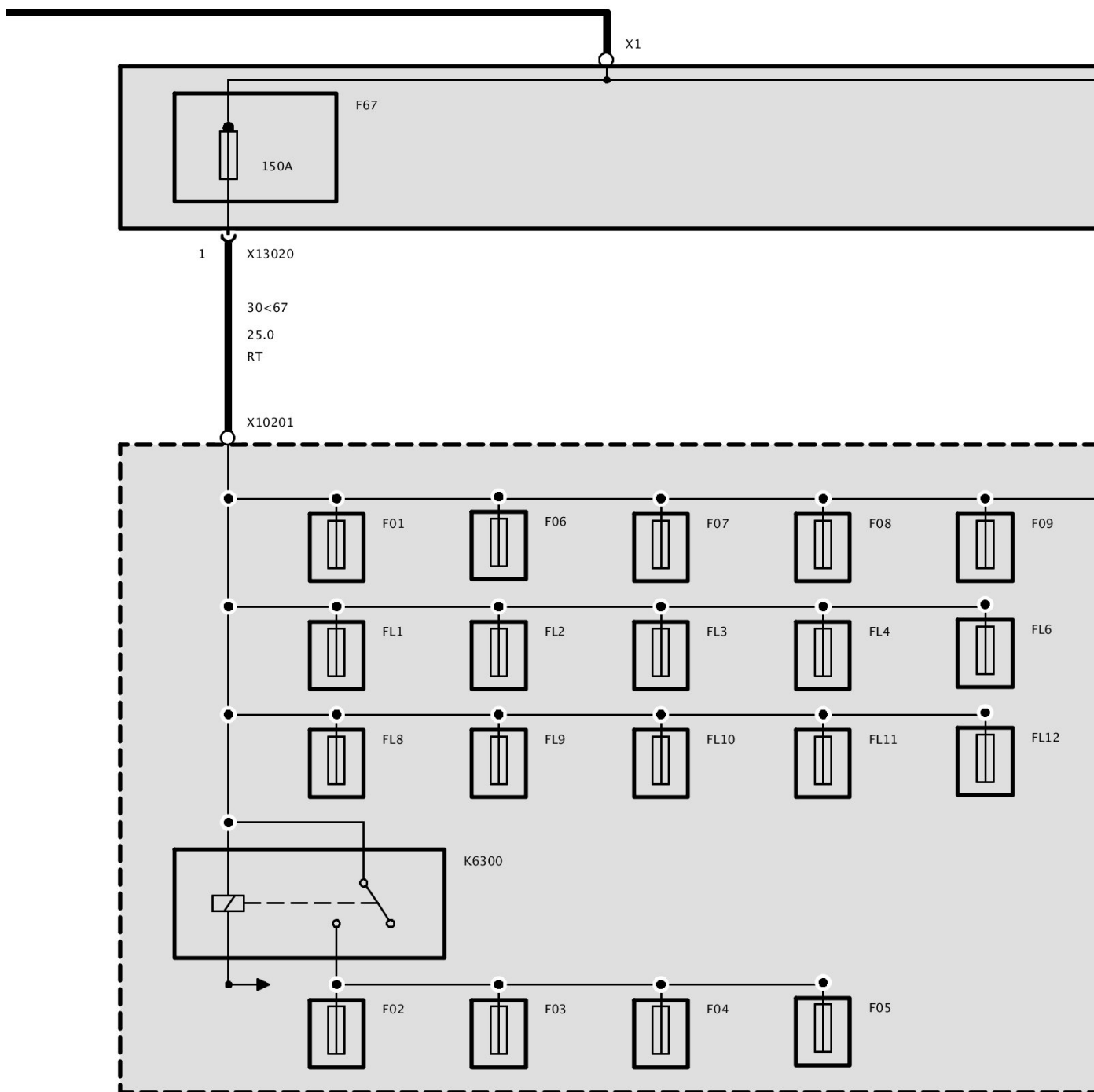
Part 6

F69

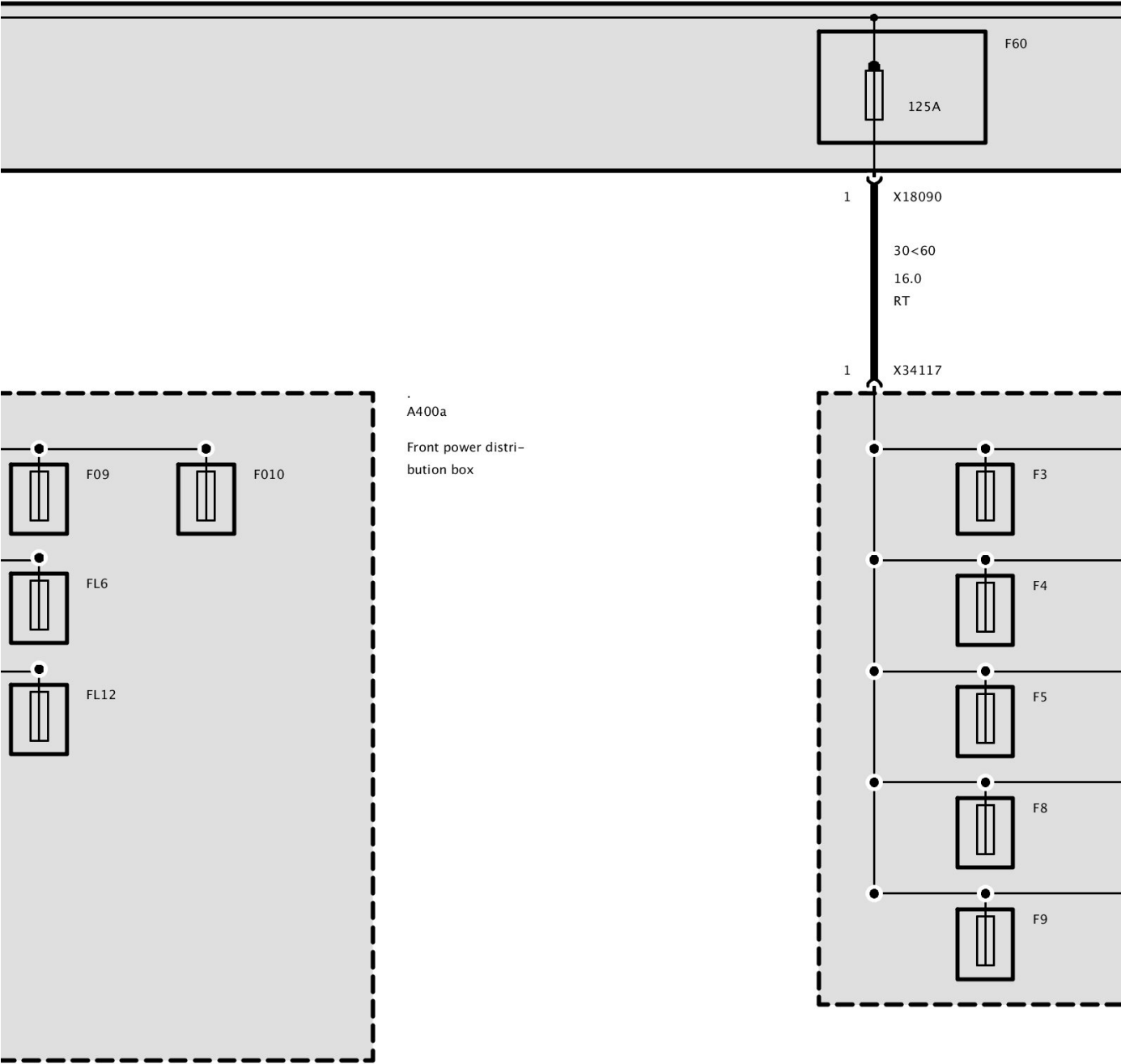
Fuse Supply, Terminal 30



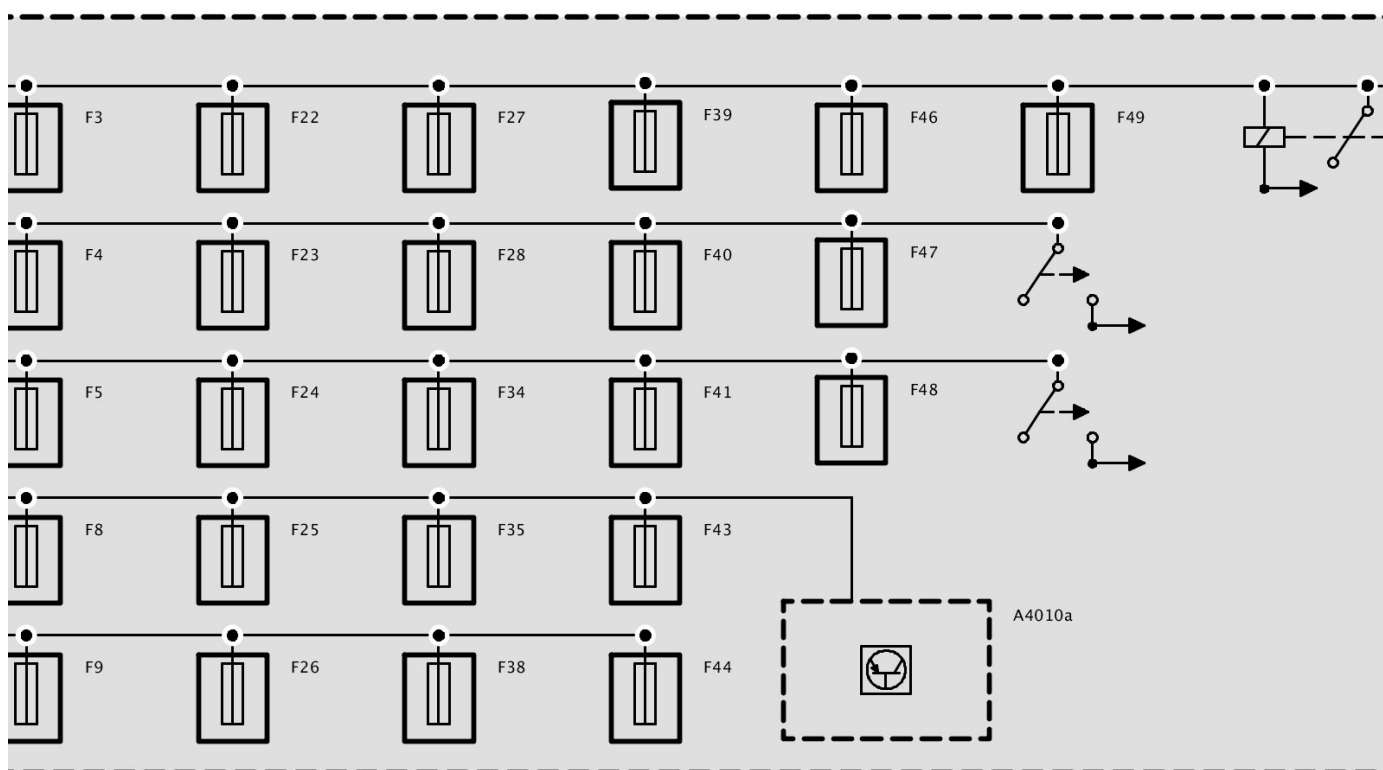
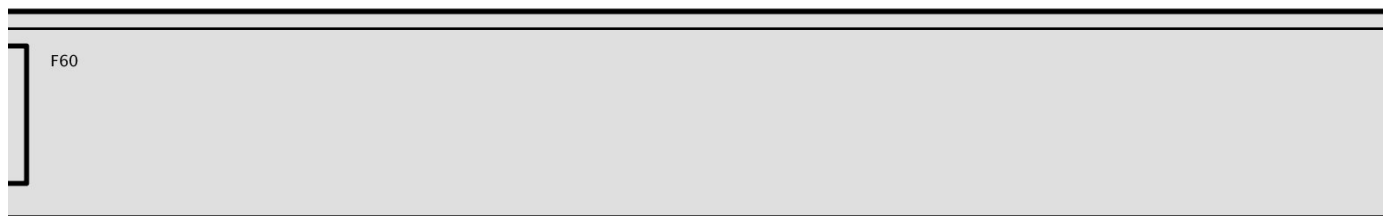
Part 1



jmoraflores@hotmail.cl

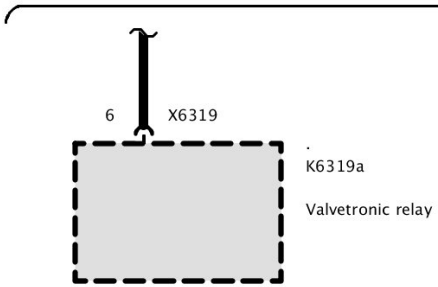


Part 3

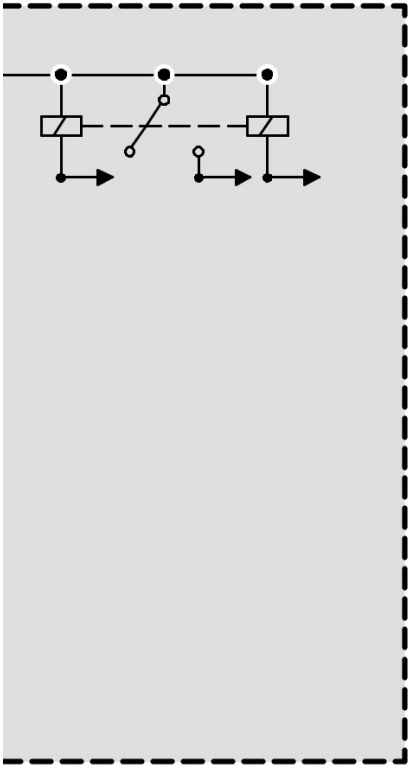


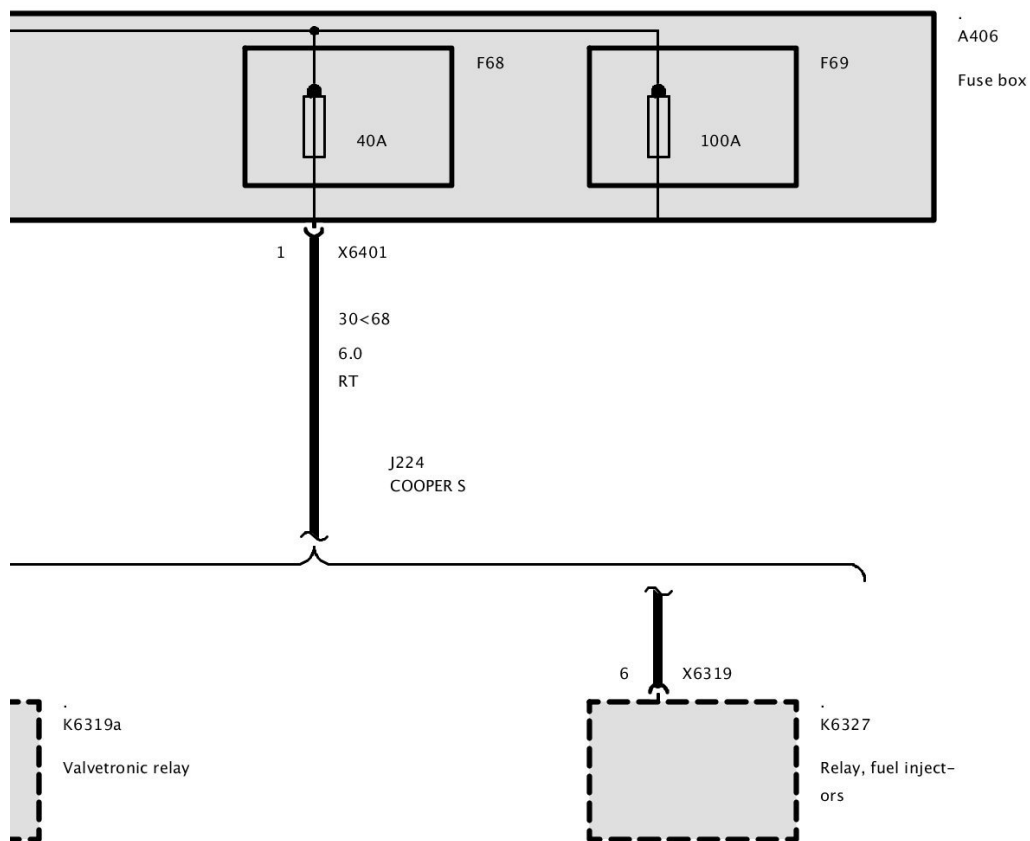
#### Part 4

J225  
not COOPER S



A4010  
Junction box

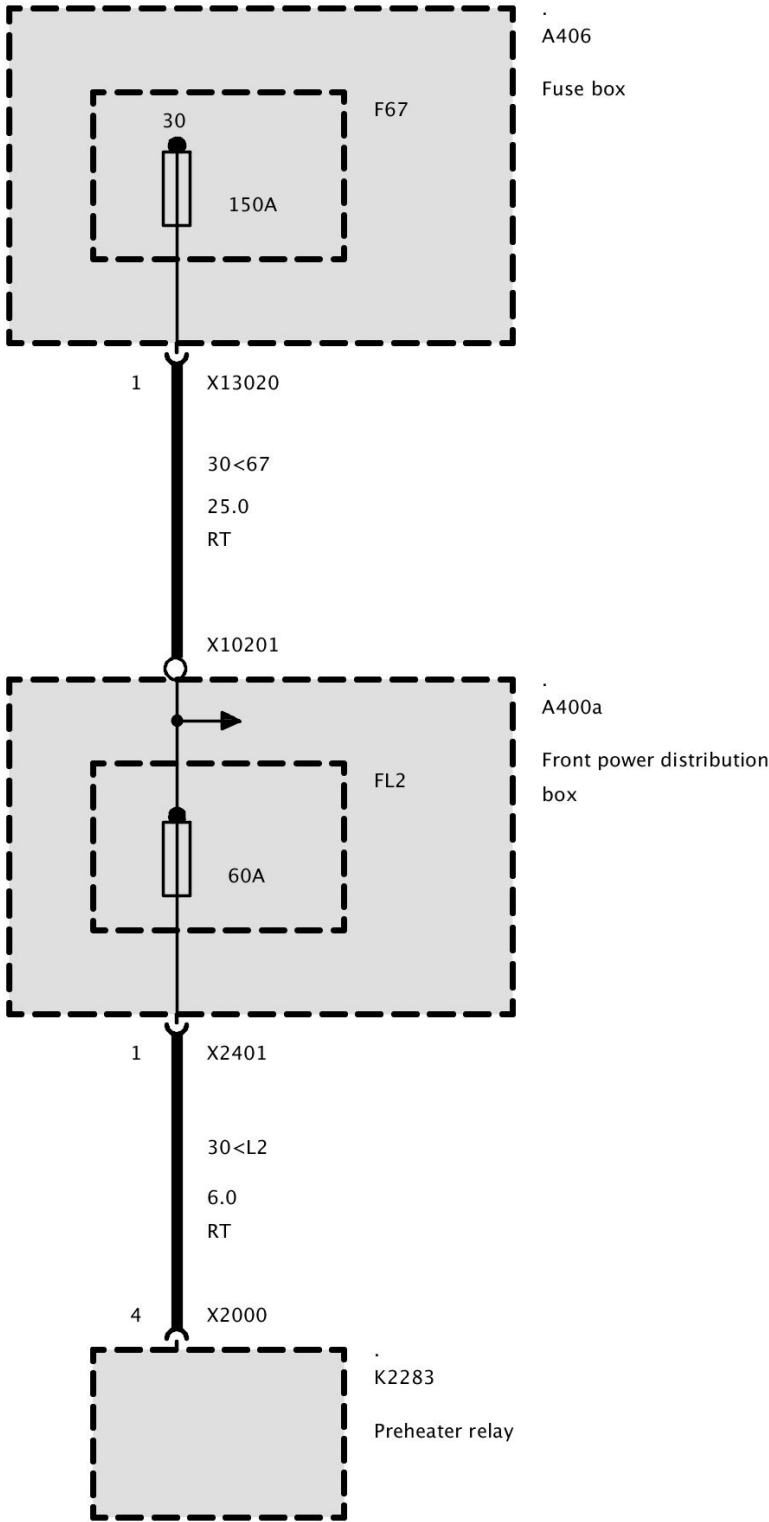




Part 6

FL2

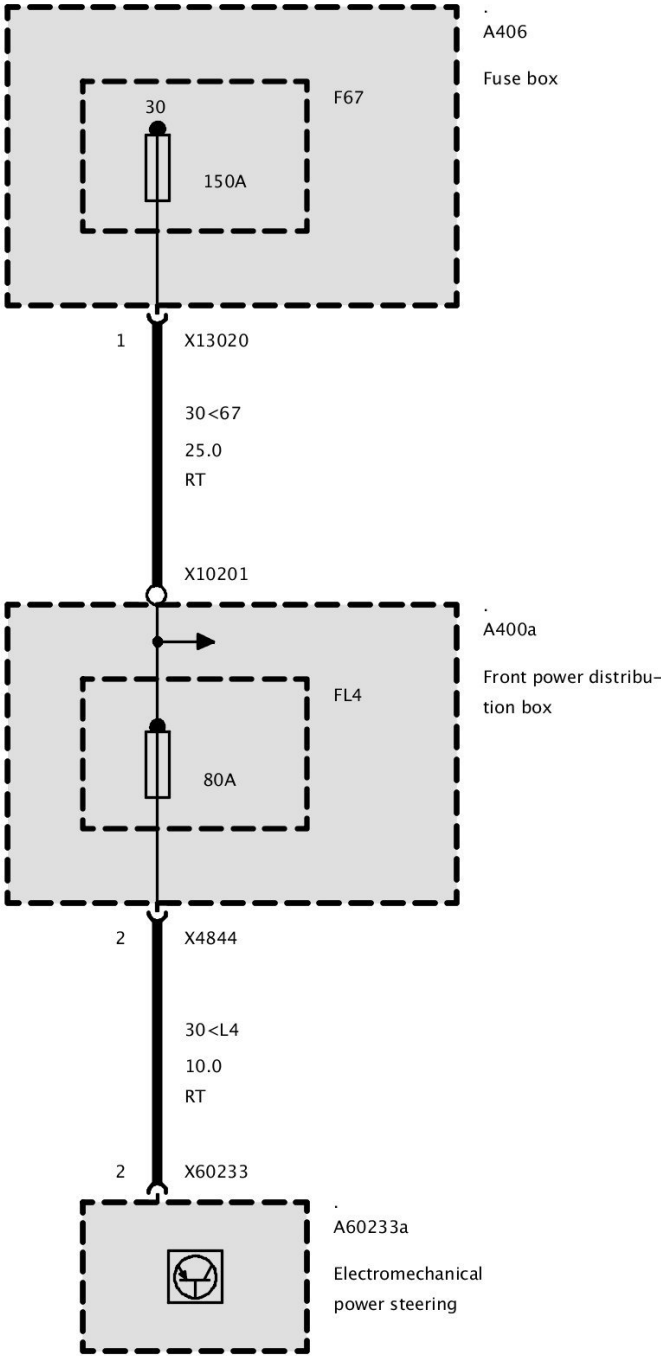
Fuse FL2 (Engine)



**FL4**

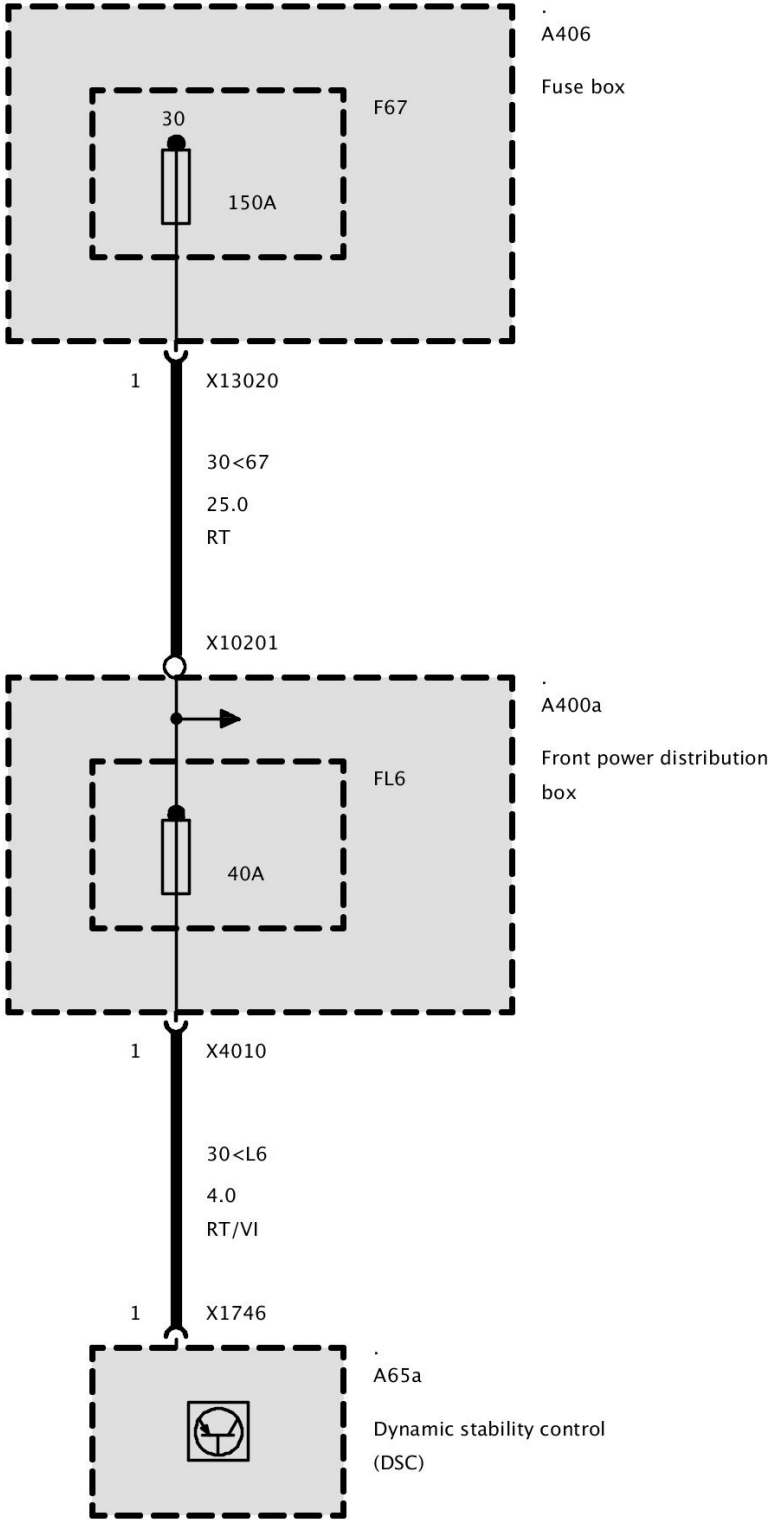
Fuse FL4





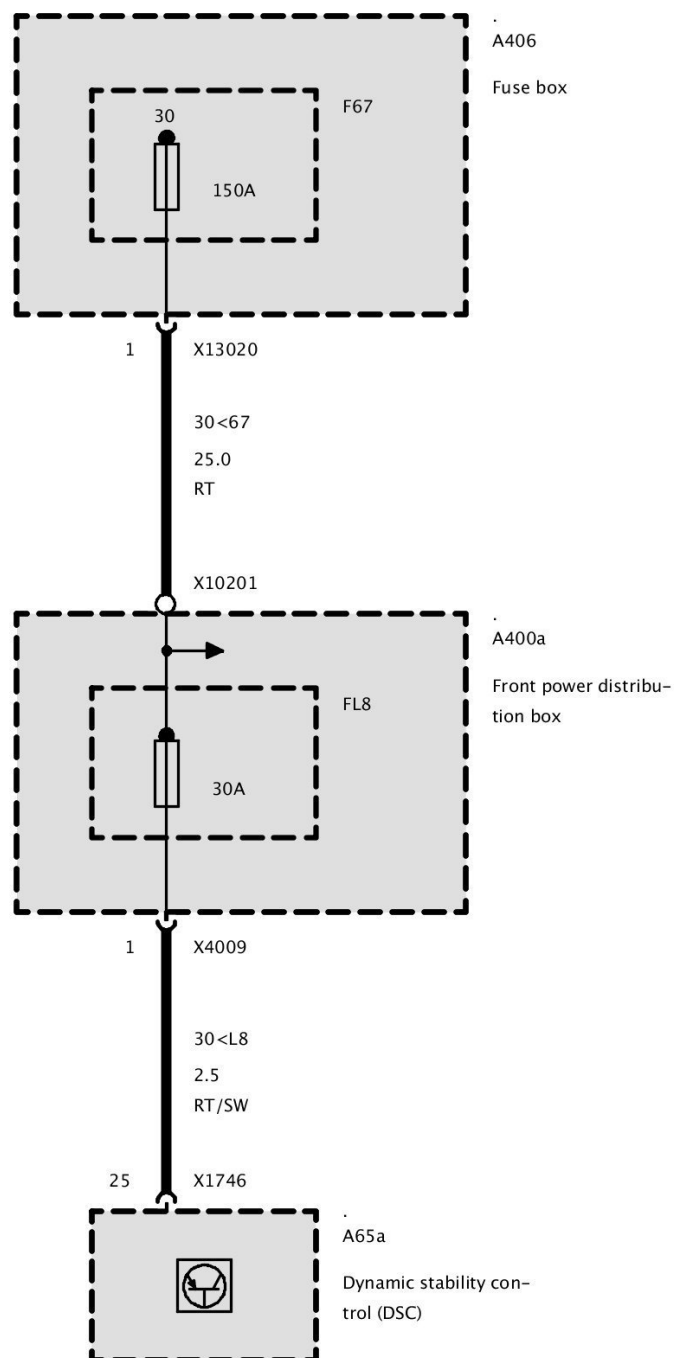
**FL6**

Fuse FL6



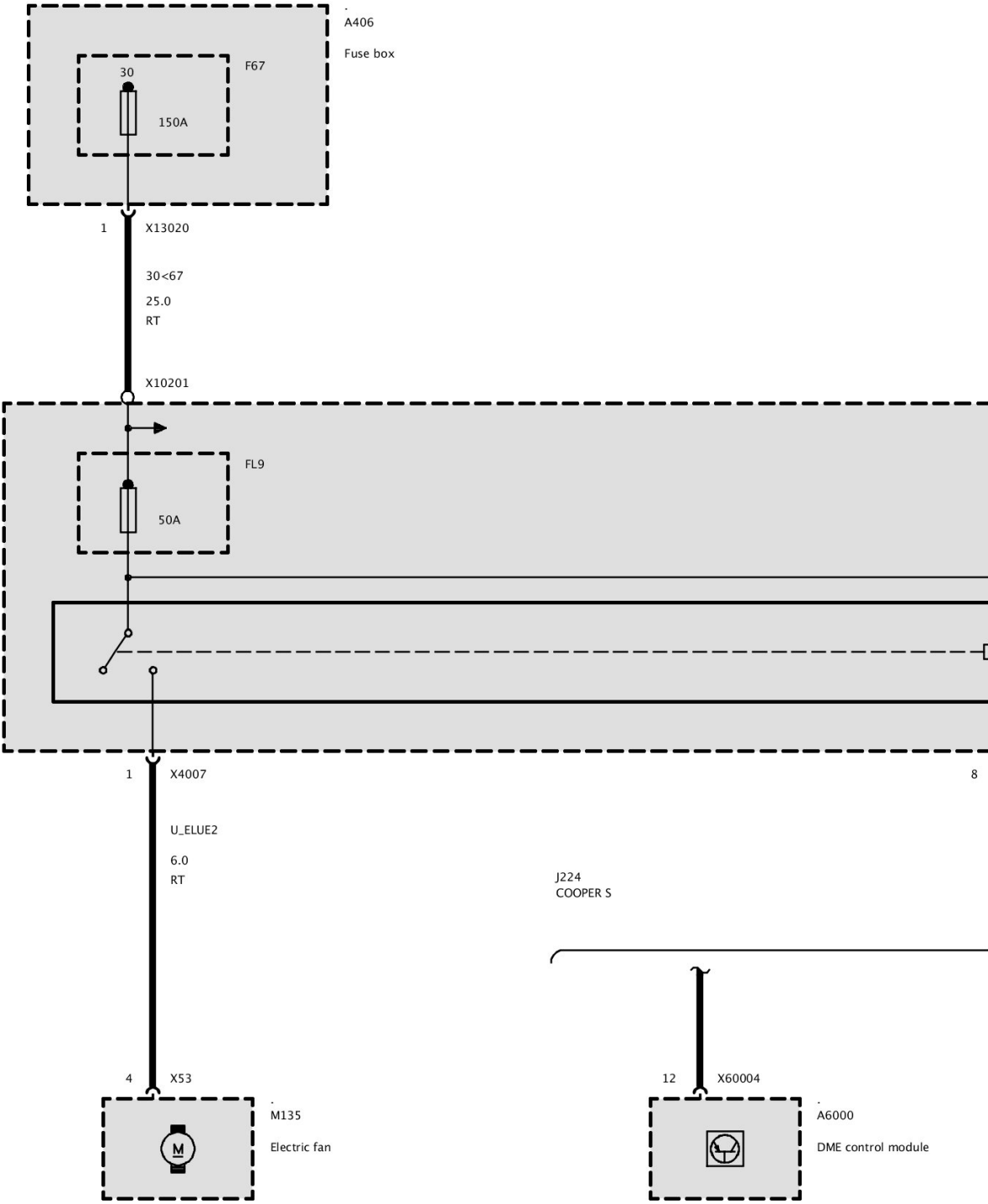
**FL8**

Fuse FL8

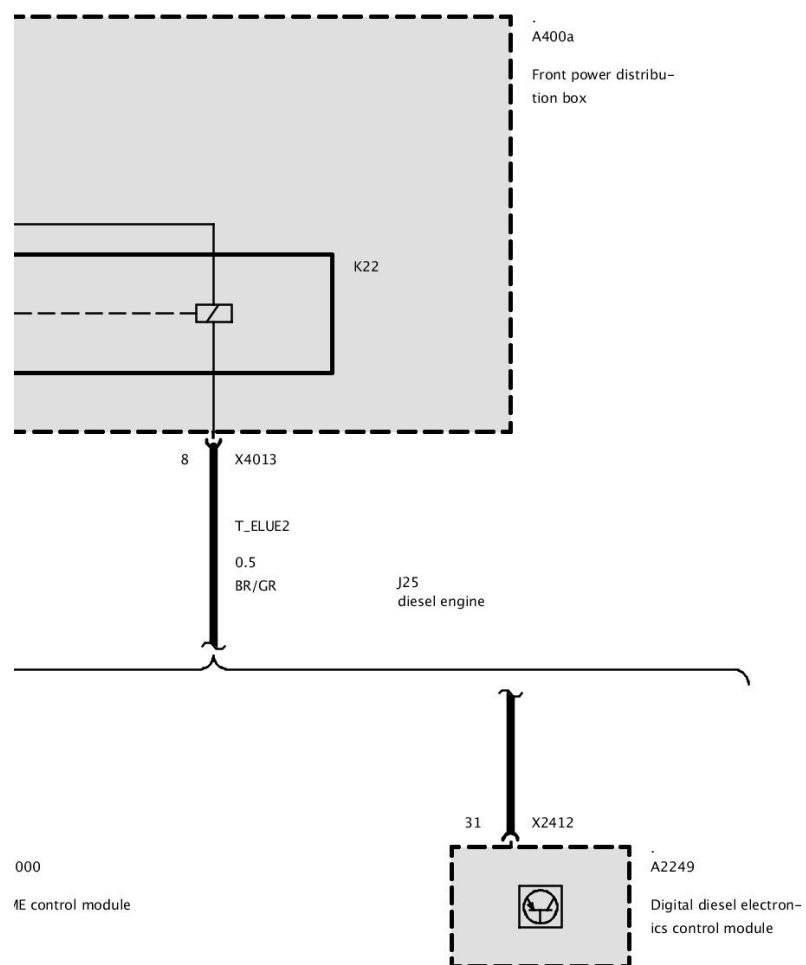


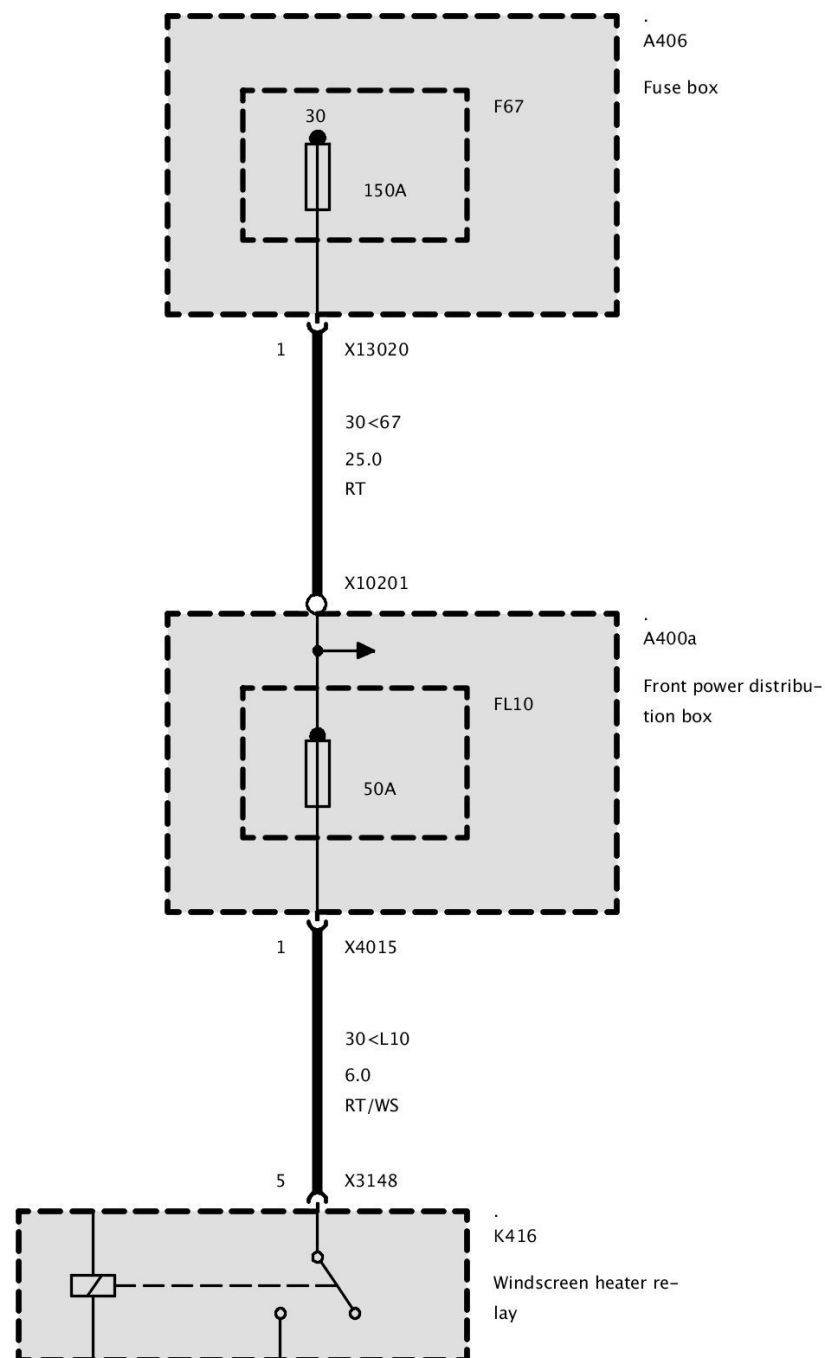
## FL9

Fuse FL9



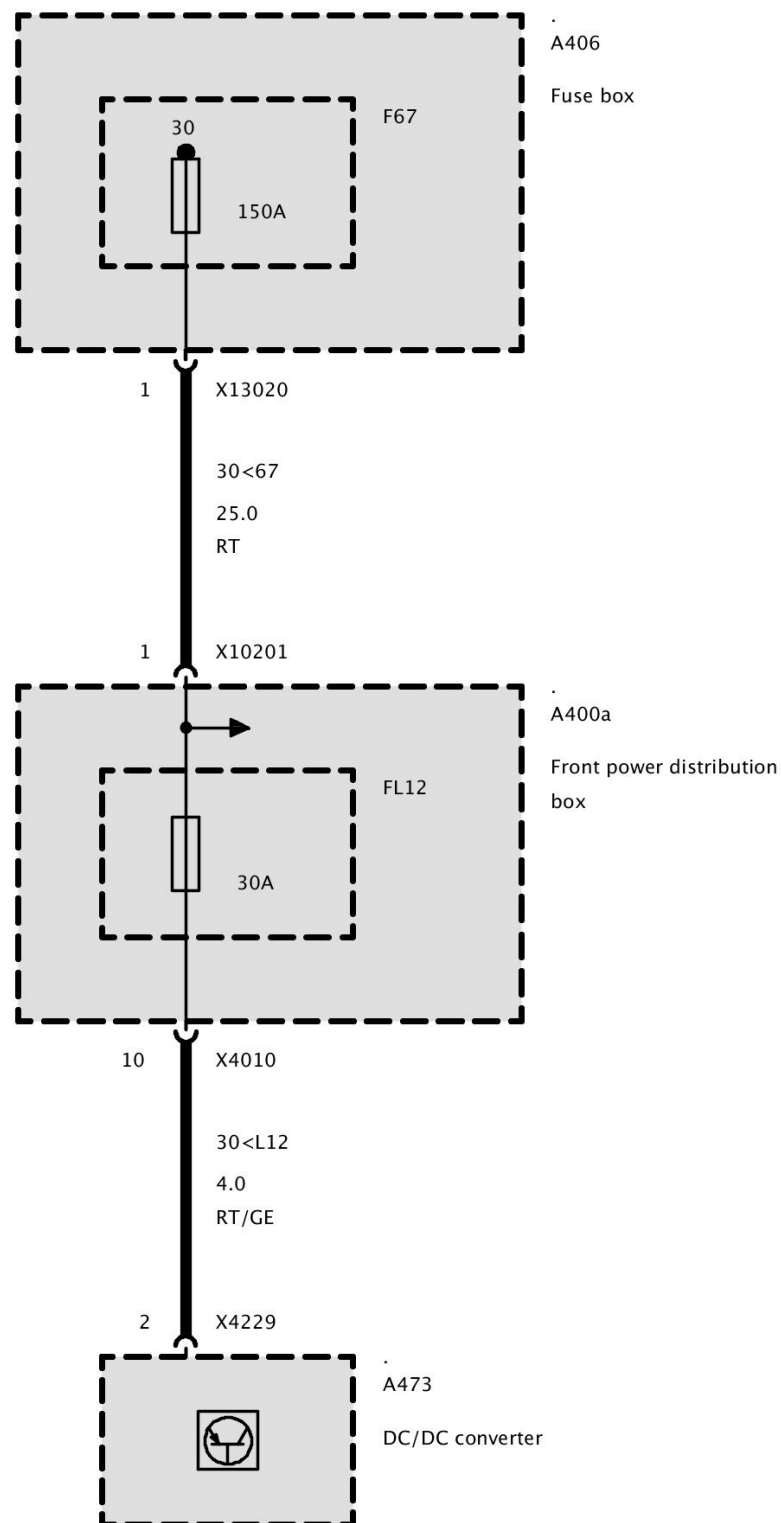
Part 1

**Part 2****FL10****Fuse FL10 (As of 03/08)**



## FL12

Fuse FL12



## Fuse Block

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

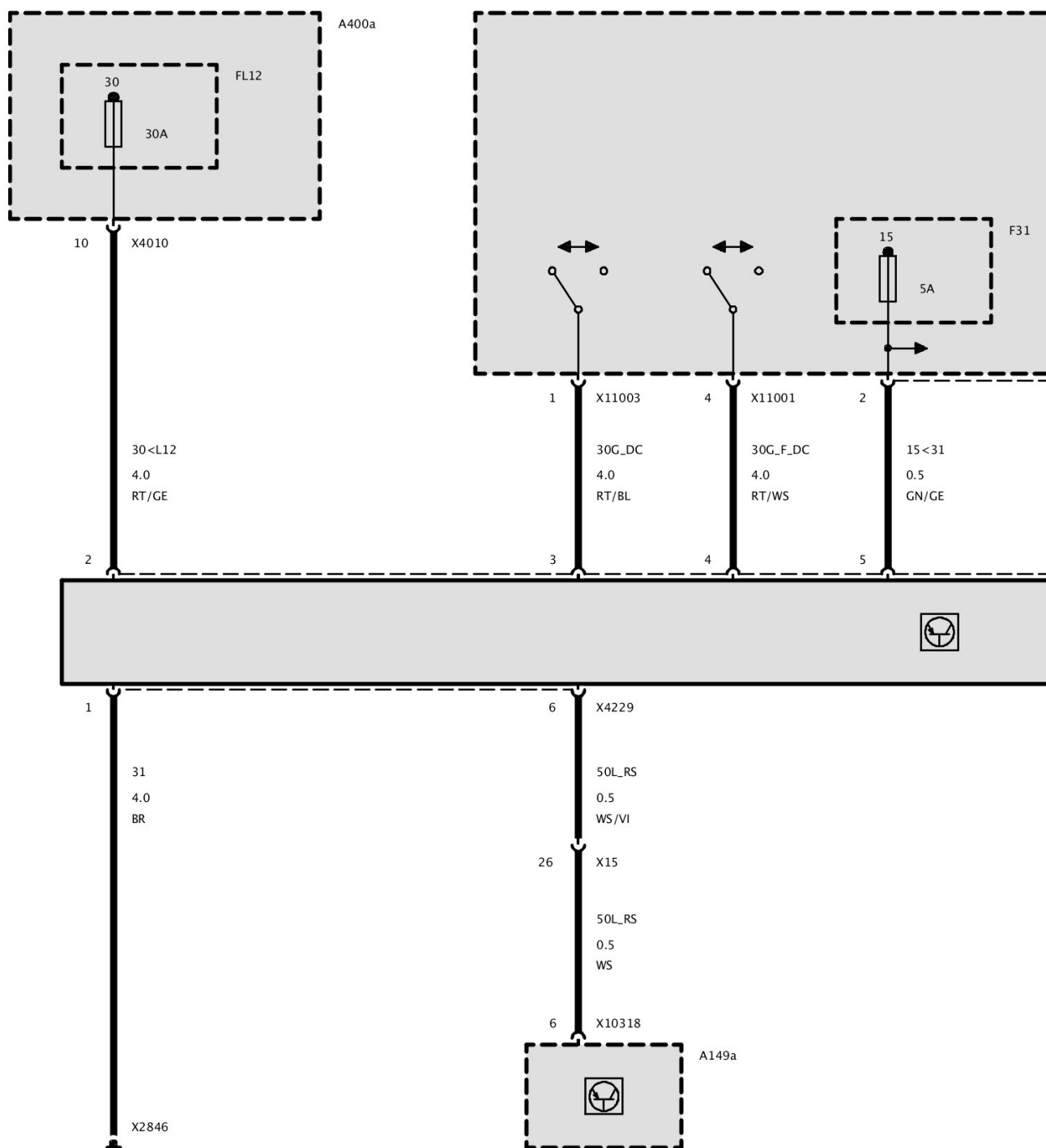
Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and

## Power Distribution Module

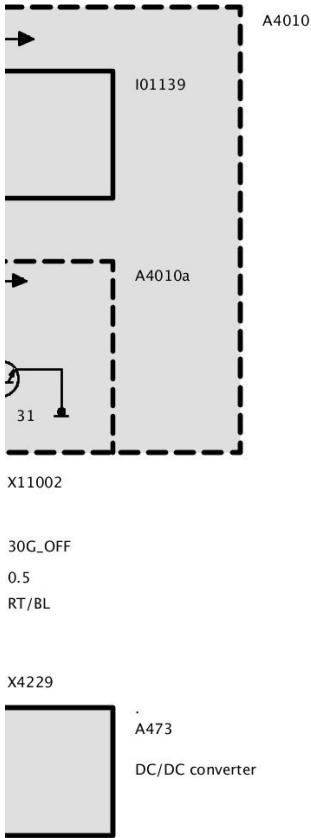
### A473 DC/DC Converter



Part 1





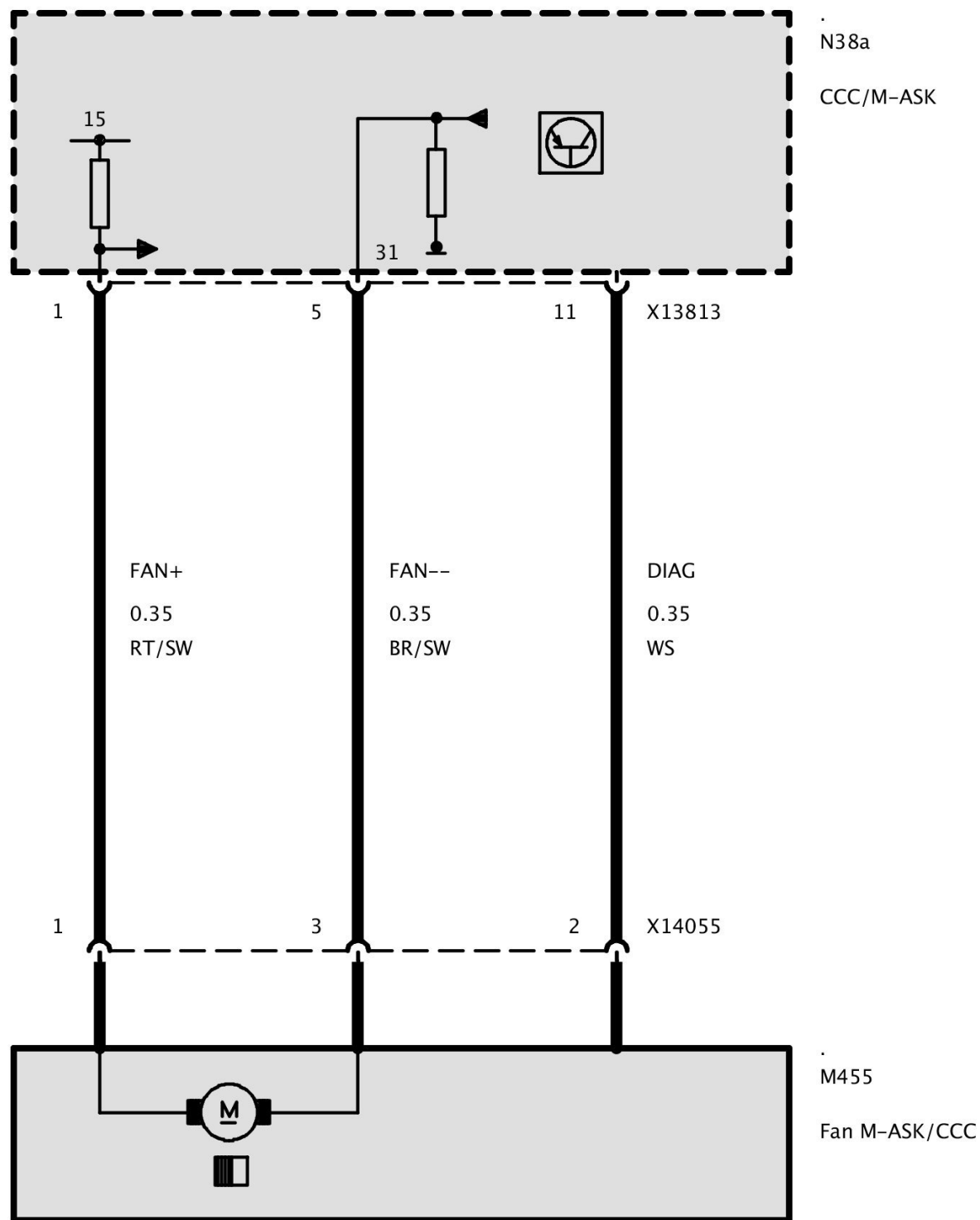


Part 3

M455 Fan M-ASK/CCC

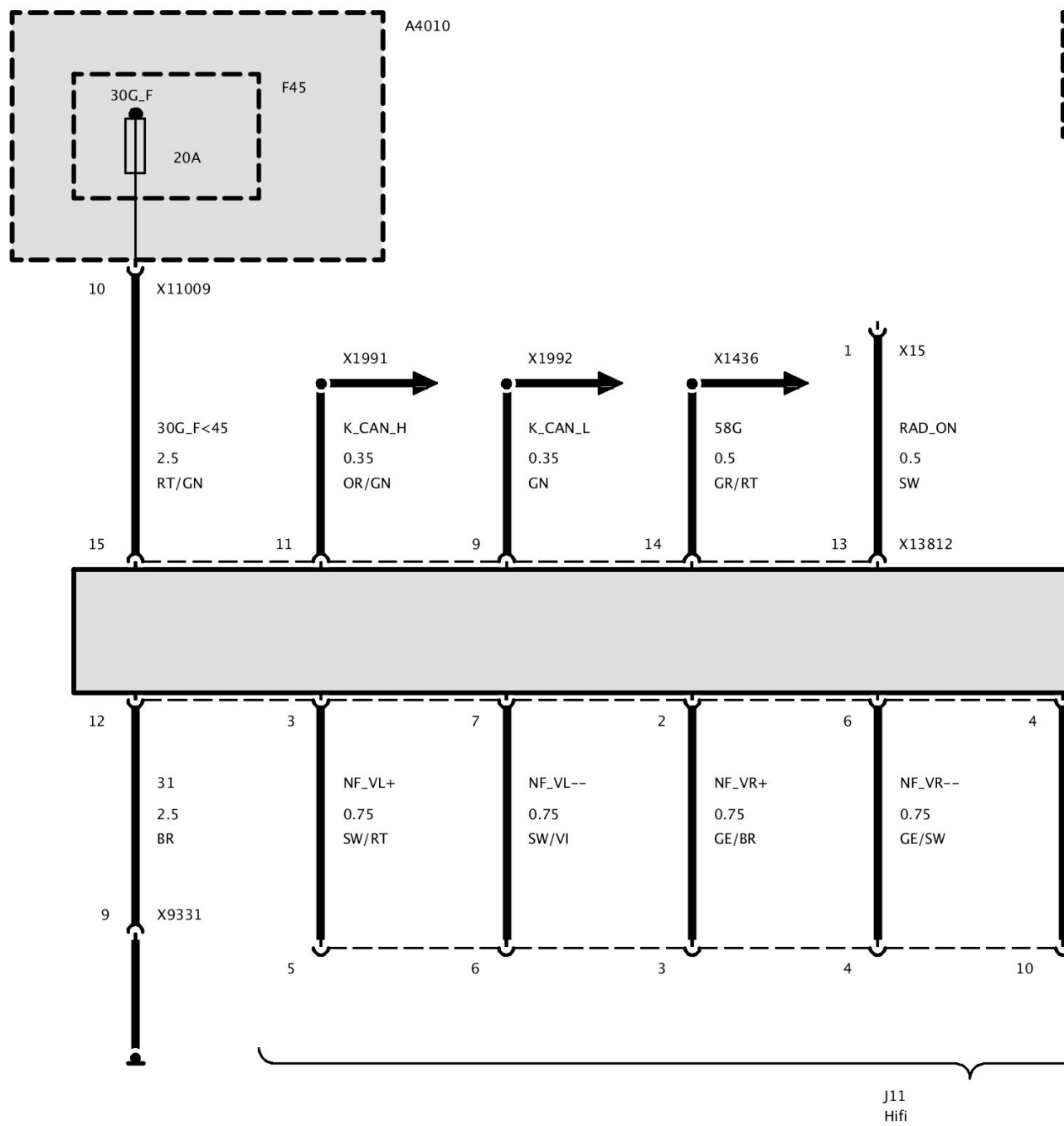
M455 Fan M-ASK/CCC

Fan CCC/M-ASK

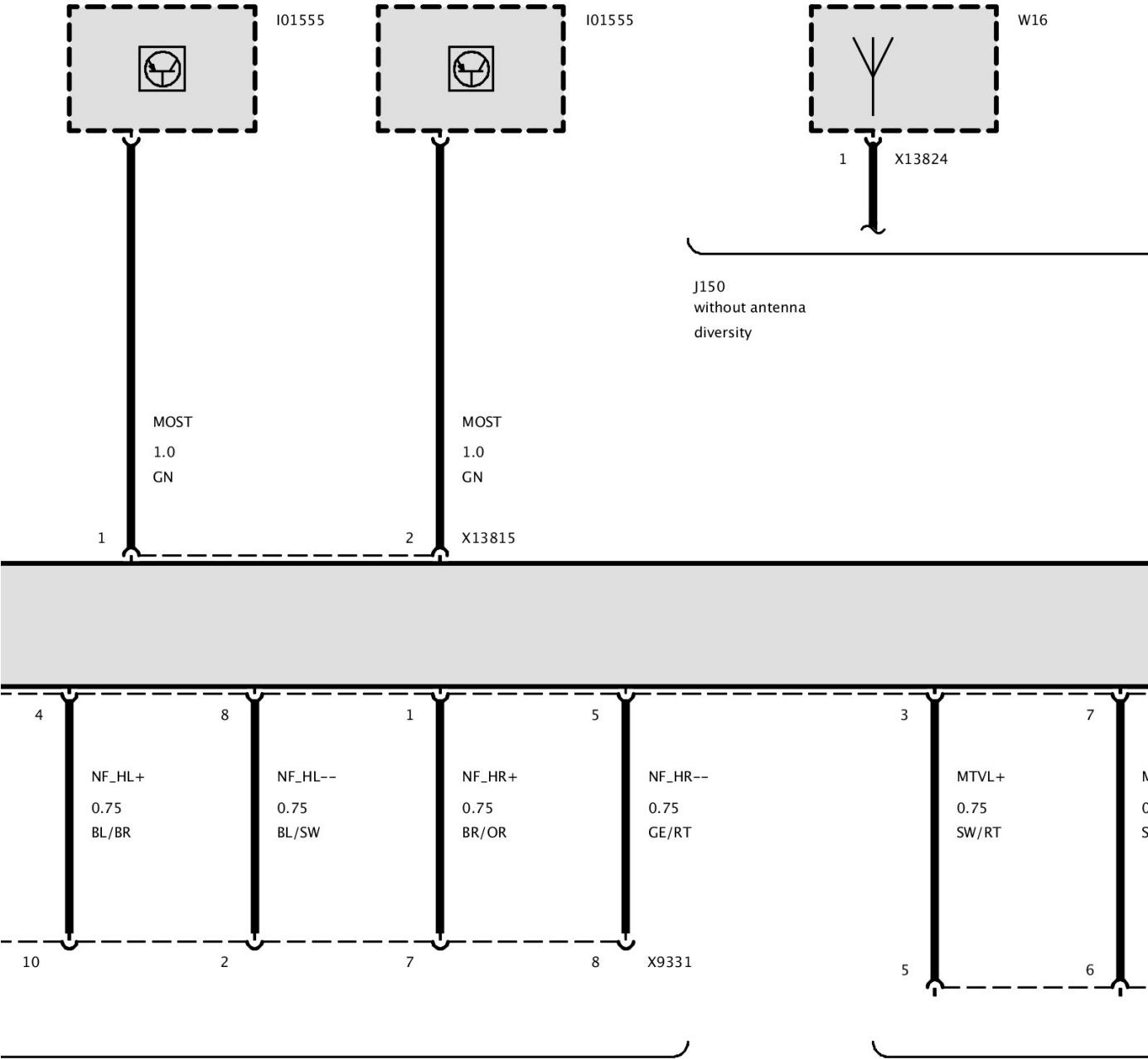


### N38a CCC/M-ASK (RAD2-BO User Interface or CCC-BO User Interface)

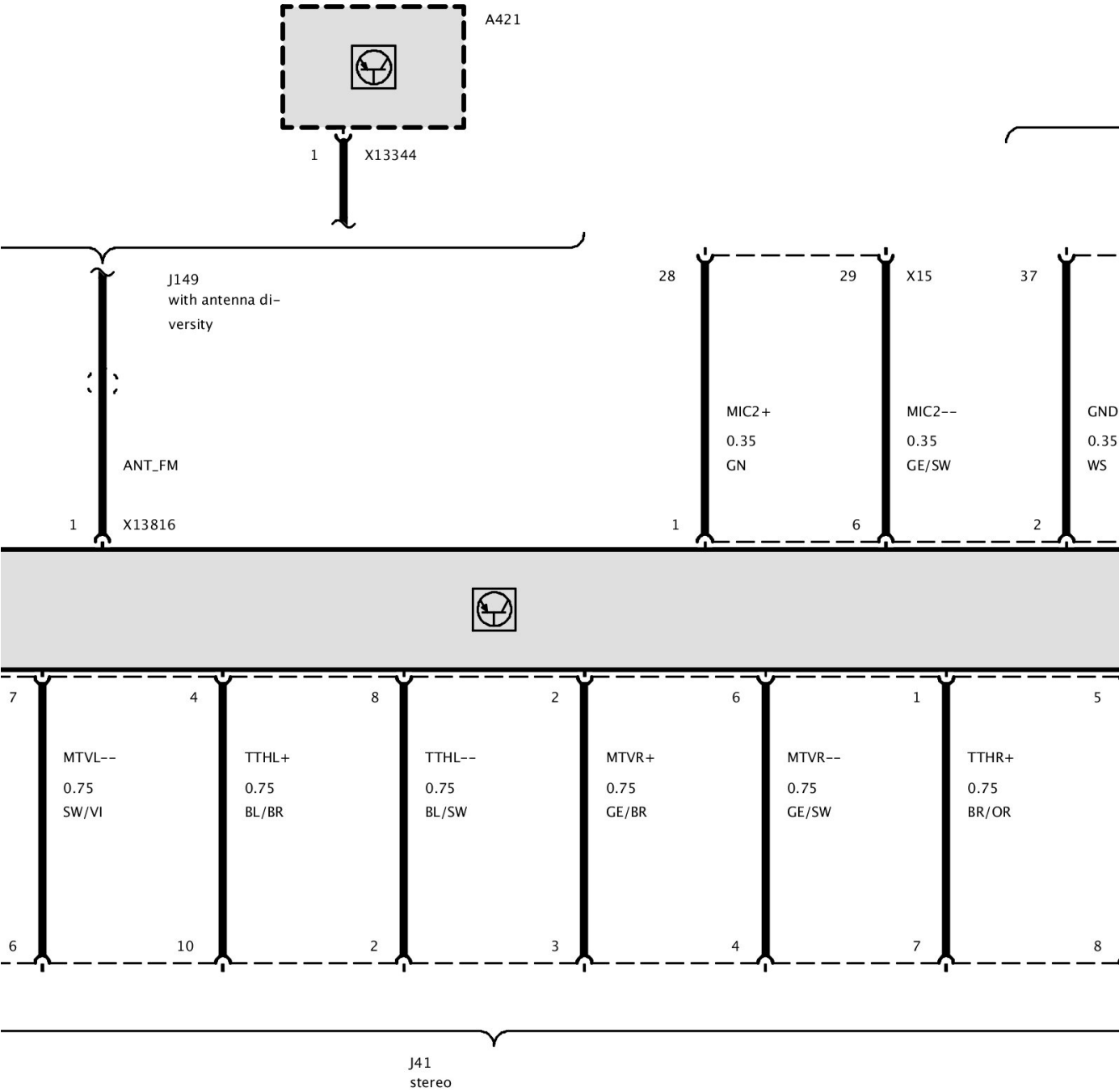
N38a Audio System Controller/Car Communication Computer (CCC/M-ASK) (Left-Hand Drive)



Part 1



Part 2



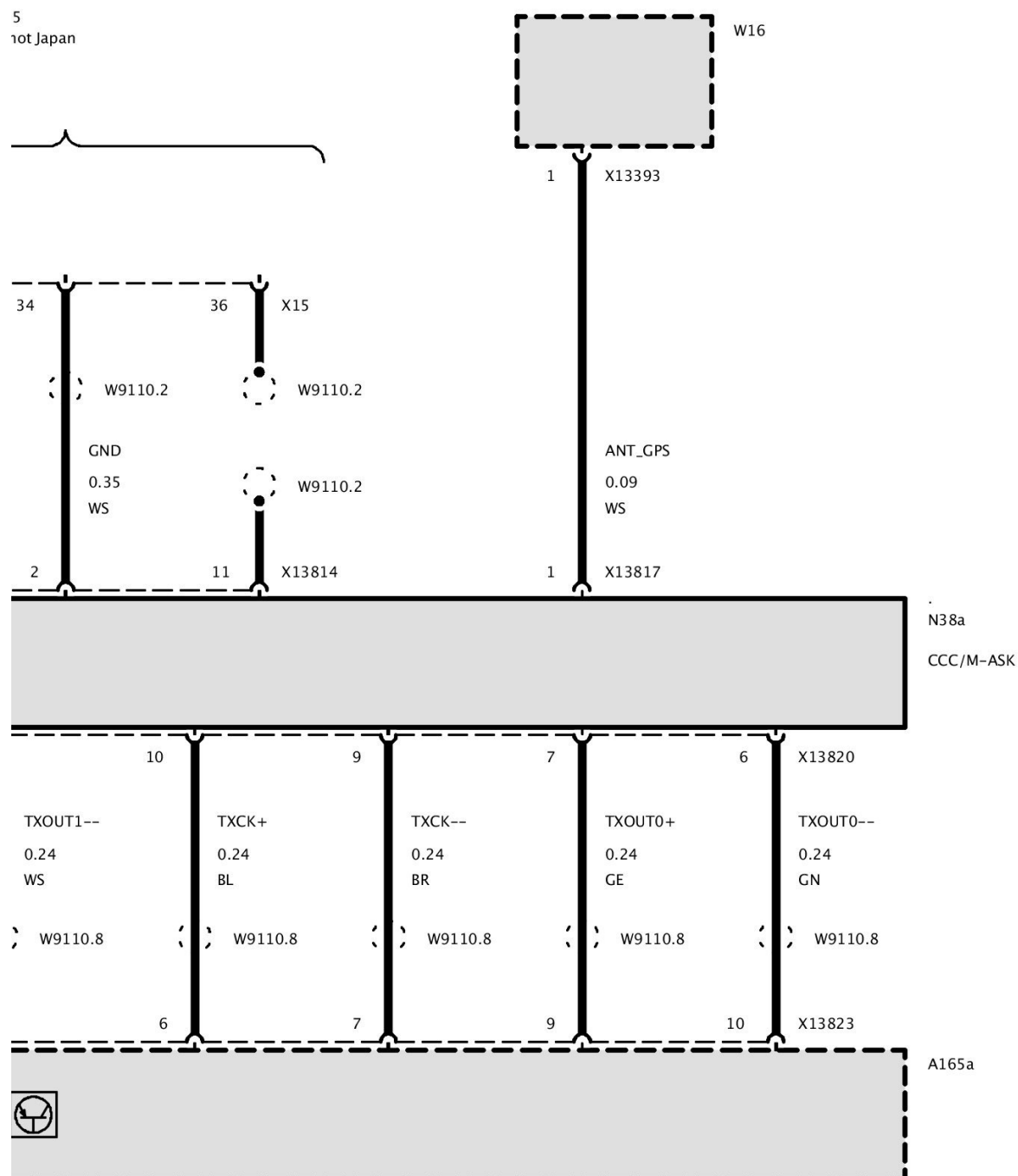
Part 3

J3  
Japan

J5  
not Japan



Part 4



## Part 5

### Antenna, Radio

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

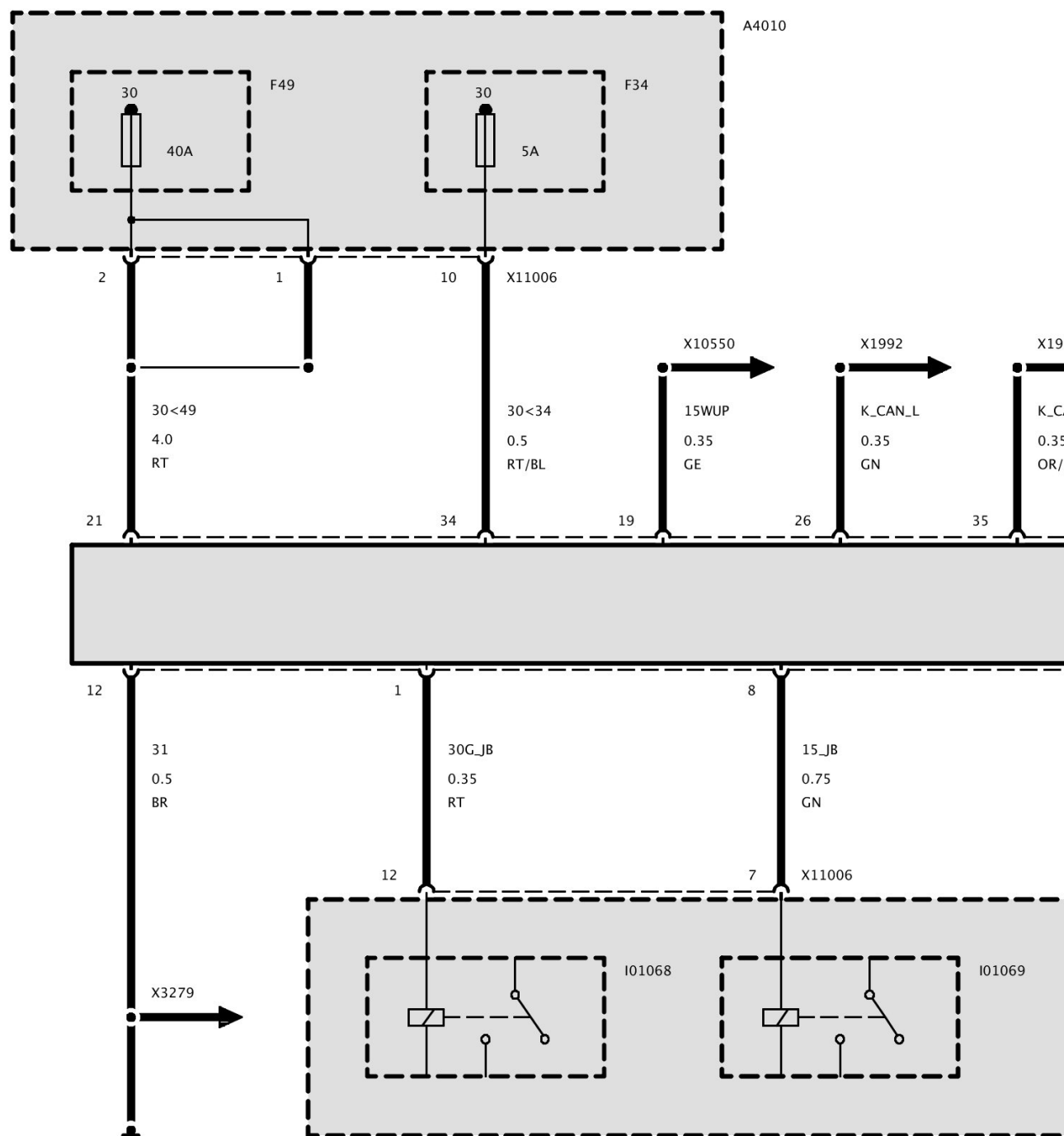
Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

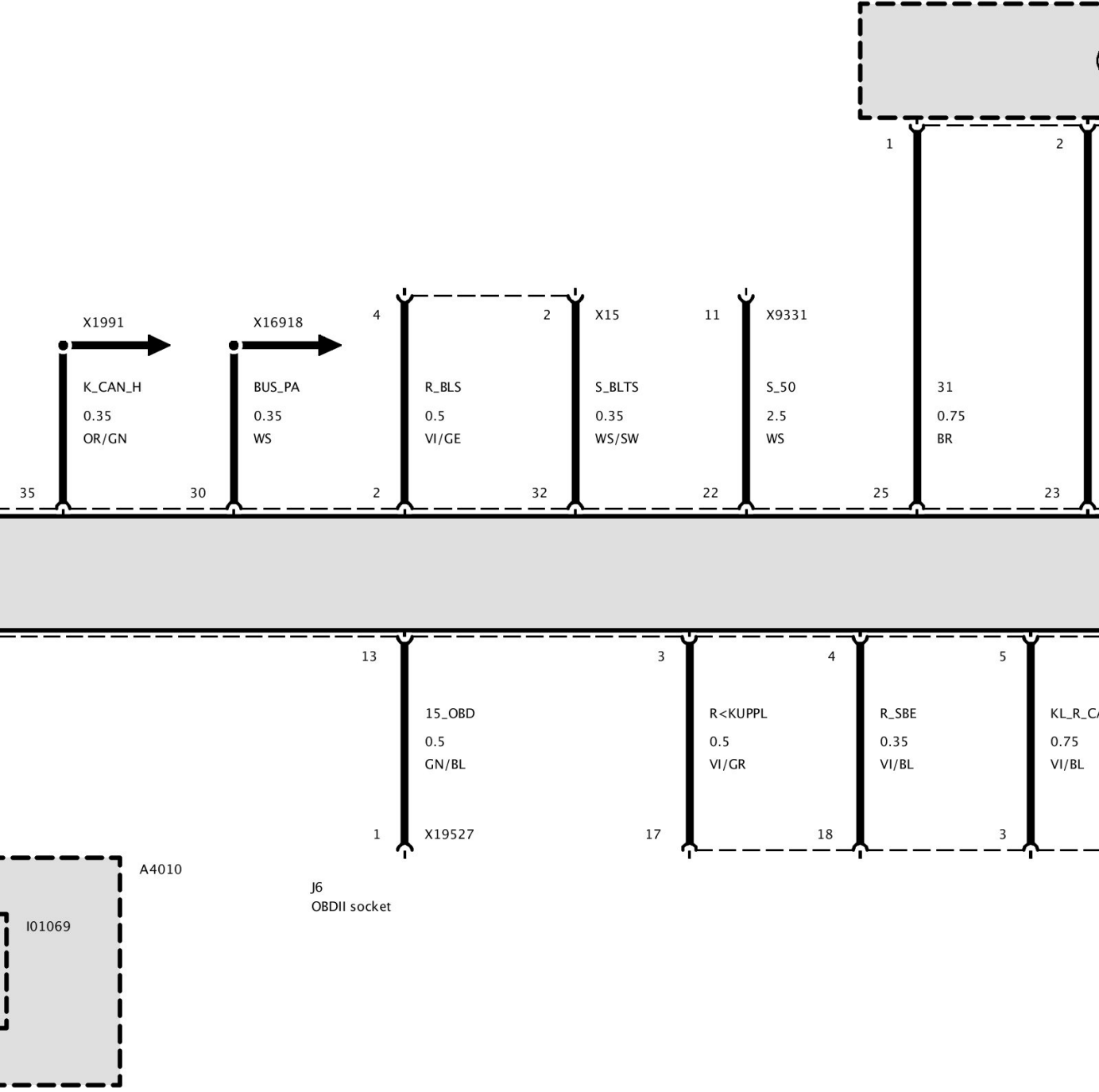


Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

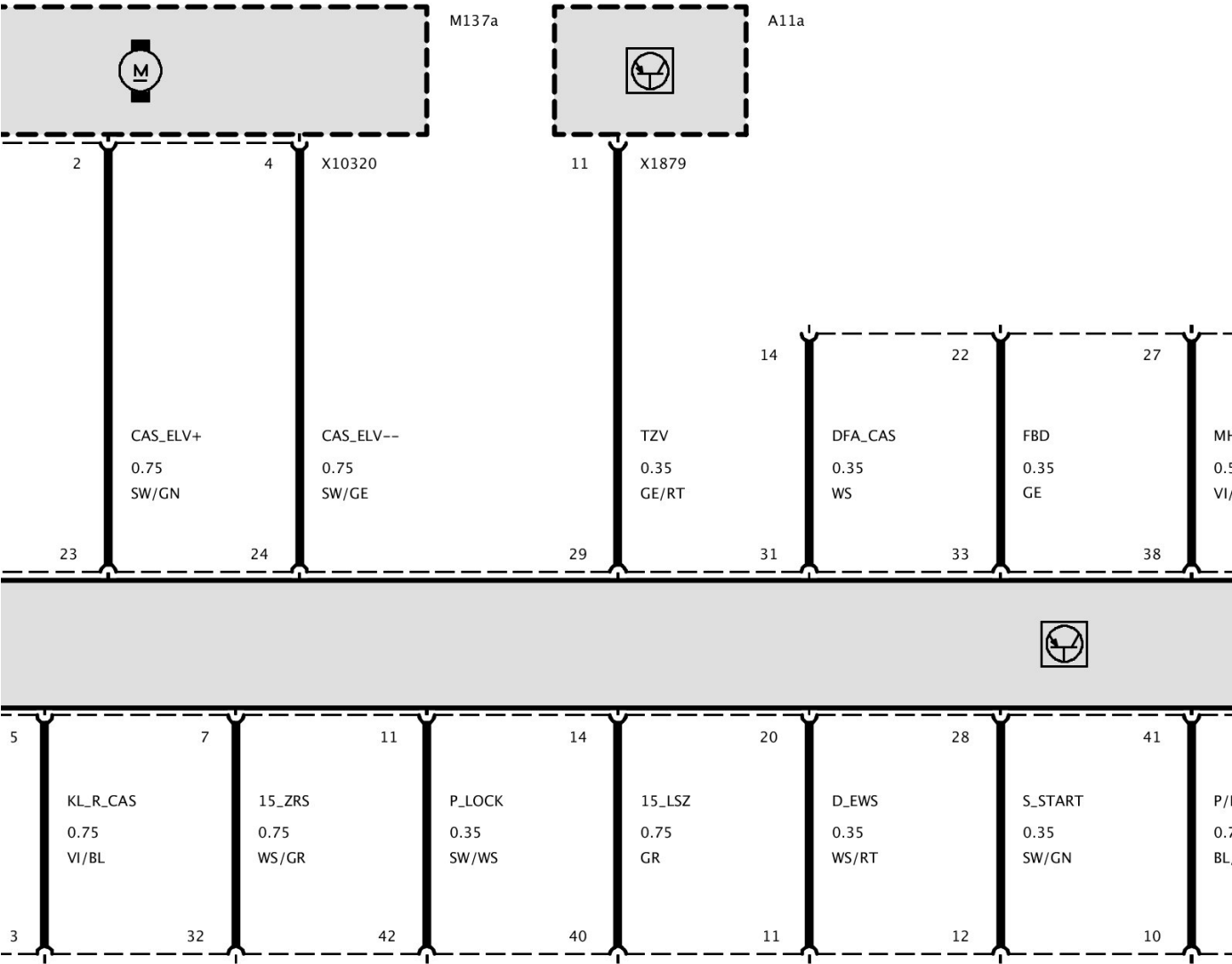
## Antitheft and Alarm Systems

### A149a Car Access System (As of 08/07)

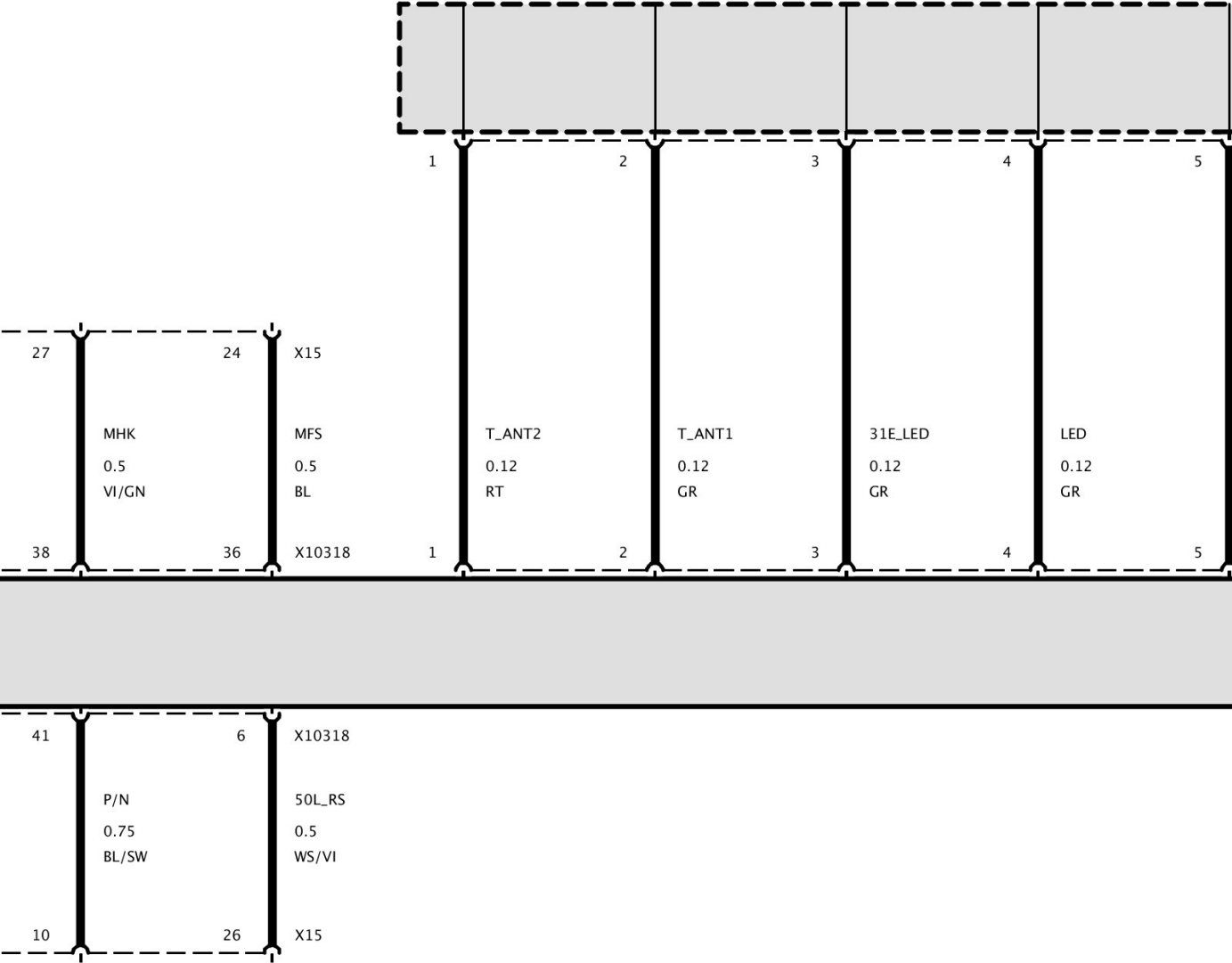




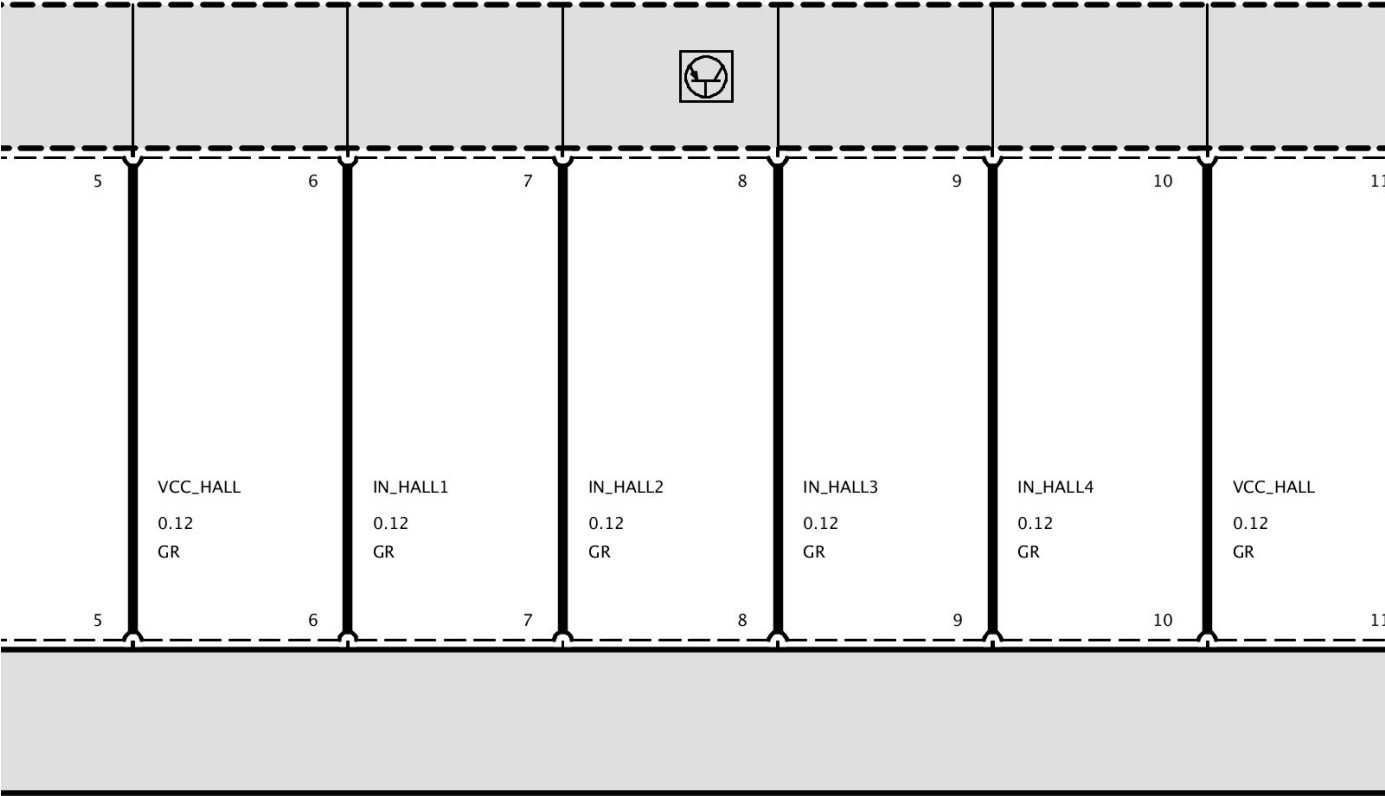
Part 2



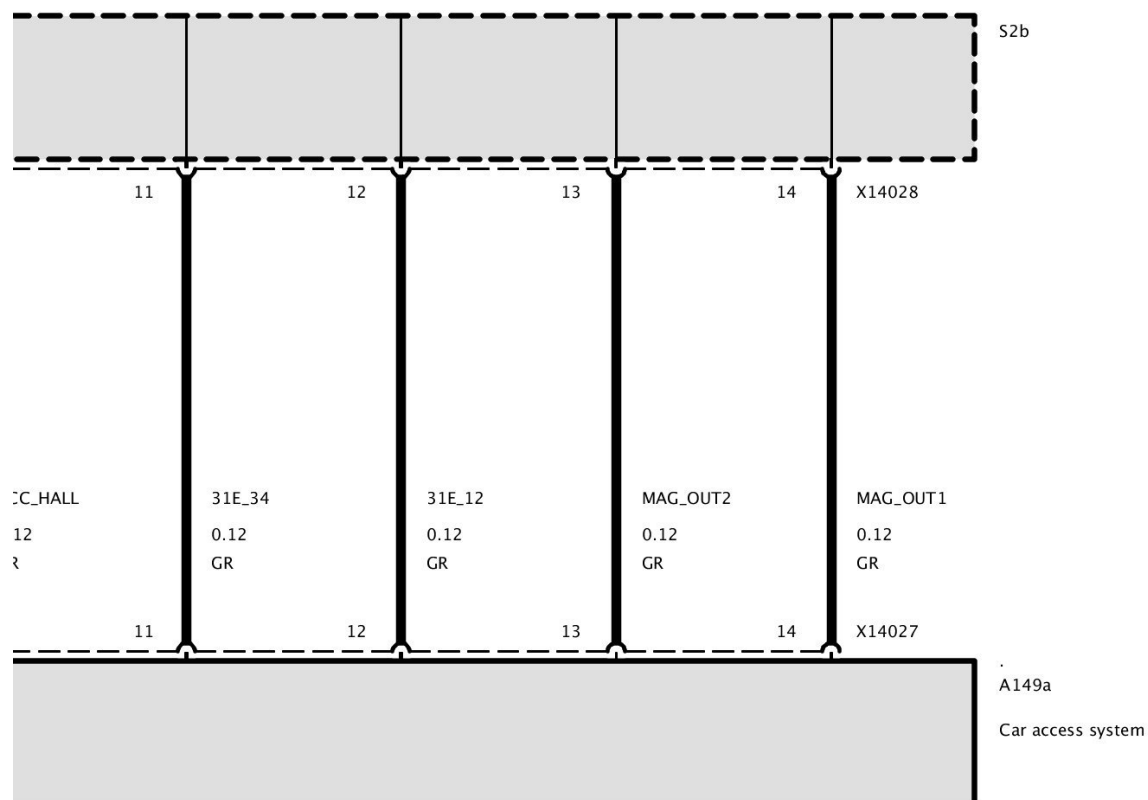
Part 3



Part 4

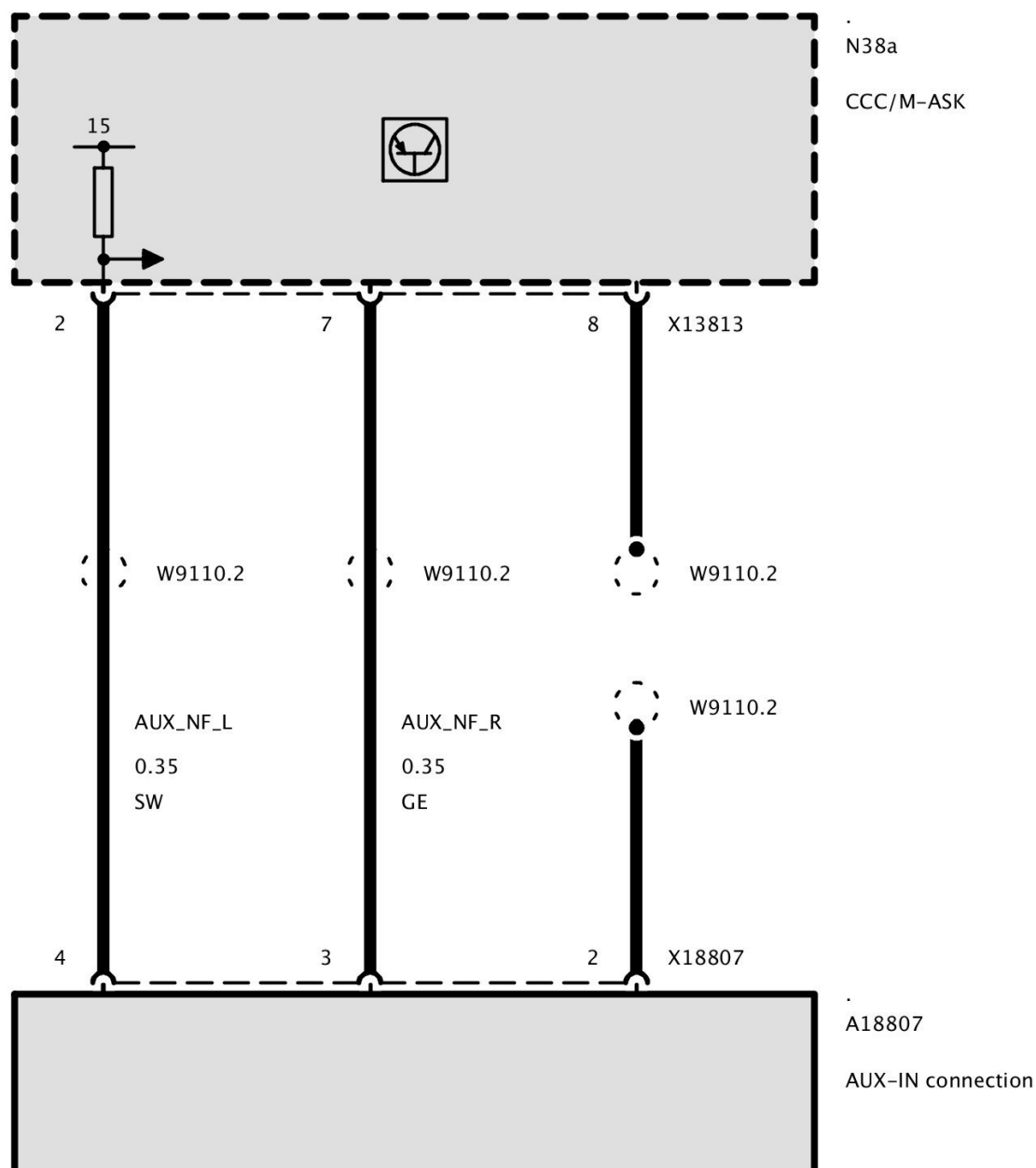


Part 5



## Auxiliary Input / Output Jack, Entertainment System

## AUX-IN Connection



## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

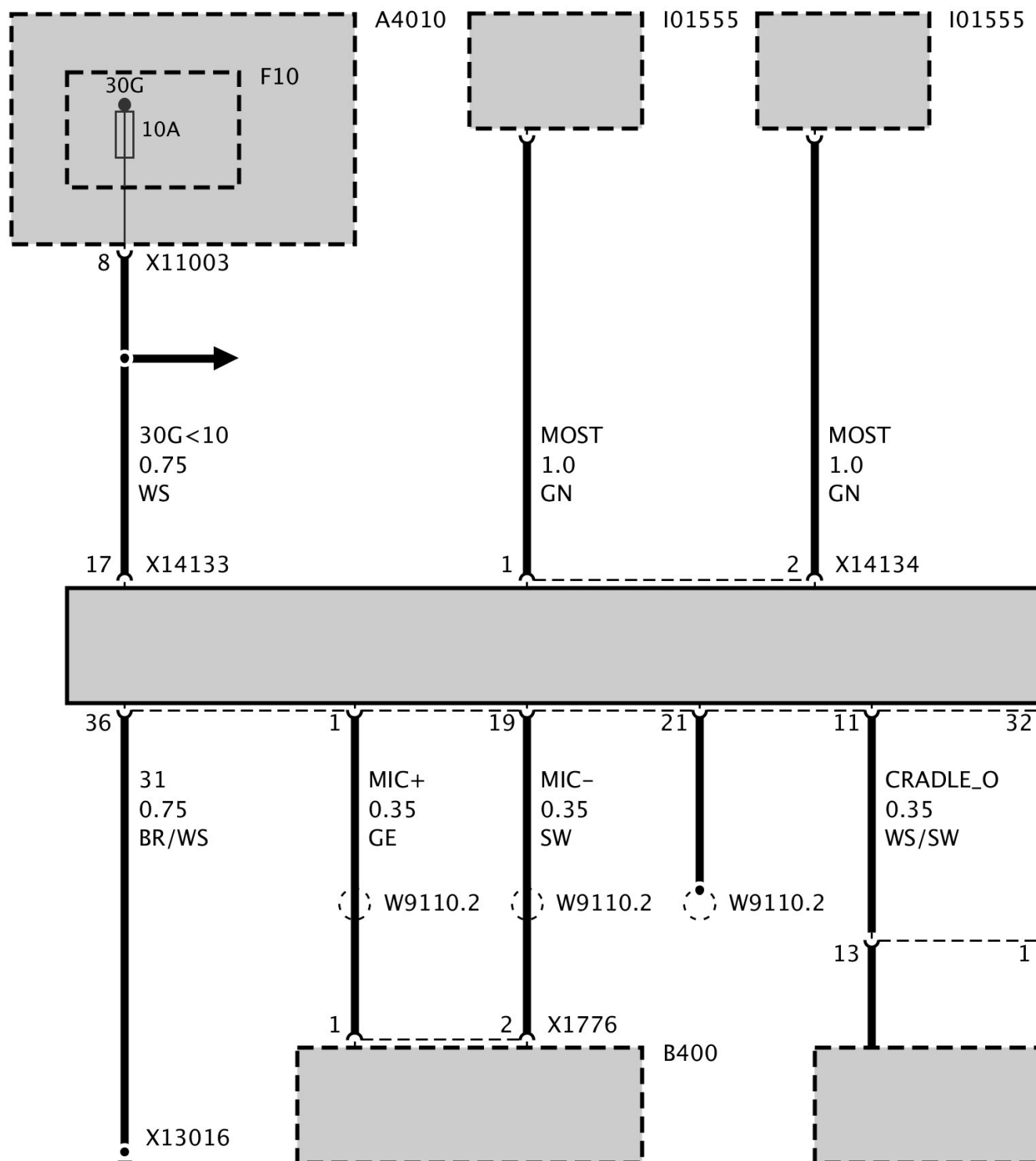
Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

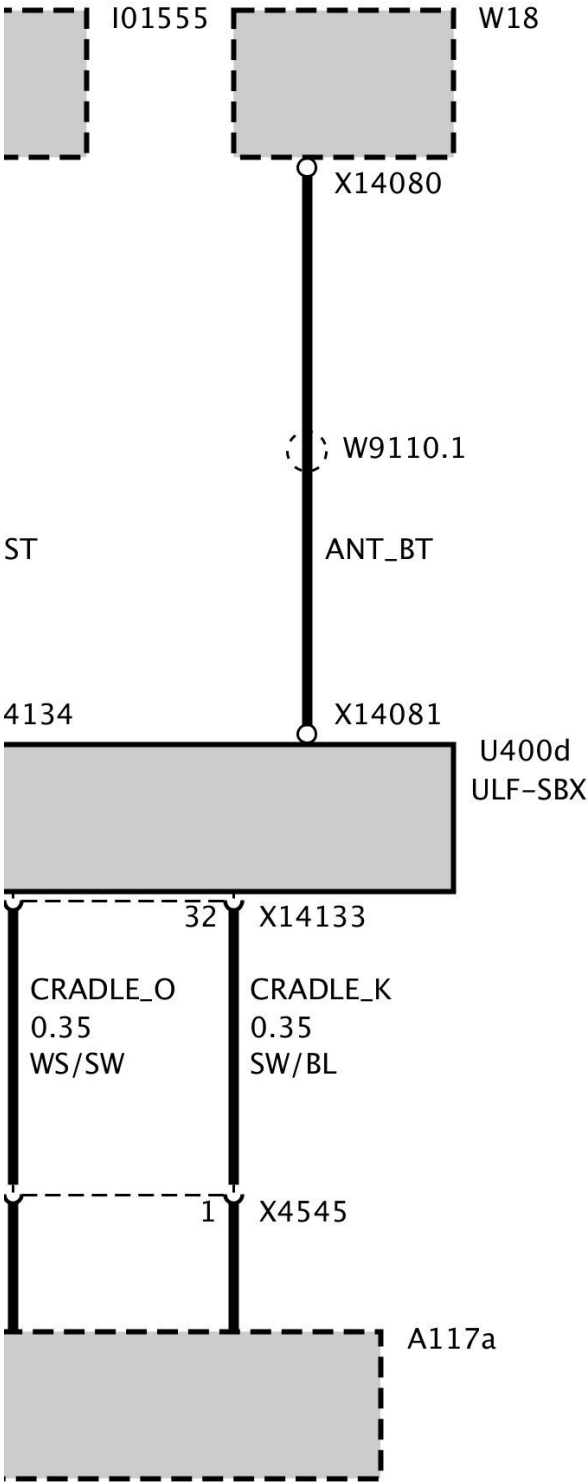
Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

**U400d ULF-SBX (As of 08/07 Up to 12/08)**

U400d ULF-SBX (As of 08/07 Up to 12/08)

**Part 1**

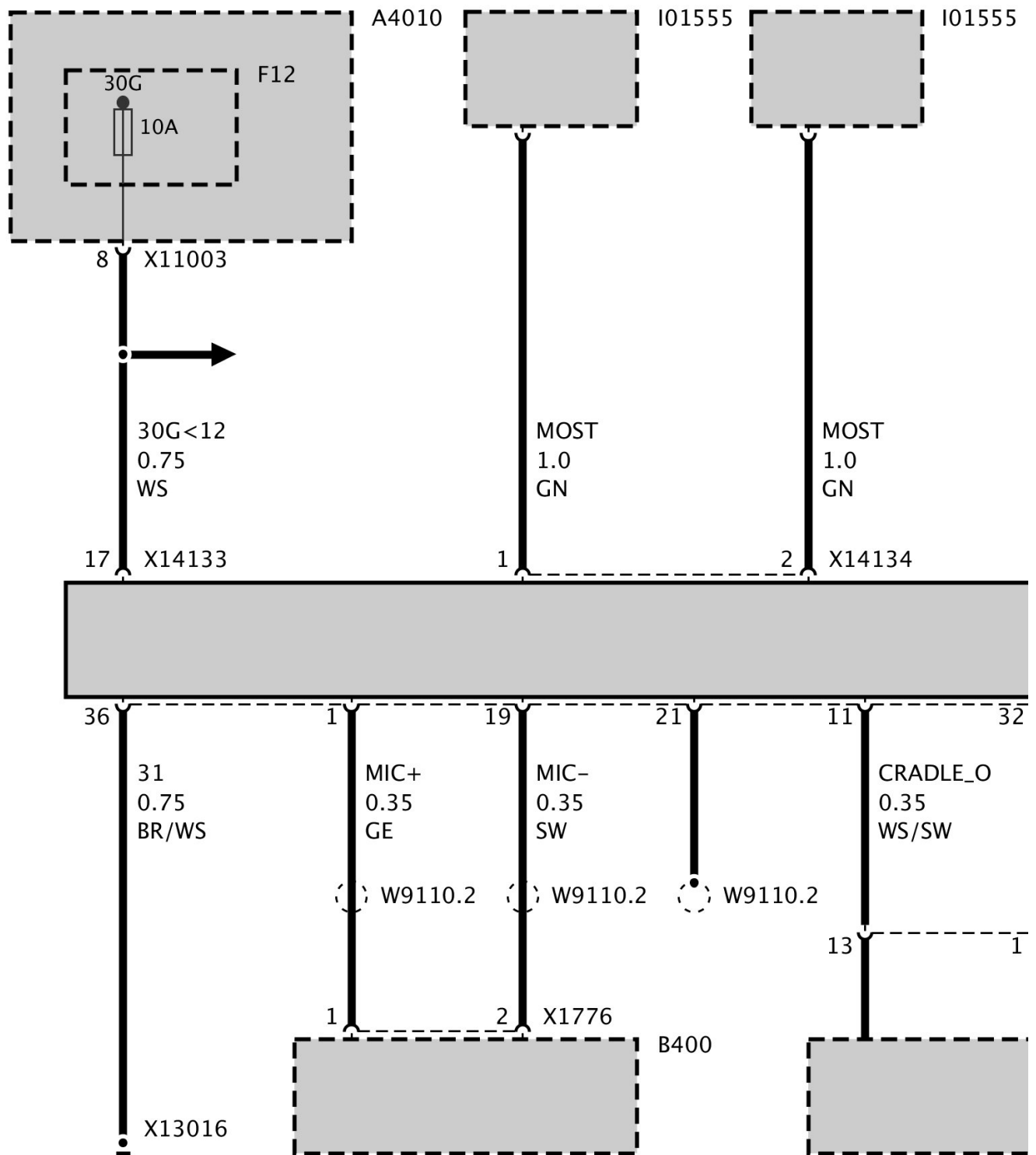




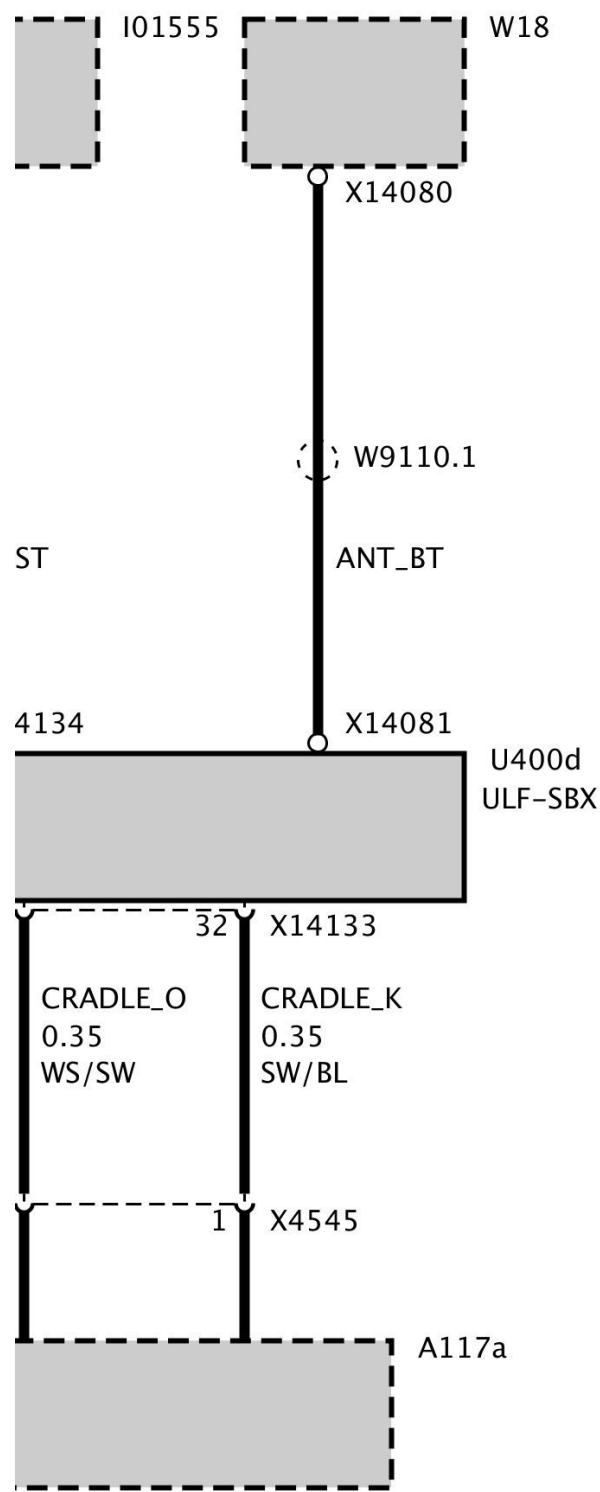
Part 2

U400d ULF-SBX (As of 12/08)

U400d ULF-SBX (As of 12/08)



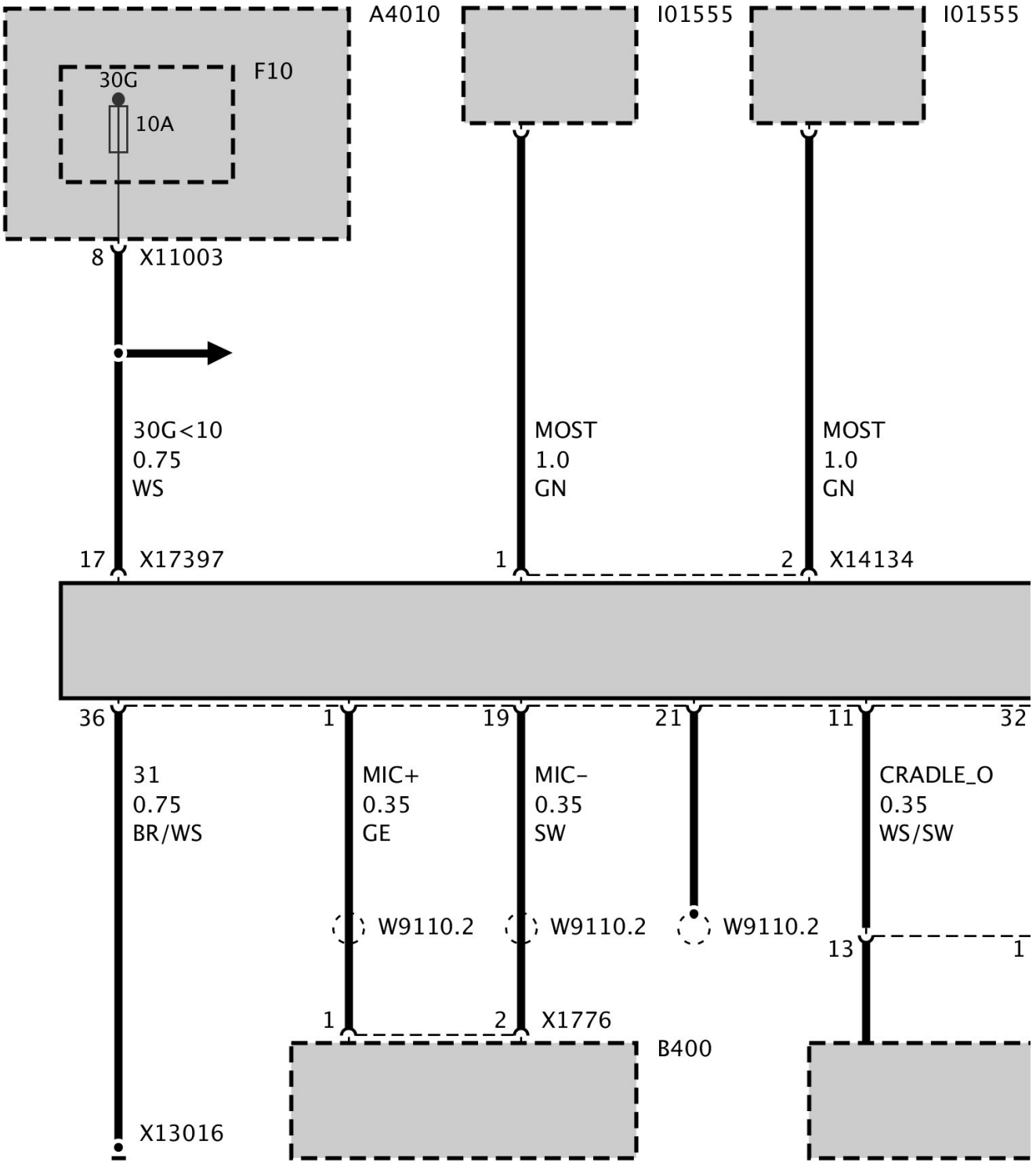
Part 1



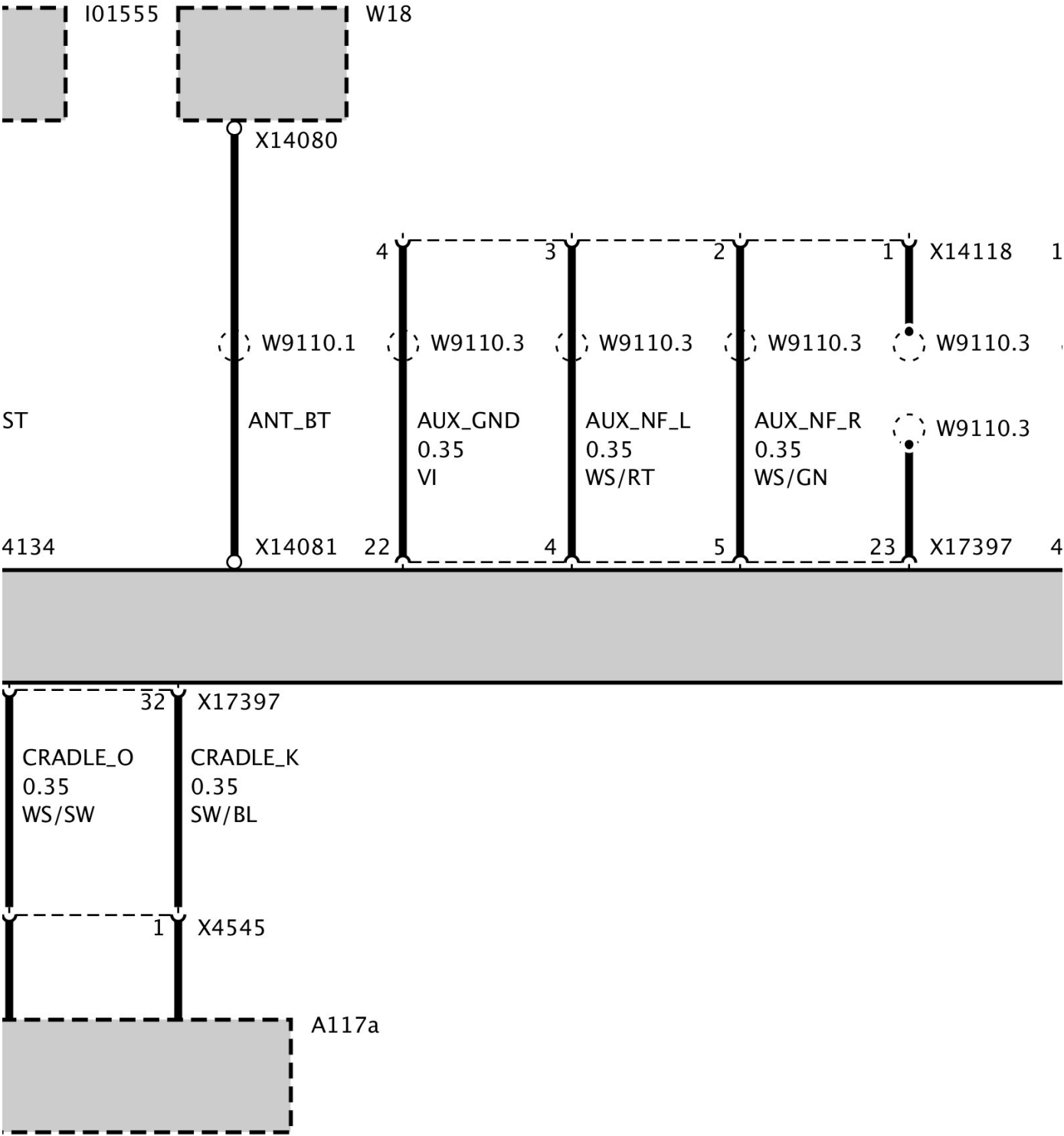
Part 2

U400e ULF-SBX-H (Up to 12/08)

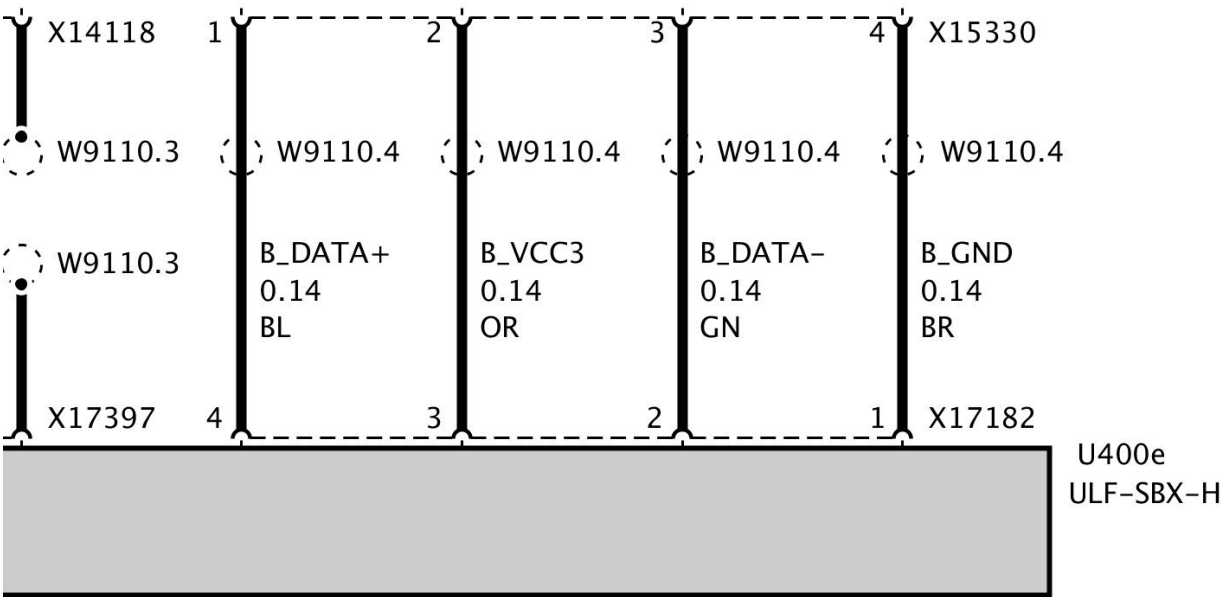
U400e ULF-SBX-H (Up to 12/08)



Part 1



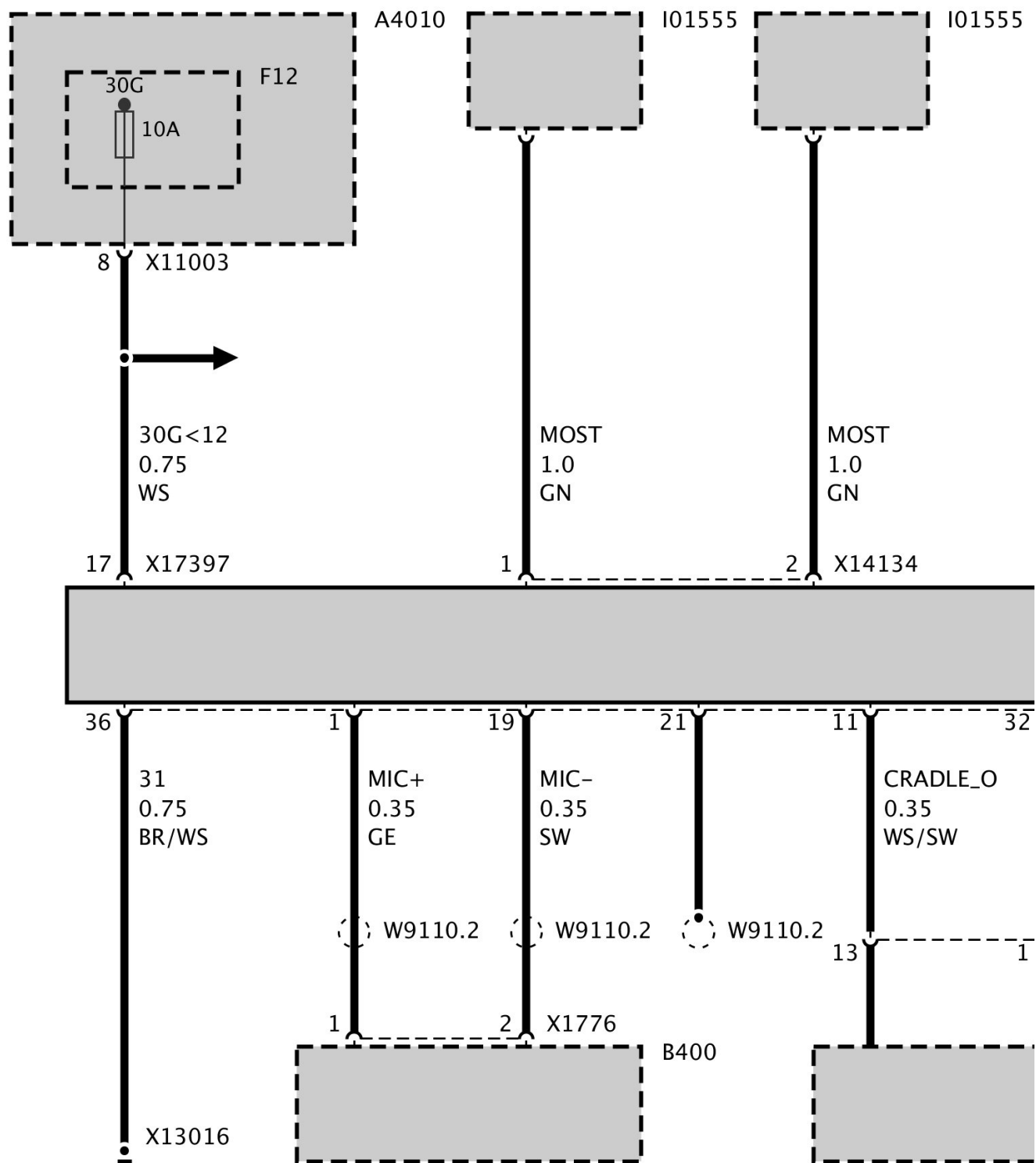
Part 2



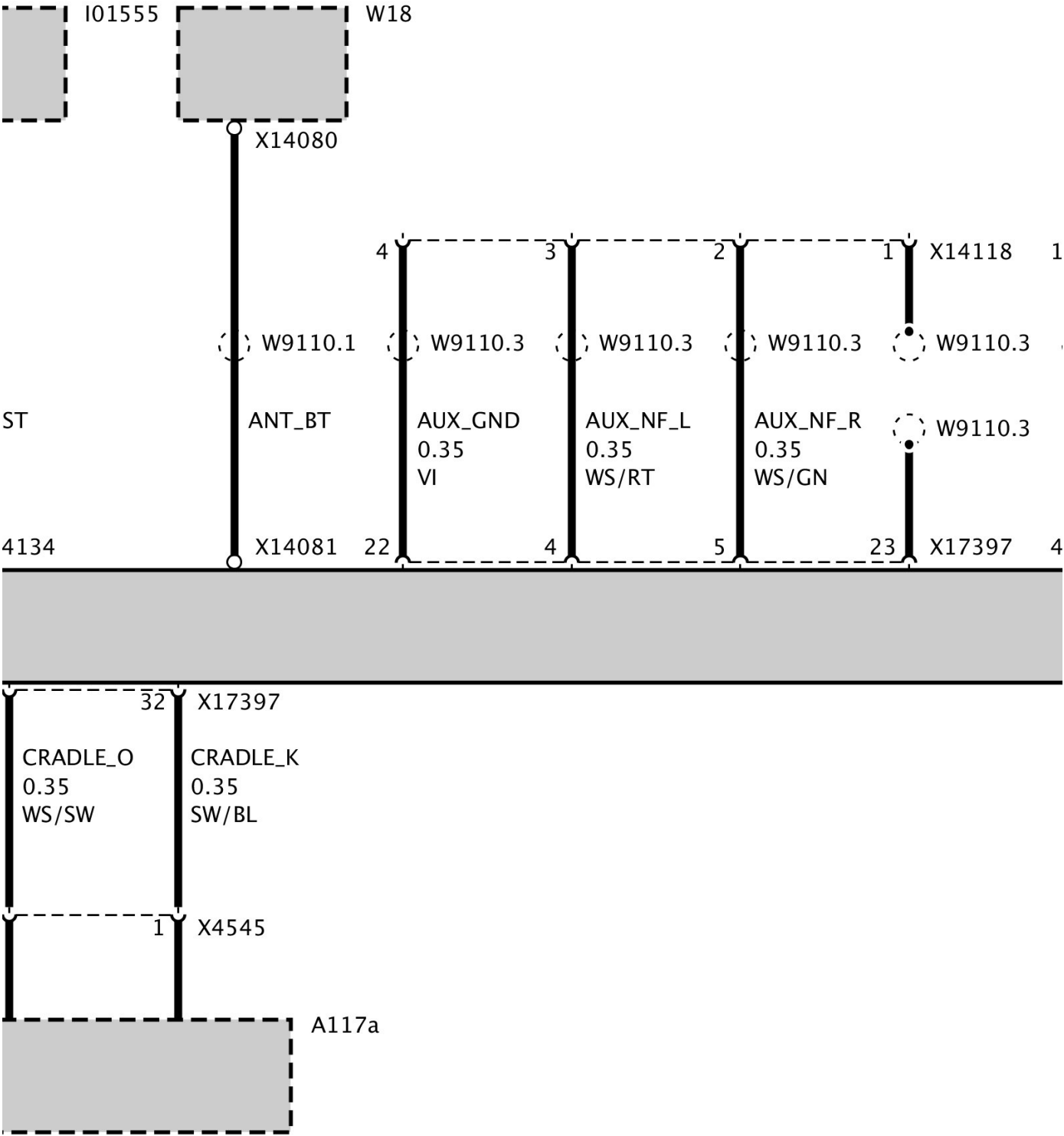
Part 3

U400e ULF-SBX-H (As of 12/08)

U400e ULF-SBX-H (as of 12/08)

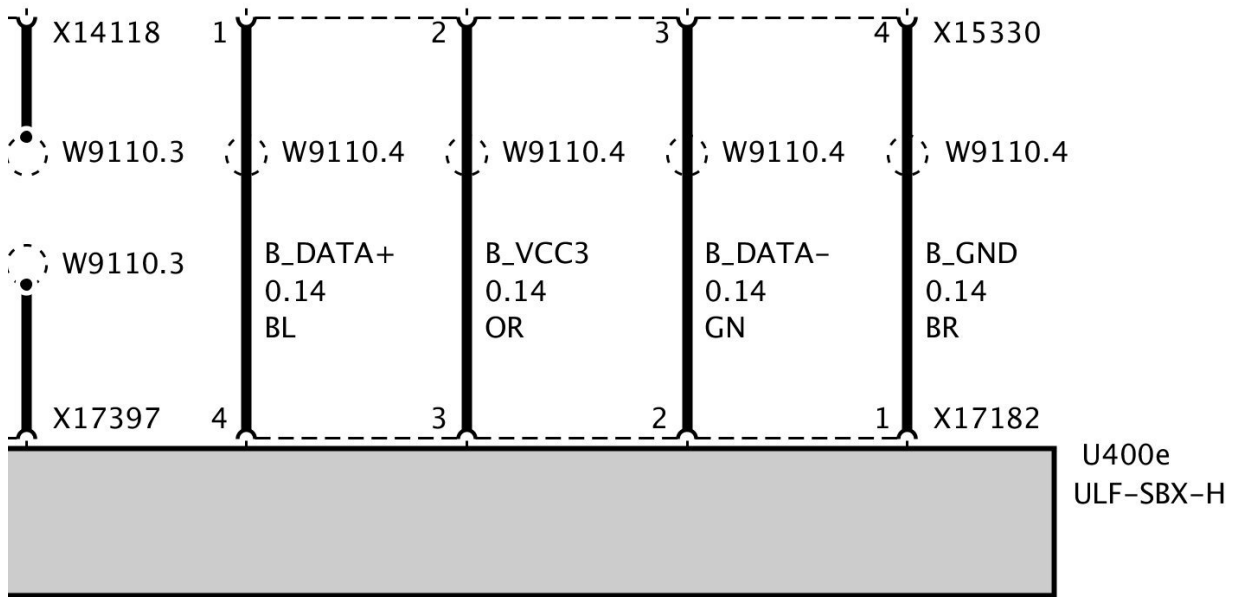


Part 1



Part 2





Part 3

System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

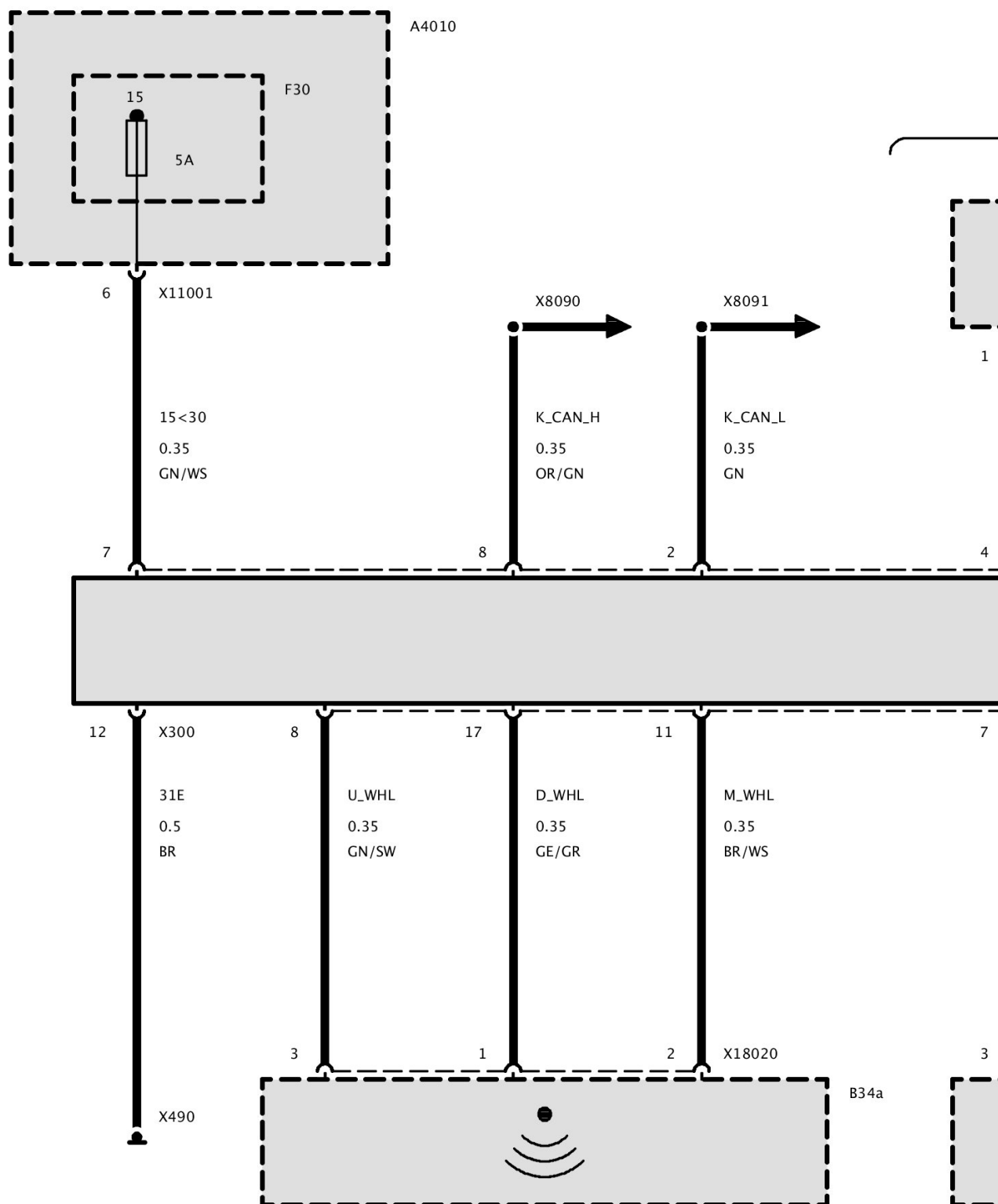
Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

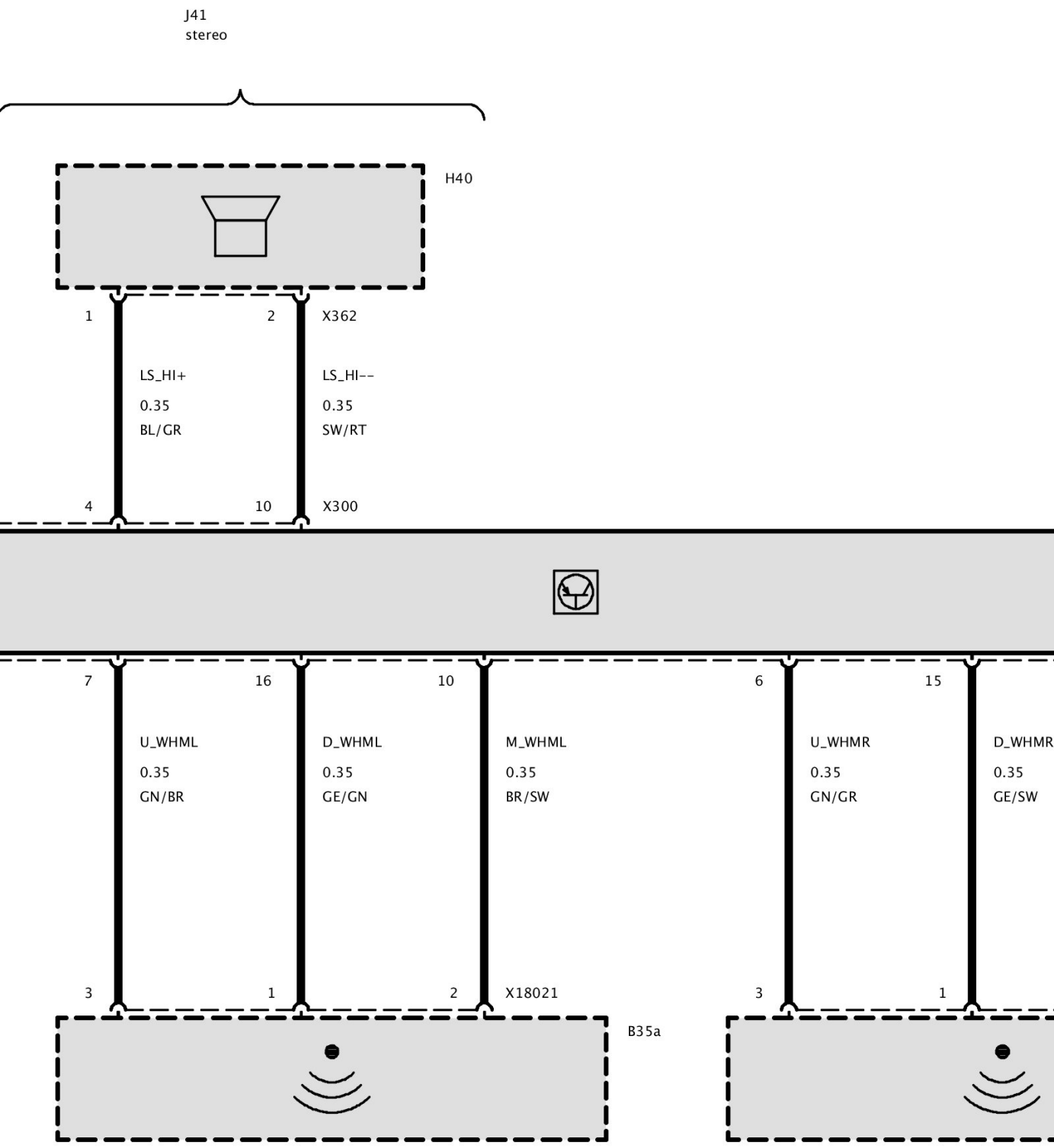
Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

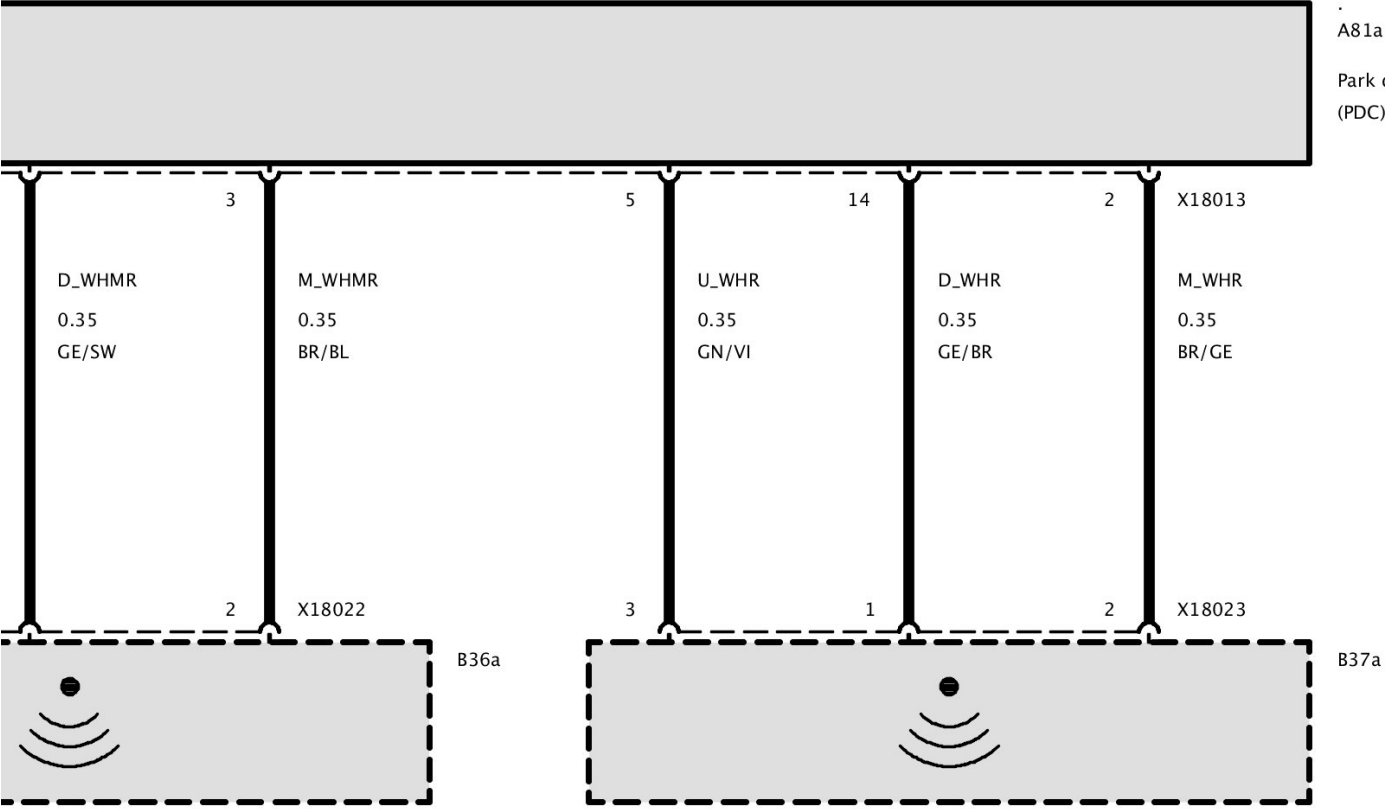
# Parking Assist Control Module

## A81a Park Distance Control (PDC)

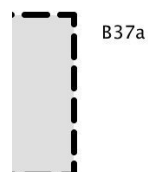
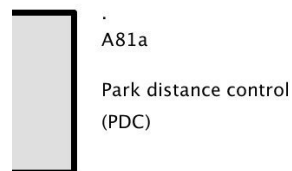




Part 2



Part 3



#### Part 4

### Global Positioning System

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Navigation System

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

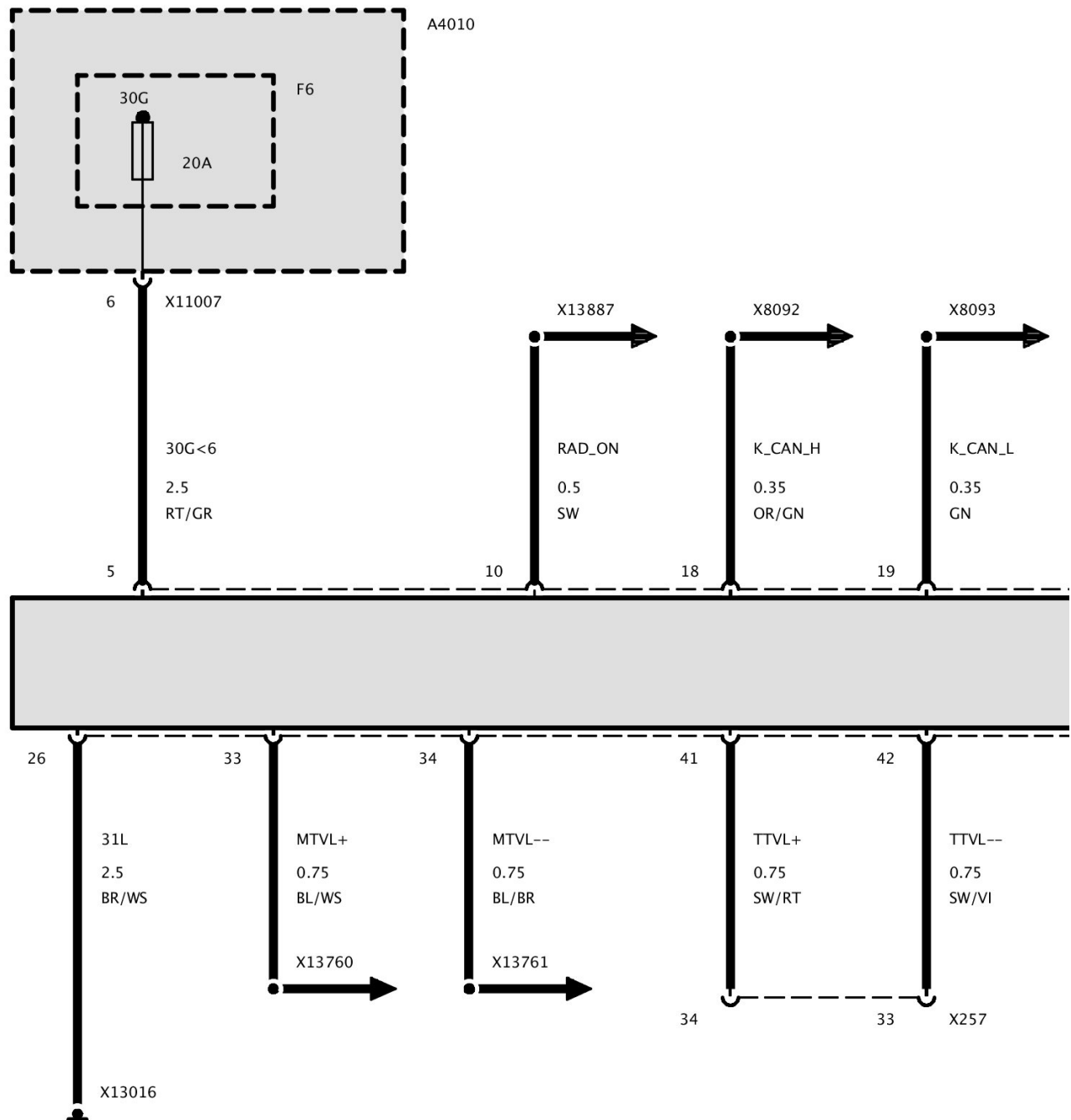
Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

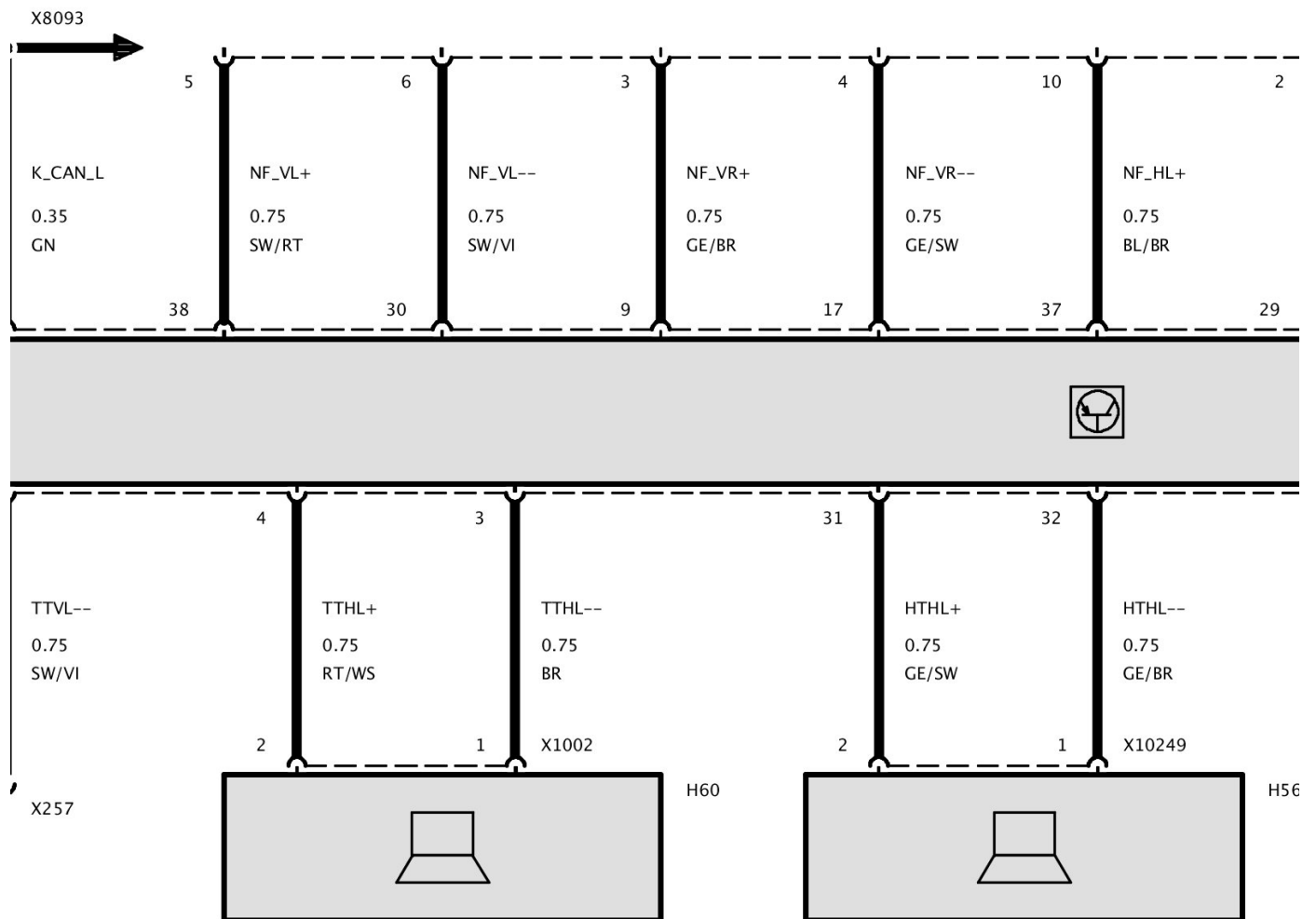
Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Amplifier, Sound System

**A18 Amplifier (Left-Hand Drive As of 08/07)**

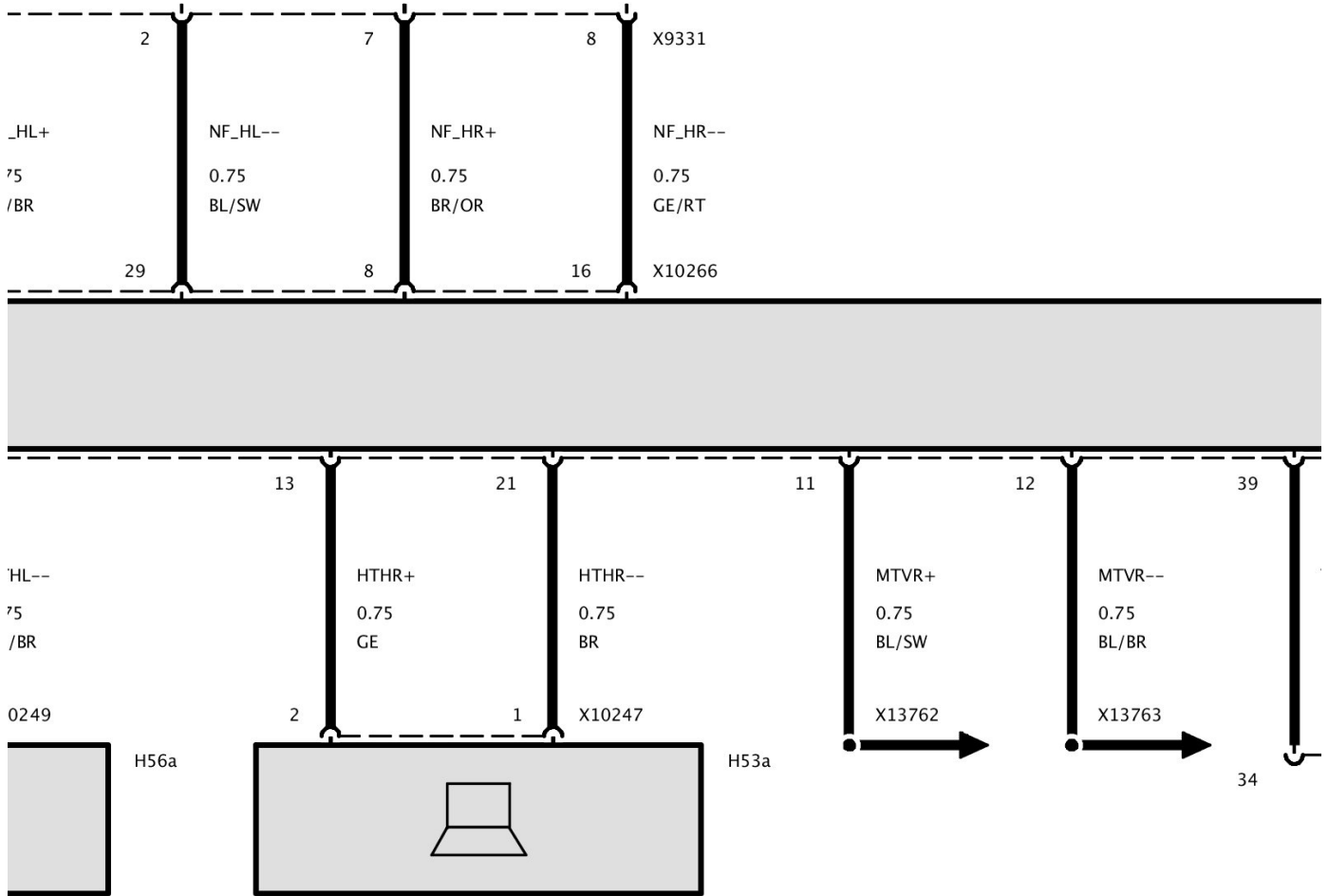


Part 1

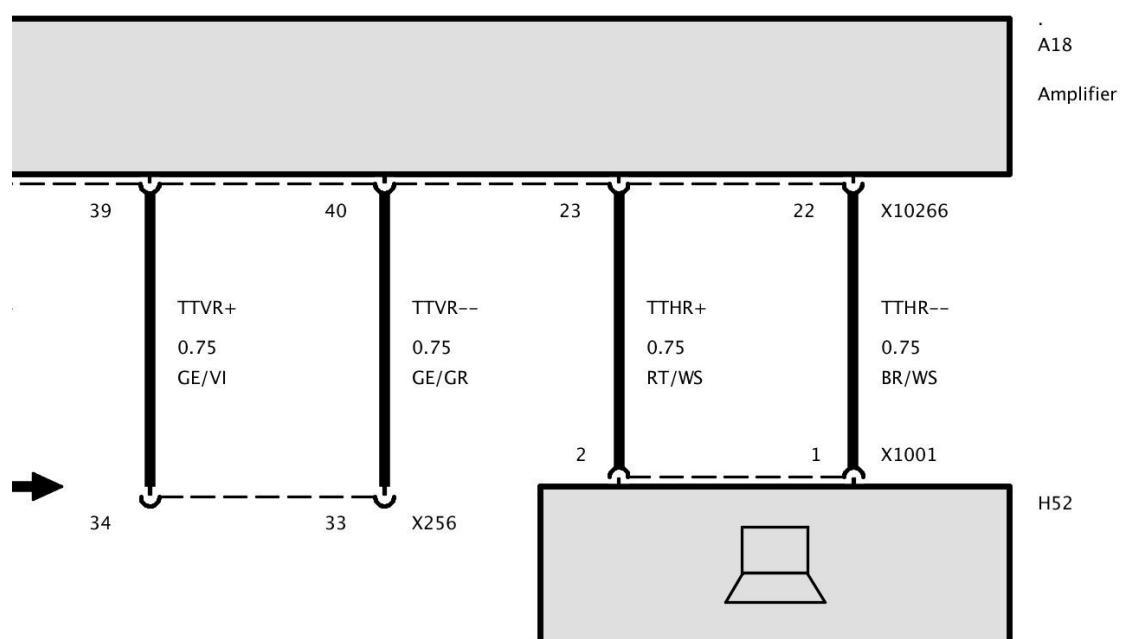


Part 2





Part 3



#### Part 4

### CD Changer

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

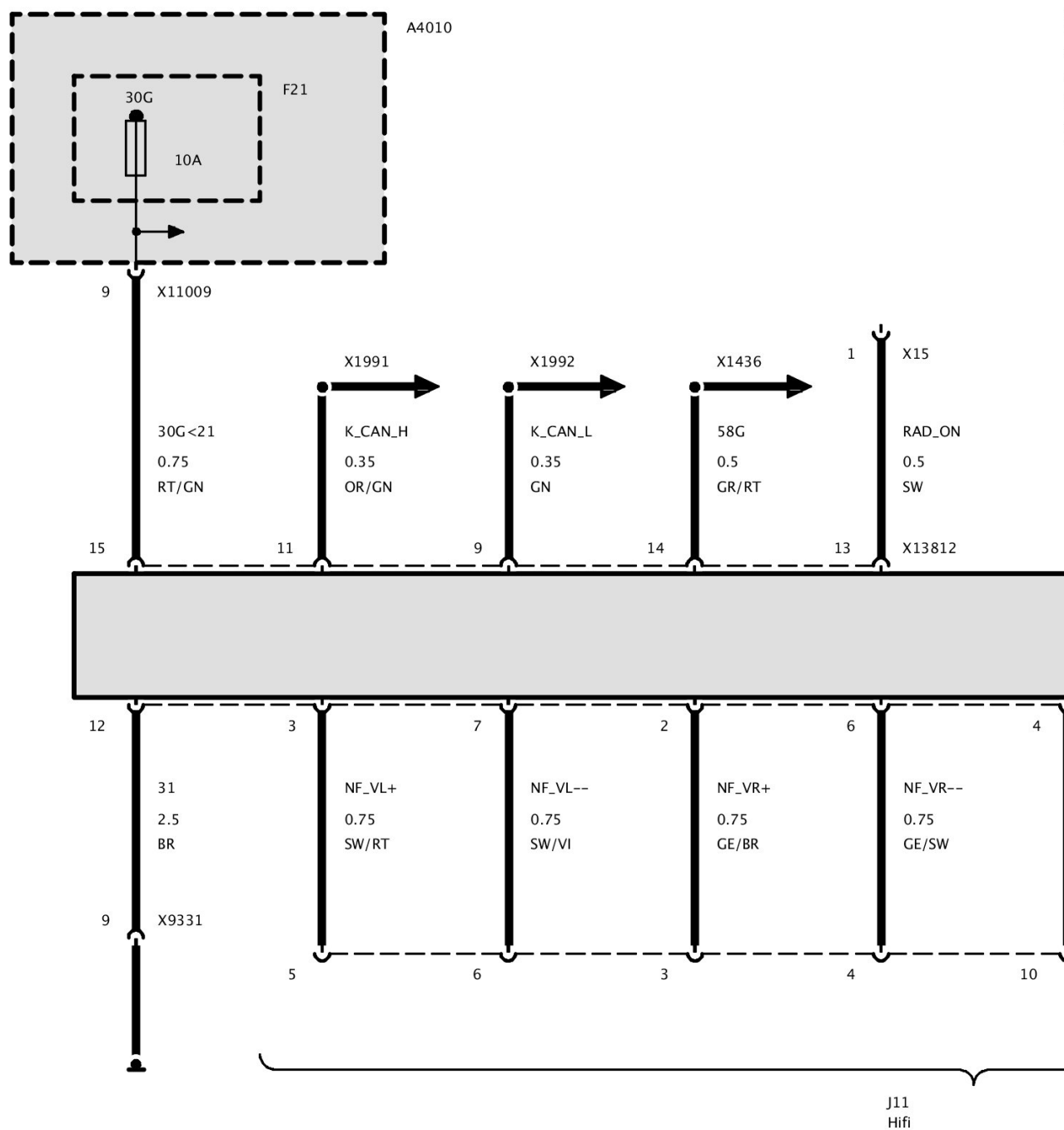
Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

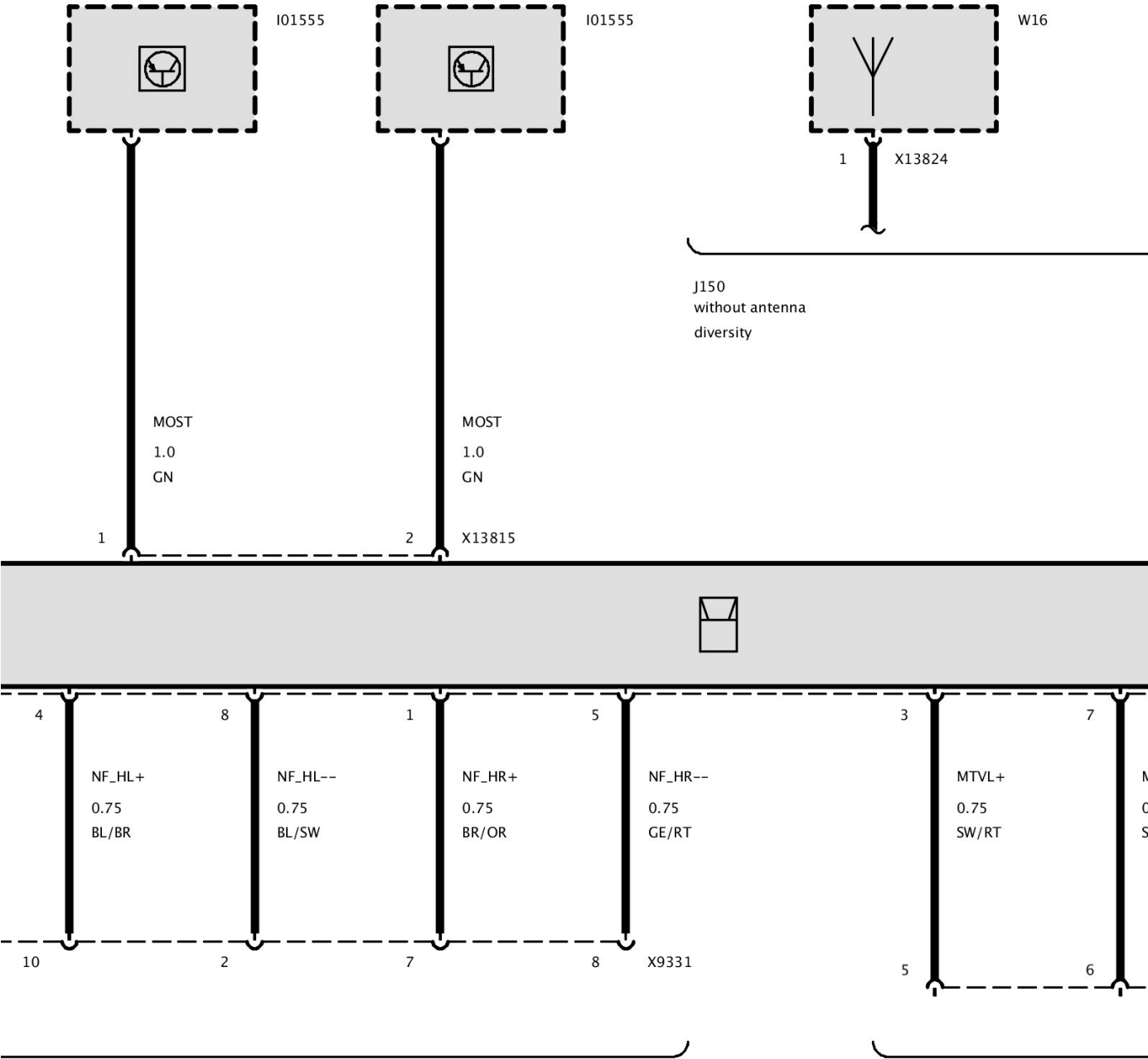
Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

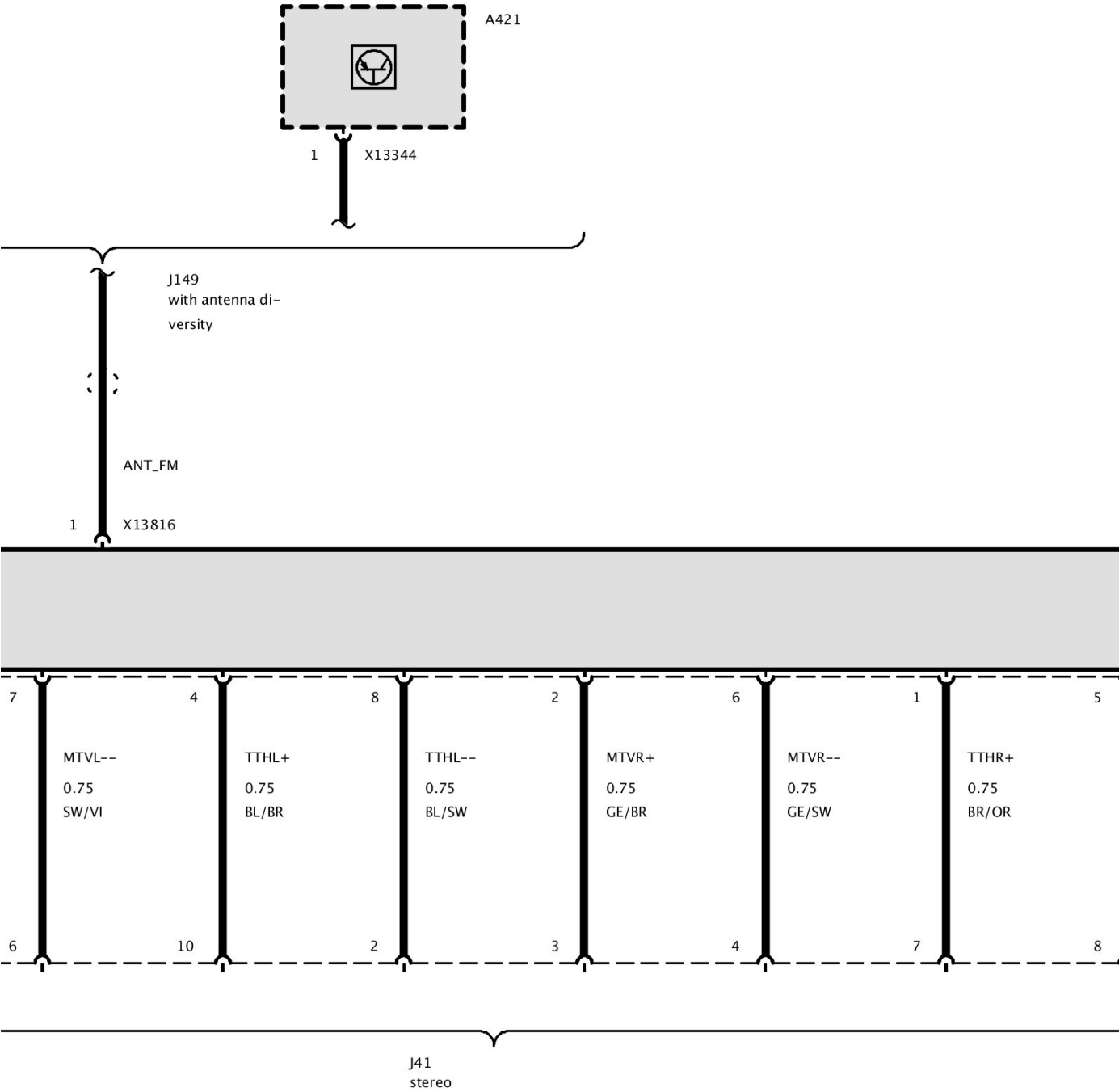
## Radio/Stereo

### N9 Radio (Left-Hand Drive)

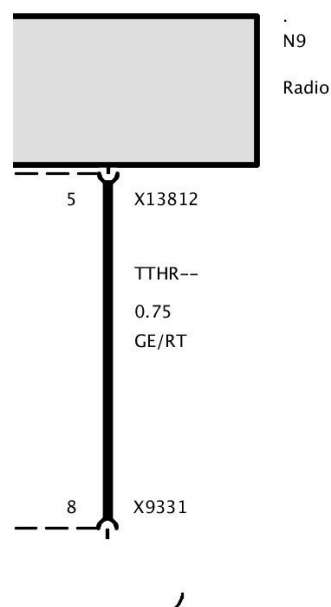




Part 2



Part 3



#### Part 4

### Speaker

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

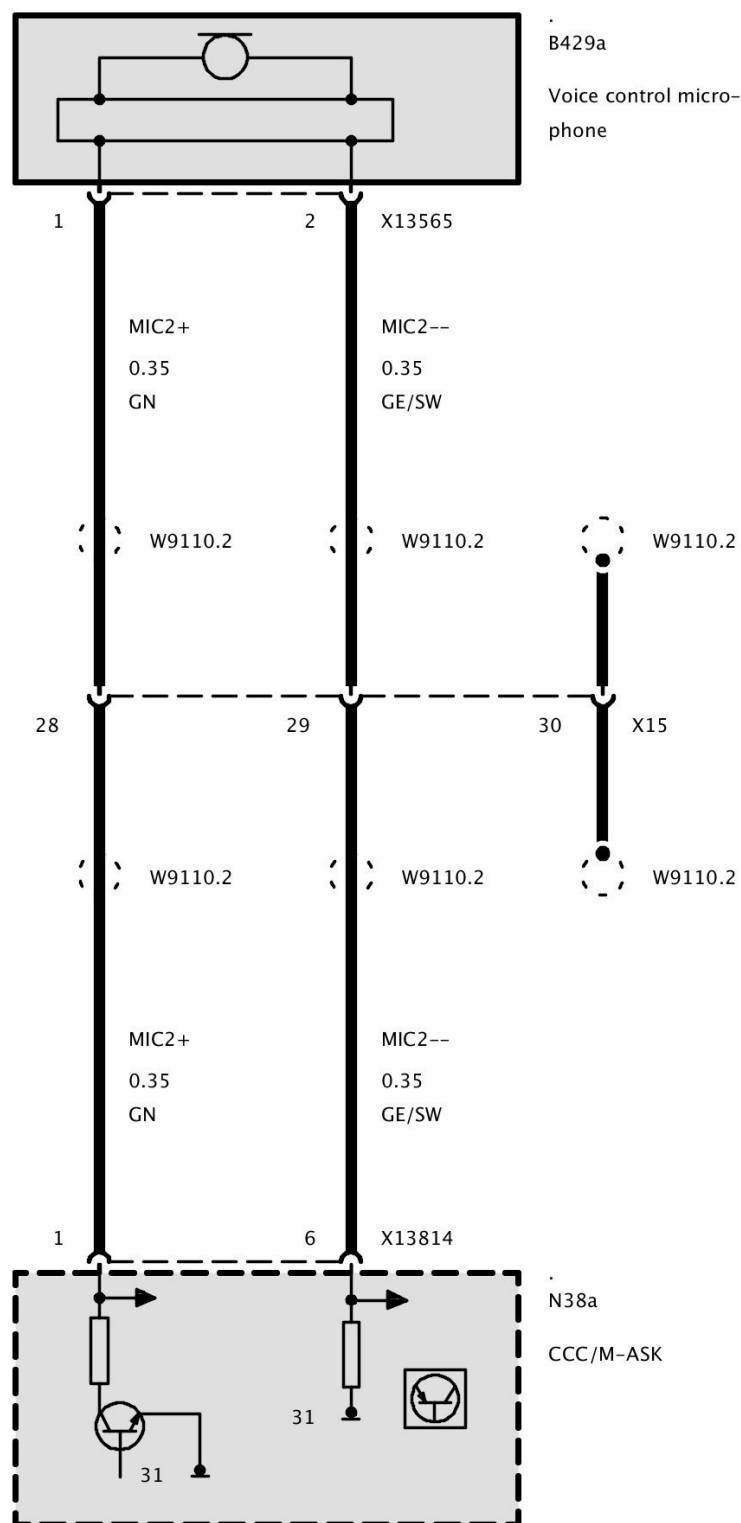
Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Voice Activation Microphone

### B429a Voice Control Microphone

#### Voice Input



## Alternator

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification



## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Chassis

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## ABS Main Relay

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Chassis

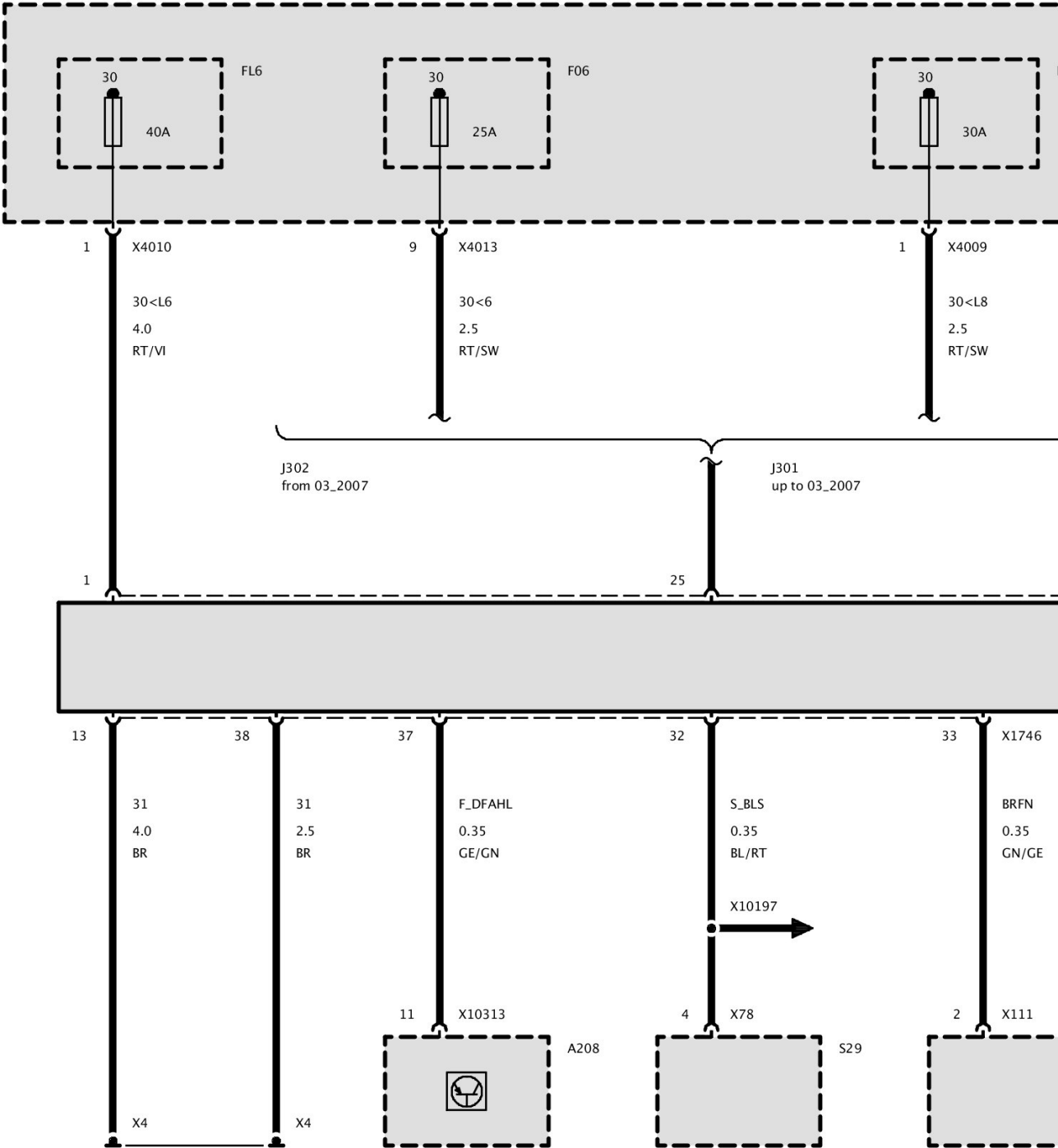
Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

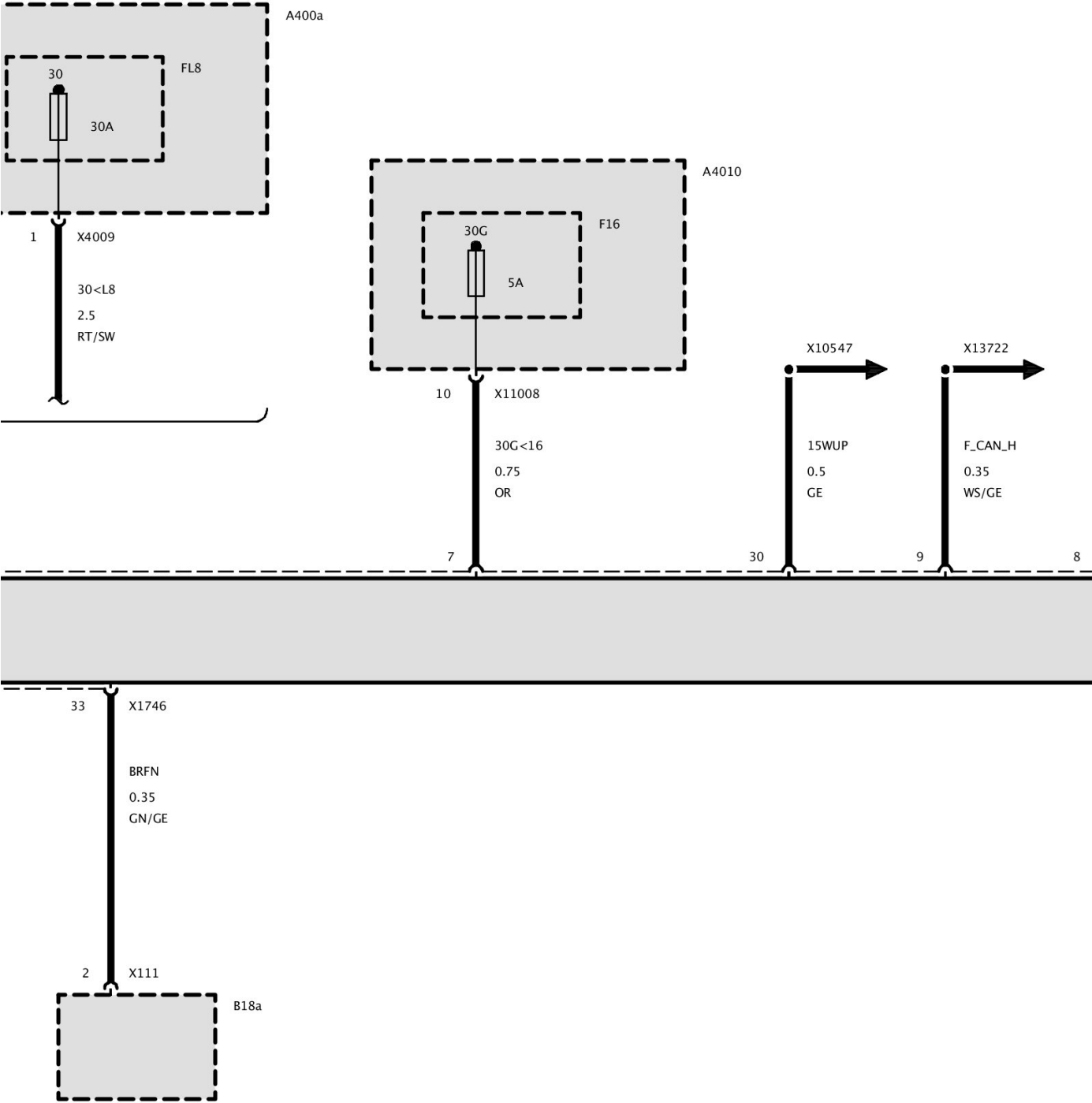
Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Traction Control Module

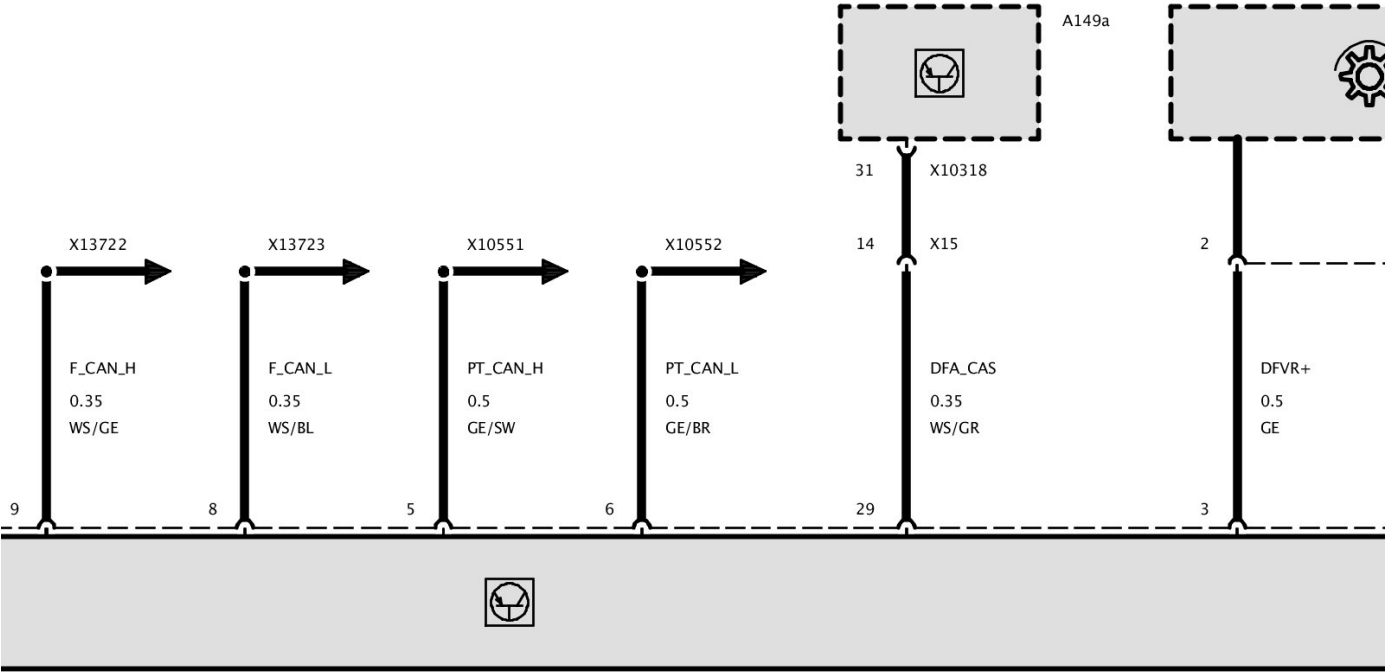
### A65a Dynamic Stability Control (DSC)



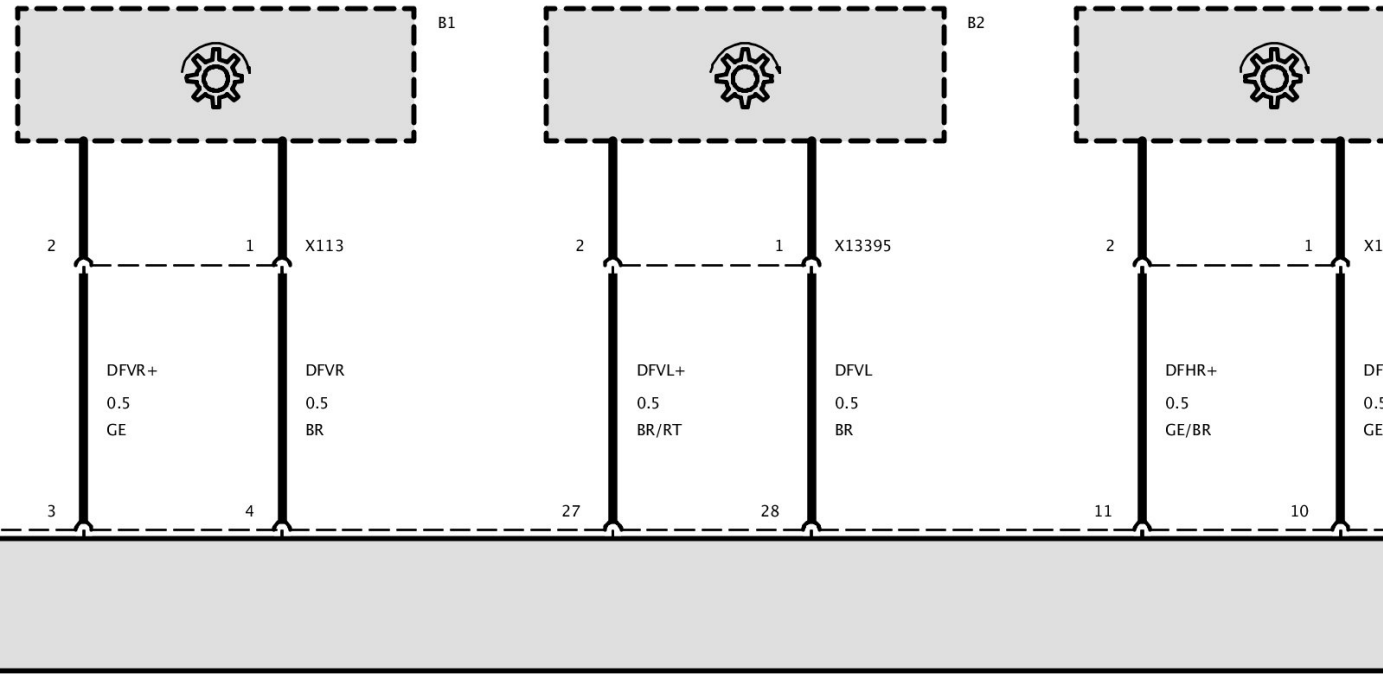
Part 1



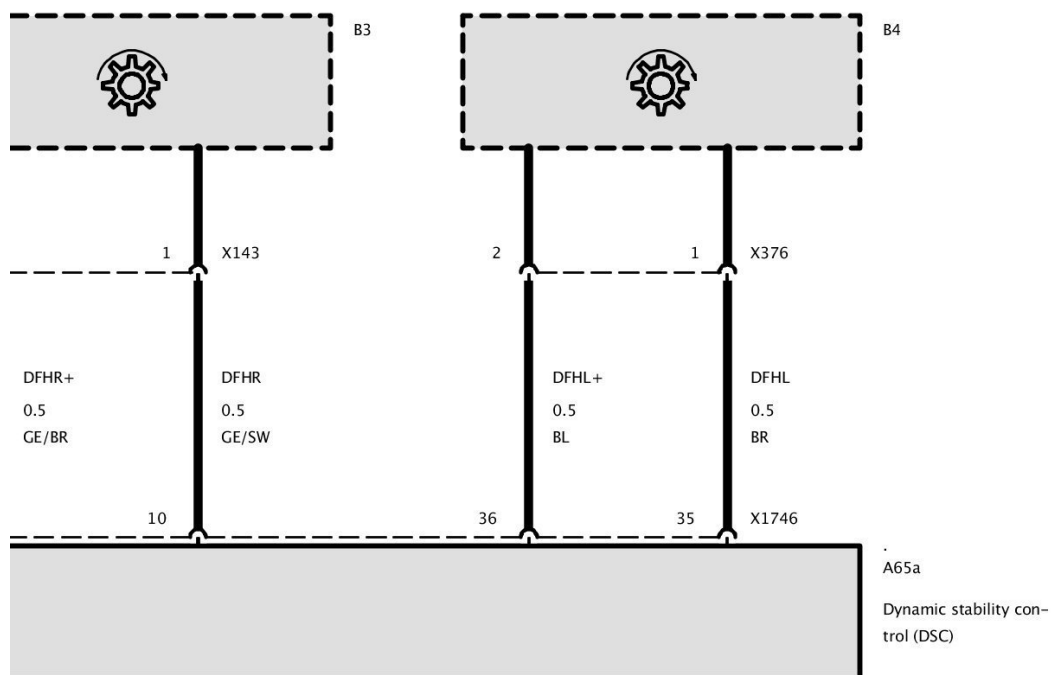
Part 2



Part 3



Part 4



## Part 5

### Wheel Speed Sensor

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Chassis

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## **Automatic Transmission/Transaxle**

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## **System Diagram**

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## **Body Control Systems**

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

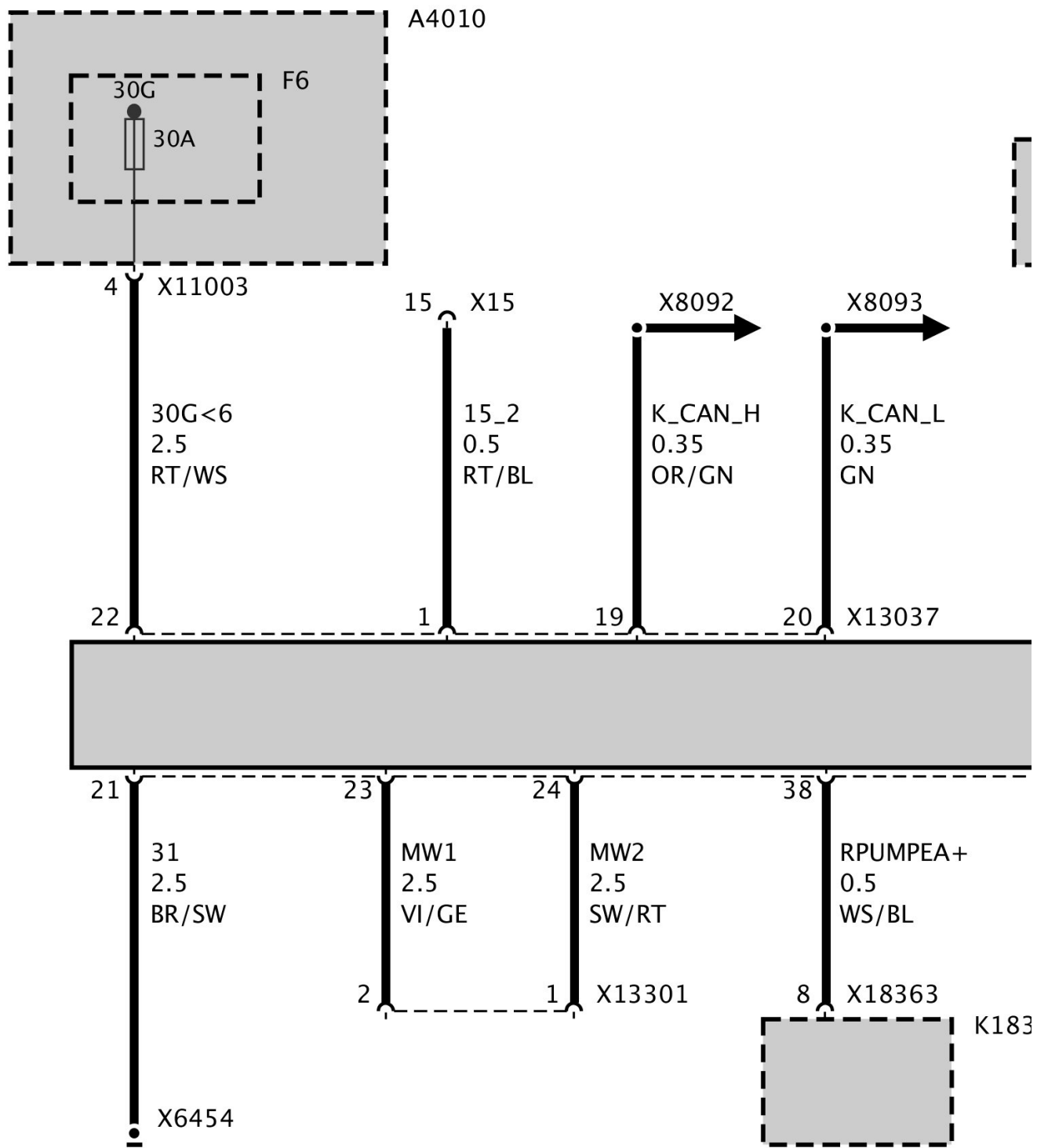
Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

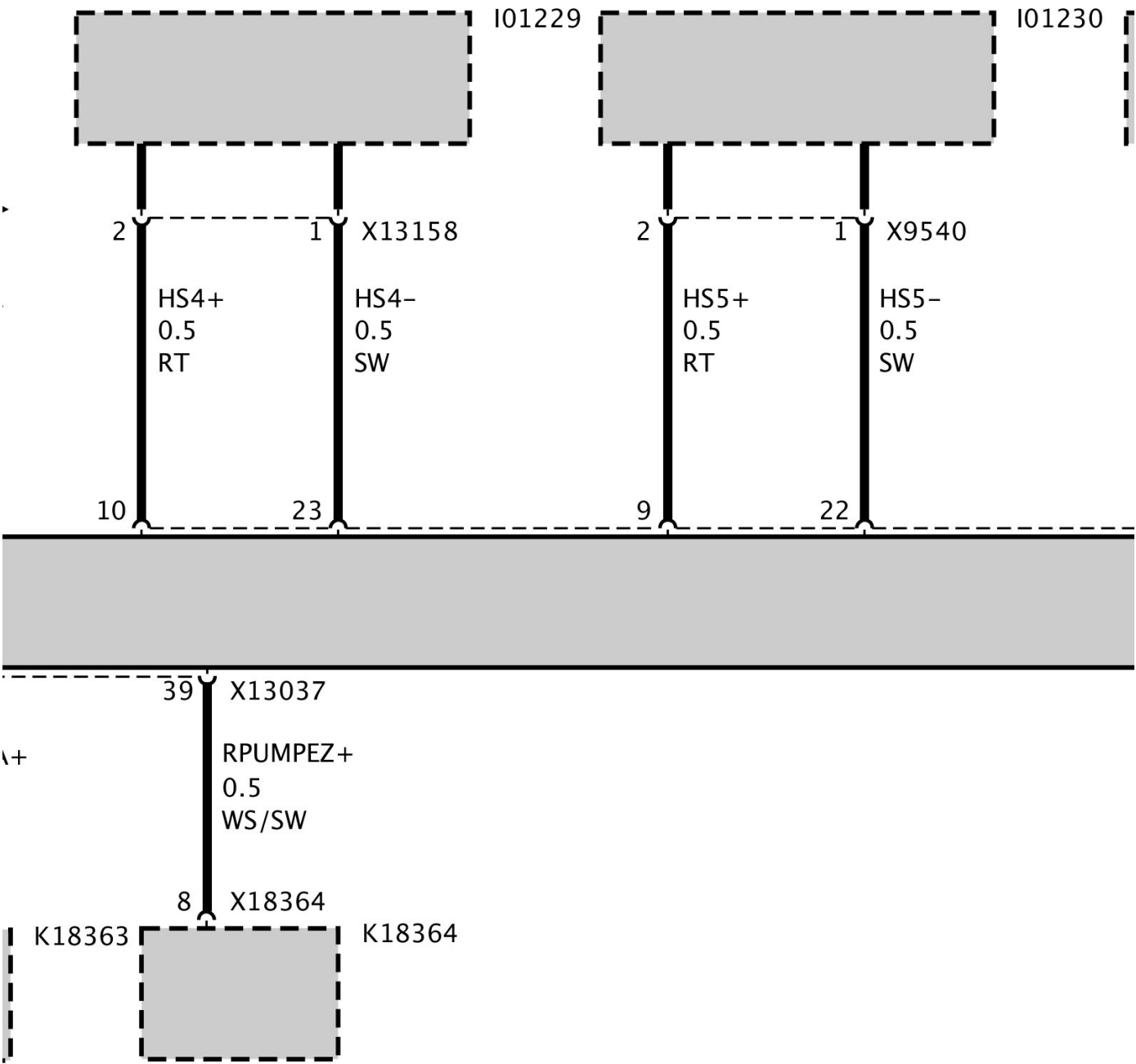
## **Convertible Top Control Module**

### **A96b Convertible Top Module**

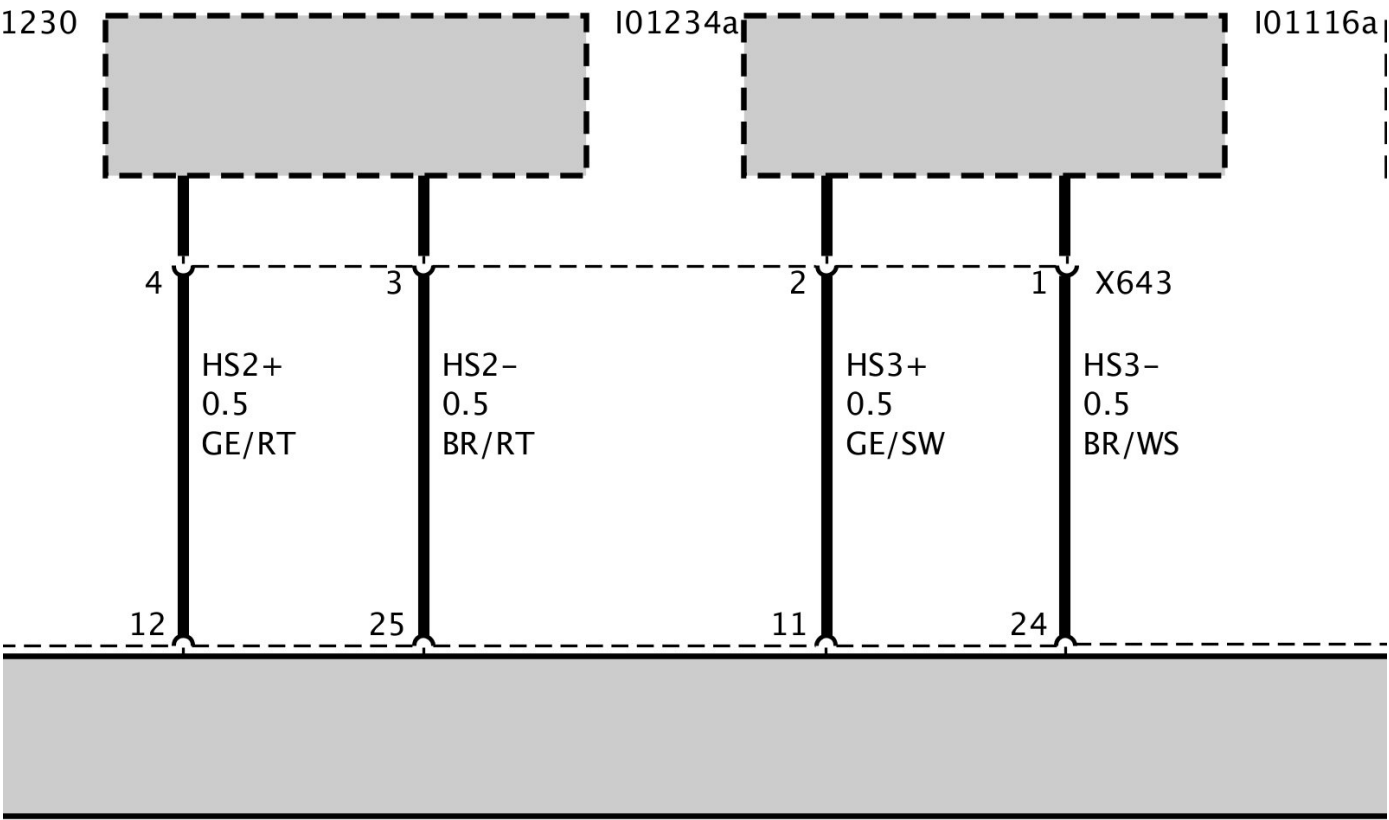


Part 1

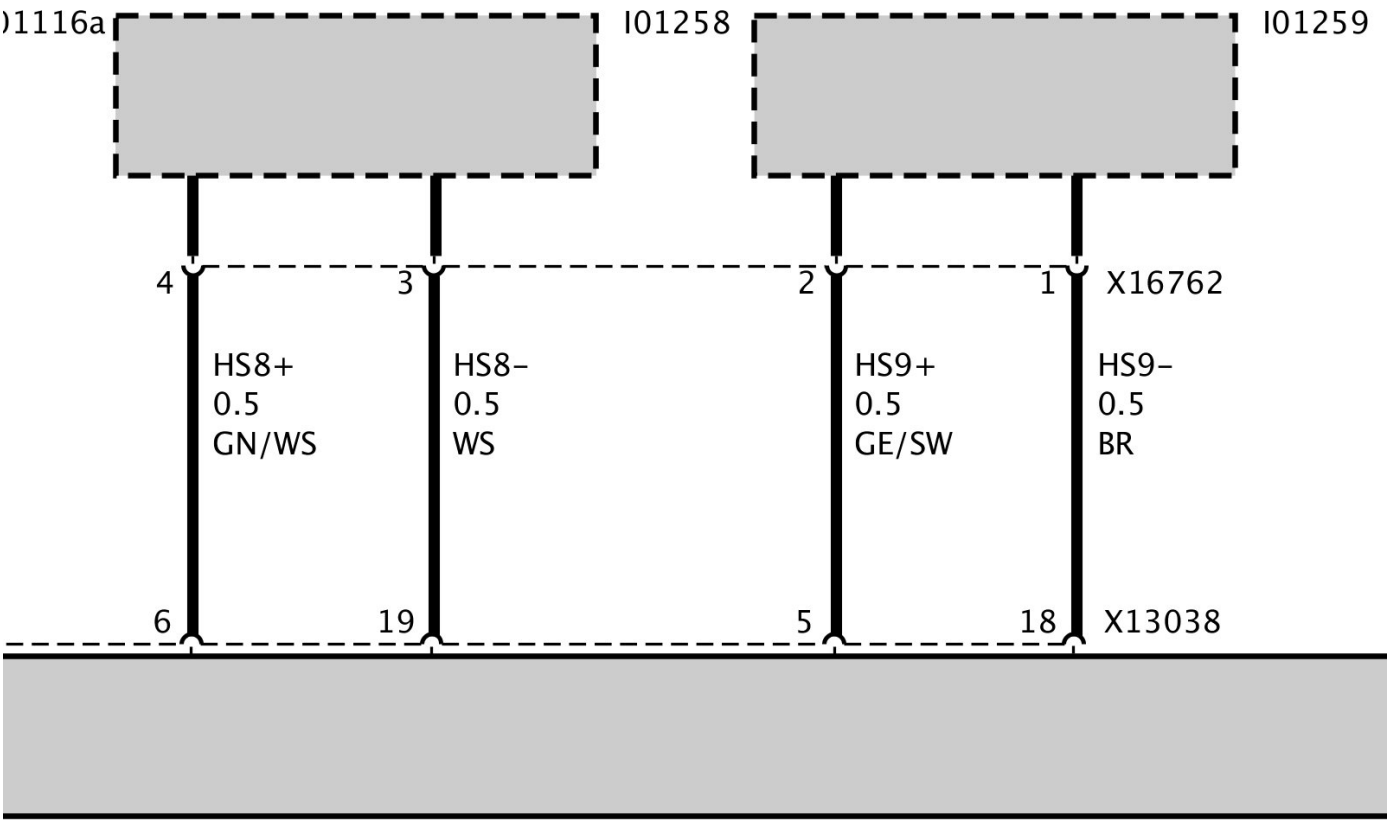


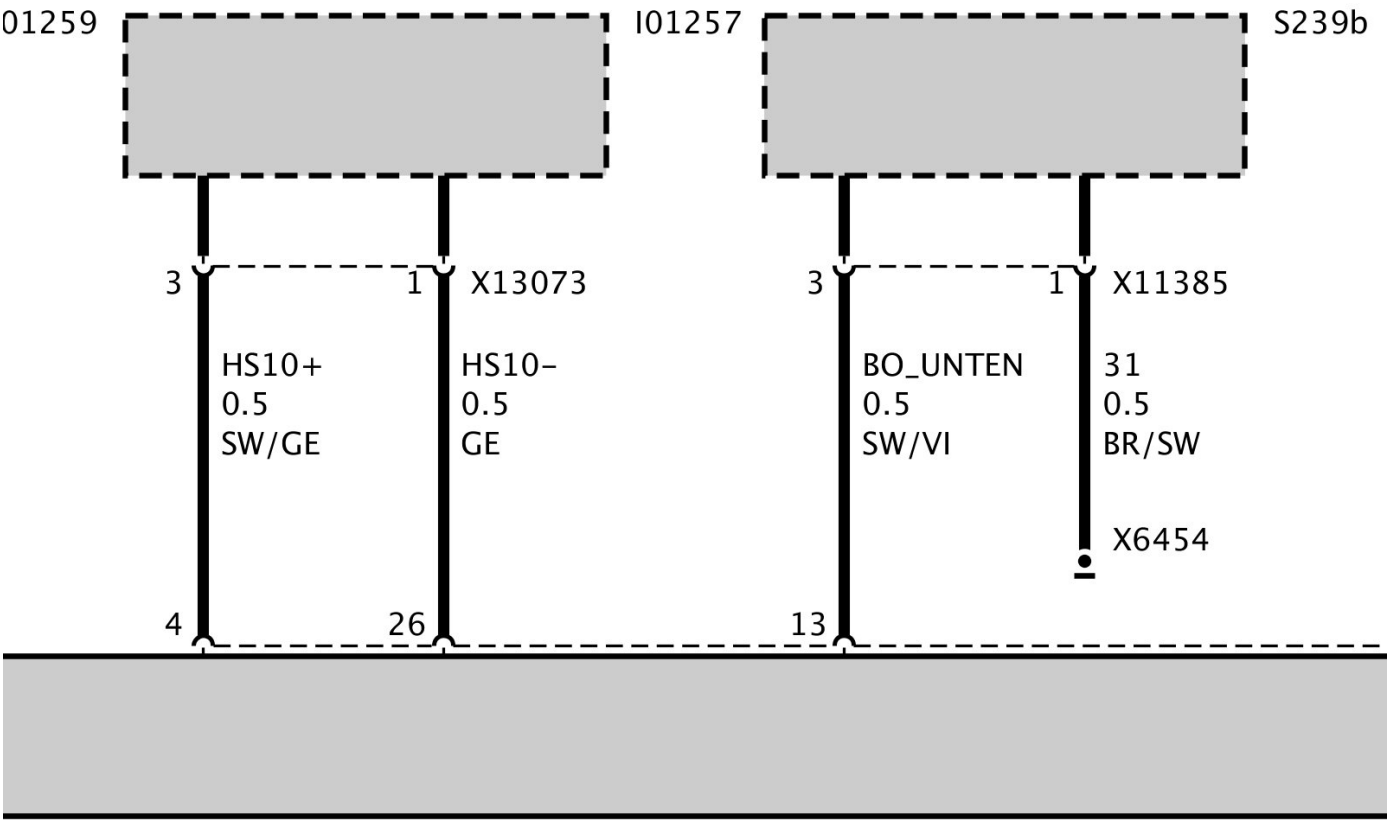


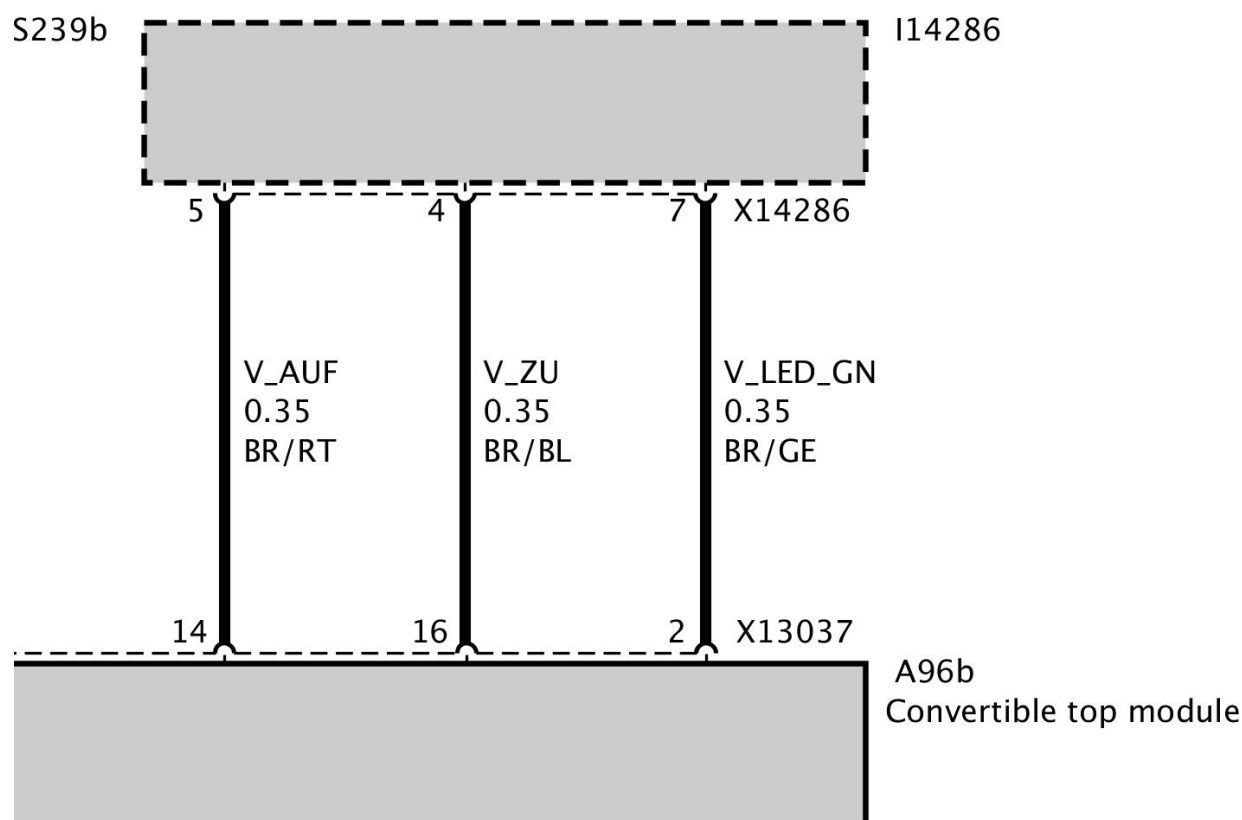
Part 2



Part 3







### Part 6

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Front Door

For information regarding diagrams for this component or system, please refer to vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Fuel Door

For information regarding diagrams for this component or system, please refer to vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Trunk / Liftgate

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Door Locks

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Keyless Entry

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Power Locks

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Trunk / Liftgate Lock

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Mirrors

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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## Power Seat Control Module

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Power Seat Motor

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Power Seat Switch

Mini Cooper S (R56) L4-1.6L Turbo (N14)2337

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

**System Diagram**

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

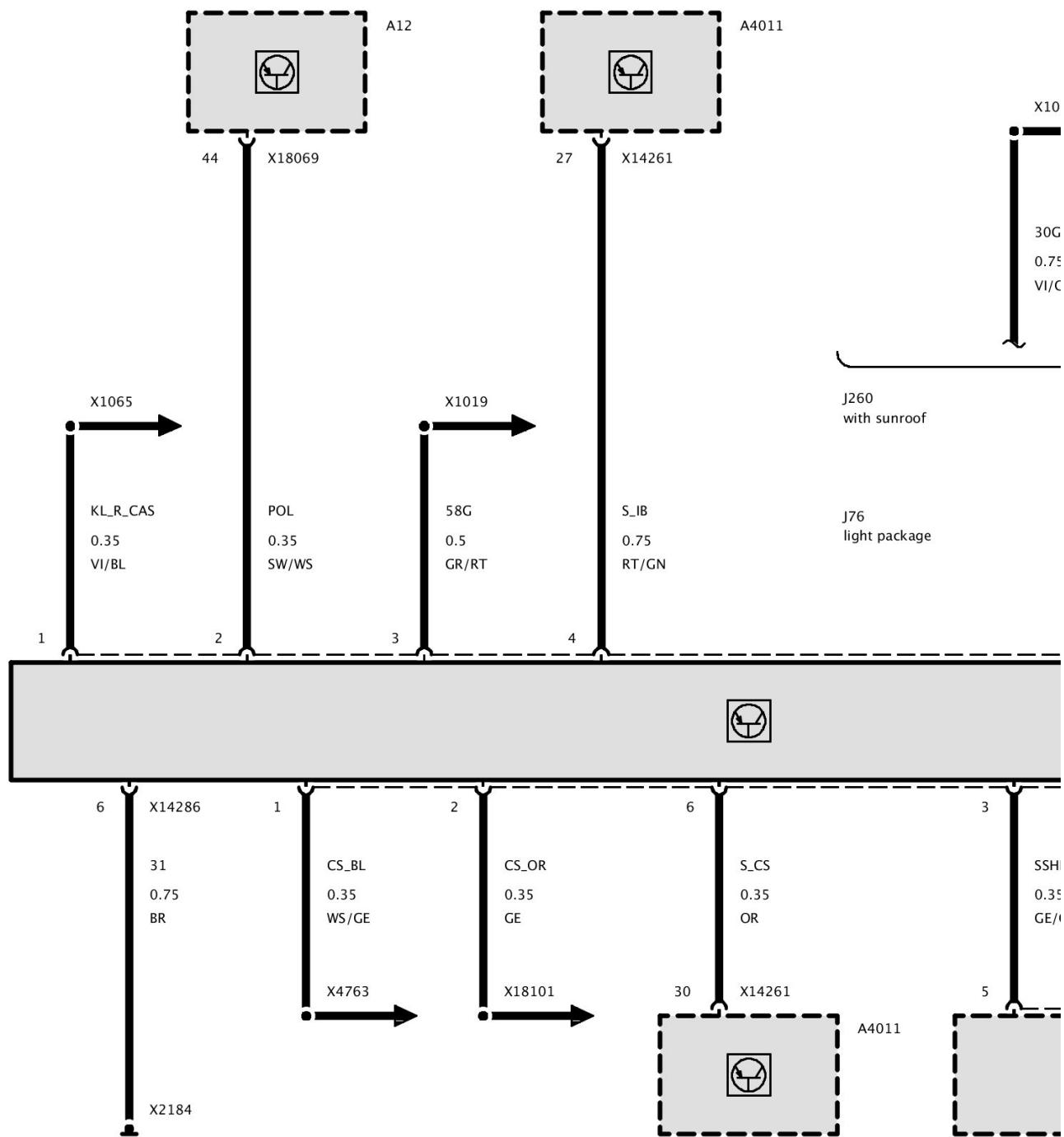
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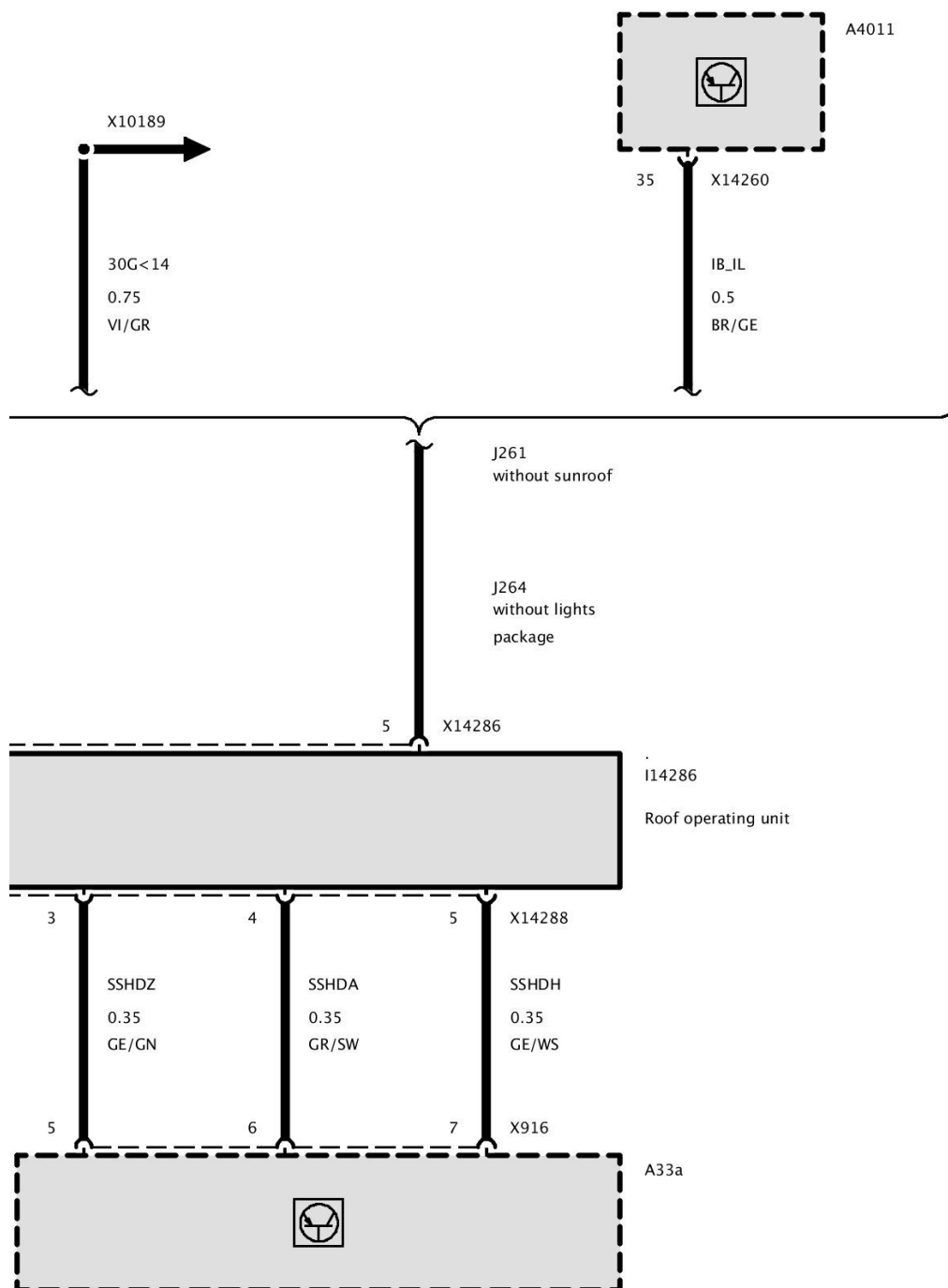
**Sunroof / Moonroof Switch**

**I14286 Roof Operating Unit (Without Convertible)**





Part 1



## Part 2

### Brake Pad Wear Sensor

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Chassis

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Radiator Cooling Fan Motor

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Radiator Cooling Fan Motor Relay

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Temperature Gauge

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Cruise Control

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Ambient Temperature Sensor / Switch HVAC

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Auxiliary Blower Motor

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Blower Motor Relay

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Blower Motor Resistor

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Compressor Clutch

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Condenser Fan

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Control Assembly, HVAC

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

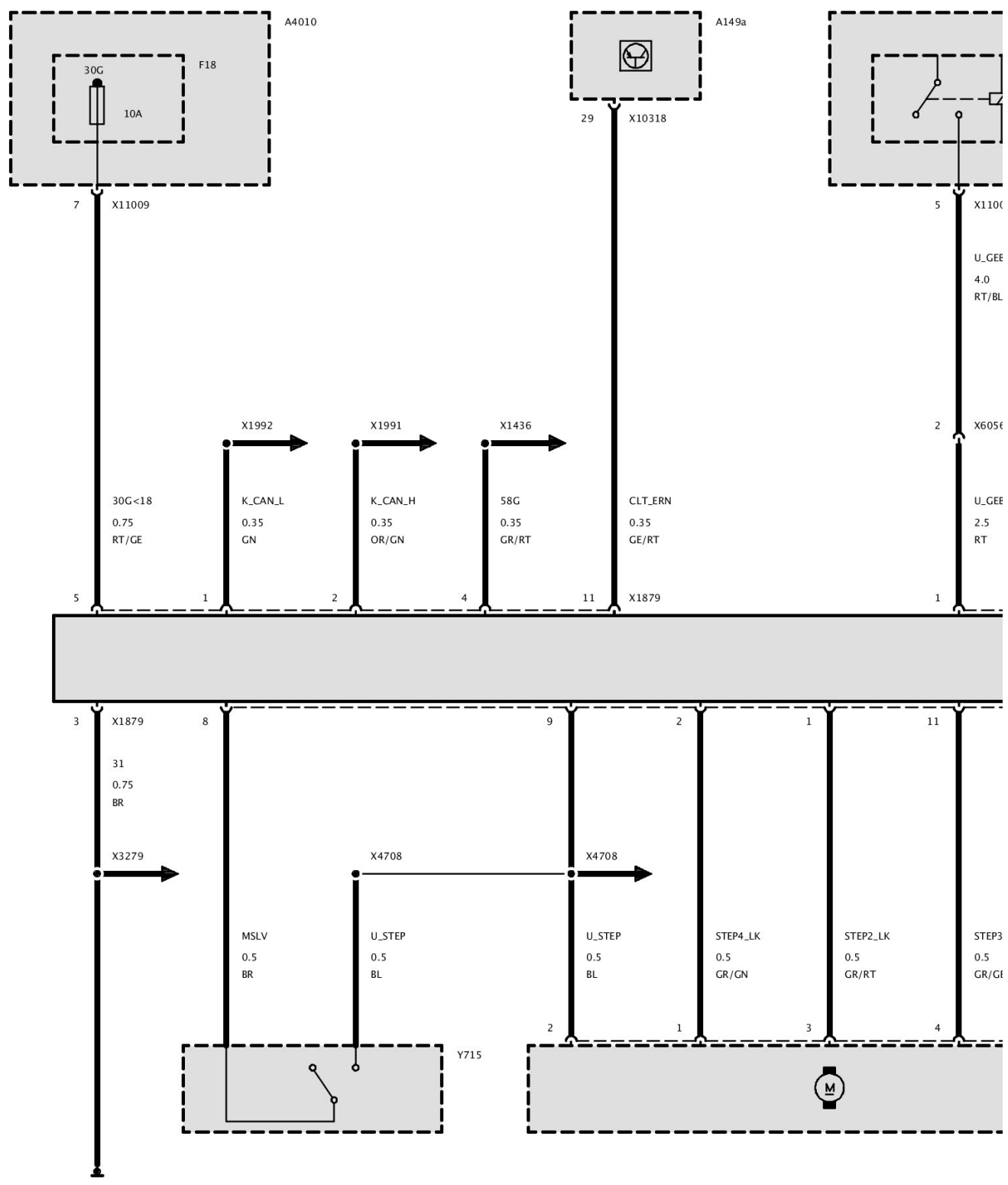
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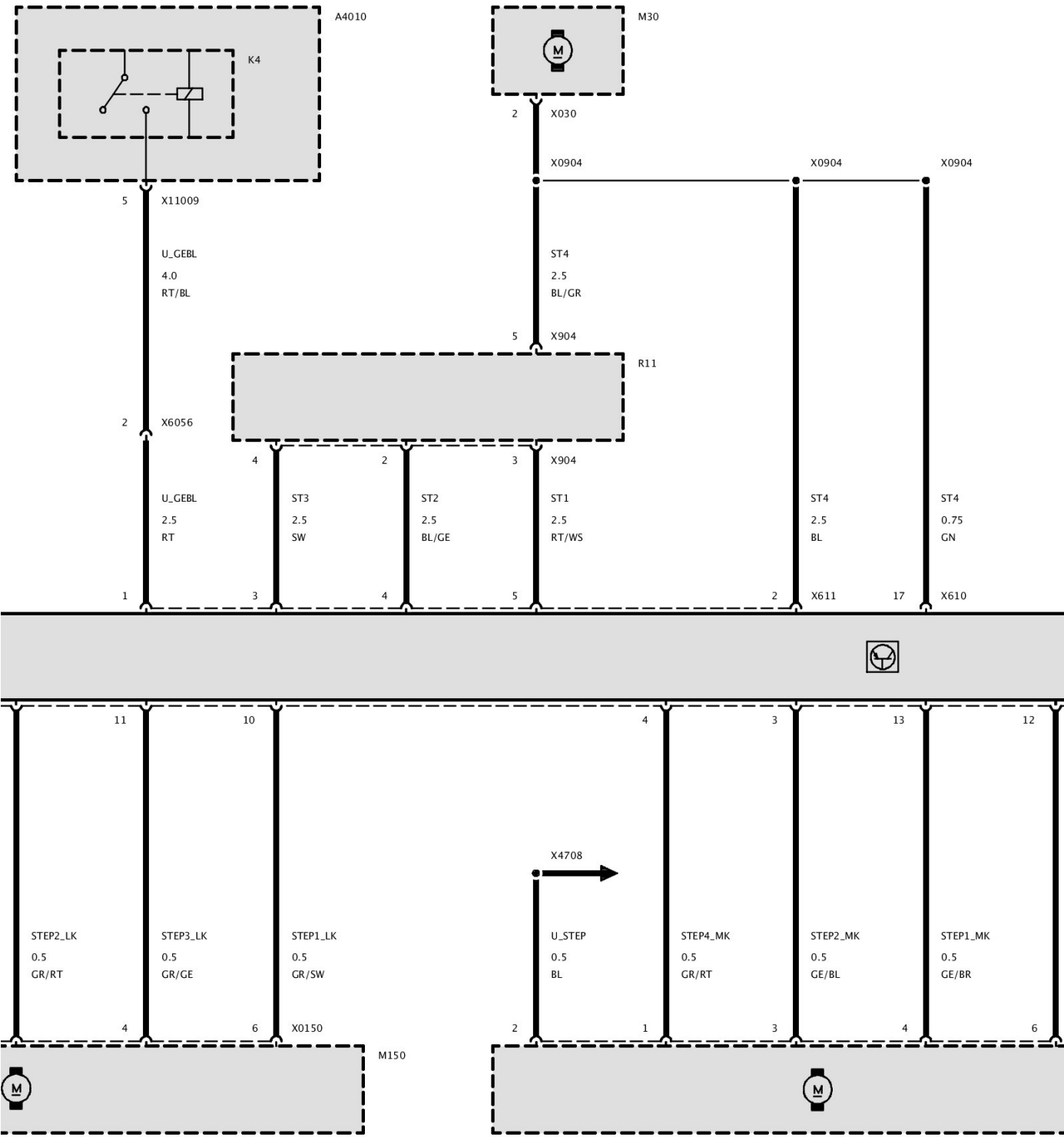
Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## A11a Heating/Air Conditioning System (Without IHKA Integrated Automatic Heating/Air Conditioning)

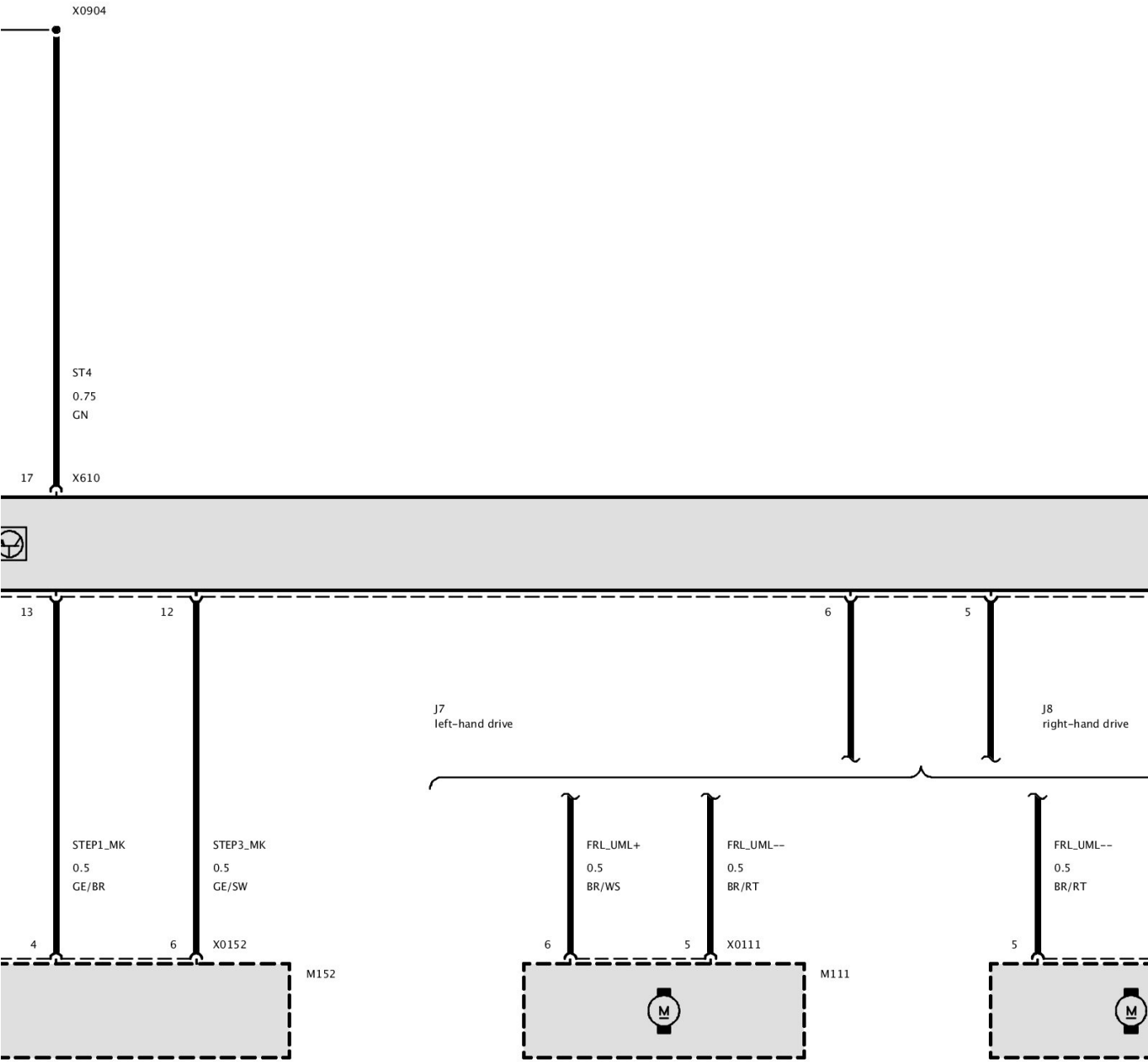
A11a Heating/Air Conditioning System (Without IHKA Integrated Automatic Heating/Air Conditioning)



Part 1

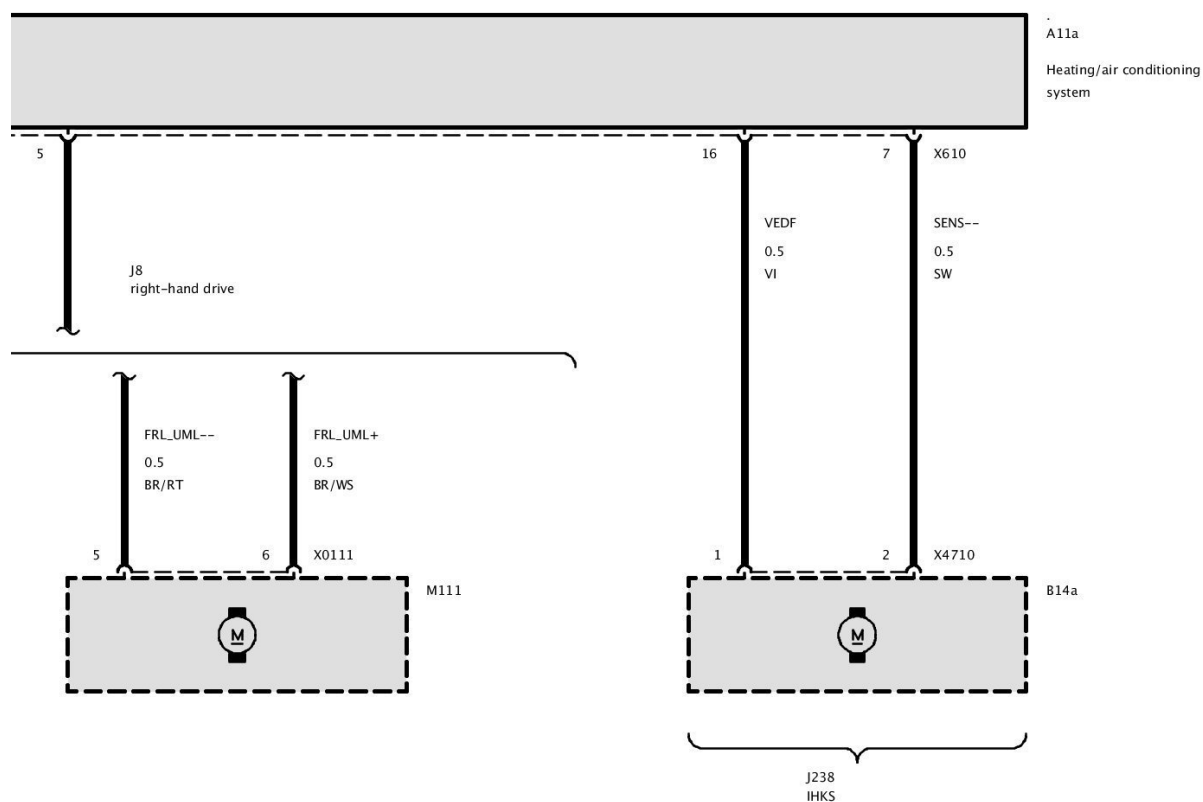


Part 2



Part 3

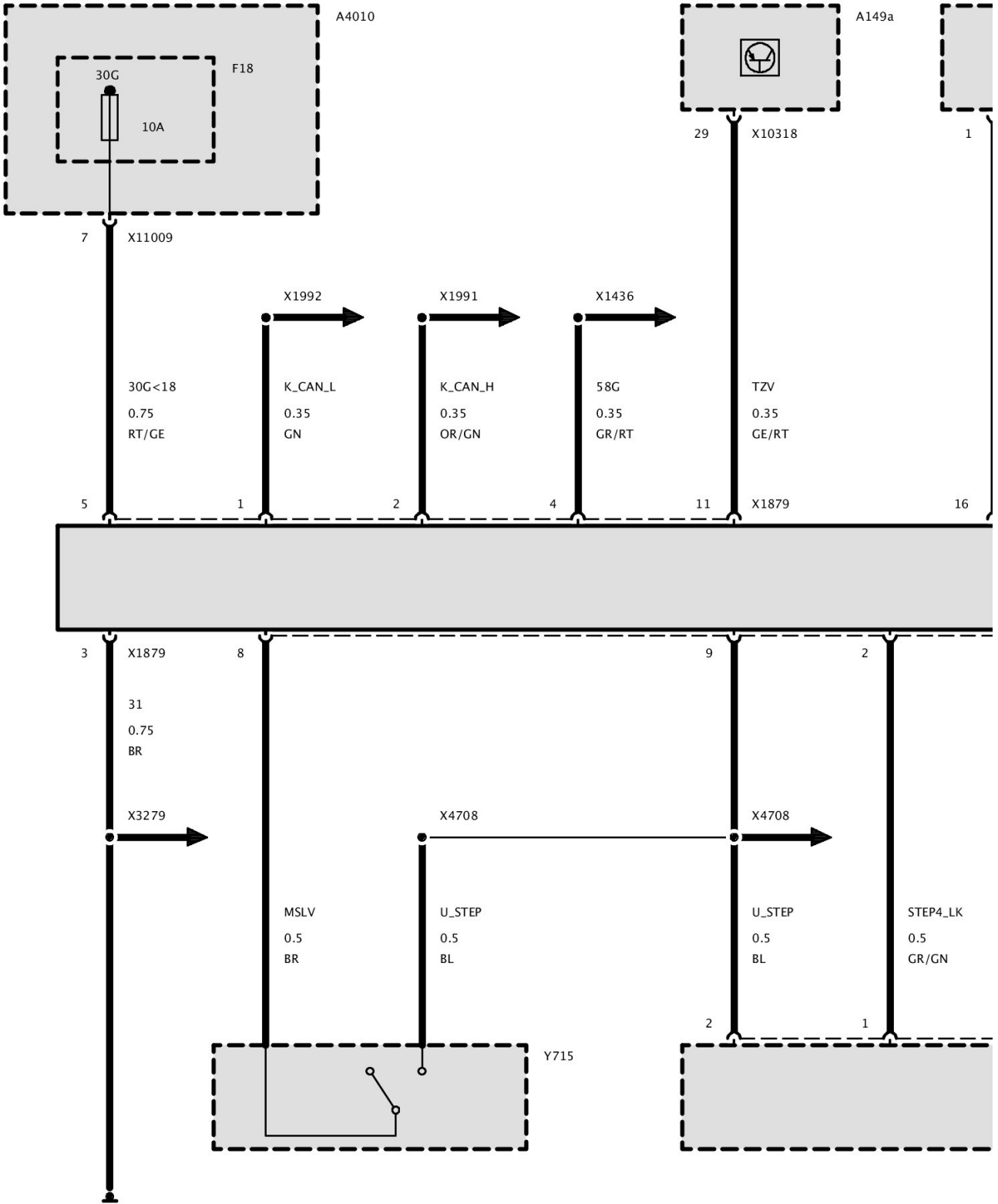




#### Part 4

### A11a Heating/Air Conditioning System (IHKA Integrated Automatic Heating/Air Conditioning)

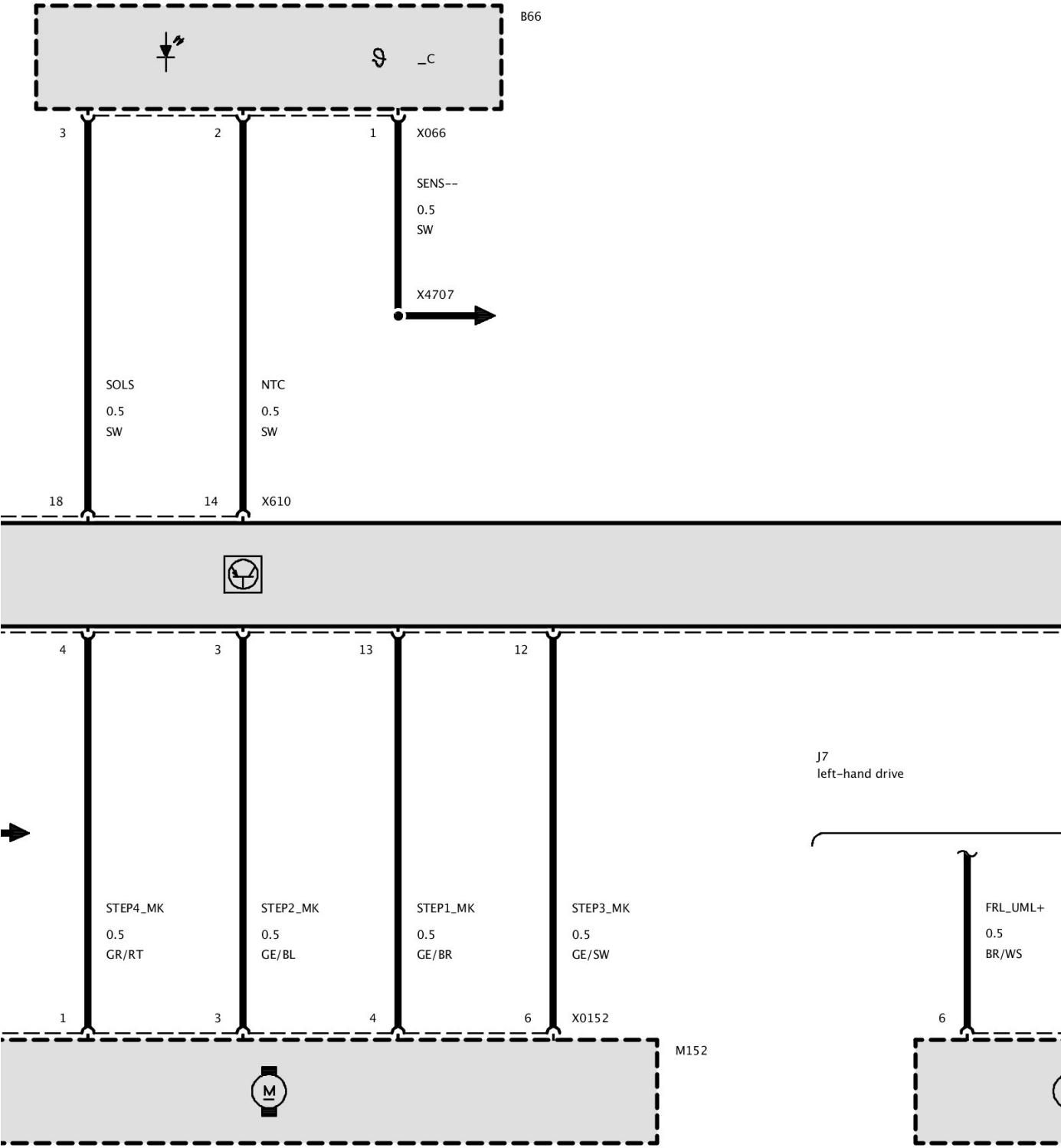
#### A11a Heating/Air Conditioning System (IHKA Integrated Automatic Heating/Air Conditioning)



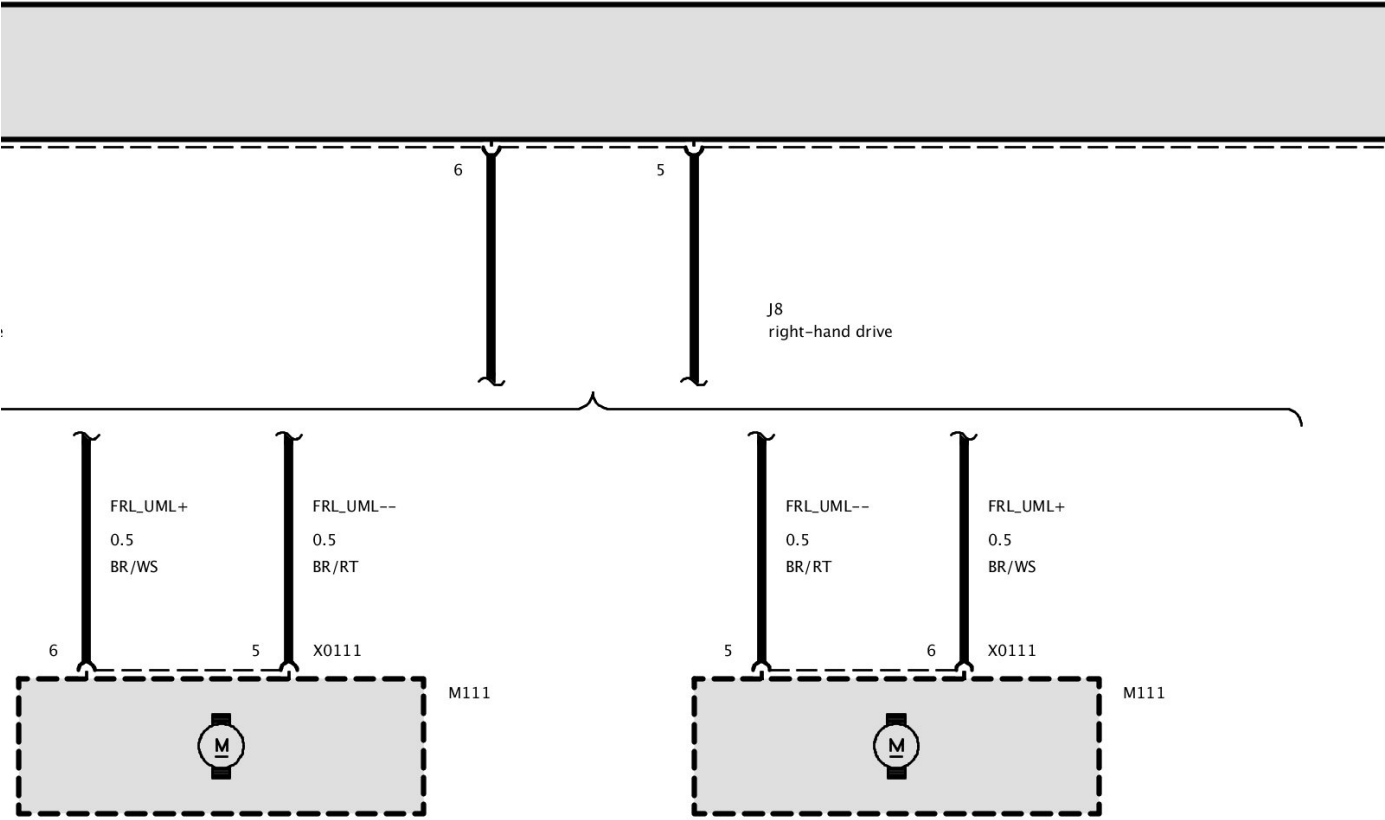
Part 1



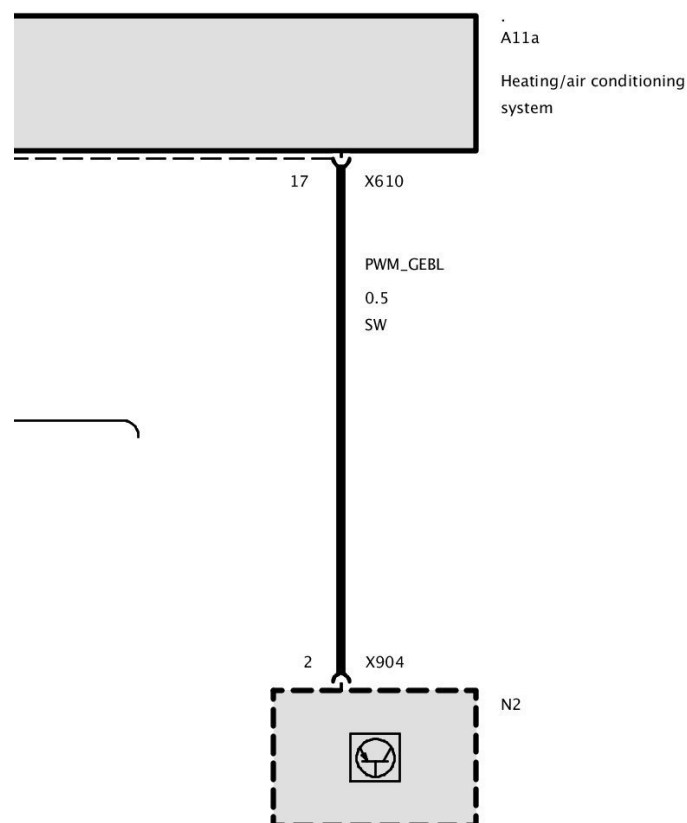
Part 2



Part 3



Part 4



### Part 5

## Evaporator Temperature Sensor / Switch

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Fuel Gauge

For information regarding diagrams for this component or system, please refer to vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

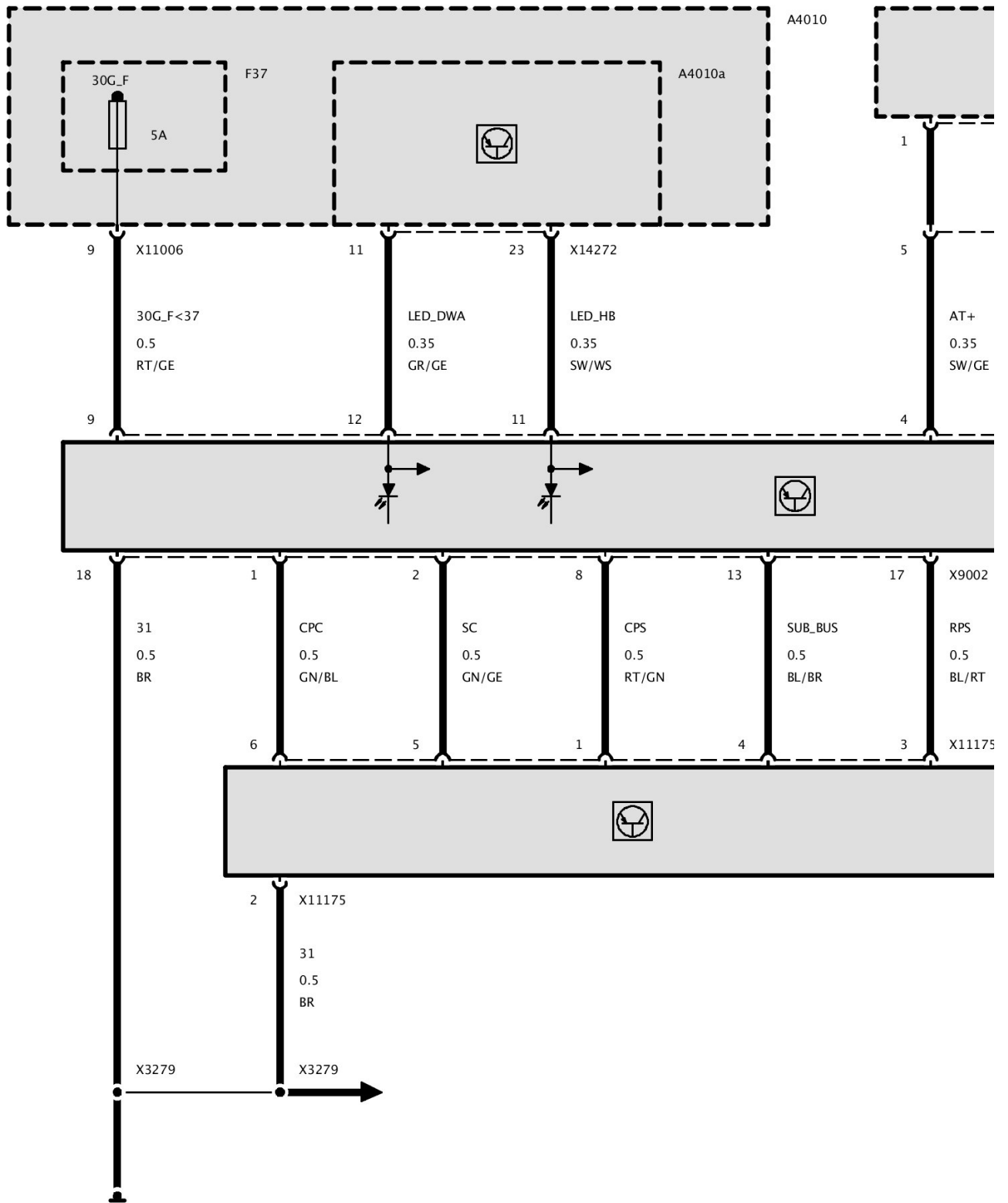
Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

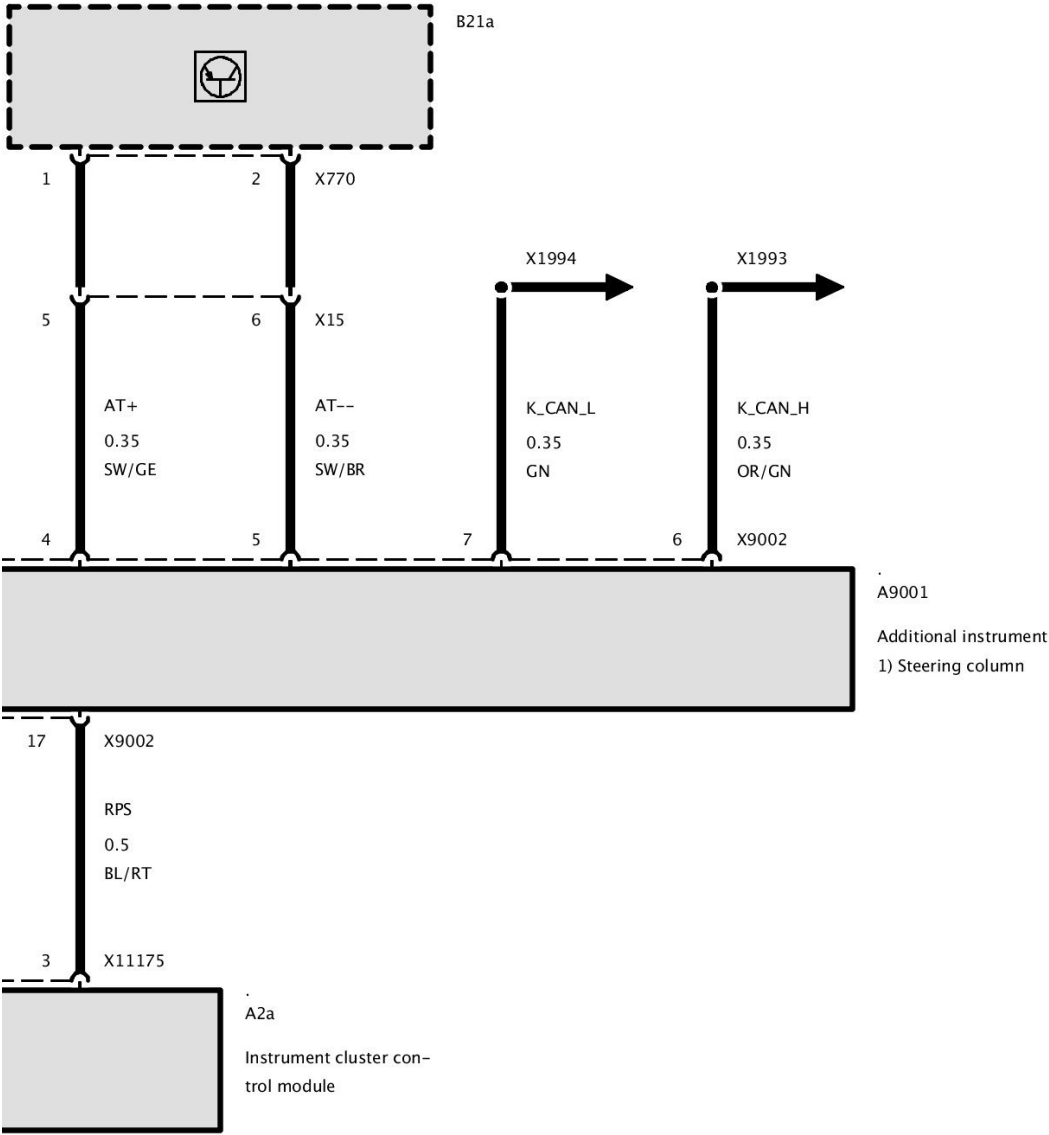
### A9001 Additional Instrument

### A2a Instrument Cluster Control Module A9001 Additional Instrument



Part 1

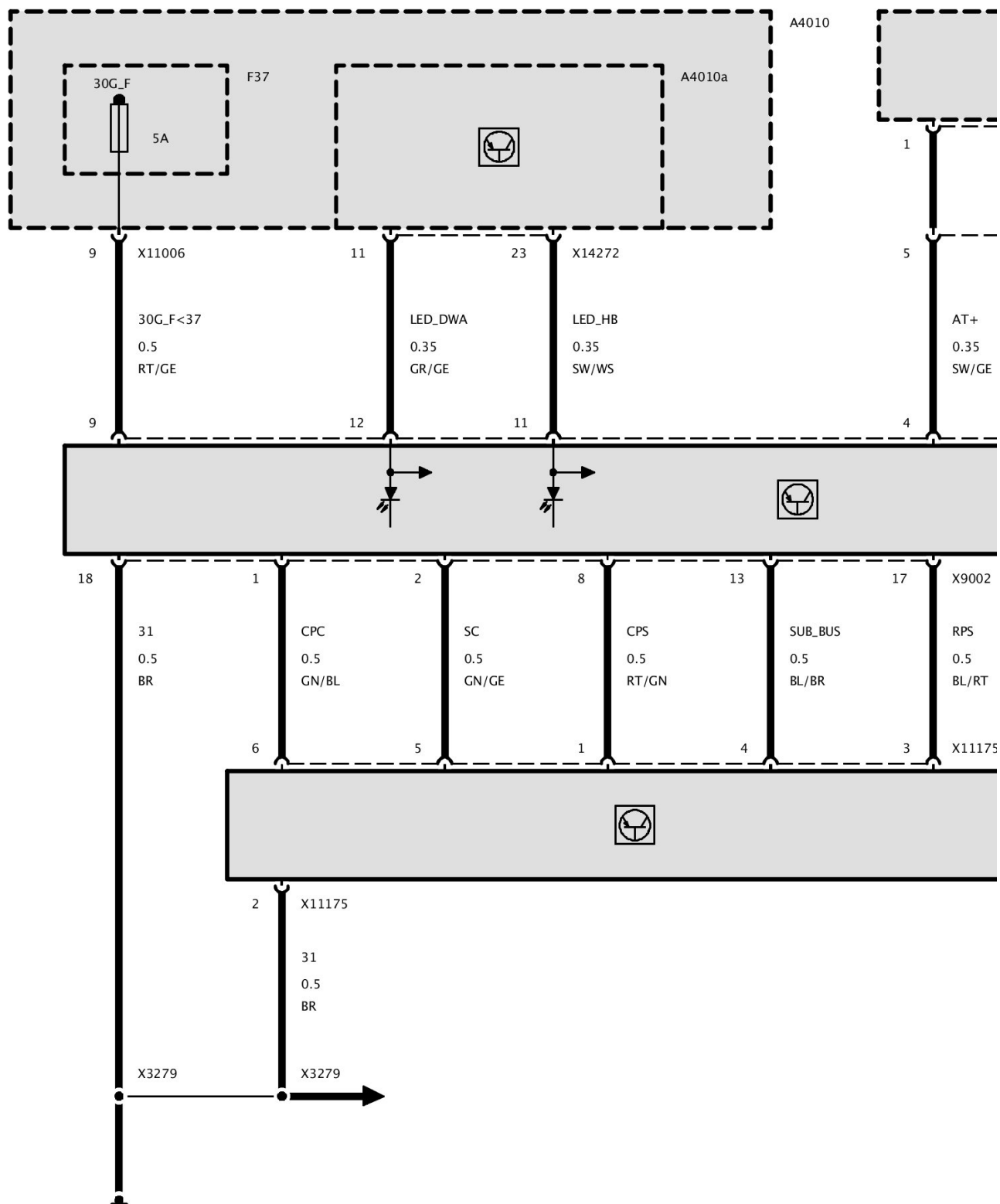




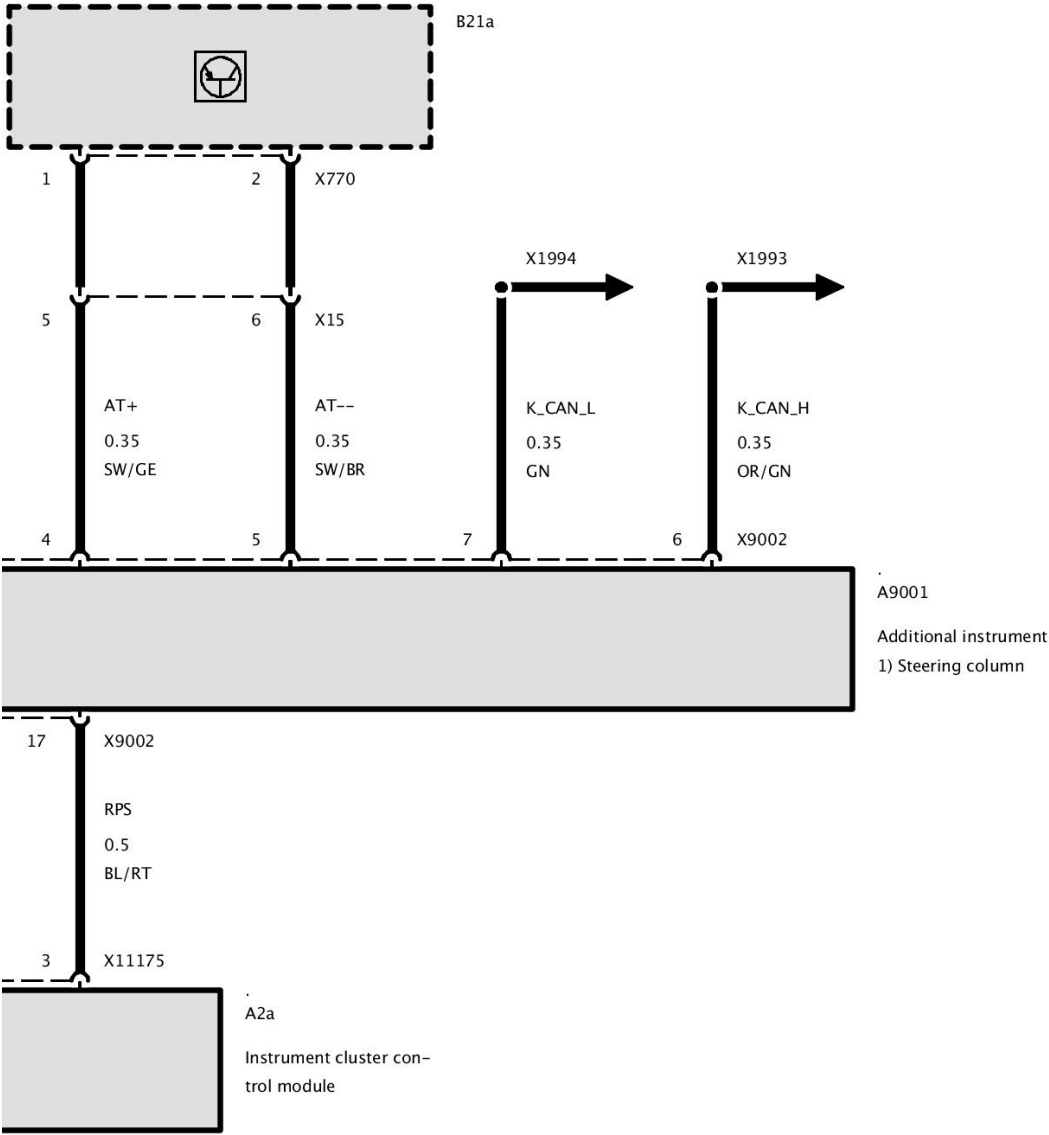
Part 2

Instrument Panel Control Module

A2a Instrument Cluster Control Module A9001 Additional Instrument



## Part 1



Part 2

Temperature Sensor (Gauge)

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Backup Lamp Switch

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Brake Lamp

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Brake Light Switch

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Courtesy Lamp

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and

## Daytime Running Lamp

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Dome Lamp

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Fog/Driving Lamp

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Hazard Warning Indicator

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Headlamp Control Module

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Headlamp Switch

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Parking Lamp

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Tail Lamp

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Turn Signal Switch

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

**Connector Information:** Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: [Connector Views](#) See: [Locations/Connector Locations](#)

**Signal Information:** Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at [Diagram Information and Instructions](#). See: [Diagram Information and Instructions/Signal Glossary](#)

**Wire Color Code Information:** Wire color code information can be found at [Diagram Information and Instructions](#). See: [Diagram Information and Instructions/Wire Color Code Identification](#)

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: [Electrical Diagrams/Drive](#)

**Connector Information:** Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: [Connector Views](#) See: [Locations/Connector Locations](#)

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**Wire Color Code Information:** Wire color code information can be found at [Diagram Information and Instructions](#). See: [Diagram Information and Instructions/Wire Color Code Identification](#)

## Camshaft Position Sensor

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: [Electrical Diagrams/Drive](#)

**Connector Information:** Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: [Connector Views](#) See: [Locations/Connector Locations](#)

**Signal Information:** Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at [Diagram Information and Instructions](#). See: [Diagram Information and Instructions/Signal Glossary](#)

**Wire Color Code Information:** Wire color code information can be found at [Diagram Information and Instructions](#). See: [Diagram Information and Instructions/Wire Color Code Identification](#)

## Central Electronics Box Fan

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: [Electrical Diagrams/Drive](#)

**Connector Information:** Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: [Connector Views](#) See: [Locations/Connector Locations](#)

**Signal Information:** Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at [Diagram Information and Instructions](#). See: [Diagram Information and Instructions/Signal Glossary](#)

**Wire Color Code Information:** Wire color code information can be found at [Diagram Information and Instructions](#). See: [Diagram Information and Instructions/Wire Color Code Identification](#)

## Coolant Temperature Sensor/Switch (For Computer)

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: [Electrical Diagrams/Drive](#)

**Connector Information:** Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: [Connector Views](#) See: [Locations/Connector Locations](#)

**Signal Information:** Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at [Diagram Information and Instructions](#). See: [Diagram Information and Instructions/Signal Glossary](#)

**Wire Color Code Information:** Wire color code information can be found at [Diagram Information and Instructions](#). See: [Diagram Information and Instructions/Wire Color Code Identification](#)

## Crankshaft Position Sensor

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: [Electrical Diagrams/Drive](#)

**Connector Information:** Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: [Connector Views](#) See: [Locations/Connector Locations](#)

**Signal Information:** Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at [Diagram Information and Instructions](#). See: [Diagram Information and Instructions/Signal Glossary](#)

**Wire Color Code Information:** Wire color code information can be found at [Diagram Information and Instructions](#). See: [Diagram Information and Instructions/Wire Color Code Identification](#)

## Data Link Connector

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: [Electrical Diagrams/Drive](#)

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

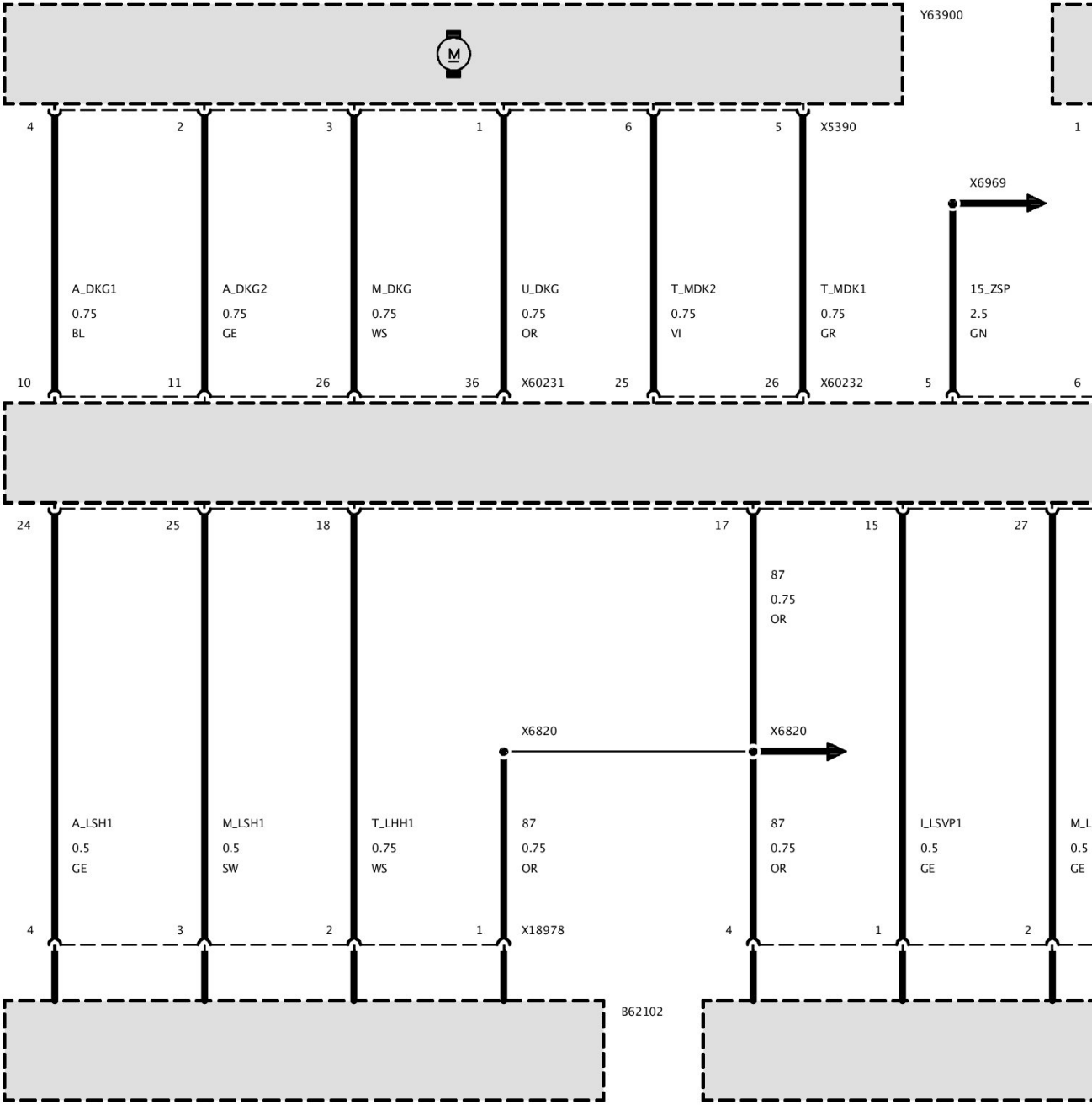
Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## **A6000 DME Control Module, Engine Side (N14 Engine)**

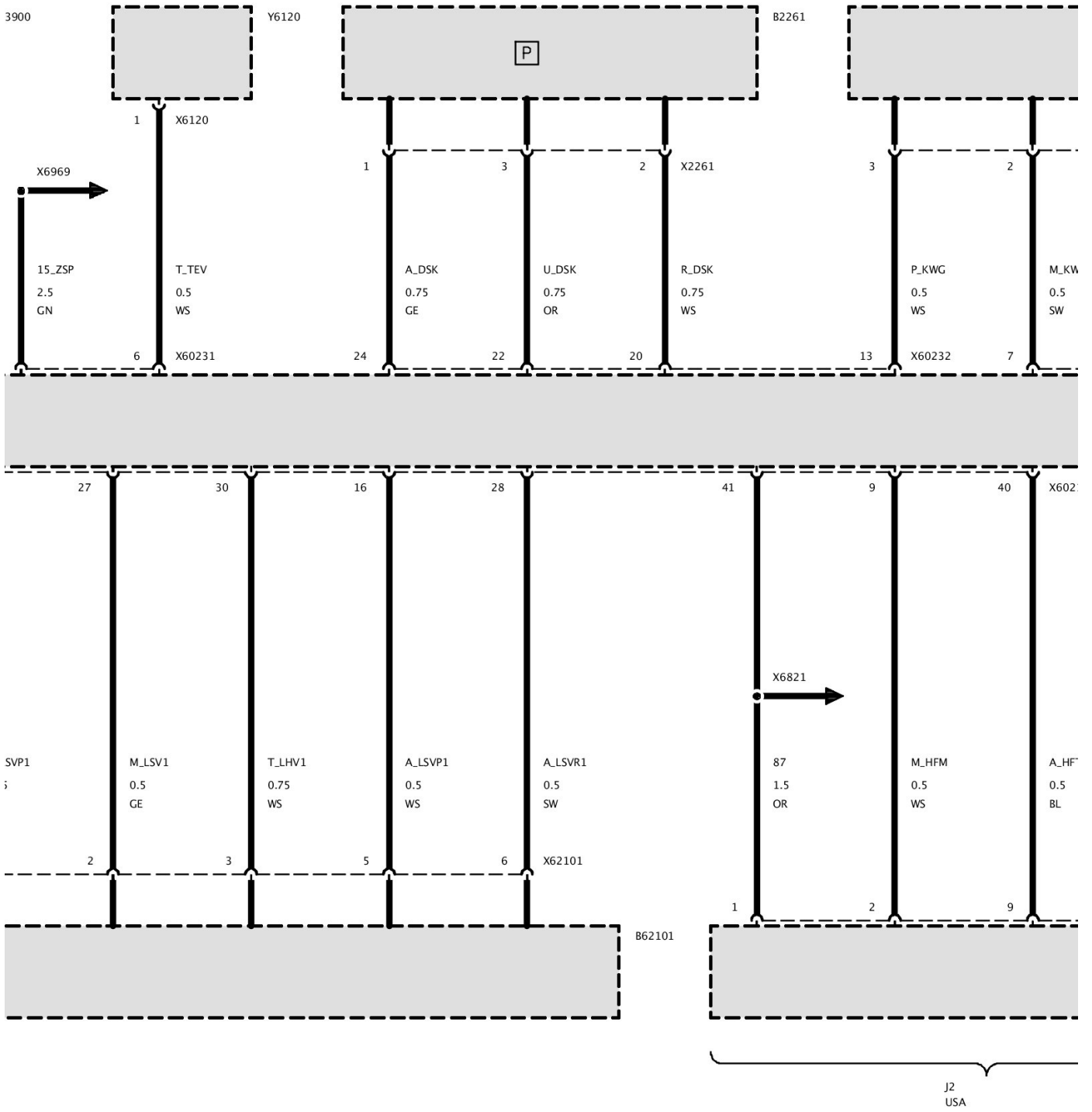
**A6000 Engine Control Module (DEM) (N12 Engine or N14 Engine)**

**A6000 DME Control Module, Engine Side (N14 Engine)**

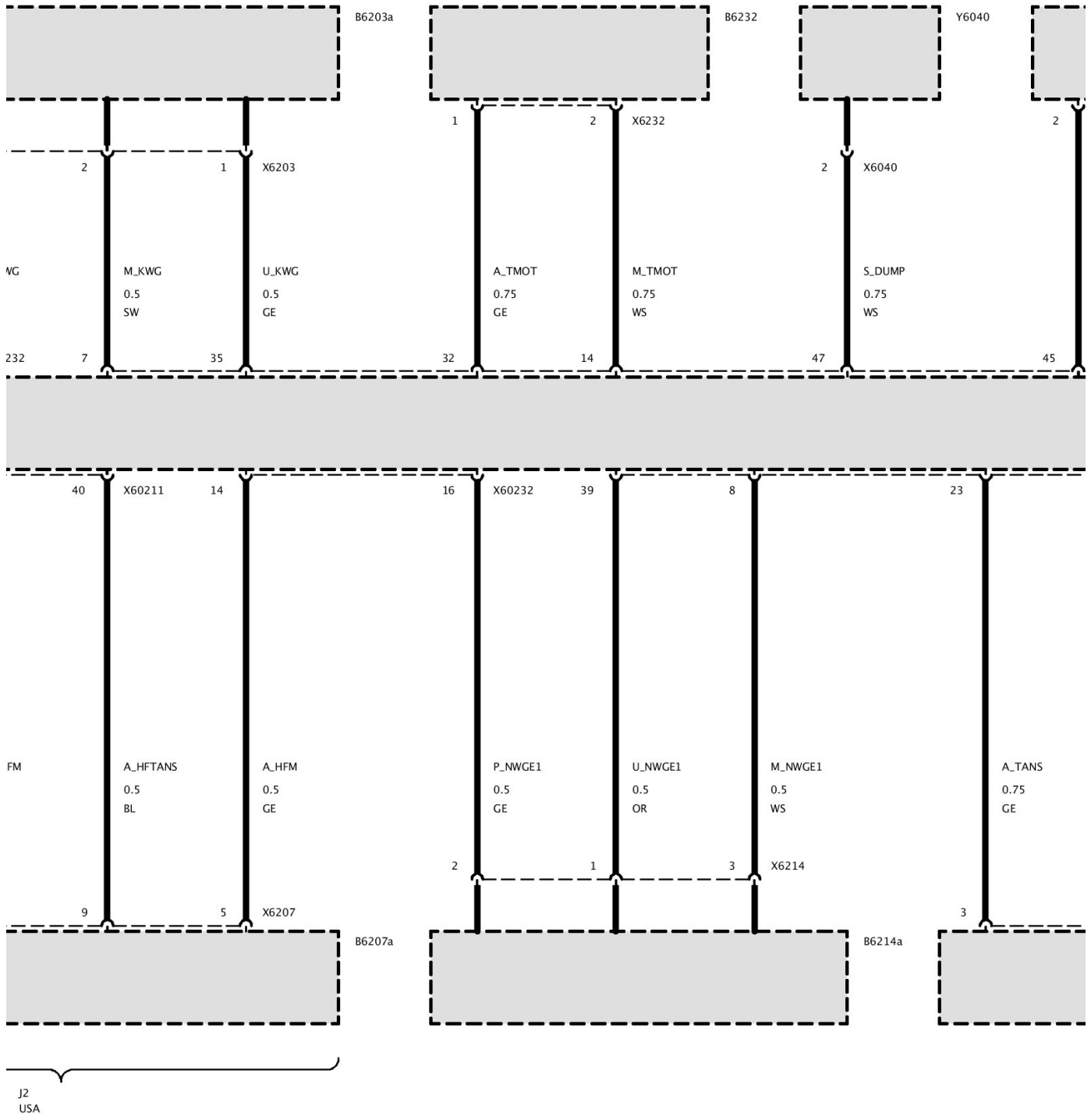




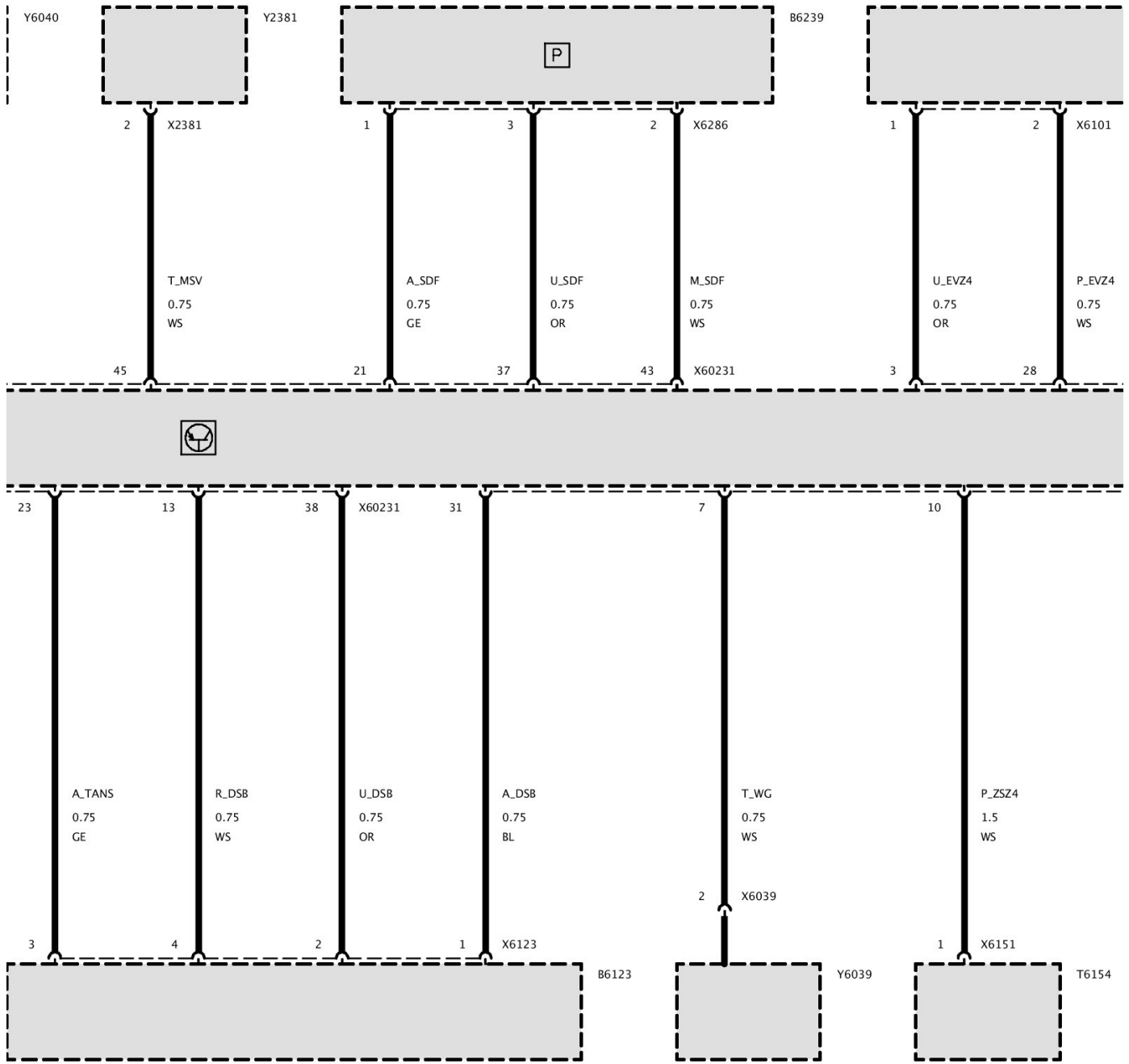
Part 1



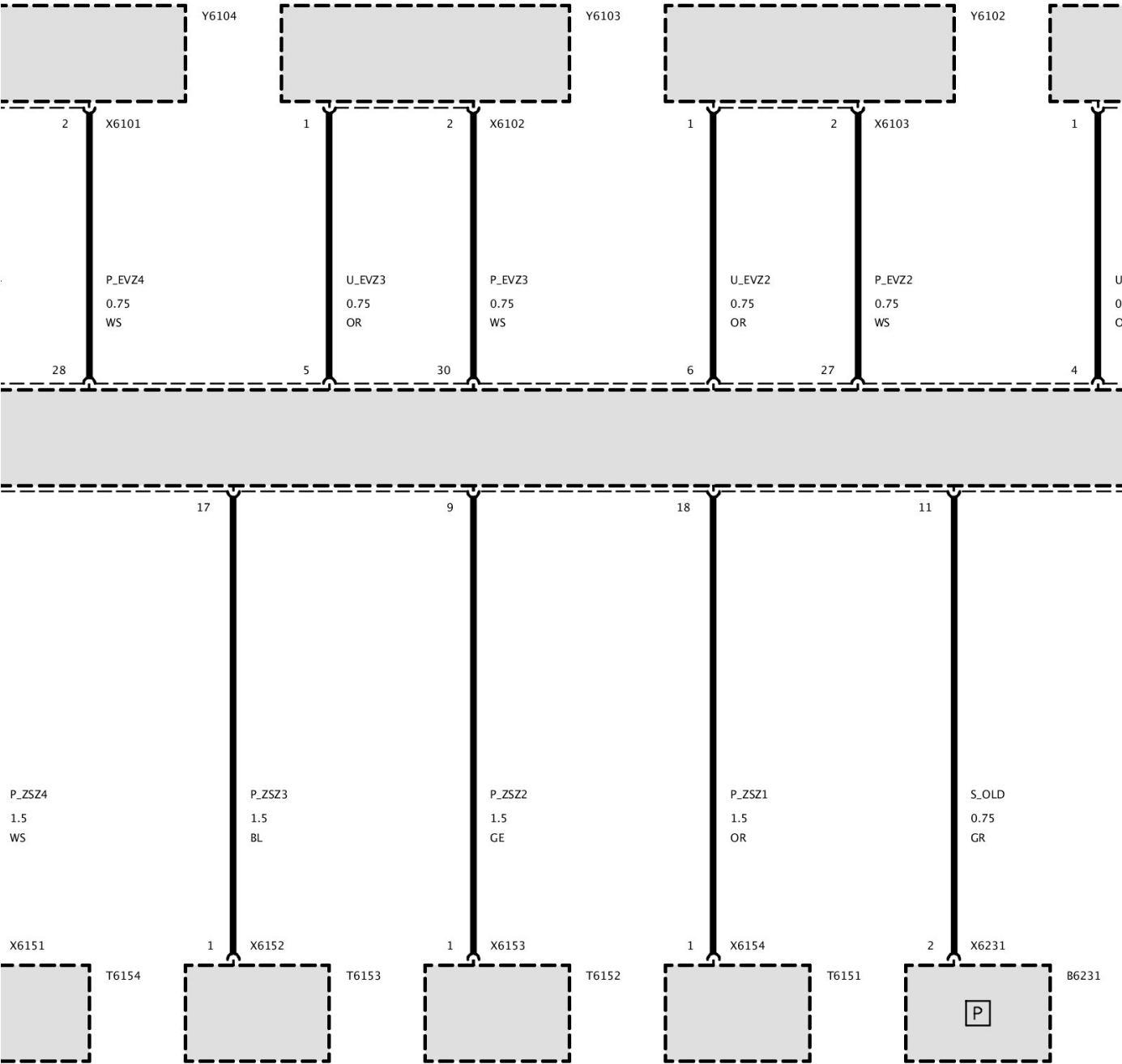
Part 2



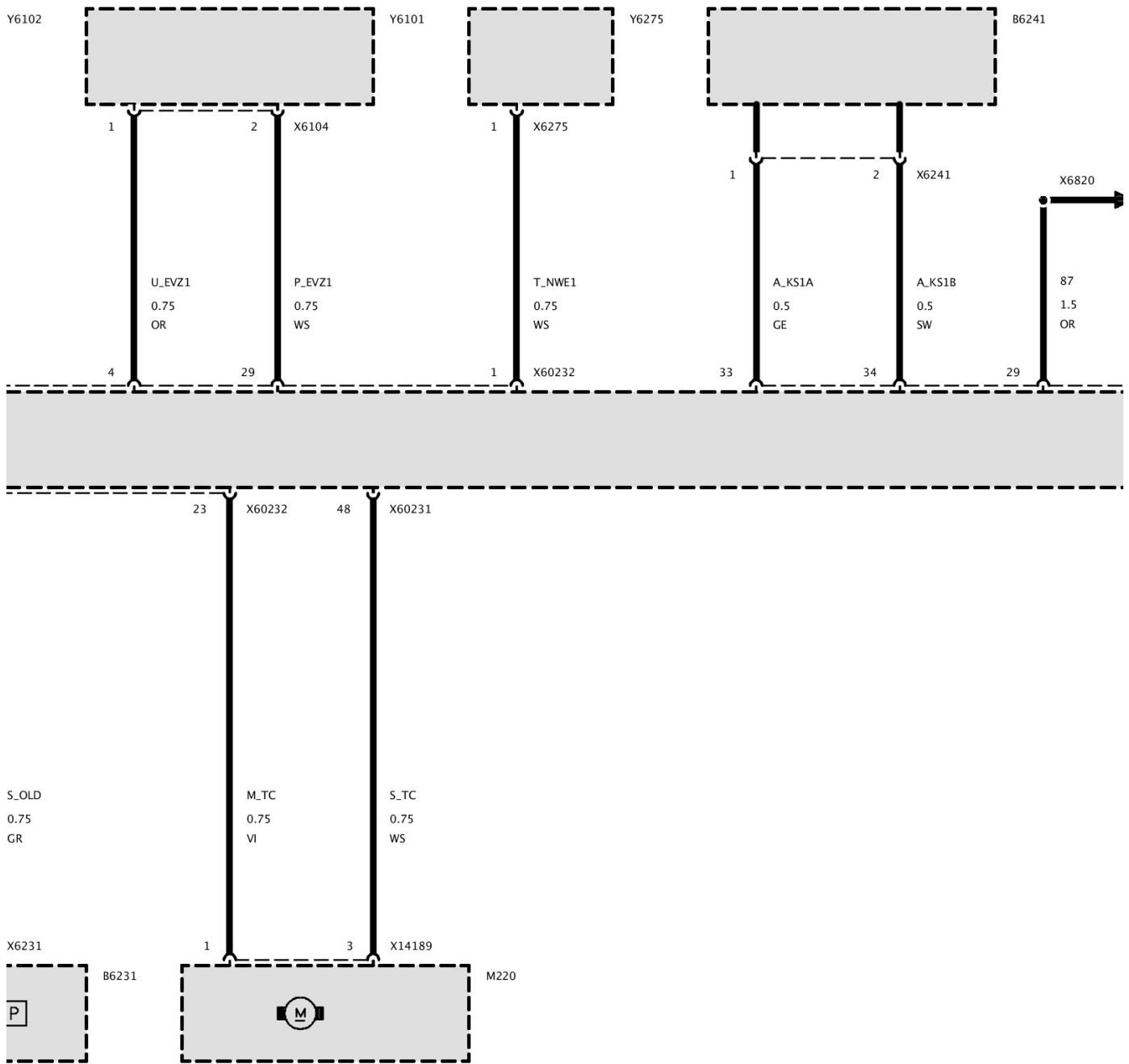
Part 3



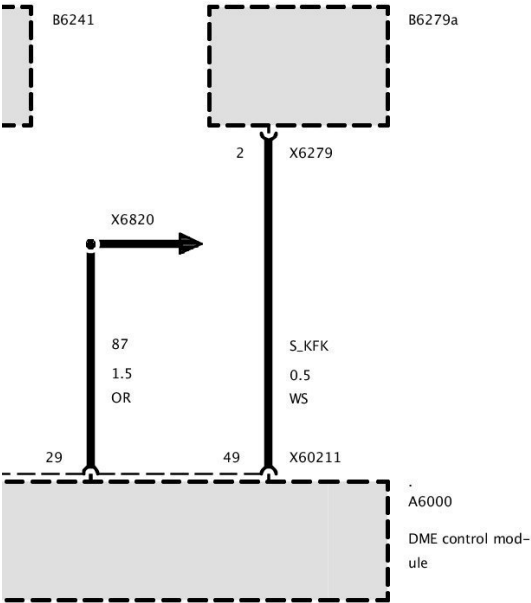
Part 4



Part 5



Part 6

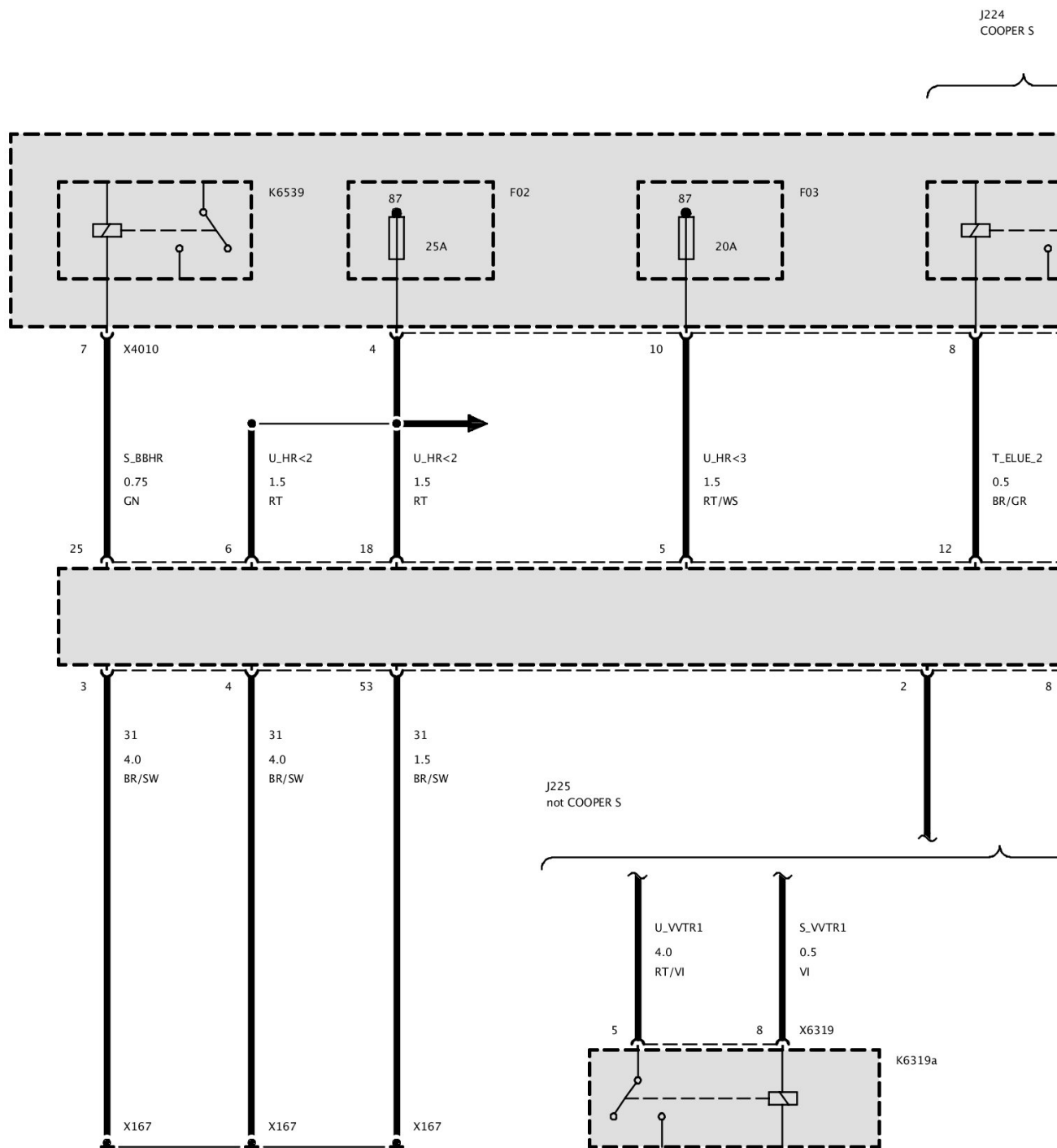


Part 7

A6000 DME Control Module, Body Side (As of 08/07)

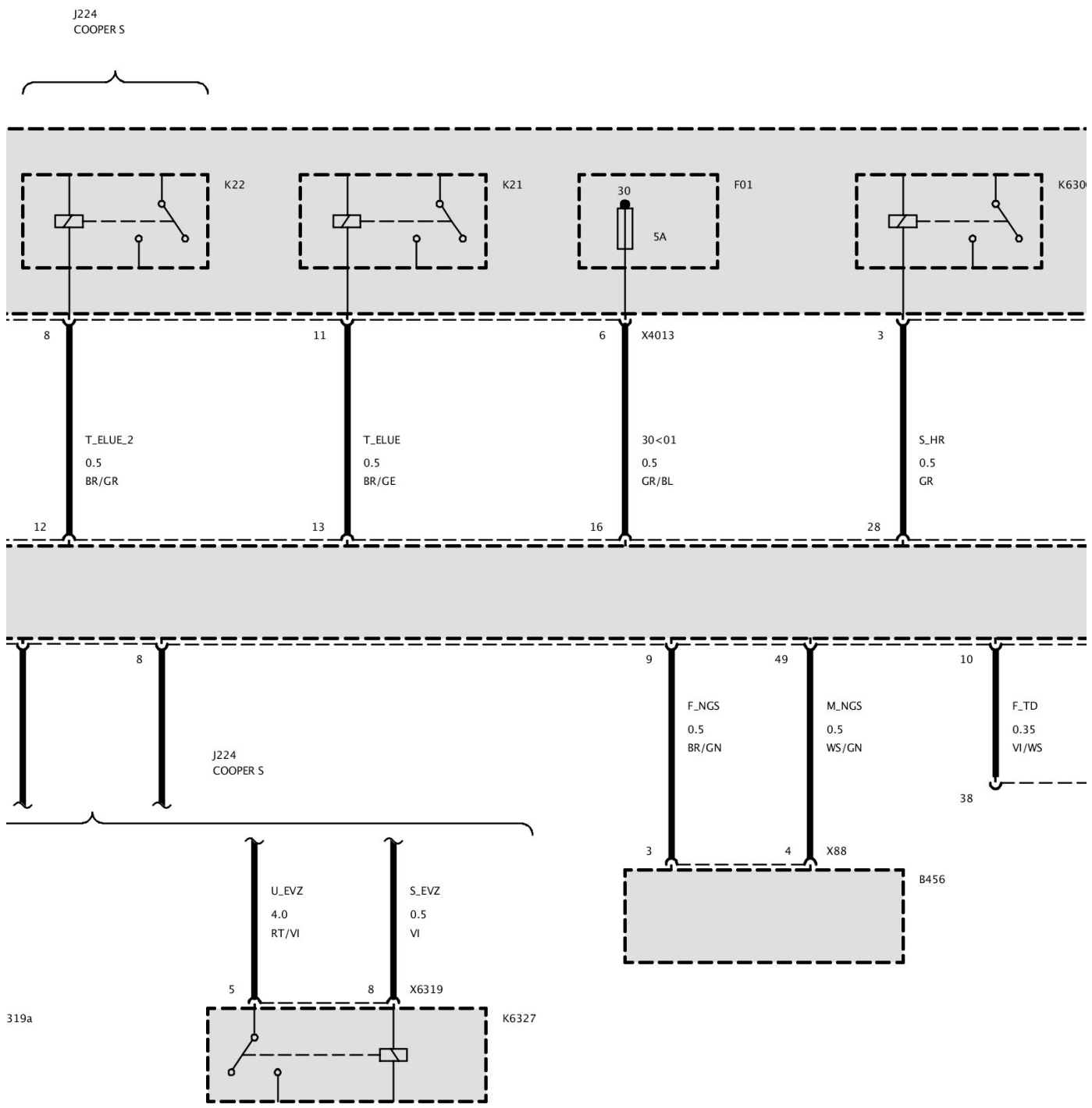
A6000 Engine Control Module (DEM) (N12 Engine or N14 Engine)

A6000 DME Control Module, Body Side (As of 08/07)

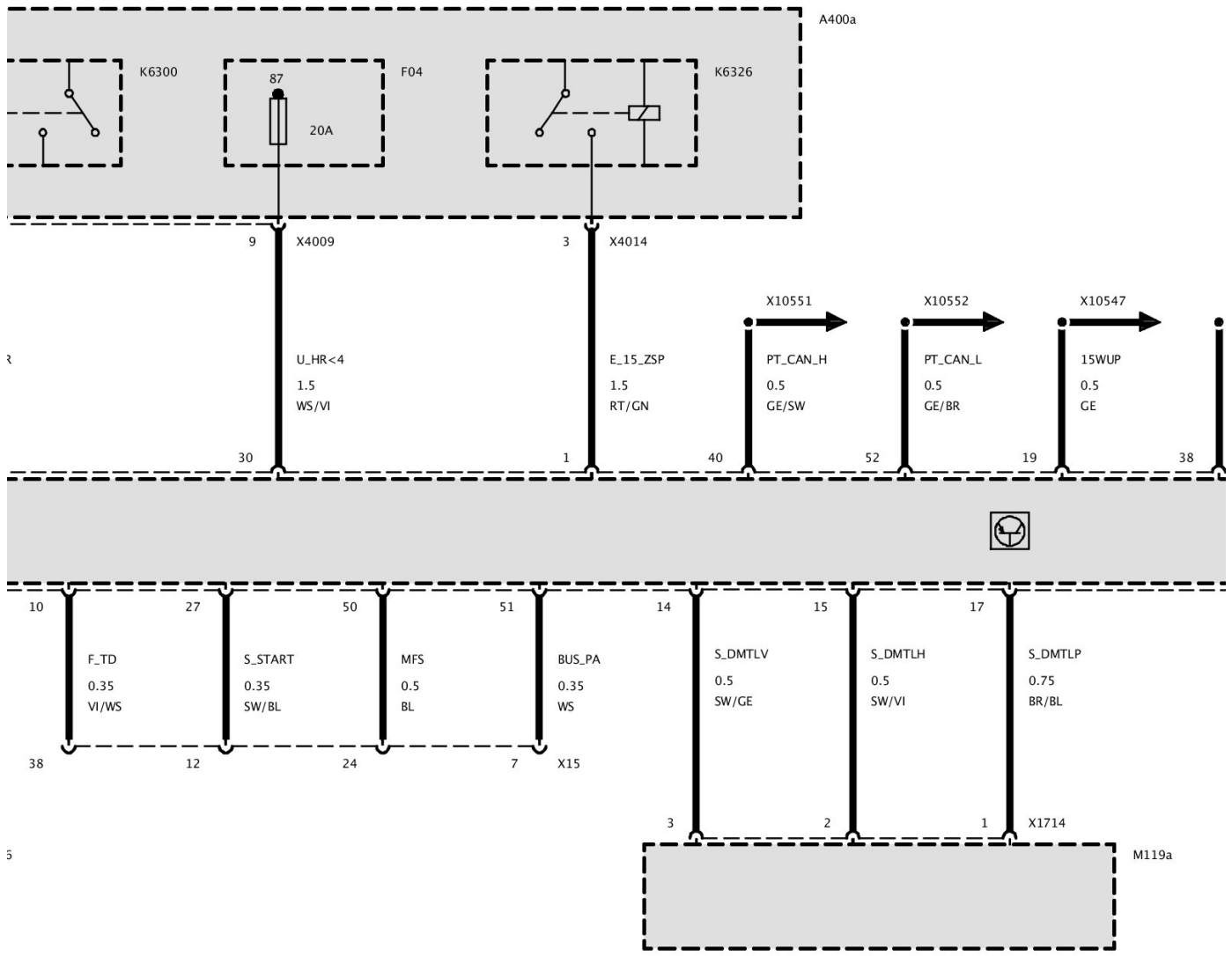


## Part 1

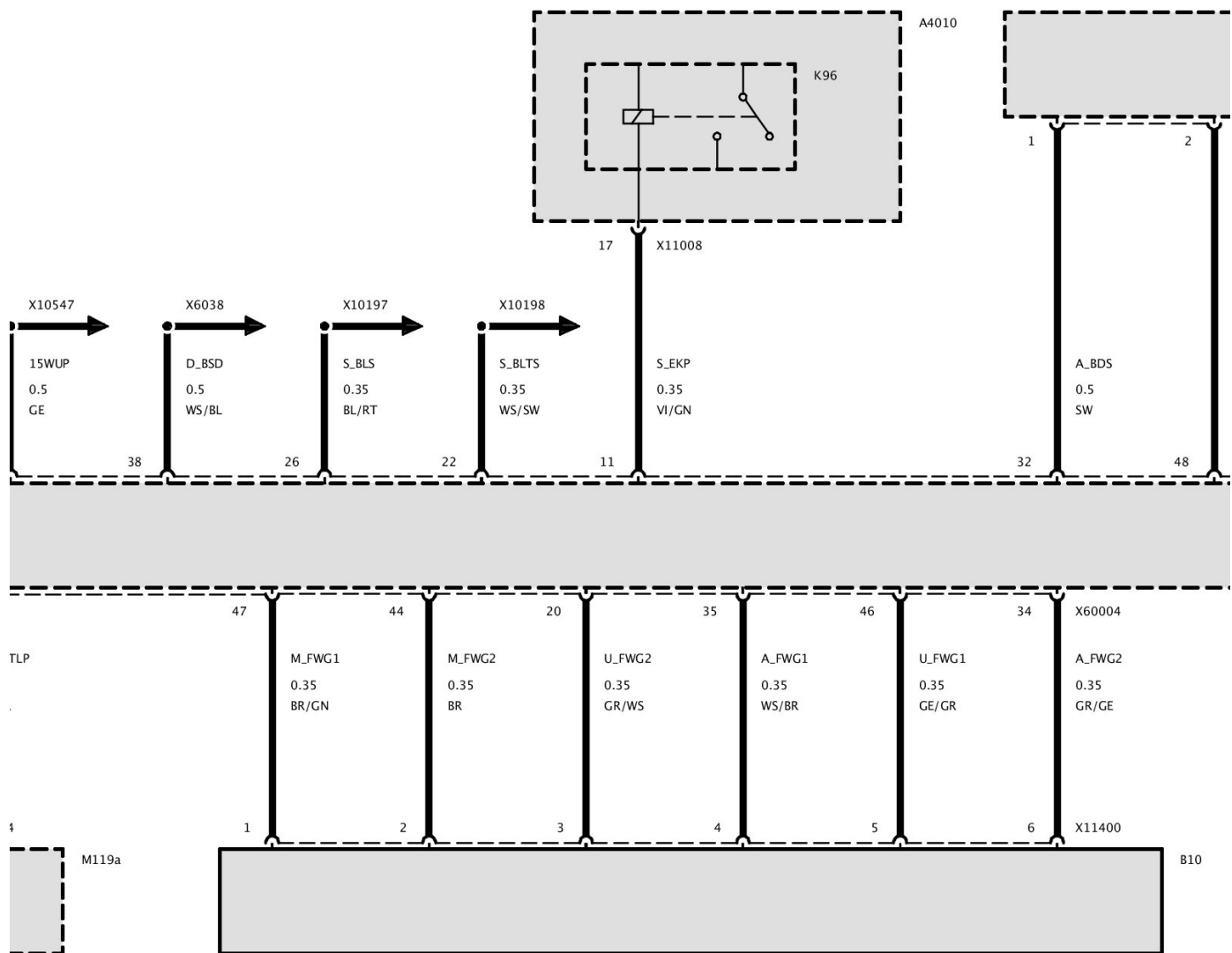




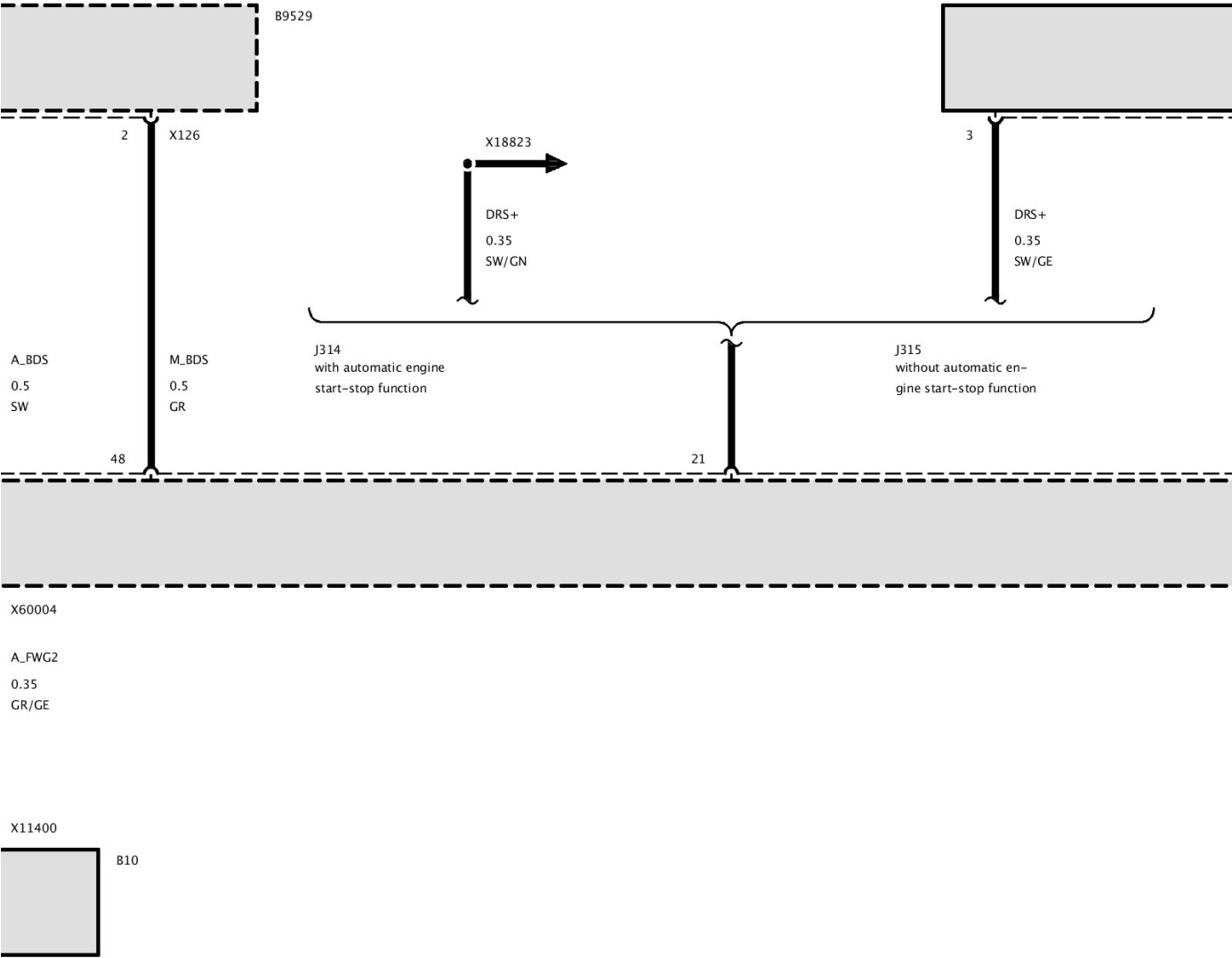
Part 2



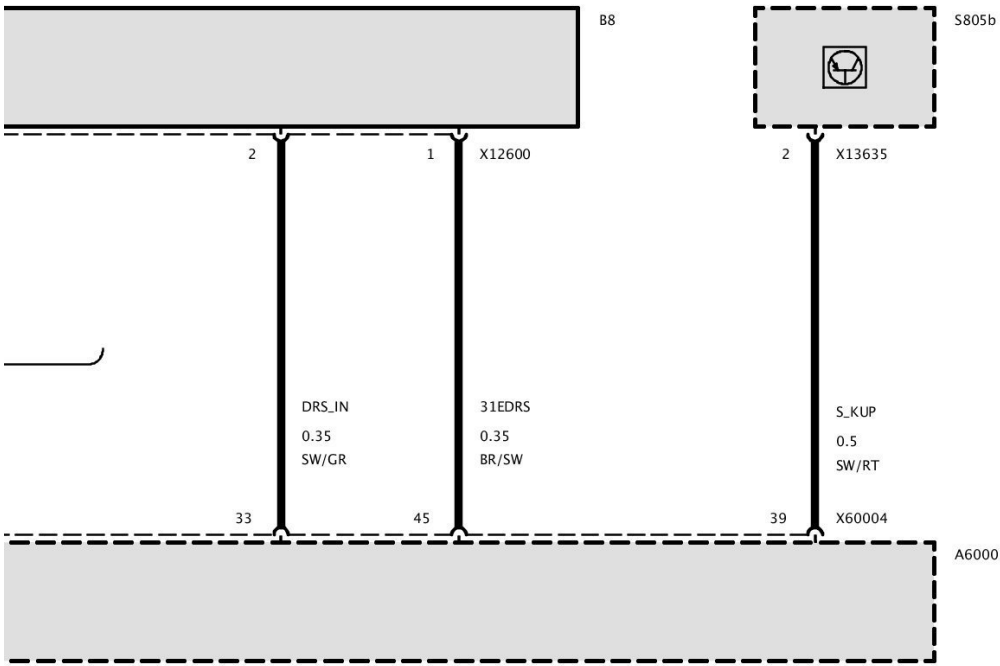
Part 3



Part 4



Part 5



Part 6

Intake Air Temperature Sensor

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Oxygen Sensor

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Throttle Position Sensor

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Vehicle Speed Sensor

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Air Injection Pump

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and

## Canister Purge Control Valve

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Fuel Injector

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Fuel Pump Relay

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Throttle Body

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Ignition Coil

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Ignition Control Module

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Air Bag

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

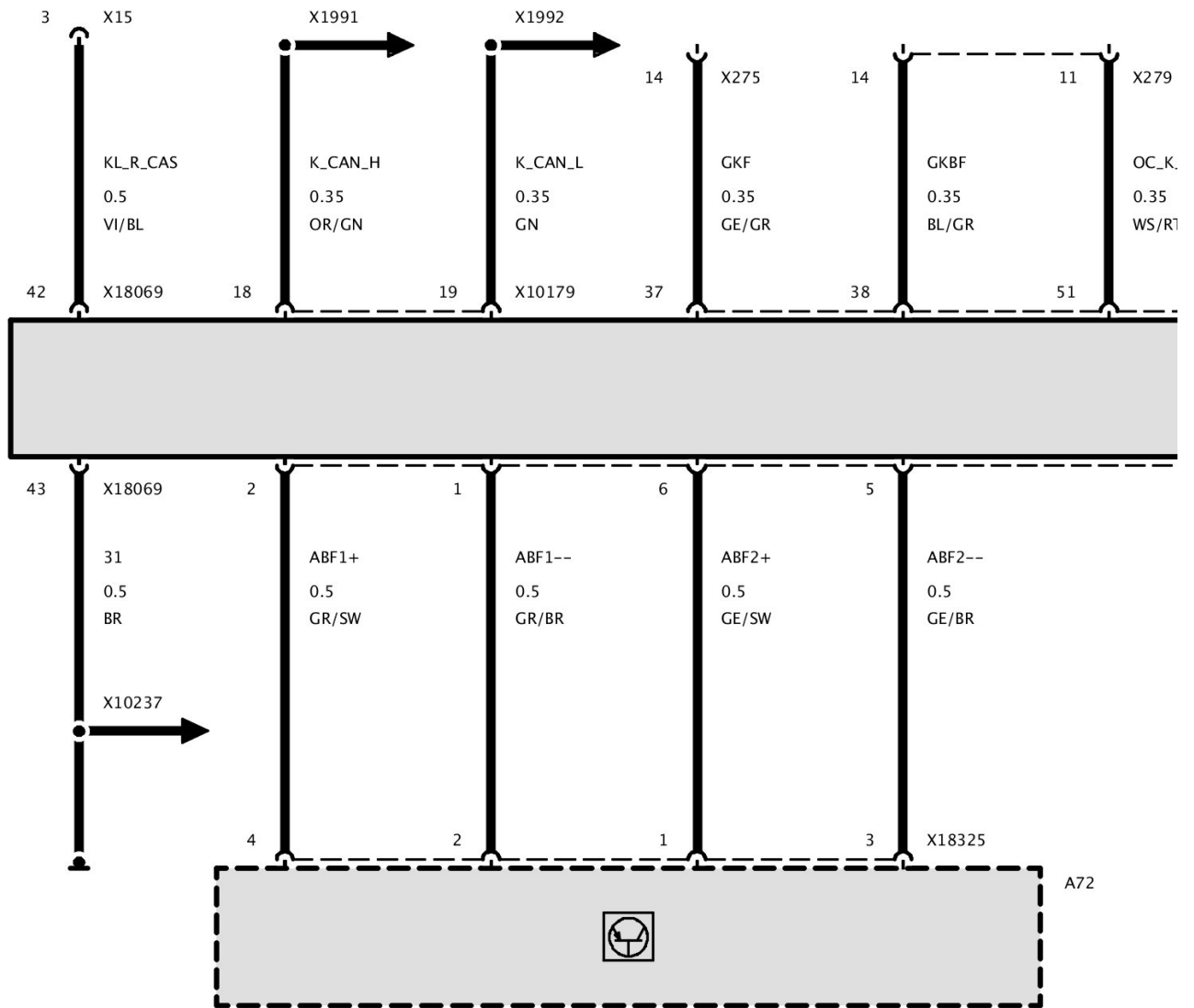
Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

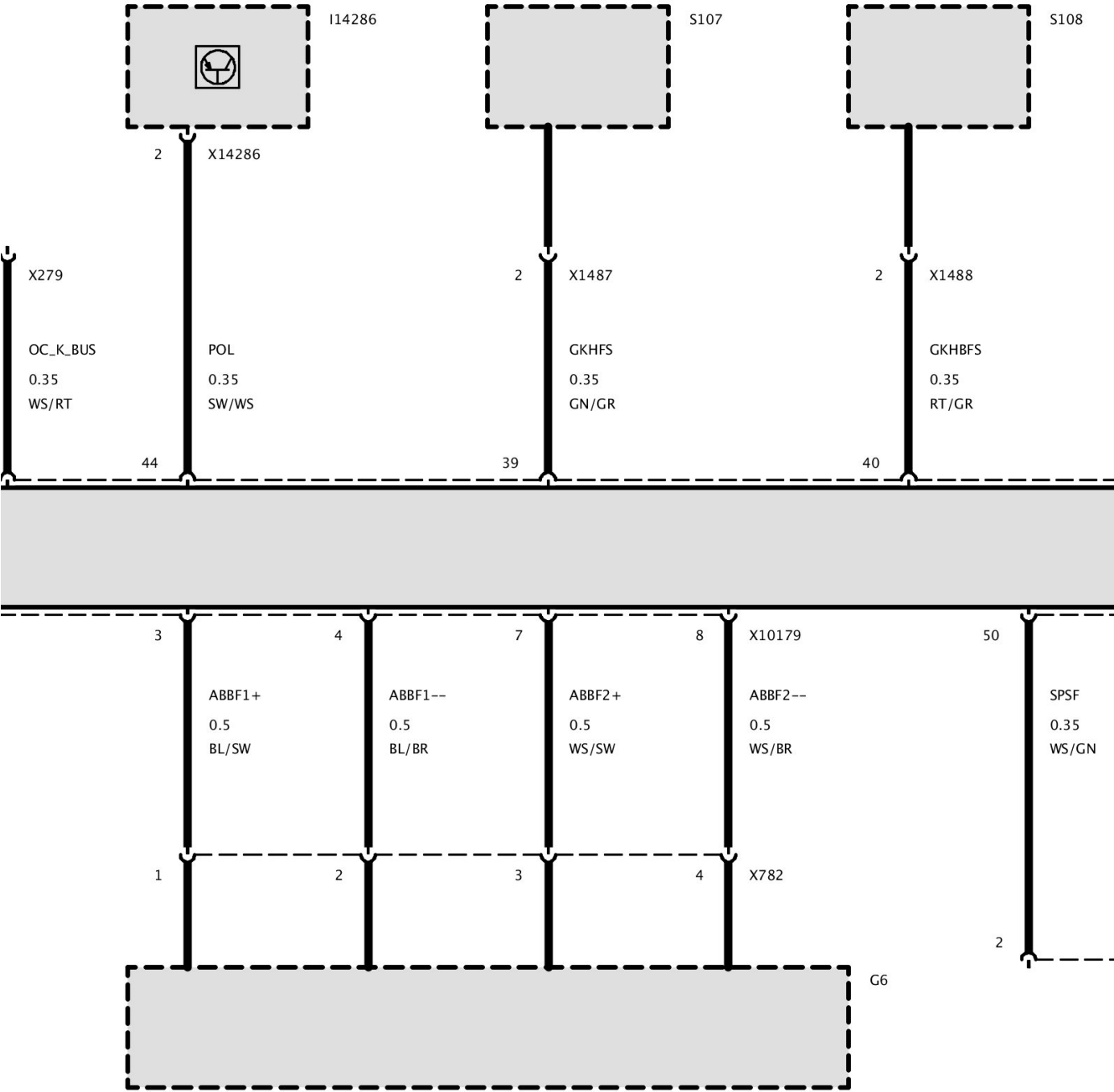
## A12 Multiple Restraint System Control Unit (USA\_LHD Up to 03/09)

A12 Multiple Restraint System Control Unit (USA\_LHD Up to 03/09)



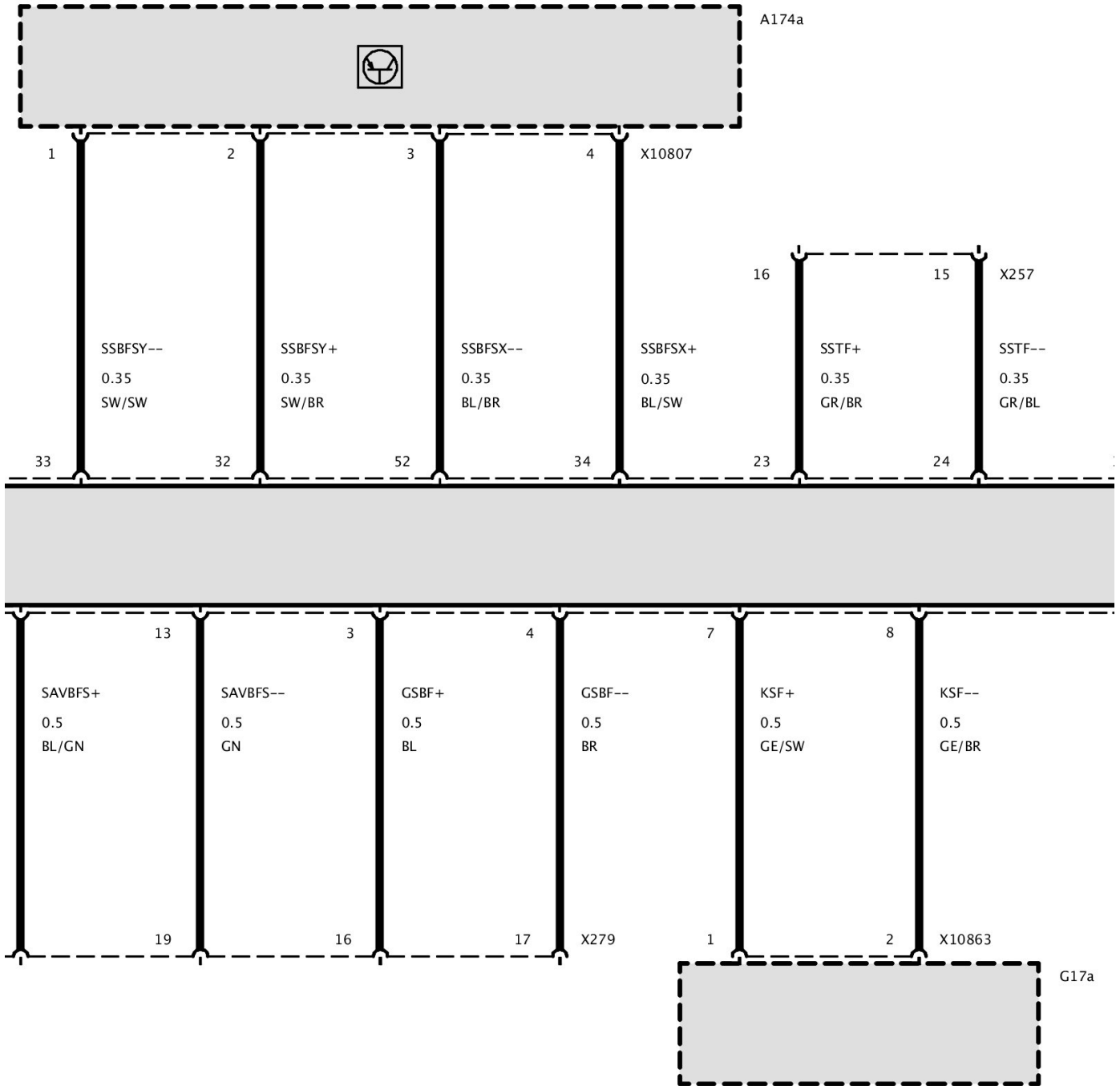


Part 1

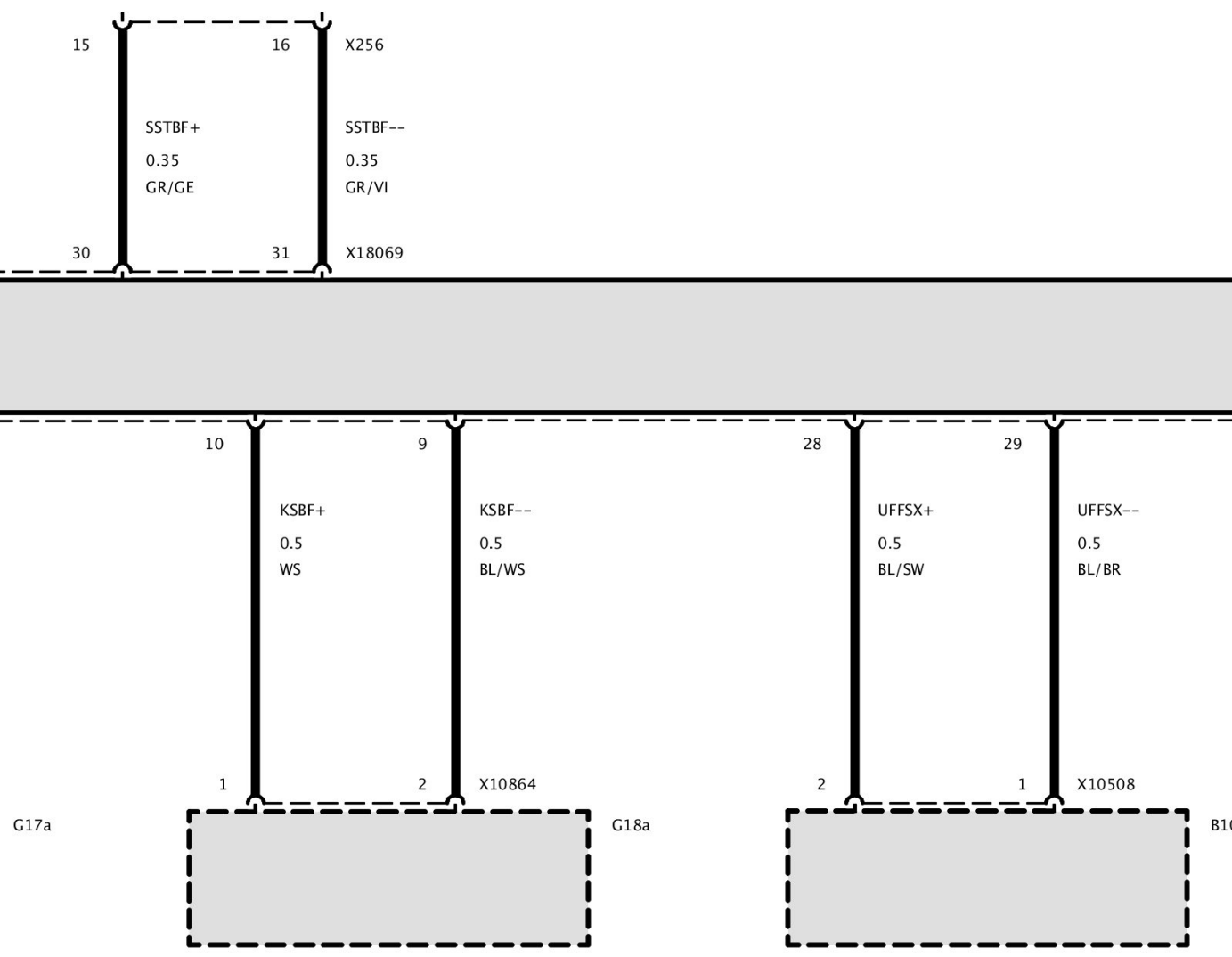


Part 2

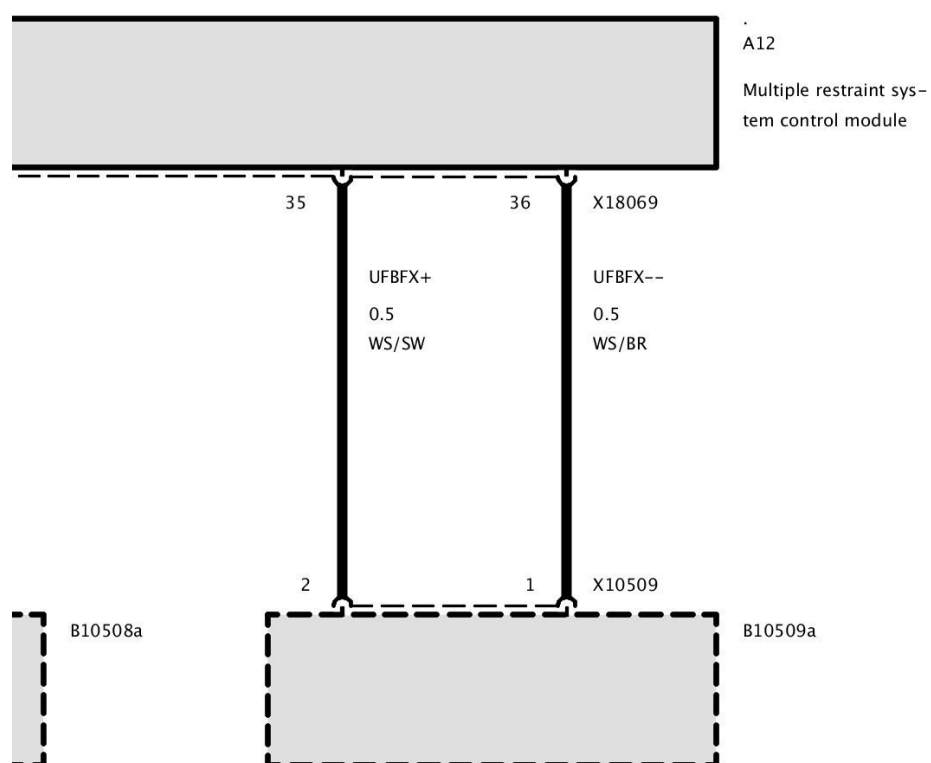




Part 4



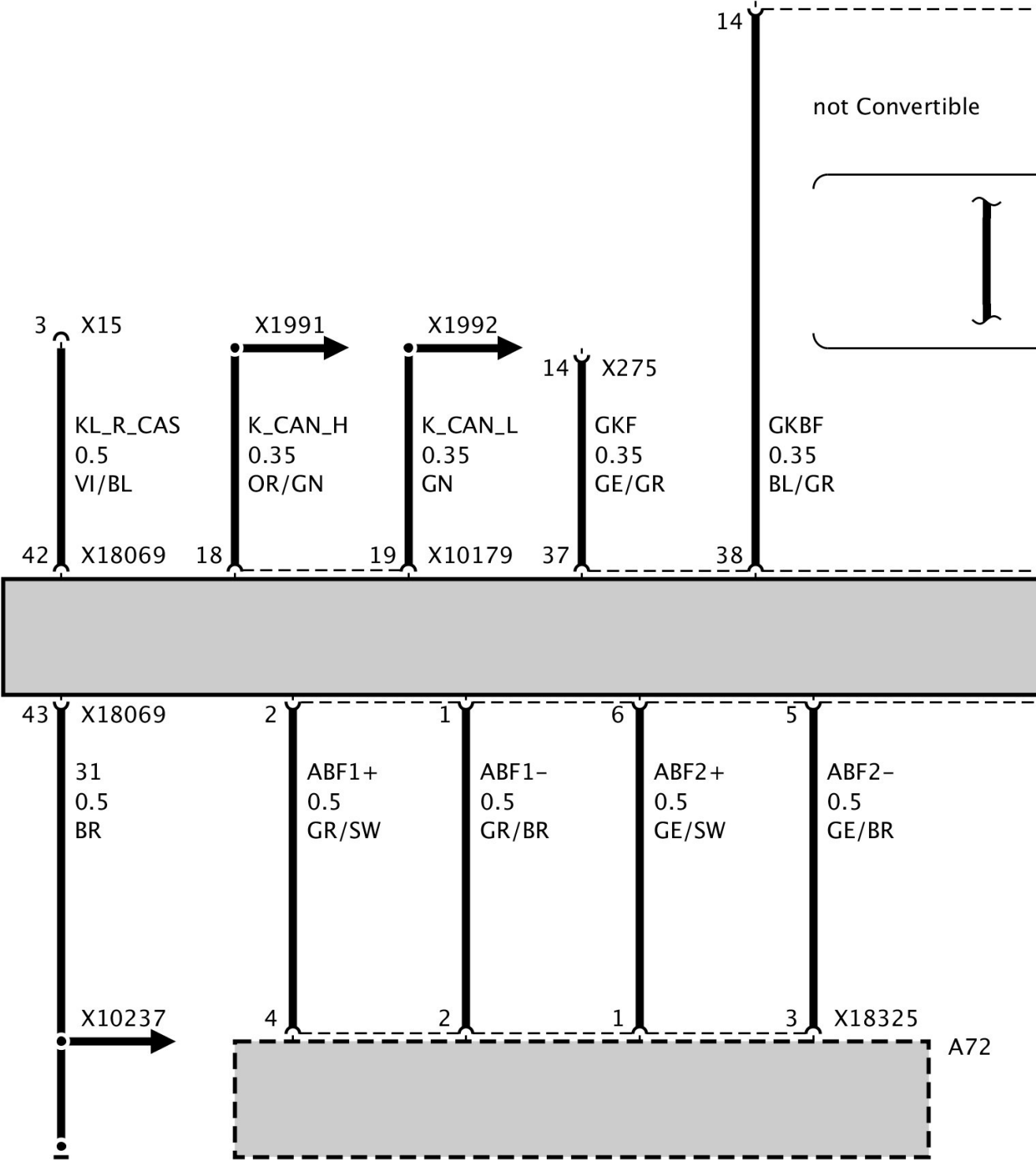
Part 5



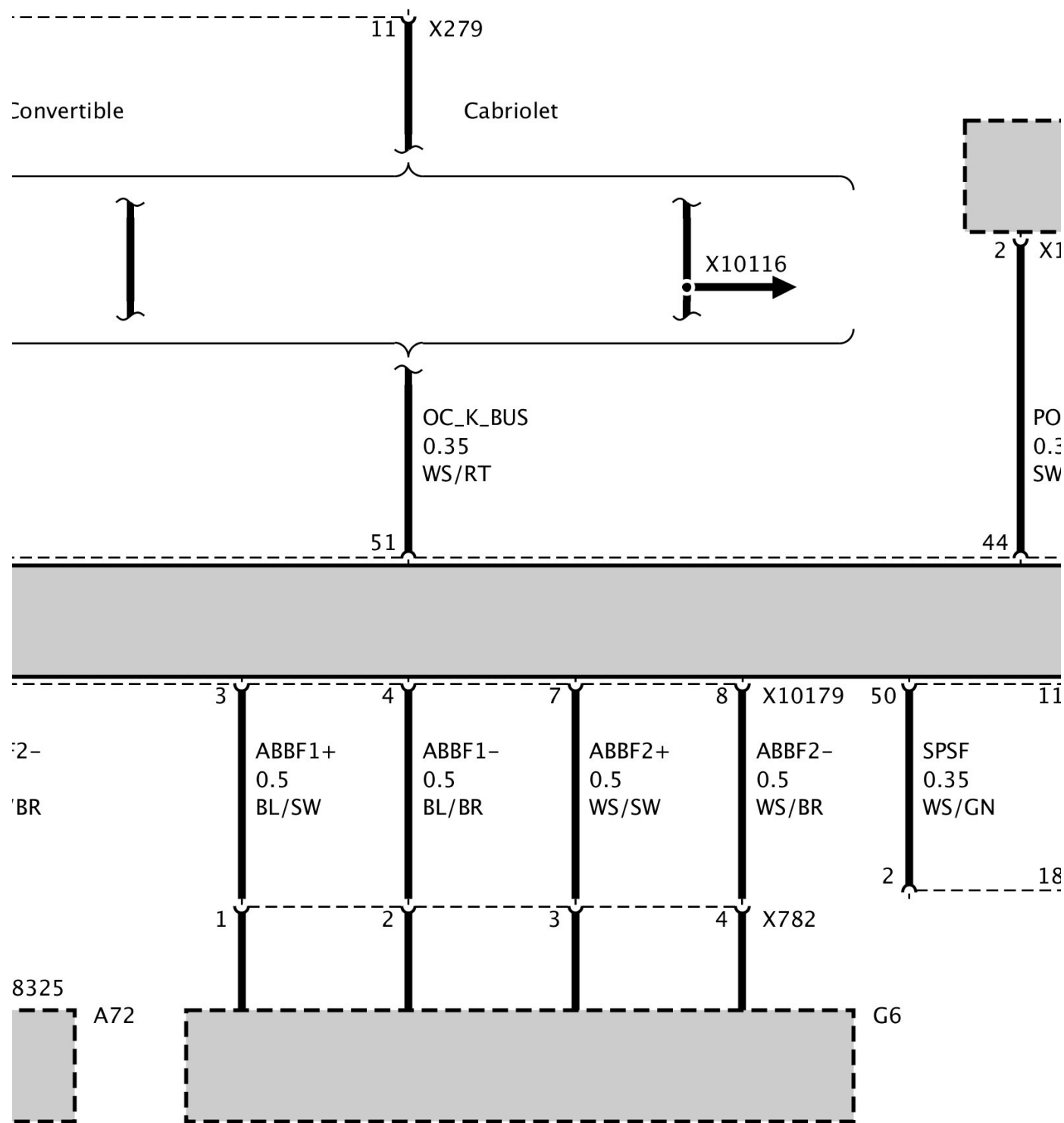
## Part 6

### A12 Multiple Restraint System Control Unit (USA\_LHD As of 03/09)

A12 Multiple Restraint System Control Unit (USA\_LHD As of 03/09)

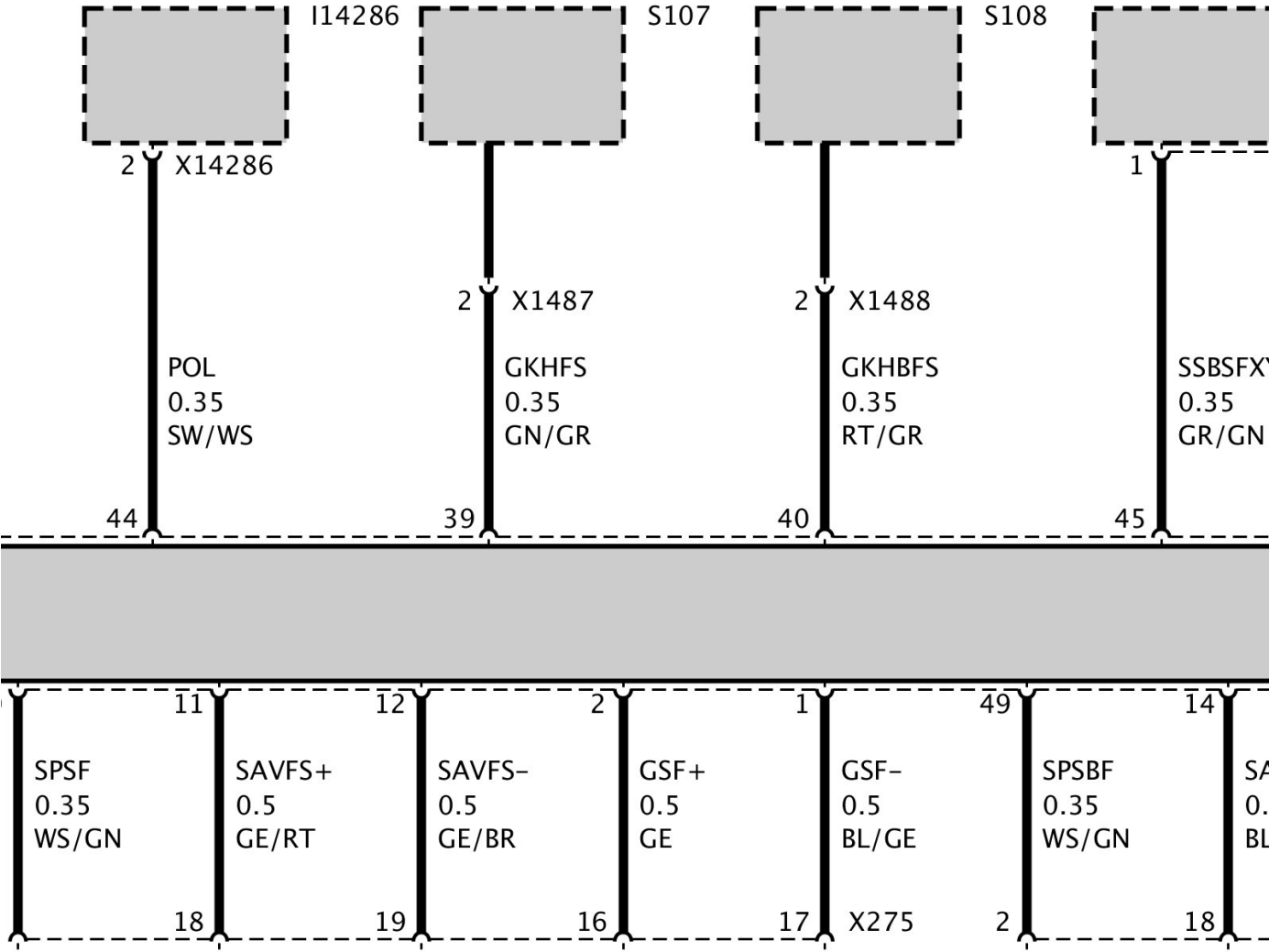


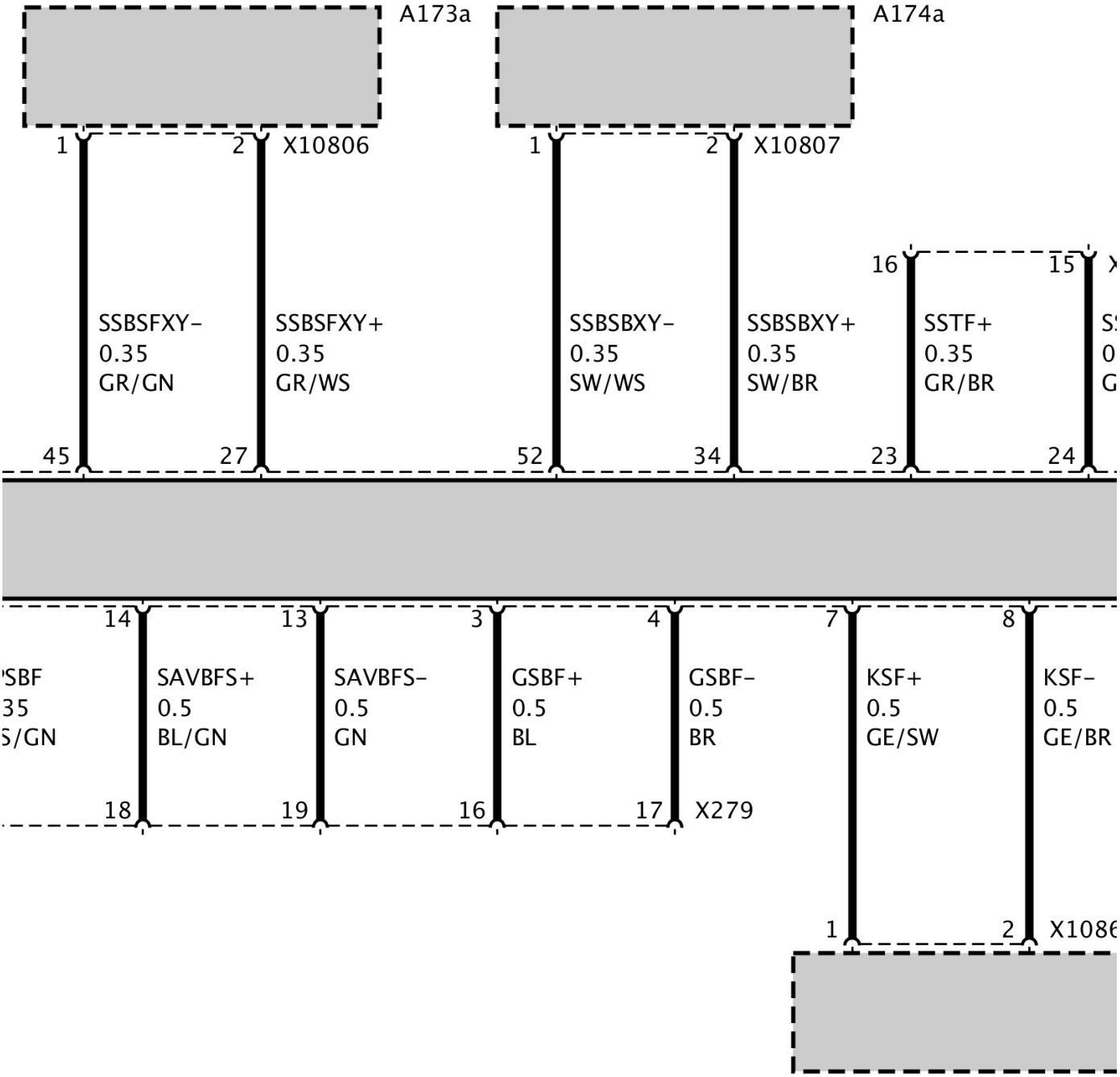
Part 1



Part 2

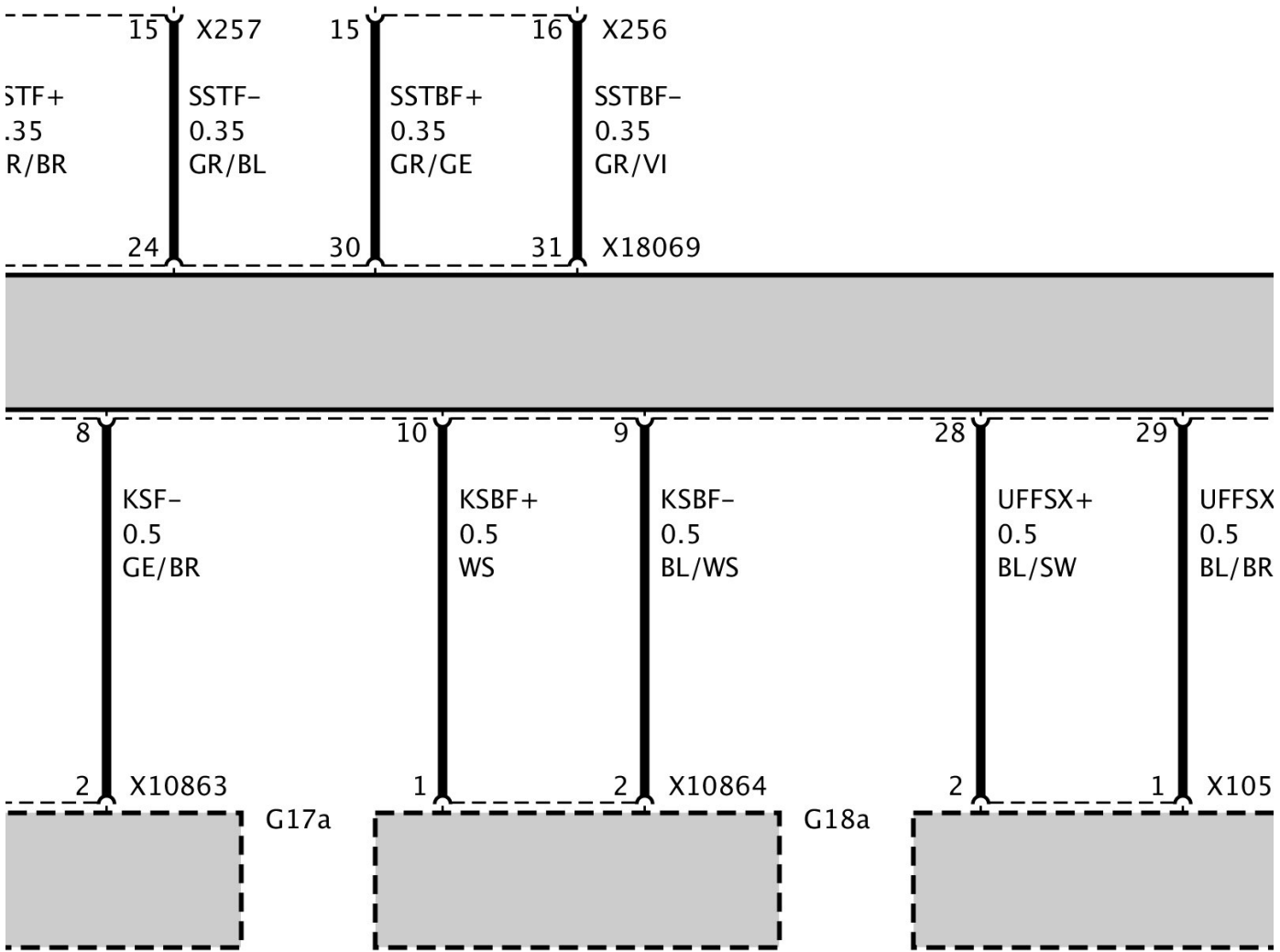




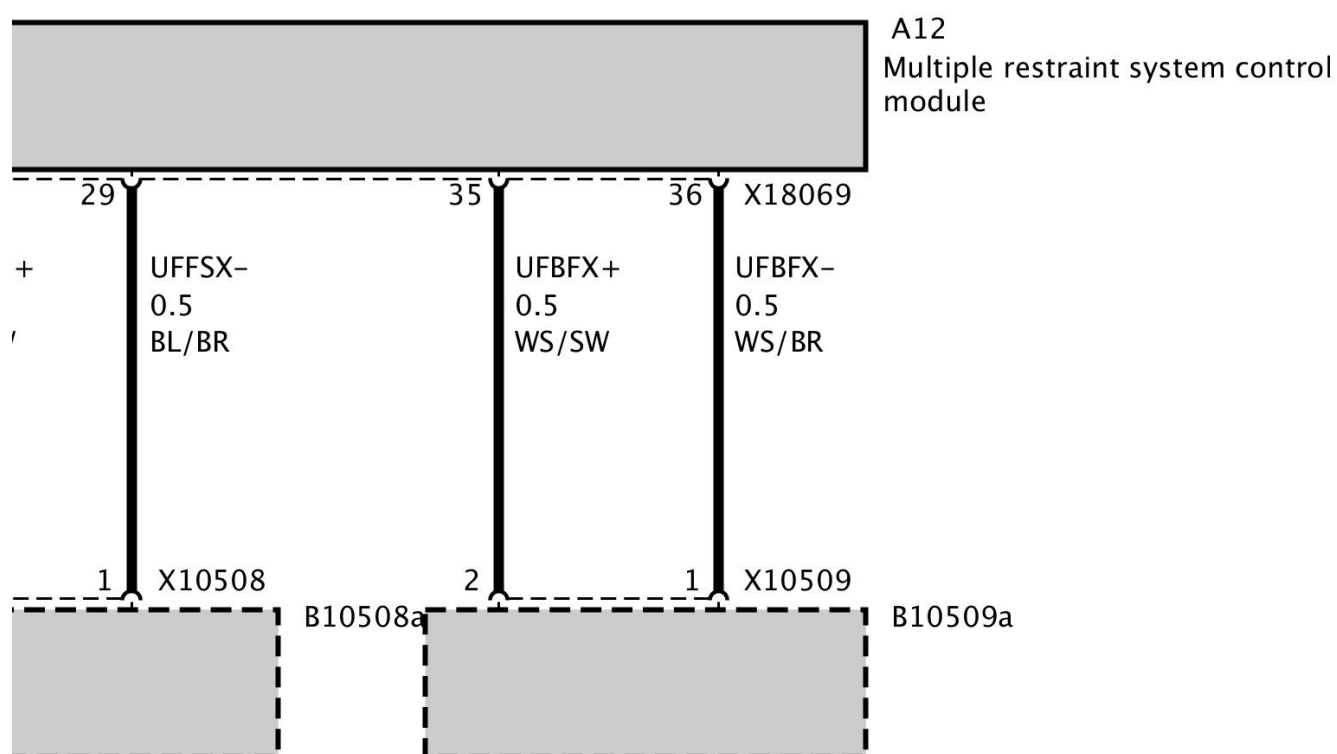


Part 4

l



Part 5



### Part 6

## Impact Sensor

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Ignition Switch

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Starter Motor

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Drive

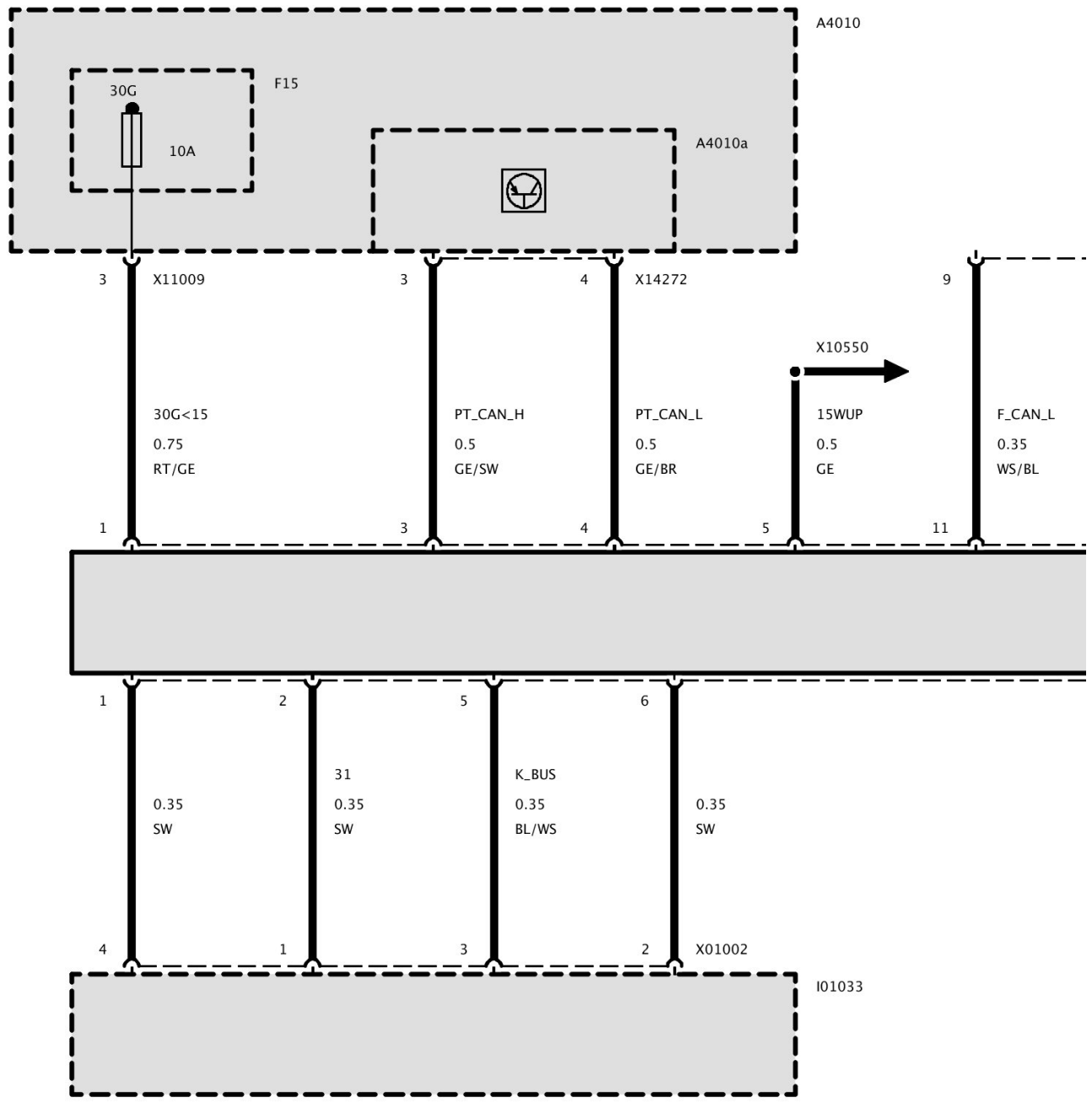
Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

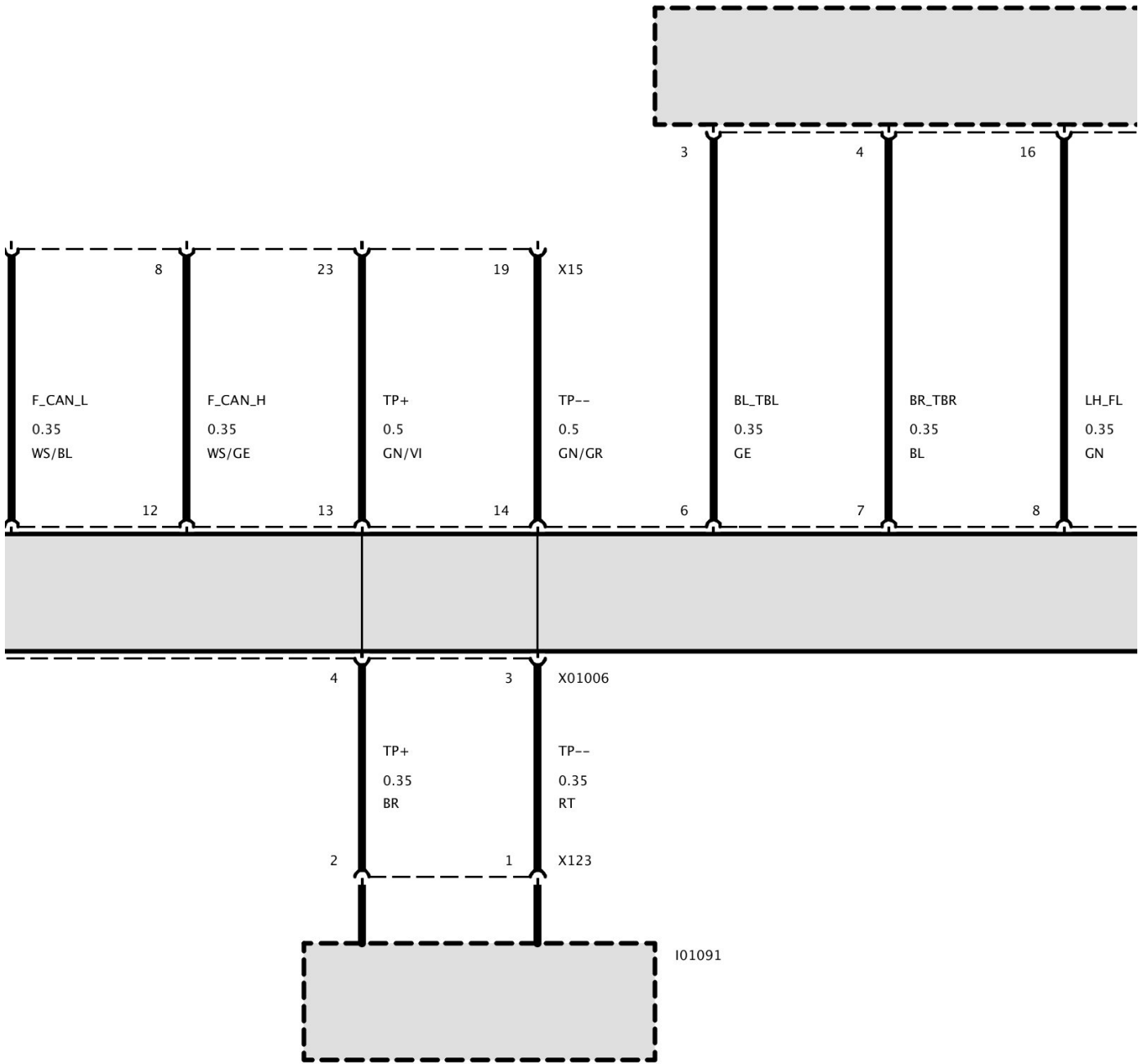
Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Steering

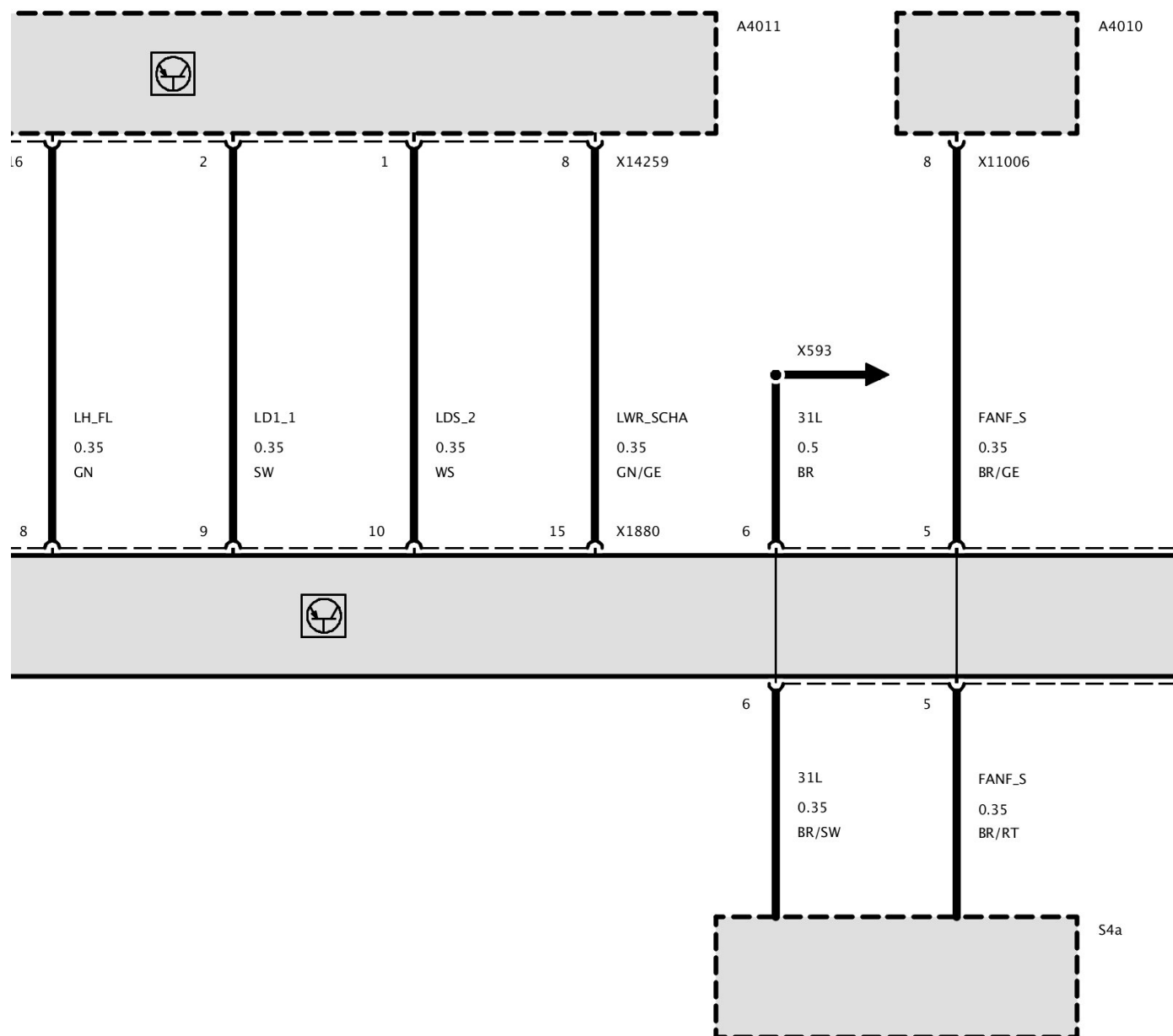
### A72 Steering Column Switch Center



Part 1

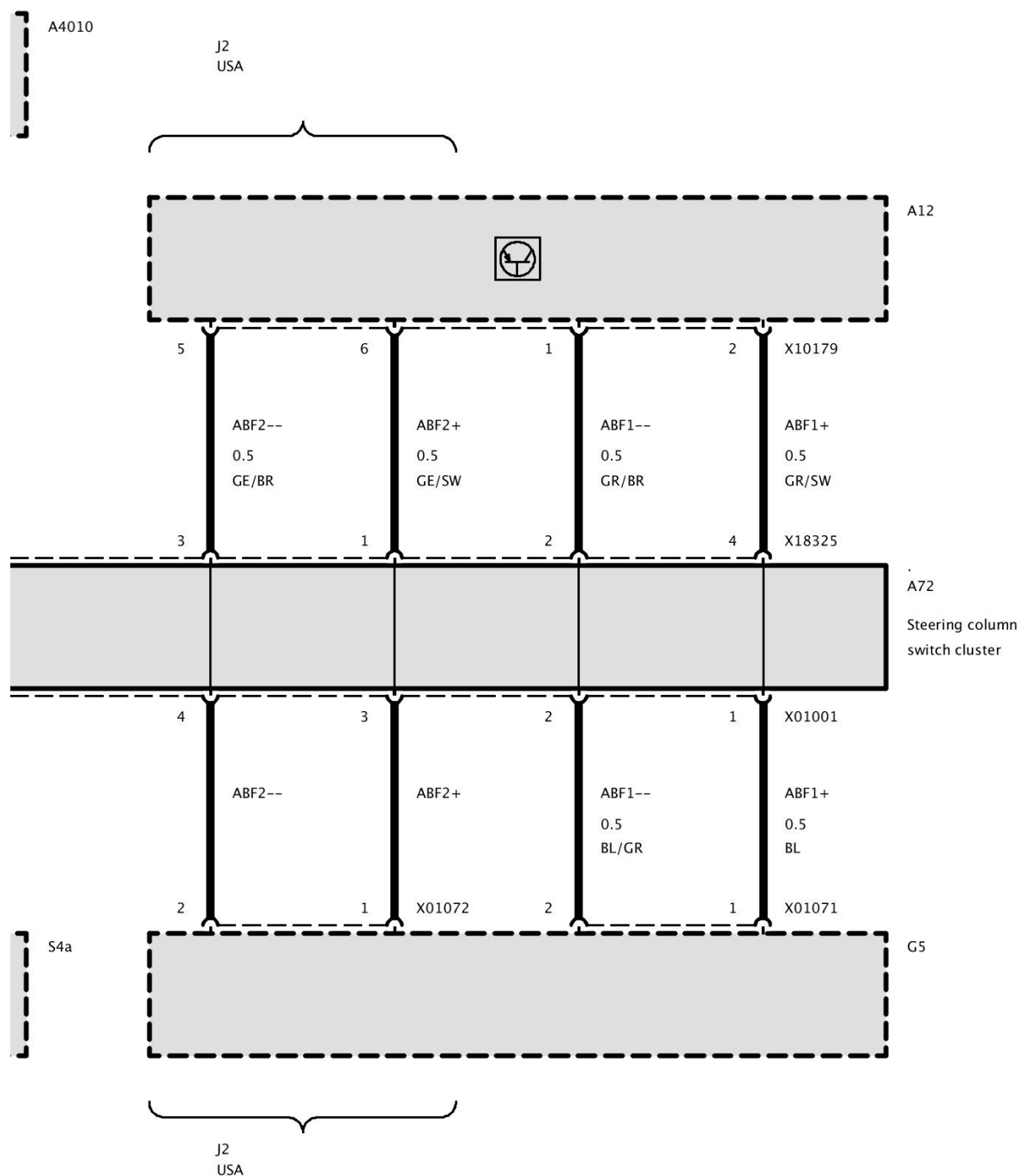


Part 2



jmoraflores@hotmail.cl





## Part 4

## Suspension

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Chassis

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Tire Monitoring System

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Chassis

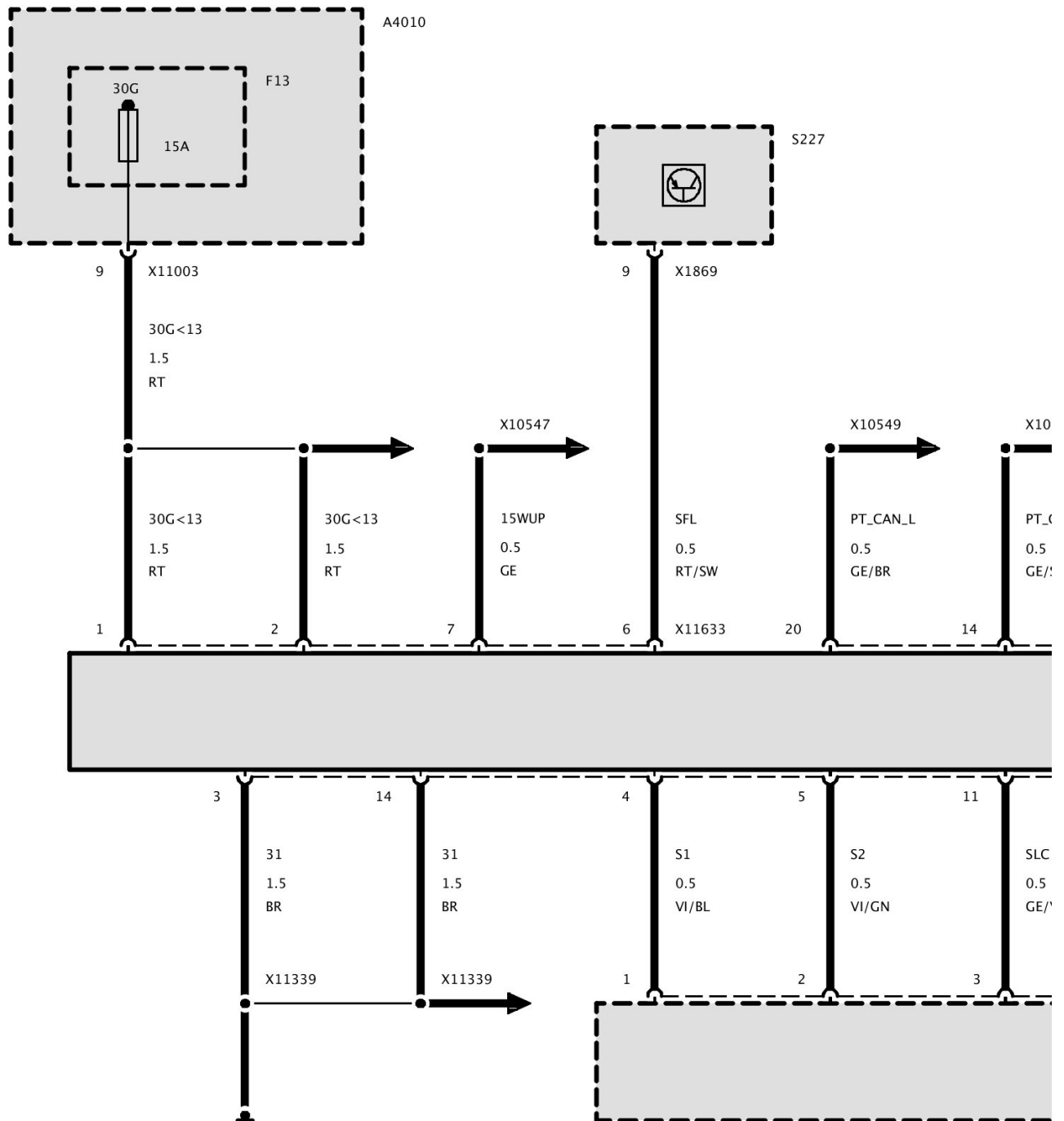
Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

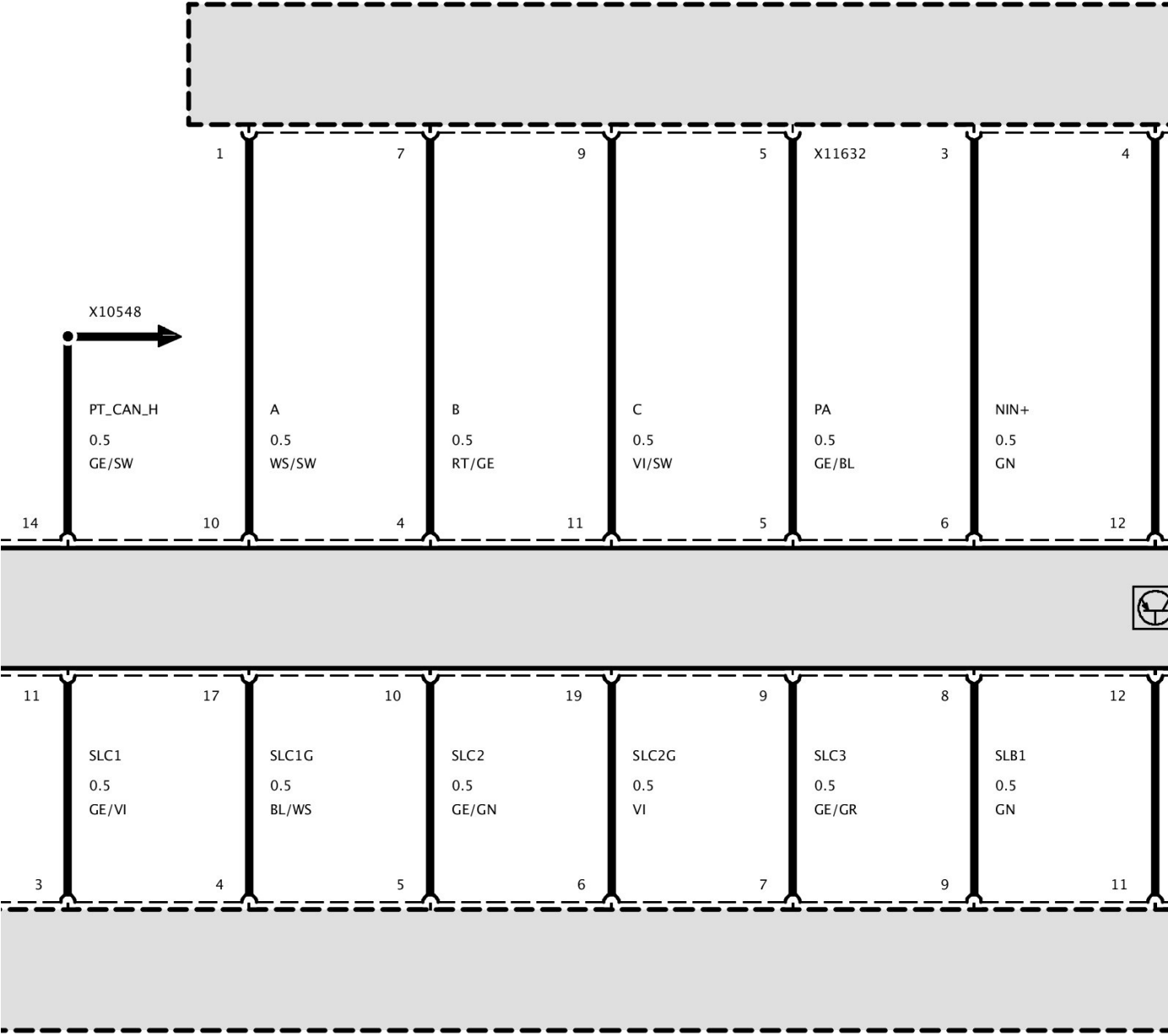
Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Transmission Control Systems

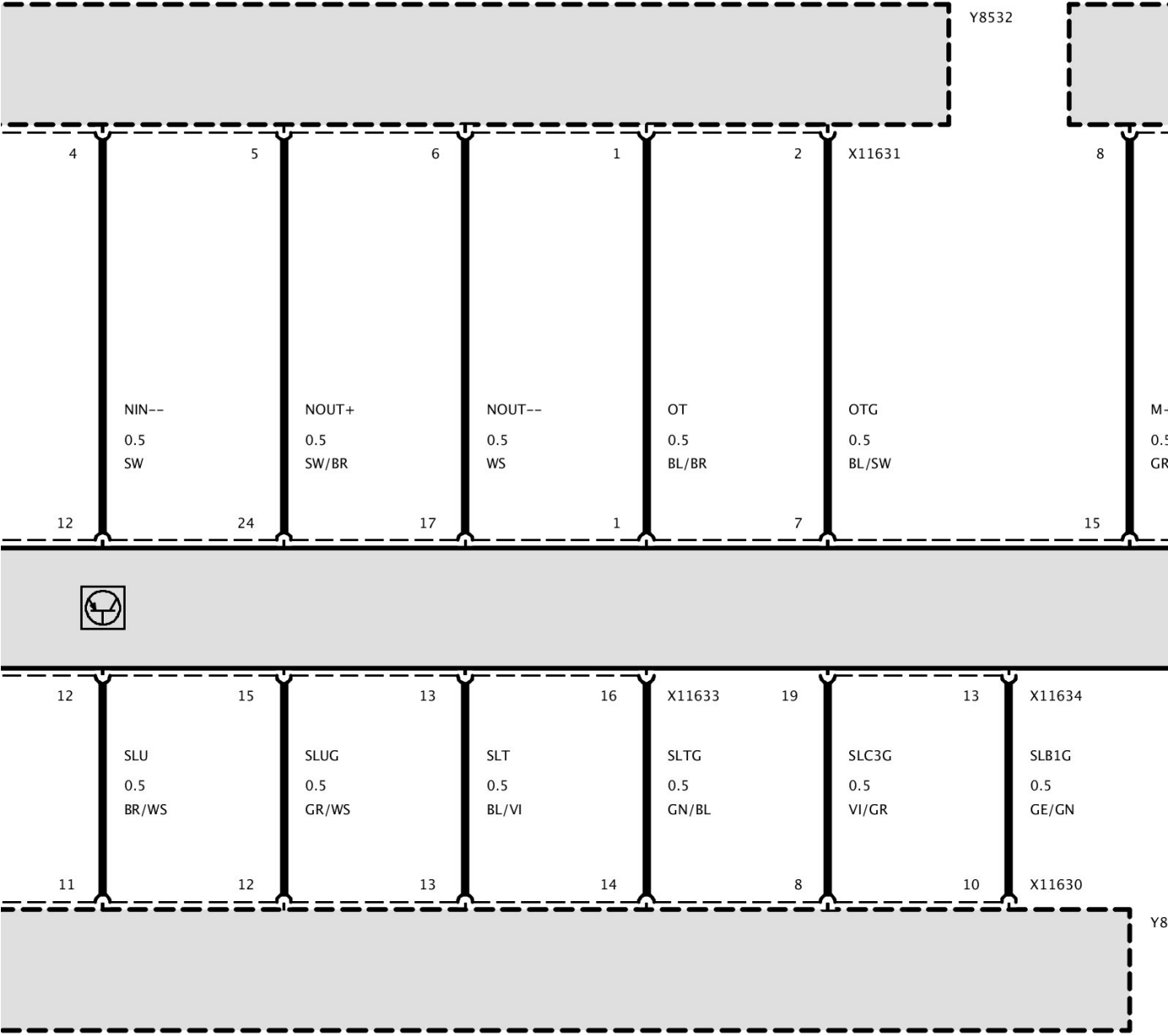
**A7000a Transmission Control (EGS Electronic Transmission Control)**



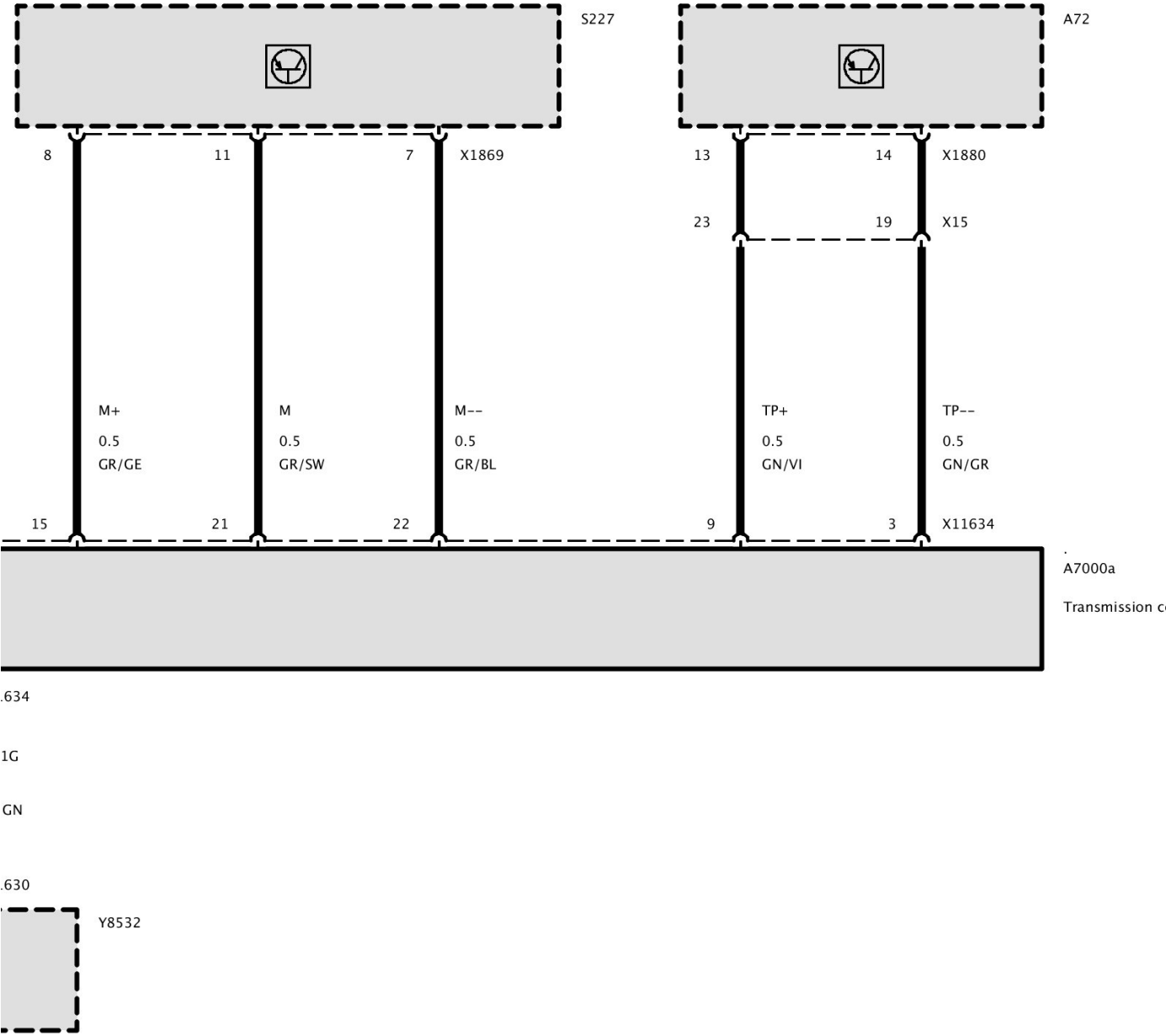
Part 1



Part 2



Part 3



Part 4

A72

A7000a

Transmission control

## Part 5

### System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Heated Glass Element

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Power Window Motor

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Power Window Relay

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Power Window Switch

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## System Diagram

For information regarding diagrams for this system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and



## Windshield Washer Control Module

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Windshield Washer Motor

For information regarding diagrams for this component or system, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level connector views. See: Connector Views See: Locations/Connector Locations

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Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Wiper Control Module

For information regarding diagrams for this component, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Wiper Motor

For information regarding diagrams for this component, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Wiper Relay

For information regarding diagrams for this component, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## Wiper Switch

For information regarding diagrams for this component, please refer to the vehicle level diagrams. See: Electrical Diagrams/Body

Connector Information: Additional information for the connectors shown on the diagrams can be found via the connector's number at the vehicle level. See: Connector Views See: Locations/Connector Locations

Signal Information: Descriptions of signals referred to on the diagrams can be found in the Signal Glossary via the signal name at Diagram Information and Instructions. See: Diagram Information and Instructions/Signal Glossary

Wire Color Code Information: Wire color code information can be found at Diagram Information and Instructions. See: Diagram Information and Instructions/Wire Color Code Identification

## All Technical Service Bulletins:

<u>Number</u>	<u>Date</u>	<u>Name</u>
M090407	Nov 10	Computers/Controls - Program Version Veh. Data Status
M070610	Nov 10	Computers/Controls - ISTA(R) Does Not ID The Vehicle
M640110	Nov 10	A/C - Excessive Compressor Noise/Runs Rough
M120210	Oct 10	M120210 - 10/02/2010
M000202	Oct 10	Vehicle - MINI(R) Operating Fluids
M630110	Oct 10	Lighting - Bulb Out Message Diagnostics
M650510	Oct 10	Cell Phone/Audio - iPod/iPhone(R) Poor Audio
M120310	Oct 10	Engine Controls - Hot Starting Problem
M360210	Oct 10	Wheels/Tires - Tire Pressure Adjustment Information
M110207	Oct 10	Engine - Rattling Noise On Cold Engine Start Up
620309	Aug 10	Instruments - Outside Temperature Display Incorrect
M650710	Aug 10	Navigation System - Real Time Traffic Information
M650610	Aug 10	Navigation System - Missing/Incorrect Map Data
M650410	Aug 10	Antitheft System - Erroneous Fault Code A87E Stored
520810	Aug 10	Interior - One Touch Memory Function Information
M120102	Aug 10	Ignition System - Spark Plug Information/Application
M010410	Aug 10	Campaign - H/P Fuel Pump Warranty Extension
M130506	Aug 10	Fuel System - BMW Group Fuel System Cleaner Plus
M210110	Jul 10	M/T - Clutch Removal Procedure
M120110	Jun 10	Engine Controls - MIL ON/Codes 2968/296B/2982/2983
M540308	Jun 10	Body - Sunroof Won't Open In High Temperatures
M650110	Jun 10	CCC - 'Please Insert Navigation DVD' appears On CID
M230308	May 10	M/T - Stiff Diagonal Gear Shifts/Can't Select Gears
M630108	May 10	Lighting - Automatic Headlamps Sensitivity
M610607	May 10	Electrical - Perform Dead Battery Energy Diagnosis
M640208	May 10	A/C, Cooling System - Footwell Area Becomes Hot
M110207	Apr 10	Engine - Cold Start Up Rattling Noises
M110210	Apr 10	Engine - Incorrect Crankshaft Central Bolt Torque Change
M240108	Mar 10	A/T - Gear Indicator Warning Lamp ON/Code A0B6
M710109	Mar 10	Recall 09V-474 - Tire Information Placard
M650210	Mar 10	Mission Control(R) System - Overview/Diagnostic Info.
M070210	Jan 10	Computers/Controls - ISTA Test Plan Priority Error
M110308	Jan 10	Engine - Turbocharger Failure Prevention
M070110	Jan 10	Computers/Controls - Code S0001 After Quick Delete
M330209	Jan 10	Suspension - Rear End Knocking Noise On Bumps
M510808	Jan 10	Body/Interior - Rattle Noise From Roof Area
M110309	Dec 09	Engine - Whistle Noise From The Water Pump Area
M650808	Dec 09	Antitheft System - Unexpected Alarm Triggering
M630309	Dec 09	Lighting - Headlamp Moisture Fault Diagnostics
M610507	Nov 09	Electrical - Various Electrical Malfunctions
653209	Nov 09	Audio System - Interference/Noise From Door Speakers
M610309	Oct 09	Computer/Control - Coding Failure After FRM Replacement
M510509	Oct 09	Restraints - Seat Belt Sliding Clip Deleted
M510108	Oct 09	Body - Window Control Functions Inactive
512909	Sep 09	Body - Windshield Urethane Sealant Information
M650409	Sep 09	Cell Phone - iPhone(R) Won't Charge Using USB Interface
M090109	Aug 09	Audio System - RAD2(R) Locks Up When Programming
M610306	Aug 09	Wipers/Washers - Wiper Insert Replacement Information
M160109	Aug 09	Fuel System - Fuel Level Sender Replacement Information
M640107	Jun 09	A/C - Whistling Noise On Start Up In 'AUTO' Mode
M170109	May 09	Cooling System - MIL ON/ Code 2F22 Set
M110209	Apr 09	Engine - Vacuum Pump Knocking Noises (Normal)
M620307	Apr 09	Instruments - Fuel Gauge LED Flickering
M840607	Apr 09	Cell Phone - Bluetooth(R) Hand Set Connects/Disconnects
M650109	Mar 09	Audio System - USB Audio Interface
610109	Mar 09	Wipers/Washers - Windshield Washer Malfunctions
M630109	Mar 09	Lighting - Headlamps Flicker/Move Up And Down
000702	Feb 09	Maintenance - Condition Based Service (CBS) Overview
M510208	Feb 09	Body - One-Touch Window feature Inop. After FRM R & I
M650209	Feb 09	Audio System - HD Radio(R) Functionality/Diagnosis
M650608	Feb 09	Audio System - CD Will Not Eject
M510109	Feb 09	Body - Windshield Damage Evaluation
M120209	Feb 09	Emissions - MIL ON/Gas Cap Warning ON/EVAP DTC's
M130109	Feb 09	Fuel System - Fuel Feed Line Removal/Installation

## Technical Service Bulletins

### All Technical Service Bulletins:

<u>Number</u>	<u>Date</u>	<u>Name</u>
M610102	Feb 09	Electrical - Required Battery Maintenance
M230108	Jan 09	M/T - Stiff 'Diagonal' Gear Shifts
M340109	Jan 09	ABS/TCS - TCS Lamp ON/Code 5DF3 Set
M511308	Dec 08	Interior - Center Arm Rest Rattles While Driving
M110608	Dec 08	Engine - MINI(R) Emblem Missing From Valve Cover
M110708	Nov 08	Emissions - Crankcase Ventilation System Info.
M640508	Oct 08	A/C - Control Panel Damage Information
640508	Oct 08	A/C - Control Assembly Damage Information
M651108	Oct 08	Audio System - Various CD/DVD Issues
M170107	Oct 08	Cooling System - Maintenance/Repairs/Requirements
990108	Sep 08	Paint - Environmental/Industrial Fallout Repair
M360208	Aug 08	Tire Monitor System - Warning Lamp ON
M320108	Aug 08	Steering/Suspension - Wheel Alignment Information
M120108	Aug 08	Engine - MIL ON/DTC's 2746/2B5B/2B5C
M090107	Aug 08	Progman(R) - Programming/Coding/Individualization
M240208	Jul 08	A/T - Harsh Shifts/Hard To Select 'D' Or 'R'
M110208	Jul 08	Engine - Knocking Noise From Engine Compartment
M650508	Jun 08	Campaign - Voice Input System Inoperative
M090307	May 08	CCC(R) - Loss Of Voice Recognition After Programming
M520208	May 08	Interior - Rattle From Rear Seat Back Rest
M650908	May 08	Audio System - iPod(R) Discharges After Inactivity
M650708	May 08	Audio System - CD Player Bezel Rattles On Bumps
M840308	May 08	Cell Phone - Voice Tags Lost After Vehicle Programming

## Vehicle: Technical Service Bulletins

### How to Find Technical Service Bulletins by Category/Symptom

#### Selecting TSB's "By Symptom"

If you have a vehicle which displays system-related symptoms, ALLDATA provides a way to quickly search for any relevant Technical Service Bulletins (TSB's). When you select TSB's "By Symptom," all relevant TSB's display at the top of the TSB title list. Viewing TSB's by Symptom is helpful when the vehicle displays a distinct, system related, malfunction. You may also wish to review the symptom list with your customer to uncover additional information that was not indicated on the Driveability Worksheet.

You can view TSB's by Symptom at any System or Sub-System level of the TurboView hierarchy. For example, a Symptom list will appear when selecting Powertrain Management or Computers and Control Systems. Symptoms will not appear when selecting a component (such as Mass Air Flow Sensor).

#### To view TSB's by Symptom:

1. Select the desired System or Sub-System and click the TSB icon.
2. Select "By Symptom" from the TSB list.
3. Select the symptom you wish to display.
4. Click on the desired TSB to display the article

#### Example:

Your customer complains of a noise in his 1989 Toyota Corolla (1.6L DOHC). The noise seems to be coming from the automatic transmission. To find TSB's related to transmission noise:

1. Select Transmission and Drivetrain, then Automatic Transmission.
2. Click the TSB icon and select "Noise" from the TSB symptom list.
3. Notice that TSB's related to transmission noise are now located at the top of the TSB title list while non-related TSB's for the transmission are listed below.

Technical Service Bulletin # **M650508**

Date: **080601**

### Campaign - Voice Input System Inoperative

SI M65 05 08

Audio, Navigation, Monitors, Alarms, SRS

June 2008

Technical Service

PERFORM THE PROCEDURE OUTLINED IN THIS SERVICE INFORMATION ON ALL AFFECTED VEHICLES BEFORE CUSTOMER DELIVERY OR THE NEXT TIME THEY ARE IN THE SHOP FOR MAINTENANCE OR REPAIRS.

#### SUBJECT

Service Action: Check SVS Function

#### MODEL

R55 (Cooper Clubman, Cooper S Clubman) with SA609 Navigation System

R56 (Cooper, Cooper S) with SA609 Navigation System

#### SITUATION

On certain vehicles, the Voice Input System (SVS SA 620) does not function.

#### CAUSE

SVS was not installed in the vehicle.

#### AFFECTED VEHICLES

This Service Action involves R55 and R56 vehicles which were produced from October 2007.

In order to determine whether a specific vehicle is affected by this Service Action, it will be necessary to reference the attached VIN list. If the vehicle is included on the VIN list, check the driver's door jamb for a service action label code with code number 37 punched out. If code number 37 is already punched out, this Service Action has already been completed.

Model	Chassis Number Range
R55 Cooper Clubman	TJ46064 – TJ46280
R55 Cooper Clubman Auto	TN66211 – TN66633
R55 Cooper S Clubman	TP70428 – TP87564
R56 Cooper Auto	TT59237 – TT88898
R56 Cooper	TU63937 – TU65209
R56 Cooper S Auto	TV32126 – TV34383

The chassis number ranges listed below are only for informational purposes, and are not to be considered as the only deciding factor.

## PROCEDURE

1. Verify that this vehicle is affected by this Service Information by checking the attached VIN list.
2. If the VIN number is included on the list, submit a PuMA case with the subject "SVS missing SI M65 05 08". **Note** in the case comments if the vehicle has a JCW (John Cooper Works) kit installed.
3. A modified vehicle order (VO) and enabling code (SWT), together with the SVS retrofit instructions, will be attached to the case.
4. Following the retrofit instructions, install any necessary hardware.
5. Import the vehicle order, using the latest version of Progman. **Note:** Other modules may be updated at the same time if the vehicle has an older integration level.
6. After the new vehicle order has been imported, select "CCC" from the module list.
7. Select "Encoding" of the CCC.
8. After the encoding is completed, turn the ignition off and let the CCC go to sleep (after 5 minutes).
9. Check the functionality of the SVS system.SVS system.

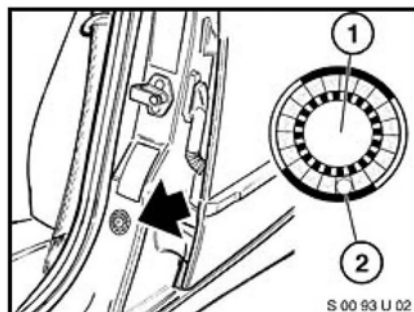
Part Number	Description	Quantity
84 31 6 938 762	Microphone (If necessary)	1
61 11 9 156 289	SVS Harness (If necessary)	1

## PARTS INFORMATION

## LABEL INSTRUCTIONS

This Service Action has been assigned code number 37. After the vehicle has been checked and/or corrected, obtain a label (MD20-036) and:

- A. Emboss your MINI dealer warranty number in the middle of the label (1);
- B. Punch out code number 37 (2), printed on the label; and



- C. Affix the label to the B-pillar as shown.

If the vehicle already has a label from a previous Service Action/Recall Campaign, affix the new label next to the old one. Do not affix one label on top of another one because a number from an underlying label could appear in the punched-out hole of the new label.

## WARRANTY INFORMATION

**Defect Code:** 84 11 25 77 NA

**Labor Operation:**      **Labor Allowance:**      **Description:**

84 99 000      20 FRU      Installation of Voice Input System

Refer to KSD      Refer to KSD      Coding control units

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

Covered under the terms of the MINI New Vehicle Limited Warranty.

## ATTACHMENTS

TJ46064	TT61686	TV32296
TJ46123	TT61762	TV32304
TJ46161	TT83571	TV32377
TJ46168	TT86642	TV32378
TJ46280	TT86644	TV32521
TN66211	TT86685	TV32533
TN66340	TT86748	TV32535
TN66357	TT86762	TV32539
TN66393	TT86822	TV32580
TN66413	TT86876	TV32587
TN66430	TT86916	TV32668
TN66487	TT86921	TV32737
TN66499	TT86997	TV32789
TN66541	TT87117	TV32804
TN66633	TT87364	TV32848
TP70428	TT87446	TV32932
TP70491	TT87599	TV32934
TP70620	TT87749	TV32944
TP70654	TT87777	TV32950
TP87177	TT87910	TV32992
TP87270	TT88043	TV33042
TP87299	TT88293	TV33081
TP87335	TT88322	TV33111
TP87364	TT88378	TV33281
TP87407	TT88612	TV33283
TP87461	TT88786	TV33333
TP87464	TT88831	TV33372
TP87564	TT88898	TV33394
TT59237	TU63937	TV33488
TT59590	TU63939	TV33599
TT59753	TU63972	TV33731
TT59840	TU64117	TV33830
TT59897	TU64186	TV33883
TT60045	TU64744	TV33927
TT60051	TU65022	TV33967
TT60393	TU65127	TV34081
TT60567	TU65209	TV34133
TT60621	TV32126	TV34215
TT60816	TV32132	TV34238
TT60850	TV32165	TV34255
TT61058	TV32238	TV34274
TT61206	TV32285	TV34283
TT61487	TV32291	TV34302
		TV34314
		TV34316
		TV34381
		TV34383

view PDF attachment M650508VIN\_List.

**★ ★ FIX IT RIGHT THE FIRST TIME, ON TIME, EVERY TIME ★ ★**

For administrative convenience and to reduce costs, this bulletin may contain repair procedures for authorized BMW car centers and/or authorized BMW SAV centers. All references to SAVs and/or the X5 are ONLY intended for authorized BMW SAV centers. Furthermore, ONLY BMW SAV centers are authorized to perform repair and service work on SAVs.

Disclaimer Technical Service Bulletin # **M010410**

Date: **100801**

**Campaign - H/P Fuel Pump Warranty Extension**

SI M01 04 10

Warranties

August 2010

Warranties

SUBJECT

N14 Special Limited High-pressure Pump (HPP) Emission Warranty of 10 Years/120,000 Miles

**MODEL**

R55 MINI Clubman S with N14 from SOP up to 08/09

R56 MINI Cooper S with N14 from SOP up to 08/09

R57 MINI Cooper S Convertible with N14 from SOP up to 08/09

**SITUATION**

MINI has become aware of a potential problem that could affect the durability of the High-pressure Fuel Pump (HPP) of certain MY 2007, 2008 and 2009 MINI automobiles equipped with N14 engines. We estimate that only a small percentage of vehicles will actually develop a problem. Vehicles affected may have the Service Engine Soon lamp illuminated with various high fuel pressure-related faults (e.g., 2880) stored in the Engine Control Module (DME). Also, the affected vehicles may experience reduced engine performance ("engine failsafe mode") when the High-pressure Fuel Pump malfunctions.

**CORRECTION**

In the event that the High-pressure Fuel Pump of an MY 2007, 2008 or 2009 Cooper S, Cooper S, Cooper S JCW, Convertible or Clubman S with the N14 engine were to fail and exhibit the symptoms listed above, it should be replaced with the improved part (P/N 13 51 7 588 879).

Prior to replacement of the HPP, make sure that the appropriate ISTA/D test plan (B1214\_M\_KHDR\_H\_FUEL) high pressure system) was performed and completed with the diagnostic code included the warranty claim. Always use the current version of ISTA/D (currently 2.21 or higher).

For High-pressure Fuel Pump replacement instructions, refer to REP13 51 017.

**PARTS INFORMATION**

<b>Part Number</b>	<b>Description</b>	<b>Quantity</b>
13 51 7 588 879	High-pressure Fuel Pump	1
13 53 7 528 348	Pressure delivery line	1

**PARTS INFORMATION**

As a commitment to our customers and to demonstrate our confidence in our product, MINI will extend the emissions warranty of the High-pressure Fuel Pump from 4 years or 50,000 miles to 10 years or 120,000 miles, whichever comes first.

**EMISSIONS WARRANTY INFORMATION**

The emissions warranty extension for this component applies to the above-listed models only, and is transferable to any subsequent purchaser of these models.

This extended emissions warranty is applicable to vehicles registered in all 50 states.

Warranty coverage for all other parts is not affected.

MINI will inform all affected owners of the above-listed models of their extended High-pressure Fuel Pump emissions warranty. A sample letter is shown in this bulletin.



**Defect Code:** 13 51 91 12 00

**Labor Operation** 0059053 Replace High-pressure Fuel Pump  
and clear DME fault memory

**Main Work**

**Labor Allowance** 12 FRUs  
OR

**Labor Operation:** 0059711 Replace High-Pressure Fuel Pump  
and clear DME fault memory

**+ Associated Work** 11 FRUs

**Labor Allowance**

Note: The following explanations will spell out the correct use of the work times.

**Main Work:** Use this labor operation number when the only repair performed is the listed warranty repair.

OR

**+Associated Work:** Use this labor operation number when other repairs or services are performed along with the listed warranty repair.  
Under no circumstances should both labor operation numbers be claimed. Attempts to claim both times will result in an unnecessary delay in claim processing and payment.

The following Emissions Warranty Information should be used if a High-pressure Fuel Pump replacement becomes necessary, as outlined above.

Dear MINI Owner:

MINI is committed to delivering complete and total product satisfaction to you, our customer. Our interest in your vehicle doesn't stop with its sale; rather, it continues throughout the vehicle's warranty period and beyond.

MINI USA has become aware of a potential problem that could affect the durability of the high-pressure fuel pumps in select 2007, 2008, and 2009 model year MINI vehicles equipped with the N14 turbocharged engines. The Service Engine Soon lamp may illuminate on affected vehicles, and drivers may experience reduced engine performance.

While we estimate that only a small percentage of vehicles will develop a problem, MINI USA will demonstrate the confidence we have in our product by extending the warranty for the high-pressure fuel pump to 10 years or 120,000 miles from the original in-service date, whichever comes first.

The emissions warranty extension for this component applies to your vehicle, and is transferable to any subsequent purchaser of your car.

All terms and conditions of the Federal Emissions Defect Warranty, the Federal Emissions Performance Warranty, and the California Emissions Warranty apply to the extended warranty. Warranty coverage for all other parts is not affected. Warranty terms and conditions can be found in your Service and Warranty information booklet.

In the event that your vehicle's high-pressure fuel pump exhibits the conditions outlined above, please contact your nearest authorized MINI dealer to schedule an appointment. Your MINI dealer has received a service information bulletin informing them of this warranty extension.

Please be assured that we at MINI are totally committed to the highest standards of product excellence and ownership experience, and we are determined to provide a level of service that exceeds your expectations.

Should you have any questions, please call us at 1.866.ASK.MINI (275.6464). Prefer email? Email us at: [MINI.Assistance@ASKMINIUSA.com](mailto:MINI.Assistance@ASKMINIUSA.com).

Thank you for your cooperation in this matter.

Very truly yours,

Your friends at MINI USA

Technical Service Bulletin # **M710109**

Date: **100301**

## **Recall 09V-474 - Tire Information Placard**

SI M 71 01 09

Tools and Accessories (Engine\_Chassis)

March 2010

Technical Service

PERFORM THE PROCEDURE OUTLINED IN THIS SERVICE INFORMATION ON ALL AFFECTED VEHICLES BEFORE CUSTOMER DELIVERY OR THE NEXT TIME THEY ARE IN THE SHOP FOR MAINTENANCE OR REPAIRS.

Under the National Traffic and Motor Vehicle Safety Act of 1966, as amended, if there has been a recall campaign, dealers must assure that all new vehicles and new items of replacement equipment are free of safety defects and comply with all applicable Federal Motor Vehicle Safety Standards at the time of delivery to the consumer. This means that dealers may not deliver new motor vehicles or new items of replacement equipment to consumers unless the safety defect or noncompliance has been remedied before delivery.

SUBJECT

Recall Campaign 09V-474: Inspect Tire Information Placard

MODEL

Cooper and Cooper S (R56)

SITUATION

[jmoraflores@hotmail.cl](mailto:jmoraflores@hotmail.cl)

Certain vehicles were produced with the incorrect Tire Information Label installed. The Tire Information Label may not reflect the actual tire size fitted on the vehicle. This Recall Campaign is being performed to inspect and correct the label, as necessary.

Customers will receive notification letters, installation instructions and a Tire Information Label. Customers will be given the option of installing the label themselves or having an authorized MINI dealer perform the procedure. Copies of the Customer Letter and installation instructions are attached to this bulletin.

#### AFFECTED VEHICLES

This Recall Campaign involves Cooper and Cooper S models which were produced from August 20th, 2009, to October 9th, 2009.

In order to determine whether a specific vehicle has had this Recall Campaign completed or is affected by this Recall Campaign, first check the B-pillar label for code number 45. If code number 45 has been punched out, the campaign has already been performed. If code number 45 has not been punched out, it will be necessary to utilize the "Service Menu" of DCSnet (Dealer Communication System) or the Key Reader. Based on the response of the system, either proceed with the corrective action or take no further action.

#### PROCEDURE

Open the driver's door and inspect the Tire Information Label located on the B-pillar. The affected vehicles were produced with 205/45 R17 Tires.

If the tire size listed on the label is 205/45 R17, no further action is necessary.

If the tire size listed is not 205/45 R17, wipe off the label with a clean, lint-free cloth and apply a new label directly over the existing label.

#### PARTS INFORMATION

Part Number	Description	Quantity
71 24 6 790 874	Tire Information Label	1

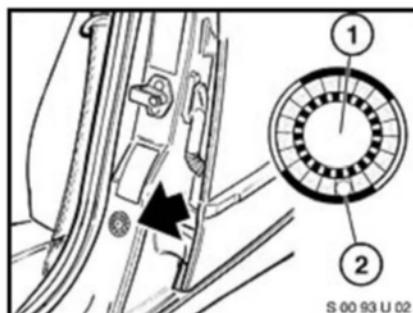
#### PARTS INFORMATION

#### LABEL INSTRUCTIONS

This Recall Campaign has been assigned code number 45. After the vehicle has been checked and/or corrected, obtain a label (MD 20-040) and;

A. Emboss your MINI dealer warranty number in the middle of the label (1);

B. Punch out code number 45 (2), printed on the label; and



C. Affix the label to the B-pillar as shown.

If the vehicle already has a label from a previous Service Action/Recall Campaign, affix the new label next to the old one. Do not affix one label on top of another one, because a number from an underlying label could appear in the punched-out hole of the new label.

**WARRANTY INFORMATION**

The repair described in this bulletin is covered under warranty regardless of time or mileage. Reimbursement for this Recall will be via normal claim entry utilizing the following information:

**Defect Code:** 00 71 45 01 00

**Labor Operation:**      **Labor Allowance:**      **Description:**

00 58 920

Refer to KSD2 \*\*

Inspect/install tire pressure label

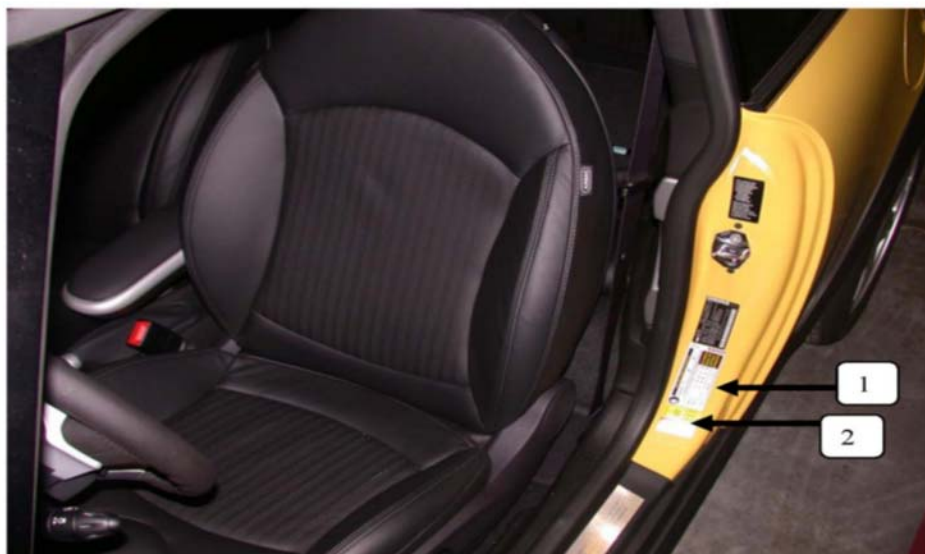
\*\* Labor time allowances can be located in the KSD2 by entering the VIN, clicking on the **Search** button and then entering the listed flat rate in the **FR code** field.

**WARRANTY INFORMATION****Recall Campaign No. 09V-474: Tire Information Label Installation Instructions**

In order to save you a trip to an authorized MINI dealer to have the correct label installed, you may perform the required steps below yourself.

To install the label on your car:

- Open the driver's door and locate the white Tire Information Label, as shown below (item 1).



- Wipe off the label with a clean, dry cloth.
- Fold back a corner of the enclosed sheet containing the new label, and peel off the label.
- Carefully place the new label directly over the one on the car, and press it firmly into place.
- Repeat the procedure for the smaller yellow label (item 2).

If you do not wish to perform this yourself, you may bring your car and the label to an authorized MINI dealer, and they will perform the work at no charge.

M71 01 09

Attachment - Recall Campaign No. 09V-474: Tire Information Label Installation Instructions

**February 2010****Recall Campaign No. 09V-474: Tire Pressure Label**

Dear MINI Owner:

This notice is sent to you in accordance with the requirements of the National Traffic and Motor Vehicle Safety Act.

BMW AG has decided that certain Model Year 2010 MINI Cooper and Cooper S vehicles fail to conform to Federal Motor Vehicle Safety Standard No. 110 (Tire Selection and Rims). Our records indicate that you are the owner of a potentially affected vehicle.

We sincerely apologize for any inconvenience this may cause you.

**DESCRIPTION OF DEFECT**

The issue involves the tire pressure label on your MINI. Specifically, your MINI was equipped with 17-inch wheels, but the label states that the MINI was equipped with 16-inch wheels. On MINI Cooper S vehicles, the tire pressure contained on the label is incorrect; however, it is correct in your Owner's Manual.

**You may continue to drive your vehicle; however, you must have this problem corrected immediately.**

**For MINI Cooper S owners, should you need to adjust the tire pressure, please consult your vehicle's Owner's Manual for the correct pressure based upon your vehicle's specific tire size. You will find the tire size stamped on the sidewall of the tire.**

**PRECAUTIONS**

- 1. MINI recommends that you always wear your safety belt, and that all passengers are properly seated and restrained at all times.**
- 2. If you are not the only driver of this vehicle, please advise all other drivers and passengers of this important information.**

**DESCRIPTION OF REPAIR**

Enclosed with this letter is a new tire information label, along with instructions for you to affix the label to your vehicle.

**Please install the new label as soon as possible.**



If you do not wish to perform this yourself, you may bring your vehicle to an authorized MINI dealer who will perform this service for you, free of charge. The label installation should take approximately 15 minutes.

### **OTHER INFORMATION**

Should you need MINI Roadside Assistance during operation of your vehicle, they may be reached at 1-866-646-4772.

If you are no longer the owner of this vehicle, we would appreciate your furnishing us with the name and address of the new owner, using the enclosed postage-paid card.

If you are a lessor of this vehicle, Federal Regulations require you to forward this notice to your lessee.

If you have already had this repair performed at your own expense, please see the attachment regarding possible eligibility for reimbursement.

**Should you have any questions about this campaign, please contact your authorized MINI dealer.**

Again, we sincerely apologize for any inconvenience this may cause you.

We appreciate your confidence in our product, and we wish to do everything we can to retain your confidence. Should you need additional assistance, you may contact MINI Customer Relations and Services at 1-866-ASK-MINI (1-866-275-6464), or via Email at [MINI.Assistance@askminiusa.com](mailto:MINI.Assistance@askminiusa.com).

If the MINI dealer is unable to remedy the defect without charge or within a reasonable period of time, you may notify the Administrator, National Highway Traffic Safety Administration, 1200 New Jersey Ave., S.E., Washington, DC 20590; call the toll-free Vehicle Safety Hotline at 1-888-327-4236 (TTY: 1-800-424-9153); or go to <http://www.safercar.gov>.

MINI, a Division of BMW OF NORTH AMERICA, LLC

Technical Service Bulletin # **990108**

Date: **080901**

## **Paint - Environmental/Industrial Fallout Repair**

SI B 99 01 08  
Paint Work

September 2008  
Aftersales

SUBJECT  
Environmental Paint Damage Repair

MODEL  
All

SITUATION  
Environmental issues can damage painted surfaces. Issues such as acid rain, industrial fallout, rail dust, bird droppings, and bugs can all damage the paint surface. Repair processes are in place to repair damage caused by these issues.

Industrial fallout or rail dust issues typically occur when new vehicles have been transported by rail to a location, or when a vehicle is located near rail tracks for an extended period of time. Rail dust is comprised of heated iron particles from train brakes that, when airborne, will land on the horizontal surfaces of vehicles and imbed themselves into the paint surface.

Typical sanding and polishing techniques alone will not resolve the issue of rail dust. BMW, in cooperation with 3M, has developed a procedure for removing and correcting rail dust damage for the paint surface of a vehicle. Below are the process and product for removing and correcting rail dust damage.

PROCEDURE  
The process below is for the removal of contamination and minor paint surface defects resulting from transportation and storage of new vehicles.

[jmoraflores@hotmail.cl](mailto:jmoraflores@hotmail.cl)

Please be sure to use only BMW approved products when attempting to make a repair to the paint surface!

1. Wash and rinse the vehicle thoroughly, using BMW approved car wash soap\*.
2. Check exterior surfaces for contaminants a rough or gritty feel, or use a white terry cloth towel to see if you get small snags of material on the surface.
3. Work contaminated areas with a 3M clay bar, using light pressure and car wash soap or 3Mtrade; Gloss Enhancer as a lubricant.
4. Rinse and dry the surface.
5. Knead the clay periodically to expose a new surface.
6. Polish the surface, using BMW approved polishing materials and techniques

**Note:**

Refer to the BMW Color system manual for approved polishing materials and proper techniques.

\* Please see page two for a list of BMW approved materials.

**PARTS INFORMATION**

The following materials are approved by BMW for the removal of rail dust and for the repair of the paint surface:

- ^ 3M(TM) 200 gram clay bar - PN 38070
- ^ 3M(TM) Finesse-Ittrade; SRC Finishing Material - PN 05927
- ^ 3M(TM) Wool Pad - PN 05703 or 05719
- ^ 3M(TM) Detailing Cloth - PN 06016
- ^ 3M(TM) Black Foam Pad - PN 05725 or 05738
- ^ 3M(TM) Perfect-It 3000trade; Ultrafin SE - PN 06068
- ^ 3M(TM) Yellow Wool Pad - PN 05713
- ^ 3M(TM) Perfect-It trade; Foam Polishing Pad Glaze - PN 05996
- ^ 3M(TM) Black Foam Pad - PN 05729
- ^ 3M(TM) Car Wash Soap - PN 39000
- ^ 3M(TM) Detailing Cloth - PN 06017
- ^ BMW Car Wash Soap - 83 12 0 412 530
- ^ BMW Polishing Cloth - 83 12 0 411 891

For product safety and health information, please see the Material Safety Data Sheet (MSDS 08-5407-5), or contact:

3M Automotive Aftermarket Division

3M Center, Bldg. 223-6N-01

St. Paul, MN 55144-1000

**★ ★ FIX IT RIGHT THE FIRST TIME, ON TIME, EVERY TIME ★ ★**

For administrative convenience and to reduce costs, this bulletin may contain repair procedures for authorized BMW car centers and/or authorized BMW SAV centers. All references to SAVs and/or the X5 are ONLY intended for authorized BMW SAV centers. Furthermore, ONLY BMW SAV centers are authorized to perform repair and service work on SAVs.

Disclaimer

Technical Service Bulletin # **M120108**

Date: **080801**

**Engine - MIL ON/DTC's 2746/2B5B/2B5C**

SI M 12 01 08

Engine Electrical Systems

August 2008  
Technical Service

**SUBJECT**

Service Engine Soon Lamp Illuminated: Lean Mixture Faults Stored in DME

**MODEL**

R55 (Cooper Clubman S) with N14 engine

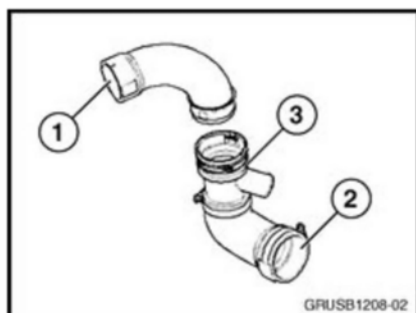
R56 (Cooper S) with N14 engine

Vehicles produced from January 1st, 2008 to June 1st, 2008

**SITUATION**

The customer complains that the Service Engine Soon Lamp is illuminated in conjunction with loss of power or hesitation while accelerating. One or more of the following faults are stored:

- ^ 2746 multiplicative mixture adaptation - Mixture too lean
- ^ 2B5B Air-mass sensor, plausibility - Air mass compared with model too high
- ^ 2B5C mass sensor, plausibility



1. Connection to the charge air pipe coming from the intercooler
2. Connection to the EDK throttle valve
3. Location of the fractured intake pipe



1. Location of the fractured intake charge pipe

**CAUSE**

An induction leak can occur at the charge air pipe; the fracture is located in the charge pipe, just before the EDK throttle valve.

**PROCEDURE**

On a customer complaint basis, identify the location of the leak, using a smoke machine. If leakage is identified, then replace the intake charge pipe with PN 13 71 2 753 078. A removal procedure for the intake charge pipe is not available; refer to Repair Instruction RA 13 54 030, Removing and installing/sealing throttle valve assembly (N14), to assist in the removal of the charge pipe. Removal of the EDK throttle valve is not necessary.

MINI recommends using the VACUTEC(R) Smoke Machine 625-522B-BMW. This device automatically converts air to high purity nitrogen, using Pressure Swing Absorption (PSA) nitrogen technology. Orders for the VACUTEC(R) Smoke Machine 625-522B-BMW can be placed by calling the Equipment Program.

Part Number	Description	Quantity
13 71 2 753 078	Intake Charge Pipe	1

**PARTS INFORMATION**



<b>Defect Code:</b>	<b>13 72 01 48 00</b>		
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>	
13 99 000	Refer to KSD	Replacing Intake Charge Pipe	

**WARRANTY INFORMATION**

Covered under the terms of the MINI New Vehicle Limited Warranty

**★ ★ FIX IT RIGHT THE FIRST TIME, ON TIME, EVERY TIME ★ ★**

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**Disclaimer**

Technical Service Bulletin # **M650708**

Date: **080501**

## Audio System - CD Player Bezel Rattles On Bumps

SI M 65 07 08

Audio, Navigation, Monitors, Alarms, SRS

May 2008

Technical Service

**SUBJECT**

CCC: CD Player Bezel Rattles over Bumps

**MODEL**

R55 (Cooper Clubman, Cooper S Clubman) with Car Communication Computer (SA 609)

R56 (Cooper, Cooper S) with Car Communication Computer (SA 609)

**SITUATION**

The customer states that while driving over rough roads or bumps, a rattling noise is heard near the CD player in the CCC.

**CAUSE**

The CCC bezel ribs come in contact with the CCC brackets.

**PROCEDURE**

The noise can be duplicated by tapping or pressing on the bezel area above the upper right hand side of the CD player (near the "MINI Navigation System" writing).

In the case of a customer complaint, follow the procedure as outlined in the attachment for this service information.

<b>Part Number</b>	<b>Description</b>	<b>Quantity</b>
61 13 6 920 760	Tape	1

**PARTS INFORMATION**

<b>Defect Code:</b>	<b>65 12 45 37 00</b>		
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>	
65 83 560	Refer to KSD	Removing and installing front panel for Car Communication Computer	

**WARRANTY INFORMATION**

Covered under the terms of the MINI New Vehicle Limited Warranty.

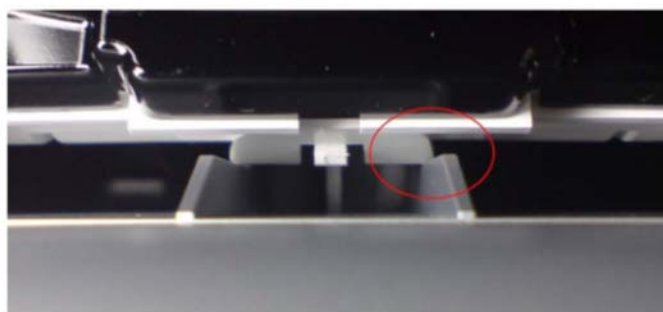
**ATTACHMENTS**

M65 07 08

May 2008

**M65 07 08 Procedure to repair rattle**

1. Remove the front CCC trim panel per repair instructions RA 51 16 150.
2. The 2 pictures to the left indicate the area that is causing the rattle.



3. Install the anti-squeak tape in the area indicated in the picture to the left
4. Reinstall the previously removed trim pieces and verify that the noise is no longer present.

view PDF attachment M650708Procedure.Technical Service Bulletin # **M651108**

Date: **081001**

## **Audio System - Various CD/DVD Issues**

SI M65 11 08

Audio, Navigation, Monitors, Alarms, SRS

October 2008

Technical Service

### **SUBJECT**

Audio Complaints Relating to Audio CD/Audio DVD Drive

### **MODEL**

All vehicles with CD drive, CD changer and/or audio DVD drive

### **SITUATION**

Certain issues with the audio when listening to CDs, such as:

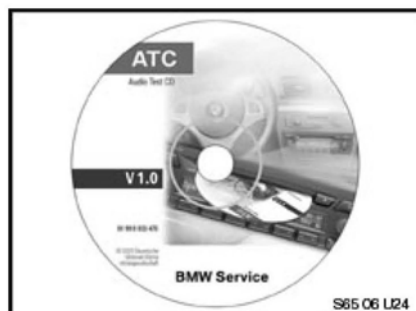
- ^ CD is not accepted
- ^ CD skips
- ^ CD cannot be read

^ Permanent or intermittent audio interruptions

## CAUSE

The CD drive/audio DVD drive is not working correctly, or the media used by the customer is defective.

## INFORMATION



In the case of a customer complaint regarding the CD drive/audio DVD drive, the Audio-Test-CD must be used for a preliminary analysis in the customer vehicle. Audio-Test-CD track # 12 contains the borderline case, in which the CD or audio DVD drive must be able to play CDs without faults.

All the other tracks on the Audio-Test-CD can be used for additional audio system issues.

## PROCEDURE

1. Insert the Audio-Test-CD into the CD drive, audio DVD drive or CD changer.
2. Select and play track # 12.
3. If there is no malfunction (CD skips, interruptions, etc.) when playing track # 12:
  - ^ Do not replace parts.
  - ^ Check the CD used by the customer.
4. If there is a malfunction (CD skips, interruptions, etc.) when playing track # 12:
  - ^ Replace the defective CD/audio DVD drive or CD changer.

### Please note:

- ^ Do not touch the reflective surface.
- ^ Do not stick labels or write on the surface.
- ^ Do not expose the CD to direct sunlight or high temperatures.
- ^ Remove the CD from its protective cover only prior to immediate use.

Part Number	Description	Quantity
01 99 0 033 475	Audio-Test-CD	1

One (1) copy of the ATC will be shipped to every MINI dealer through the Automatic Tool Shipment Program.

Additional copies of the ATC can be ordered if necessary.

## PARTS INFORMATION

Covered under the terms of the BMW New Vehicle Limited Warranty.

**Defect Code****Refer to KSD**

Labor Operation:

Refer to KSD

Labor Allowance:

Refer to KSD

IMPORTANT: The Audio-Test-CD has to be used for a preliminary analysis before replacing parts.

## WARRANTY INFORMATION

Technical Service Bulletin # **M650908**Date: **080501****Audio System - iPod(R) Discharges After Inactivity**

SI M65 09 08

Audio, Navigation, Monitors, Alarms, SRS

May 2008

Technical Service

## SUBJECT

iPod Classic is Discharged after an Extended Period of Inactivity

## MODEL

R55\* (Cooper Clubman, Cooper S Clubman)

R56\* (Cooper, Cooper S)

\*Only with USB Audio Interface (option 6FL)

## SITUATION

When connected to the USB audio interface via the Y-cable and not used for an extended period of time (e.g., the vehicle is parked overnight), the iPod Classic becomes discharged.

When starting the vehicle, the iPod cannot be turned on for up to 30 minutes, due to the extensive discharging of the internal iPod battery. After that time, it can be used again without problems.

For other symptoms when the iPod won't turn on, please refer to the Apple website: [support.apple.com/kb/TS1383?viewlocale=en\\_US](http://support.apple.com/kb/TS1383?viewlocale=en_US)

## CAUSE

Software (lower than version 1.1) in the iPod Classic

## CORRECTION

In the event of a customer complaint, inform the customer that the software in the iPod Classic must be updated to version 1.1 or later. This can be done by the customer.

For the software update procedure, the customer should refer to the iPod instruction manual or to the Apple website, [docs.info.apple.com/article.html?artnum=60944](http://docs.info.apple.com/article.html?artnum=60944).

^ The software version of the iPod can be read directly from the device:

1. On all iPod models (except iPod shuffle), press the Menu button repeatedly until you see the Main menu.
2. Scroll to and then select Settings.
3. Scroll to and then select About. Note: This may be labeled "Info" on the original iPod.
4. Information about your iPod appears. You should see a line item labeled Version. You will see the software version installed on your iPod listed to the right.

^ Information on how to detect the software version of an iPod is available online: [docs.info.apple.com/article.html?artnum=60984](http://docs.info.apple.com/article.html?artnum=60984)

## WARRANTY INFORMATION

Information only

**★ ★ FIX IT RIGHT THE FIRST TIME, ON TIME, EVERY TIME ★ ★**

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Disclaimer Technical Service Bulletin # **M520208**Date: **080501****Interior - Rattle From Rear Seat Back Rest**SI M52 02 08  
SeatsMay 2008  
Technical ServiceSUBJECT  
Rattle from the Rear Seat BackrestMODEL  
R55 (Cooper Clubman and Cooper S Clubman)

R56 (Cooper and Cooper S)

SITUATION  
A rattle or squeaking noise may be heard from the rear seat backrest while driving over rough roads. The noise can usually be localized to the latch on the backrest, which secures it in the upright position.

CAUSE  
Incorrect alignment of the backrest latch and striker

## PROCEDURE

1. Ensure that the backrest striker is fully engaging the latch when the backrest is folded up, to be sure that this isn't the cause of the noise.



2. Fold down the affected side of the rear seat.
3. Inspect the striker (1) to determine which side (top or bottom) shows witness marks and/or scratches.
4. If the witness marks and/or scratches are on:
  - a. The top Loosen the 2 striker securing bolts and adjust it down 1-2mm.
  - b. The bottom Loosen the 2 striker securing bolts and adjust it up 1-2mm.

**NOTE:**

Do not apply grease, felt or Teflon tape to the striker, as it will not provide a permanent solution.

5. Road test the vehicle to ensure that the noise has been eliminated.

## WARRANTY INFORMATION

**Defect Code:** 52 20 15 39 00

<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
52 99 000*	3 FRU	Work time to adjust backrest striker

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

Covered under the terms of the MINI New Vehicle Limited Warranty.

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Disclaimer Technical Service Bulletin # **M240208**

Date: **080701**

## A/T - Harsh Shifts/Hard To Select 'D' Or 'R'

SI M 24 02 08

Automatic Transmission

July 2008

Technical Service

### SUBJECT

R55, R56 with F21 Transmission - Various EGS Faults Caused by Wiring Harness Damage

### MODEL

R55 (Clubman, Clubman S) with F21 ASIN 6-speed automatic transmission

R56 (Cooper, Cooper S) with F21 ASIN 6-speed automatic transmission

### SITUATION

The customer may complain of the following:

- ^ It is difficult to engage the D or R gears from the Park position.
- ^ Gear shifts are extremely harsh during driving.
- ^ Intermittently, the transmission warning light ("gear indicator") may be displayed.

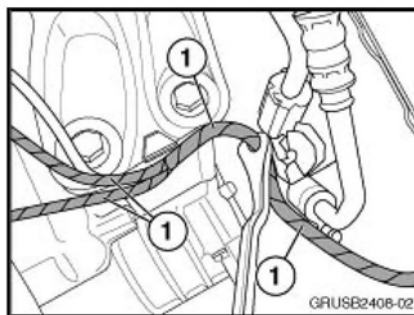
During the diagnosis, various combinations of the following fault codes may be stored in the EGS module:

- ^ 4E21, 4E22 - Electronic pressure control valve SLT
- ^ 4E2C - Electronic pressure control valve SLU
- ^ 4E35, 4E36 - Electronic pressure control valve SLC1
- ^ 4E3F, 4E40 - Electronic pressure control valve SLC2
- ^ 4E4A, 4E49 - Electronic pressure control valve SLC3
- ^ 4E54 - Electronic pressure control valve SLB1.

### CAUSE

Possibly the transmission wiring harness is damaged and is chafing against the transmission housing; or the A/C condenser pipe or an electronic pressure valve fails intermittently.

### SOLUTION



On a customer complaint basis, prior to executing the appropriate DIS Test Plan, visually inspect the transmission harness in the area close to the transmission mount, and behind the A/C condenser pipe (on top of the gear box areas indicated by # 1).

If chafing is detected, the damaged part of the harness should be repaired and insulated, using a good quality adhesive tape (Würth Black Cloth Friction Tape, article number 1985 620, may be used for this procedure).

For more information on this product, please visit [www.wurthusa.com](http://www.wurthusa.com) or call 1-800-WURTHUSA.

Diagnostic Hint:

If there is no defect found in the transmission wiring harness or connectors, then most likely the faults are caused by the intermittent failure of one of the electronic pressure control valves. In such a case, the valve body assembly should be replaced.

Do not replace the complete automatic transmission assembly for the complaints caused by the fault codes related to the electronic pressure control valves.

**Defect Code:** 24 00 38 61 00

<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
24 99 000	7 FRUs	Repair transmission harness

Sublet Code 4\*\* \$4.00 Würth Black Cloth Friction Tape (Art. # 1985 620)

\*\* Reimbursement of up to the amount listed may be charged to sublet code 4 for the Würth Black Cloth Friction Tape (Art. # 1985 620) required to perform this repair. Claiming this part number outside of sublet code 4 will result in a delayed or denied claim payment.

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

#### WARRANTY INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty or the MINI NEXT Certified Preowned Program.

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Disclaimer Technical Service Bulletin # **M090307**

Date: **080501**

### CCC(R) - Loss Of Voice Recognition After Programming

SI M 09 03 07

Programming/Coding Explanations

May 2008  
Technical Service

This Service Information bulletin supersedes S.I. M09 03 07 dated May 2007.

[NEW] designates changes to this revision

#### SUBJECT

CCC: Enabling Code (FSC) Required to Activate Voice Recognition System

**MODEL**

[NEW] R55 (Cooper Clubman, Cooper S Clubman) with CCC Navigation (SA 609)

R56 (Cooper, Cooper S) with CCC Navigation (SA 609)

**SITUATION**

- ^ Progman V25.00.00 or higher prompts the importing of an enabling code during programming.
- ^ Loss of Voice Recognition System (SVS SA 620) functions after programming with Progman V25.00.00 or higher.
- ^ On vehicles produced after March 2007, if a CCC (Car Communication Computer) is replaced an enabling code must be ordered in order to activate the SVS function on the replacement CCC.
- ^ If during the course of diagnosis a CCC needs to be replaced, the only part that should be installed is a new part that has not been previously installed in a vehicle. The CCC enabling code is VIN specific and if installed in another vehicle, the SVS (Voice Input System) will not function. Do not swap parts from donor vehicles.

**CAUSE**

Enabling codes (FSC) make it possible to link special functions to a vehicle. Without these enabling codes these functions will not operate. In this specific case, the enabling codes must be imported any time the Car Communication Computer (CCC) is programmed in order to ensure that SVS is functioning properly. If the enabling codes are not imported during the programming procedure, the SVS function will not be available.

**PROCEDURE**

Vehicles produced prior to March 2007:

A special DVD (labeled "SWT V1.1") is supplied together with the Progman V25.1 DVD set. The enabling codes contained on this DVD are for all vehicles with CCC and SVS.

After Progman has been installed on the SSS, place the FSC (SWT) DVD into the DVD drive and leave it there. This will ensure that the enabling codes are available for every Progman session as needed.

Refer to the "Procedure" attachment which outlines the procedure on how to import the enabling codes with the SSS.

If an enabling code is not provided following this procedure, refer to the "Parts" information attached to this Service Information.

Vehicles produced March 2007 and later:

Order enabling code, refer to "Parts" information attached to this Service information.

Refer to the "Procedure" attachment which outlines the procedure on how to import the enabling codes with the SSS.

Enabling codes that are downloaded via ASAP or PuMA are contained in a compressed file format. The file must be uncompressed, and the contents copied to the root directory (not in a folder) of a blank formatted floppy disk or burned to a CD.

**WARRANTY INFORMATION**

No additional labor allowance included in the allotted programming time.

**ATTACHMENTS**



## M09 03 07 Procedure to import enabling codes

3/21/07



1. Before starting a Progman session ensure that the FSC DVD is inserted into the DVD drive of the SSS.
2. Start a Progman session.  
Note: this procedure is only necessary on vehicles equipped with CCC (SA 609).



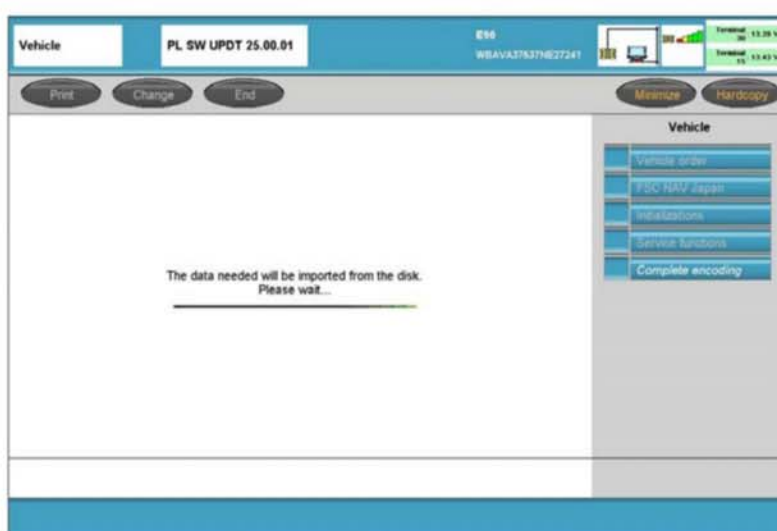
3. The measures plan will display the function to import and activate the enabling codes.



4. If the CCC is part of the Measure plan, the technician will be prompted before the programming begins to import the enabling codes.
5. With the FSC DVD already in the drive select the "Import" button.



6. "Please insert a disk with the enabling codes" and continue.



7. "The data needed will be imported from the disk "please wait..."



8. The message "The following enabling code files must be imported:" is displayed, with the status: "Imported".
9. Select "Import end" and continue.

Vehicle: PL SW UPDT 25.00.01 E90 WBAVA37637HE27241

Print Change End Minimize Hardcopy

Remng. period: 02:57:56

DME/DOE: BO

1	CAS	03:24	✓		
2	JBE	01:12	✓		
3	GW	22:05	✓		
4	SMFA	03:58	✓	CCC-ASK	08:30 ✓
5	CID	03:29	✓	CCC-ANT	03:46 ✓
6	FZD	01:25	✓	BO	47:41 ✓
7	HKA	02:49	✓	CCC-A	115:08
8	MRS	02:50	✓	SDARS	04:06
9	DME/DOE	95:43	✓	AMP	09:19
10	DSC	07:27			
11	KOMBI	05:17			

Cancel

Vehicle:

- Vehicle order
- FSC NAV Japan
- Initializations
- Service functions
- Complete encoding

10. Finish the programming

Vehicle: PL SW UPDT 25.00.01 E90 WBAVA37637HE27241

Print Change End Minimize Hardcopy

✓ Writing individual data to CCC user interface successful  
 ✓ TELAAJF has been successfully encoded!  
 ✓ FRM has been successfully encoded!  
 ✓ EKP has been successfully encoded!  
 ✓ NE27241\_00020001.xml  
 The enabling code has been successfully imported  
 ✓ Software with applic. no. 2 has been successfully activated.  
 ✓ Data status successfully stored  
 ✓ ASR calibration successful  
 ! Could not completely clear fault memories.  
 The following control module(s) contain(s) further entries in the fault memory:

- EGS/SMG
  - 2x1F18 (10003)
  - 2x1F1C (10009)
  - 2x3821 (22343)
- DSC
  - 2x1822 (24058)
  - 2x1880 (24054)

✓ Measures plan successfully carried out.  
 ✓ Car context check carried out.

Finish Display again

Vehicle:

- Vehicle order
- FSC NAV Japan
- Initializations
- Service functions
- Complete encoding

11. The Final Report indicates the following:

- "The enabling code has been successfully imported"
- "Software with applic no 2 has been successfully activated."

view PDF attachment M090307\_Procedure.

## Product Information

February 2007  
Aftersales/Accessories/Parts/Miscellaneous  
Pt: PARTS\_003\_02\_07

### Use of activation codes (FSC) with reference to SA 620 (extended voice input function) in the car communication computer (CCC)

#### Parts

Management
Marketing
Sales of new Cars
Sales of used Cars
<b>Aftersales</b>
Administration

#### Product description

Through the application of activation codes (FSCs), components and functions can be uniquely associated with a particular vehicle. The activation code is an electronic data record generated by MINI using special security mechanisms.

From March 2007 an activation code will be required for the use of the SA 620 in connection with a car communication computer (CCC). It is necessary to copy the activation code into the CCC if:

- 1) Cars built before March 2007 are flashed to this March I-stage or subsequent I-stages, or the CCC has to be replaced during repairs.
- 2) the CCC has to be replaced during repair work for cars built after March 2007.

**This activation code must be copied into the car with the aid of the action plan, via the dealer's programming system. If the code is not transferred to the car, the SA 620 can no longer be used.**

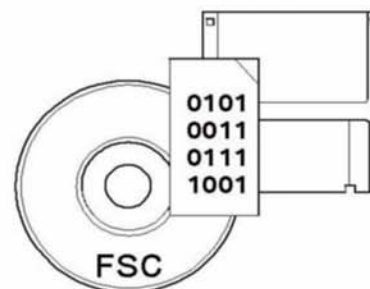


#### Note

A PuMA (Product and Market Support Aftersales) measure is being prepared for this topic! ◀

#### Ordering and delivery of the FSC

- The activation codes are "coded route sections", i.e. FSCs are always generated for a specific vehicle and must therefore be ordered from MINI as FSI parts (Production – Line Section – Invest) quoting the chassis number.
- The FSC for the SA 620 in the CCC must be ordered by quoting the chassis number and the part number that is published in the electronic parts catalogue (EPC) (current part number 6 976 389, on table 651798).



- The FSCs are delivered free of charge in the BMW After Sales Portal (ASAP). The dealer organizations can download the FSC from the Internet onto their PC. The code must then be stored on media such as a CD before it can be copied via the programming system into the car.

#### Availability

From 03/2007

#### EPC DVD

From 03/2007

#### Installation instructions / installation certificate

Aftersales Assistance Portal (ASAP)

#### Part number (EPC Table 651798)

Activation Code CCC	
Voice ASAP	65 83 6 976 389

**Please refer to your price system or the latest price publications for the latest prices.**

view PDF attachment M090307Parts\_FSC.

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December 2008  
Technical Service

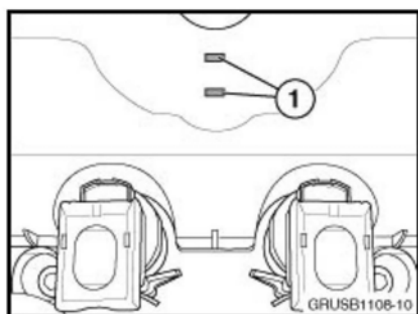
SUBJECT  
MINI Emblem Missing from Valve Cover

MODEL  
R55 Cooper S Clubman  
R56 Cooper S

#### SITUATION

The MINI emblem will no longer be installed on the valve cover of the N14 engine as of 03/2008 production. Some vehicles may still have the "old" style valve cover with mounting holes for the MINI emblem.

#### PROCEDURE



Mounting holes (1)

If the mounting holes are present in the valve cover, as shown in the illustration below, then the emblem should be installed on the valve cover, using PN 11 12 7 568 034. Do not replace the entire valve cover.

Part Number	Description	Quantity
11 12 7 568 034	Emblem	1

#### PARTS INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty.

<b>Defect Code</b>	<b>99 99 01 01 00</b>	
Labor Operation:	11 99 000	Installing emblem
Labor Allowance:	2 FRU	

#### WARRANTY INFORMATION

Technical Service Bulletin # **M840607**

Date: **090401**

### Cell Phone - Bluetooth(R) Hand Set Connects/Disconnects

SI M 84 06 07  
Communication Systems

April 2009  
Technical Service

This Service Information bulletin supersedes SI M84 06 07 dated August 2007.

[NEW] designates changes to this revision

SUBJECT  
Bluetooth Handset Constantly Connects/Disconnects

MODEL

## SITUATION

The Bluetooth connection, between the Interface box (MULF-SBX) and a compatible handset, connects and then disconnects on a cyclical basis.

^ "No phone found" appears in the CID (Central Information Display) every few seconds.

^ The handset alternately displays "Connected to MINI..." and then "Not connected to MINI..."

If a telephone call is in progress, it can no longer be heard via the hands-free system.

## Note:

Pairing an incompatible handset to the vehicle can exhibit the same complaint if the handset does NOT support a certain Bluetooth protocol. Please review the handset compatibility section of the Service Information bulletin for more details on compatible handsets.

## CAUSE

MULF-SBX software error

## [NEW] PROCEDURE

Program the vehicle using the current version of ISTA/P.

Note that ISTA/P will automatically reprogram and code all programmable control modules that do not have the latest software.

For information on programming and coding with ISTA/P, refer to CenterNet / Aftersales Portal / Service / Workshop Technology / Vehicle Programming".

## COMPATIBLE HANDSETS

Before the complaint can be addressed, the particular handset must be verified for compatibility with the SBX Bluetooth system installed in the vehicle. To confirm whether or not the handset is compatible, visit [www.wireless4mini.com](http://www.wireless4mini.com) for a list of handsets that have passed MINI testing for compatibility. Note the following disclaimer on this web site:

^ "This list is provided for reference only. The mobile phones listed here have passed compatibility tests as of the date of testing and meet or exceed minimum standards established by MINI. The list is not a warranty for phone performance or functionality. MINI makes no guarantees or warranties as to the performance of each phone while connected to your MINI via Bluetooth Wireless Technology. Furthermore, software releases by MINI, the phone supplier or the wireless carrier dated after testing might alter compatibility results. While many phones are offered with Bluetooth Wireless Technology, not all phones support the necessary profiles to work with your MINI. MINI does not guarantee availability or functionality with all wireless carriers. Functions such as synchronizing the address book and transferring a call into or out of the vehicle may function differently from phone to phone".

Covered under the terms of the MINI New Vehicle Limited Warranty.

<b>Defect Code:</b>	<b>84 11 27 11 00</b>	
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
Refer to KSD	Refer to KSD	Program and code control modules

## WARRANTY INFORMATION

Technical Service Bulletin # **M630109**

Date: **090301**

## Lighting - Headlamps Flicker/Move Up And Down

SI M 63 01 09

Lights

March 2009

Technical Service

## SUBJECT

Headlamps Flicker and Move Up and Down by Themselves

## MODEL

R55 (Cooper Clubman, Cooper S Clubman)

R56 (Cooper, Cooper S)

## SITUATION

While driving or at idle, the headlamps flicker or sporadically move up or down by themselves.

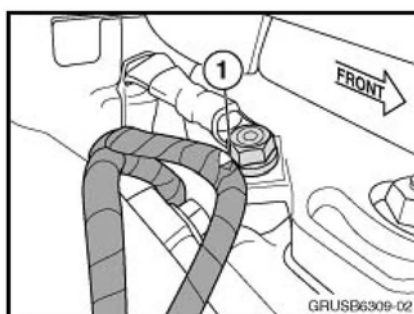
## CAUSE

The headlamp wiring harness is damaged due to chaffing at the engine ground point.

## CORRECTION

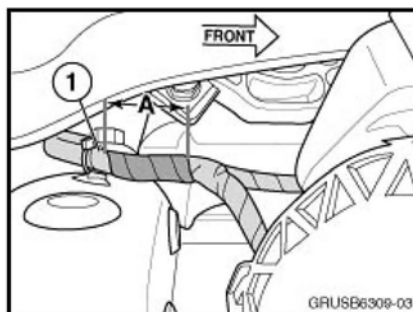
Do not replace any parts.

In the following illustrations, the large arrow points towards the front of the vehicle.



Check the wiring harness for chaffing at the engine ground point (1), located in the right side of the engine compartment.

If the wiring is chaffed, repair any affected wires (refer to M61 02 07). In most cases, reinsulating the affected wires will provide an effective repair. If no chaffing is located, continue troubleshooting other sections of the headlamp wiring.



Apply fabric harness tape for a distance of A=50mm from the clip (1) to close the two harness sections together, and to move the harness away from the engine ground point.

Confirm that the possibility of a future short has been eliminated.

Part Number	Description	Quantity
61 13 6 902 588	Fabric harness tape	As needed

## PARTS INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty or the MINI Next Certified Pre-Owned Program.

**Defect Code:** 61 11 00 79 00

**Labor Operation:** **Labor Allowance:** **Description:**

66 99 000 3 FRU Troubleshoot and repair wiring harness and tape  
to prevent recurrence

Sublet Code 4\*\* \$1 \*\* Reimbursement of up to the amount listed may be charged to sublet code 4 for the fabric harness tape (P/N 61 13 6 902 588) required to perform this repair. Claiming this part number outside of sublet code 4 will result in a delayed or denied claim payment.

## WARRANTY INFORMATION

Technical Service Bulletin # **M120209**

Date: **090201**

## Emissions - MIL ON/Gas Cap Warning ON/EVAP DTC's

SI M12 02 09

Engine Electrical Systems

February 2009

Technical Service

## SUBJECT

Service Engine Soon or Check Gas Cap Warning Is Illuminated: Tank Leakage

## MODEL

R55 (Cooper Clubman and Cooper Clubman S)

R56 (Cooper and Cooper S)

All vehicles from start of production up to September 30th, 2008

## SITUATION

The Service Engine Soon lamp or the Check Gas Cap warning is illuminated while driving. When diagnosed, the DME has stored faults for a small leak, micro leak, super fine leak, or large leak in relation to the tank ventilation or evaporative system.

## CAUSE

Leakage is detected in the tank ventilation or evaporative system.

## PROCEDURE

1. Run the Tank Leakage (DMTL) test plan, using the current diagnostic device loaded with the latest software. If a leak has been detected, remove the fuel cap and inspect for damage, i.e., the seal is torn; the seal is worn; or the seal is curling. If any damage is detected, replace the fuel cap and run the Tank Leakage (DMTL) test plan again, to check repair effectiveness.
2. If no damage has been detected, reinstall the cap and run the DMTL test plan again.
3. If the system is now leak-proof, the customer may have incorrectly installed the fuel cap. No further action is necessary. Advise the customer that after refueling, the cap must be fitted tightly until a click is heard.
4. If the system continues to leak, refer to SI M16 01 07 for detailed leak diagnosis procedures; replace any parts that were identified as leaking.



Covered under the terms of the MINI New Vehicle Limited Warranty.

For vehicles where the **fuel cap was identified as leaking**:

**Defect Code:** 16 11 02 48 00

<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
-------------------------	-------------------------	---------------------

16 00 102	Refer to KSD	Checking fuel tank and tank venting system for leaks
-----------	--------------	--

For vehicles where the **fuel cap was identified as leaking**:

**Defect Code:** 16 11 02 48 00

<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
-------------------------	-------------------------	---------------------

16 00 102	Refer to KSD	Checking fuel tank and tank venting system for leaks
-----------	--------------	--

\*Main Work with tank leakage diagnosis module (DMTL)

or

16 00 502	Refer to KSD	Checking fuel tank and tank venting system for leaks
-----------	--------------	--

+ Associated Work with tank leakage diagnosis module (DMTL)

For vehicles which had the **DMTL test plan completed successfully (no leak in the system)**:

**Defect Code:** 16 13 91 87 00

<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
-------------------------	-------------------------	---------------------

16 00 102	Refer to KSD	Checking fuel tank and tank venting system for leaks
-----------	--------------	--

\*Main Work with tank leakage diagnosis module (DMTL)

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

If the vehicle has a leak in the system other than the fuel cap then refer to KSD for appropriate Defect Code, Labor Operation and Labor Allowance

## WARRANTY INFORMATION

Technical Service Bulletin # **610109**

Date: **090301**

## Wipers/Washers - Windshield Washer Malfunctions

SI B61 01 09

General Electrical Systems

March 2009

Technical Service

### SUBJECT

Windshield Washer Malfunction

### MODEL

All models

**SITUATION**

The windshield washer jets spray a very low volume of fluid, or no fluid at all. In many cases, the strainer, located on the windshield washer fluid pump, has become clogged by debris or an algae-like substance.

**CAUSE**

A buildup of debris or the presence of an algae-like substance on the strainer

^ The buildup of debris is typically caused by particles remaining in the system from manufacturing, and primarily occurs on low-mileage vehicles.

^ The algae-like substance is typically caused by using non-approved washer fluid or straight water in the washer fluid reservoir.

**PROCEDURE**

1. Remove the washer fluid pump per Repair Instruction REP 61 71 100.
2. When the pump is removed, most of the existing washer fluid in the reservoir should be drained and properly discarded.
3. Replace the strainer, which is installed on the end of the pump. The updated strainer has a larger mesh to avoid future occurrences.
4. Do not replace the washer pump, provided that it is still functioning properly.
5. Refill the washer fluid reservoir with BMW washer fluid at the specified concentration.

Part Number	Description	Quantity
61 66 7 006 063	Strainer	1
83 12 0 405 186	Washer fluid – with Antifreeze	As needed
83 12 0 405 179	Washer fluid – without Antifreeze	As needed

**PARTS INFORMATION**

**Defect Code:** 61 66 03 76 00

Labor Operation:	Labor Allowance:	Description:
61 71 100*	Refer to KSD	Remove and install washer fluid pump
61 99 000	WT	Additional work to drain and fill the washer fluid reservoir

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

**WARRANTY INFORMATION**

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**Disclaimer**

Technical Service Bulletin # **M511308**

Date: **081201**

## Interior - Center Arm Rest Rattles While Driving

SI M 51 13 08

Body Equipment

December 2008

Technical Service

SUBJECT

Rattle from the Center Armrest

MODEL

R55, R56 (Cooper, Cooper S, Cooper Clubman, Cooper S Clubman) equipped with the Center Armrest (SA 473)

SITUATION

The base of the center armrest may rattle while driving over rough surfaces.

CAUSE



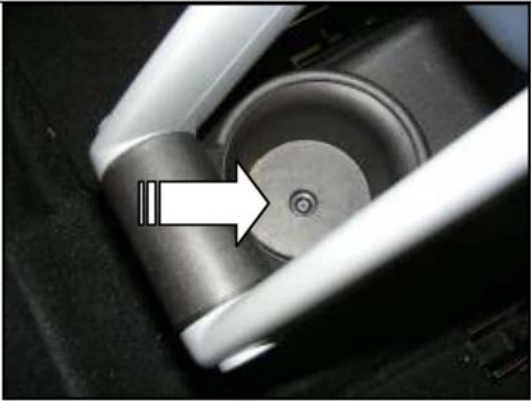
Hard contact between the plastic hinge of the armrest and the metal support bracket




CORRECTION

Apply felt tape to the contact point.

PROCEDURE

**SI M51 13 08**  
**Rattle from Center Armrest –**  
**Repair Procedure**

<b>Procedure</b>	1. Remove the screws at the left and right base of the armrest (T20).	
	2. Remove the side trim covers.	
	3. Remove the screw in the center of the rear cup holder (T20).	

	4. Remove the cup holder by carefully lifting it upwards from the console base, as well as from the armrest hinge.	
	5. Apply 2 strips of felt tape to the hinge supports, as shown.  The felt tape used should be 20mm long (3/4"), and should be located across the top (horizontal surface) of the support and down the front of the support (vertical surface).	
	6. Reassemble the armrest.  Note: When fitting the cup holder, make certain the rear bottom section fits the armrest casting, as shown.  Tighten the screws until snug.	

Refer to the procedure Above to access and isolate the contact point.

Part Number	Description	Quantity
11 12 7 568 034	Emblem	1

## PARTS INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty.

<b>Defect Code</b>	<b>99 99 01 01 00</b>	
Labor Operation:	11 99 000	Installing emblem
Labor Allowance:	2 FRU	

## WARRANTY INFORMATION

Technical Service Bulletin # **M650608**

Date: **090201**

## Audio System - CD Will Not Eject

SI M65 06 08

Audio, Navigation, Monitors, Alarms, SRS

February 2009

jmoraflores@hotmail.cl

This Service Information bulletin supersedes SI M65 06 08 dated June 2008.

[NEW] designates changes to this revision

SUBJECT  
CD Doesn't Eject

MODEL  
R55\* (Cooper Clubman, Cooper S Clubman)  
R56\* (Cooper, Cooper S)

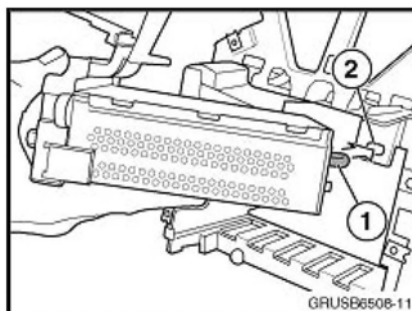
\*Only with MINI Boost CD Radio (option 6FC)

SITUATION  
Intermittently, the CD doesn't eject from the in-dash radio. If pressure is put on the front panel of the radio, the CD will eject.

CAUSE  
The radio is not fitted correctly in the bracket on the dashboard.

CORRECTION  
Do not replace parts!  
Remove the radio and reinstall it correctly.

PROCEDURE  
1. Remove the radio from the bracket in the dashboard.  
2. Reinstall the radio.



Ensure that the supporting pin (1) at the back of the radio is correctly fitted into the adjustment hole on the radio bracket (2).

3. Test the CD eject functionality after reassembling all parts.

Defect Code:	<b>NEW</b> 65 12 74 02 00	
Labor Operation:	Labor Allowance:	Description:
65 11 080*	Refer to KSD	Removing and installing radio receiver (installed unit)
*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.		

WARRANTY INFORMATION  
Covered under the terms of the MINI New Vehicle Limited Warranty.

**Body - One-Touch Window feature Inop. After FRM R & I**

SI M51 02 08

Body Equipment

February 2009

Technical Service

This Service Information bulletin supersedes SI M51 02 08 dated April 2008.

[NEW] designates changes to this revision

**SUBJECT**

[NEW] One-Touch Window Function Inactive After FRM Replacement

**MODEL**

R55 (Cooper Clubman, Cooper S Clubman)

R56 (Cooper, Cooper S)

**SITUATION**

After replacement of the FRM (Footwell Module) or after vehicle programming, the one-touch window control and anti-trap function on the front side windows is inactive.

**CAUSE**

FRM/power window regulator

**PROCEDURE**

Do not replace any parts.

[NEW] Reinitialize the power windows via the initialization test plan in ISTA. This test plan may be found under Service Functions/Body/Locking and Security/Power Windows/Initialize Power Window.

[NEW] As an alternative, the windows may be initialized manually, using the following procedure:

**[NEW] Note:**

This procedure replaces that in repair instruction 67 62..., which will be updated. The procedure shown in the repair manual is for vehicles without the one-touch window control.

1. Close the window and door fully.
2. Lower the window by holding the switch in the "down" position. Continue to hold the switch down for at least 5 seconds after the window has been fully lowered.
3. Raise the window by holding the switch in the "fully up" position. Continue to hold the switch in the up position for at least 5 seconds after the window has been fully raised.
4. Repeat steps 1 to 3 for the window on the other side.

Covered under the terms of the MINI New Vehicle Limited Warranty.

**Defect Code****61 35 05 15 00****Main Work\***

Labor Operation:	61 00 830	Initializing power windows and sunroof (together
Labor Allowance:	Refer to KSD	with programming control modules)

\*Main Work: Use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

**WARRANTY INFORMATION**

Technical Service Bulletin # **M230108**Date: **090101****M/T - Stiff 'Diagonal' Gear Shifts**

SI M 23 01 08

Manual Transmission

January 2009

Technical Service

This Service Information bulletin supersedes SI M23 01 08 dated July 2008.

[NEW] designates changes to this revision

**SUBJECT**

R55, R56 with Manual Transmission - "Stiff" Diagonal Gearshift

**MODEL**

R55, R56 with N12/N14 and Getrag 6-speed manual transmissions (GS6-53BG/55BG)

**SITUATION**

The customer may complain of a "stiff diagonal shift" (e.g., N-R, R-N, 2-3/3-2 or 4-5/5-4). Also, in some cases, gears cannot be selected, or the selector gear does not go into the neutral position.

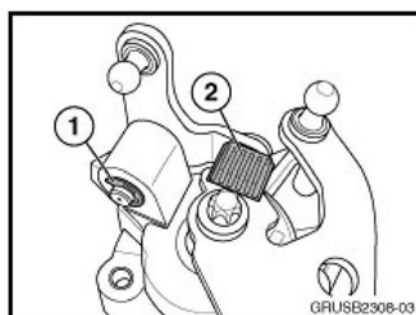
**[NEW] CAUSE**

1. The deflection lever circlip of the gearshift mechanism is damaged or missing.
2. Possible corrosion at the gearshift mechanism (shift cables or transmission gearshift unit)

**[NEW] SOLUTION**

First verify that the shift cables operate freely by disconnecting them from the transmission gearshift unit.

1. Inspect the shifting gear mechanism deflection lever for the missing or damaged circlip (1) and the plastic sliding sleeve (2).



2. Install or replace, if needed, using new parts P/N 23 11 7 593 200 (circlip) and P/N 23 11 7 593 217 (sliding sleeve).

In case the cables move freely after disconnection and the lever circlip and/or sliding sleeve are not found to be defective, then replace the transmission gearshift switching unit (P/N 23 11 7 587 353).

For the gearshift replacement procedure, refer to Repair Instruction RA23 11 310.

**NEW PARTS INFORMATION**

Part Number	Description	Quantity
23 11 7 593 200	Gearshift lever circlip	1
23 11 7 593 217	Sliding sleeve	1
23 11 7 587 353	Gearshift switching unit	1
23 11 7 568 464	M8x25 Torx screw	4

**[NEW] PARTS INFORMATION**



<b>Defect Code:</b>	<b>23 00 03 34 00</b>	
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
25 11 000*	WT	Inspect and replace lever circlip/sleeve
	Suggested Allowance	8 FRU
	OR	
25 11 007*	15 FRU	Replace shift unit
*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.		

## [NEW] WARRANTY INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty or the MINI NEXT Certified Pre-Owned Program.

Technical Service Bulletin # **M170109**

Date: **090501**

## Cooling System - MIL ON/ Code 2F22 Set

SI M 17 01 09

Cooling System

May 2009  
Technical Service

SUBJECT  
DME Fault Code 2F22 "Engine Temperature Plausibility"

MODEL  
R55, R56, R57 with N12, N14

### SITUATION

Service Engine Soon lamp is illuminated and the fault code 2F22 (Engine temperature plausibility) is stored in DME.

### CAUSE

The DME calculates an implausible signal from the coolant temperature sensor. The diagnostic influences on this signal include:

1. Engine speed
2. Heating output
3. Outside temperature
4. Warm-up phase condition

### CORRECTION

1. Check the coolant level: Check and repair any causes for leaks. After completing repairs, pressure test the system, including the overflow cap. Top up to correct level if needed.
2. Check the antifreeze condition: Ensure there is a sufficient 50/50 mix.
3. Bleed the system; Follow Repair Instruction RA17 00 005 for proper bleeding of the cooling system

### WARRANTY INFORMATION

For information only

Technical Service Bulletin # **M620307**

Date: **090401**

## Instruments - Fuel Gauge LED Flickering

April 2009  
Technical Service

This Service Information bulletin supersedes SI M62 03 07 dated November 2007.

[NEW] designates changes to this revision

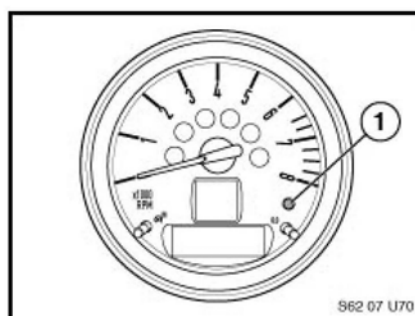
SUBJECT  
Change in Brightness of Fuel Gauge

MODEL  
[NEW] R55, R56 (Cooper Clubman, Cooper Clubman S, Cooper, Cooper S)  
[NEW] Vehicles produced August 31, 2006 to August 30, 2008

## SITUATION

Under certain circumstances, the illumination of the fuel gauge in the vehicle speedometer can change brightness when the vehicle is in motion.

## GENERAL INFORMATION



The brightness of the fuel gauge is controlled by a photosensor (1) located in the vehicle tachometer. The brightness control is designed in such a way that it rapidly responds to environmental influences. Due to the design of the system, it is possible for the fuel gauge illumination to flicker when the vehicle is driven on a road lined with many trees in cloudy weather. This is normal operation.

[NEW] PROCEDURE  
Explain how the brightness is controlled by the photosensor. The dimming behavior can be changed to a more gradually increasing characteristic curve. Note that once implemented, the change cannot be reversed.

Using the BMW Group diagnostic system loaded with ISTA D2.11.0 or higher, fault pattern selection - >6200 display and information system  
>620038 fuel gauge LEDs flicker.

### Note:

In vehicles manufactured since 01/09/08 or in the event of a repair involving a retrofitted speedometer unit produced after this date, this diagnostics job CANNOT affect the general characteristic curve!

<b>Defect Code:</b>	<b>62 11 06 18 00</b>		
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>	
62 99 000	3 FRU	Change dimming characteristic of fuel gauge	

[NEW] WARRANTY INFORMATION  
Covered under the terms of the MINI New Vehicle Limited Warranty.

Technical Service Bulletin # **M090109**

Date: **090801**

## Audio System - RAD2(R) Locks Up When Programming

SI M09 01 09  
Programming/Coding Explanations

August 2009  
Technical Service

**SUBJECT**

RAD2 Programming with ISTA/P 2.34.2 - No MOST Communication

**MODEL**

R56 (Cooper, Cooper S)

R55 (Cooper Clubman, Cooper S Clubman)

R57 (Cooper, Cooper S)

All vehicles equipped with option 6FC (Radio MINI boost CD, RAD2)

**SITUATION**

When programming a RAD2-equipped car with ISTA/P 2.34.2, a message is displayed: "During control module determination, it was ascertained that control modules connected to the MOST ring are not responding", followed by a second message that begins "The gateway GW is likely to be defective ....." The user is then asked to perform a gateway repair. After following the on-screen instructions, the measures plan directs to replace all MOST control modules.

**CAUSE**

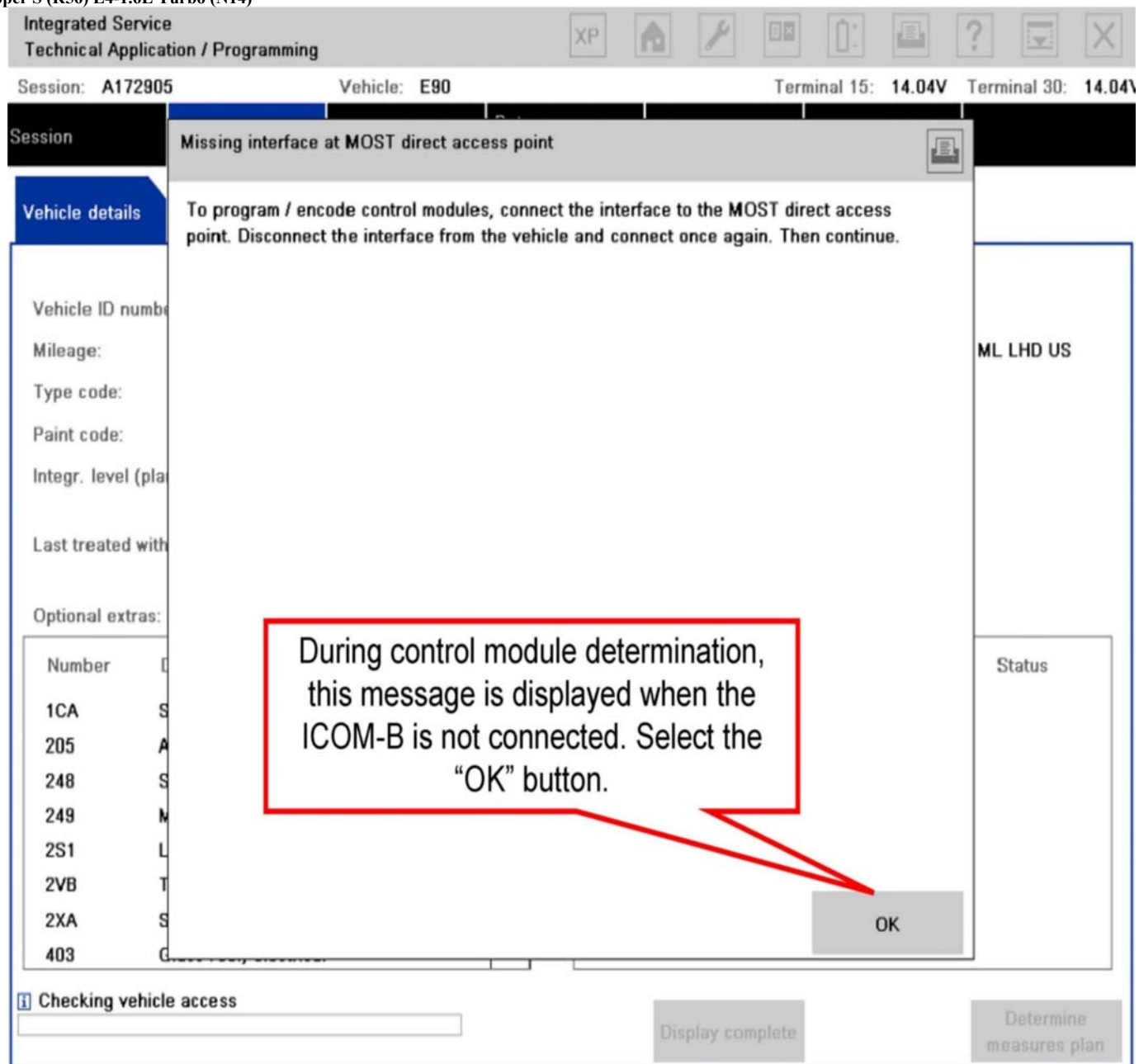
The RAD2 GW locks up during identification with ISTA/P 2.34.2, causing no communication on the MOST ring.

**PROCEDURE**

If the GW is already locked up (the radio is still works even if you lock the car, and no warning gong sounds), perform a battery reset for 15+ minutes.

^ Only connect an ICOM-A to the vehicle (do not connect an ICOM-B).

^ Start a new programming session.



^ Ignore the message that tells you that the MOST-bus is not connected by selecting the OK button (see attachment above).

^ Determine the measures plan.

Depending on the situation, follow 1) or 2) below:

Integrated Service  
Technical Application / Programming

Session: A172905 Vehicle: E90 Terminal 15: 14.56V Terminal 30: 14.56V

Display measures plan

Measures plan Control module tree Action list

Integr. level (actual) 0 Integr. level (target) E89X-09-06-510

Status	Action	Short name	Channel	Note
✓	Vehicle order ali...		DIAGBUS	
🔧	Save individual d...	DME/DDE	DIAGBUS	
🔧	Program P	DME/DDE	DIAGBUS	
🔧	Program P	EKP	DIAGBUS	
🔧	Program P	FZD	DIAGBUS	
🔧	Program P	SDARS	MOST	
🔧	Program P	ULF-SBX	MOST	
🔧	Code C	ULF-SBX	DIAGBUS	
🔧	Code C	EKP	DIAGBUS	
🔧	Code C	DME/DDE	DIAGBUS	
🔧	Code C	FZD	DIAGBUS	
🔧	Write individual ...	DME/DDE	DIAGBUS	

Back Display complete Accept measures plan

Check the measures plan if MOST modules have to be updated.

If MOST modules have to be updated, hook up the ICOM-B before you hit "Accept measures plan".

1. The measures plan shows that MOST modules have to be programmed (see attachment above):

Integrated Service  
Technical Application / Programming

Session: A172905 Vehicle: E90 Terminal 15: 14.51V Terminal 30: 14.51

Measures plan execution completed

Final report Control module tree Action list

After programming modules with the ICOM-B connected, the MOST-GW will lock up again. If so, perform another battery reset after you finished the session.

End programming

^ Hook up the ICOM-B and wait until you have 2 green lights on the ICOM-B. Then accept the measures plan. Programming will take place, but the GW will lock up again during post processing (see attachment above). If so, perform another battery reset for 15+ minutes.

2. The measures plan shows no MOST modules:

Accept the measures plan and programming will take place (do not connect the ICOM-B).

#### ATTACHMENTS

View attachment's shown above in the bulletin's contents.

Technical Service Bulletin # **M110309**

Date: **091202**

## Engine - Whistle Noise From The Water Pump Area

SI M 11 03 09

Engine

December 2009

Technical Service

This Service Information bulletin supersedes SI M11 03 09 dated December 2009.

[NEW] designates changes to this revision

SUBJECT

MODEL  
R55, R56, R57 produced up to June 2009

## SITUATION


A whistling or squealing noise is heard from the engine at idle and/or at higher engine speeds.

## CAUSE

1. Noise is caused by the water pump.
2. Noise is caused by the friction wheel of the belt tensioner.

## PROCEDURE

1. Run the engine up to the operating temperature. Confirm that the noise is coming from the area around the water pump during engine idle speed.
2. Increase the engine speed up to 1,000 rpm.
3. If a noise disappears at 1,000 rpm or higher, replace the water pump.
4. If a noise is still present at 1,000 rpm or higher, replace the friction wheel of the belt tensioner with the improved part, P/N 11 28 7 571 833. Refer to Repair Instruction RA11 28 035.

Part Number	Description	Quantity
 11 28 7 571 833	Friction wheel	1
11 51 7 550 484	Water pump	1

## PARTS INFORMATION

<b>Defect Code:</b>	<b>11 51 04 39 00</b>	
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
11 28 035*	Refer to KSD2	Replace friction wheel
or		

<b>Defect Code:</b>	<b>11 51 01 39 00</b>	
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
<b>11 51 000*</b>	Refer to KSD2	Replace water pump

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

## WARRANTY INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty.

Technical Service Bulletin # **M510108**

Date: **091001**

## Body - Window Control Functions Inactive

SI M51 01 08  
Body Equipment

October 2009  
Technical Service

This Service Information bulletin supersedes SI M51 01 08 dated September 2009.

[NEW] designates changes to this revision

**SUBJECT**

Window Control Function Inactive

**MODEL**

R55 (Cooper Clubman, Cooper S Clubman) produced from 12/2007 up to 4/2009

R56 (Cooper, Cooper S) produced from 12/2007 up to 4/2009

**SITUATION**

One or more of the following conditions may be present:

1. The one-touch open or close feature is inoperative.
2. The windows open automatically immediately after closing (anti-trap activation).
3. The window motor does not respond when the window switch is pressed briefly.
4. Fault codes 9CC7 or 9CC8 (power window Hall sensor faulty) are stored in the Footwell Module (FRM).
5. The window initialization check control message is displayed.

**CAUSE**

Initialization is lost and/or anti-trap protection is triggered unnecessarily, due to the sensitivity of the FRM software and the way in which it resets the Hall sensor counter on the window motor.

Typically, numerous operations of the window, without the window being fully opened, will trigger this loss of initialization. This is due to the fact that the Hall sensor counter is not being reset on a regular basis.

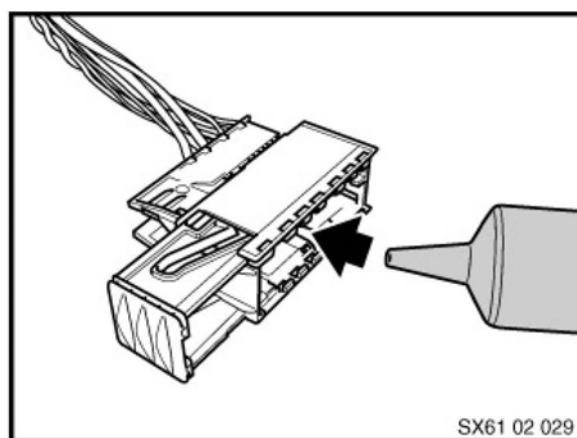
**CORRECTION**

A software solution is available.

The FRM no longer needs to be replaced for this situation.

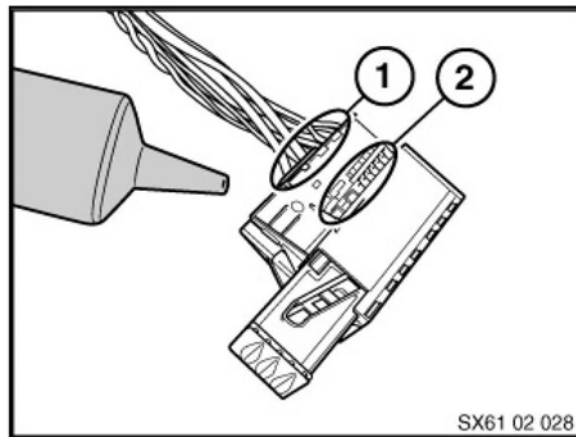
**PROCEDURE**

1. Connect the vehicle to ISTA and conduct a vehicle test.
2. If fault codes 9CC8 and/or 9CC7 are present in the FRM, continue to step 3. If these faults are not present, continue to step 7.
3. Inspect both the left and right side A-pillar connectors for signs of corrosion. If any corrosion is present, continue to step 4. If no corrosion is present, continue to step 7.
4. Replace all corroded pins on the body side of the connector. If the door side of the connector is also corroded, the door harness should be replaced.



5. Apply dielectric grease to the pin side of the connector.





6. Apply dielectric grease to the terminals (2), and between the wires (1) where they enter the connector on the terminal side of the connector.

7. Program the vehicle using ISTA/P 2.35.1 or later.

Note that ISTA/P will automatically reprogram and code all programmable control modules that do not have the latest software.

For information on programming and coding with ISTA/P, refer to Centernet / Aftersales Portal / Service / Workshop Technology / Vehicle Programming.

8. Reinitialize the power windows via the initialization test plan in ISTA D2.13.0 or later. This test plan may be found under Service Functions/Body/Locking and Security/Power Windows/Initialize Power Window.

At the completion of the initialization test plan, if "Unknown variant of control unit" is displayed, it should be ignored. It does not indicate a failure of the initialization

As an alternative, the windows may be initialized manually, using the following procedure:

**Note:**

This procedure replaces that in Repair Instruction 67 62..., which will be updated. The procedure shown in the repair manual is for vehicles without the one-touch window control.

- a. Close the window and door fully.
- b. Lower the window by holding the switch in the "down" position. Continue to hold the switch down for at least 5 seconds after the window has been fully lowered.
- c. Raise the window by holding the switch in the "fully up" position. Continue to hold the switch in the up position for at least 5 seconds after the window has been fully raised.
- d. Repeat steps 1 to 3 for the window on the other side.

Part Number	Description	Quantity
Refer to EPC	Terminals	If necessary
Refer to EPC	Door wiring harness	If necessary

**PARTS INFORMATION**

Covered under the terms of the MINI New Vehicle Limited Warranty or the MINI Next Certified Pre-Owned Program with the exception of procedure steps 3-6.

<b>Defect Code:</b>	<b>NEW 61 38 06 02 00</b>	
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
00 58 133*	Refer to KSD2	Program and code control unit[s] (w/o CAS) and initialize the windows.
+ 00 58 737	Refer to KSD2	Program and code control unit[s] (w/o CAS) and initialize the windows.
00 58 134*	Refer to KSD2	Program and code control unit[s] (w/ CAS) and initialize the windows.
+ 00 58 739	Refer to KSD2	Program and code control unit[s] (w/ CAS) and initialize the windows.
00 58 137*	Refer to KSD2	Program and code control unit[s] (w/o CAS), initialize the windows, check and grease one door

		harness connection.
+ 00 58 742	Refer to KSD2	Program and code control unit[s] (w/o CAS), initialize the windows, check and grease one door harness connection.
00 58 138*	Refer to KSD2	Program and code control unit[s] (w/o CAS), initialize the windows, check and grease both door harness connection.
+ 00 58 743	Refer to KSD2	Program and code control unit[s] (w/o CAS), initialize the windows, check and grease both door harness connection.
00 58 139*	Refer to KSD2	Program and code control unit[s] (w/ CAS), initialize the windows, check and grease one door harness connection
+ 00 58 744	Refer to KSD2	Program and code control unit[s] (w/ CAS), initialize the windows, check and grease one door harness connection.
00 58 140*	Refer to KSD2	Program and code control unit[s] (w/ CAS), initialize the windows, check and grease both door harness connection.
+ 00 58 745	Refer to KSD2	Program and code control unit[s] (w/ CAS), initialize the windows, check and grease both door harness connection.
00 58 145*	Refer to KSD2	Program and code control unit[s] (w/o CAS), initialize the windows, check, repair, and grease the left side door harness connection, and replace one door harness.
+ 00 58 750	Refer to KSD2	Program and code control unit[s] (w/o CAS), initialize the windows, check, repair, and grease the left side door harness connection, and replace

		one door harness.
00 58 146*	Refer to KSD2	Program and code control unit[s] (w/o CAS), initialize the windows, check, repair, and grease the right side door harness connection, and replace one door harness.
+ 00 58 751	Refer to KSD2	Program and code control unit[s] (w/o CAS), initialize the windows, check, repair, and grease the right side door harness connection, and replace one door harness.
00 58 147*	Refer to KSD2 )	Program and code control unit[s] (w/o CAS), initialize the windows, check, repair, and grease left and right side door harness connection, and replace both door harnesses.
+ 00 58 752	Refer to KSD2	Program and code control unit[s] (w/o CAS), initialize the windows, check, repair, and grease left and right side door harness connection, and replace both door harnesses.
00 58 148*	Refer to KSD2	Program and code control unit[s] (w/ CAS), initialize  the windows, check, repair, and grease left side door  harness connection, and replace one door harness.
+ 00 58 753	Refer to KSD2	Program and code control unit[s] (w/ CAS), initialize  the windows, check, repair, and grease left side door  harness connection, and replace one door harness.
00 58 149*	Refer to KSD2	Program and code control unit[s] (w/ CAS), initialize the windows, check, repair, and grease right side door harness connection, and replace one door harness.

+ 00 58 754

Refer to KSD2

)

Program and code control unit[s] (w/ CAS),  
initialize the windows, check, repair, and grease  
right side door harness connection, and  
replace one door harness.

00 58 150\*

Refer to KSD2

Program and code control unit[s] (w/ CAS),  
initialize the windows, check, repair, and grease  
left and right side door harness connection,  
and replace both door harnesses.

+ 00 58 755

Refer to KSD2

Program and code control unit[s] (w/ CAS),  
initialize the windows, check, repair, and grease  
left and right side door harness connection,  
and replace both door harnesses.

Labor time allowances can be located in the KSD2 by entering the VIN, clicking on the **Search** button and then entering the listed flat rate in the **FR code** field.

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to the associated (+) labor operation code.

NOTE: As the FRM no longer needs to be replaced for this situation, claiming that part in reference to this SIB will result in a denied claim.

#### WARRANTY INFORMATION

Technical Service Bulletin # **M330209**

Date: **100101**

### Suspension - Rear End Knocking Noise On Bumps

SI M33 02 09  
rear Axle

January 2010  
Technical Service

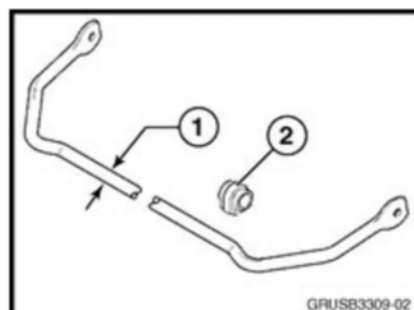
SUBJECT  
Rattling and/or Knocking Noise from the Rear Axle

MODEL  
R55, R56, R57 without Sport Suspension

SITUATION  
A rattling and/or knocking noise may be heard from the rear axle and/or rear suspension while driving over uneven roads.

CAUSE  
The inner diameter of the stabilizer bar mounts may be too large for this application.

#### PROCEDURE



Use a caliper gauge to determine whether the rear stabilizer bar is 16mm (1) (non-sports suspension). If the stabilizer bar is 16mm, replace the stabilizer mounts (2) with P/N 33 55 6 754 823.

Part Number	Description	Quantity
33 55 6 754 823	Stabilizer mount	2

PARTS INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty

Defect Code:	33 55 01 39 00	
Labor Operation:	Labor Allowance:	Description:
33 55 021*	Refer to KSD2	Replacing both rubber mounts for stabilizer
*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.		

WARRANTY INFORMATION

Technical Service Bulletin # **M070110** Date: **100101**

Computers/Controls - Code S0001 After Quick Delete

SI M 07 01 10  
Workshop Environment Systems

January 2010  
Technical Service

SUBJECT  
ISTA Fault Code "S0001" Entries Still Present After Quick Delete

MODEL  
All

SITUATION  
When a vehicle test is performed and control modules are not responding (modules shown in yellow in the control module tree), a fault code starting with an "S" and followed by a 4 digit number, such as "S0001 No communication possible", is displayed. After finishing diagnosis and deleting the fault memory of the vehicle, these control module faults are not deleted and are still displayed in the fault memory list.

CAUSE  
These service fault code entries are known as virtual fault code entries for each control module that does not respond. However, when "Quick delete" is performed and the service fault code entries are only momentarily deleted but return right away, this is an ISTA error.

PROCEDURE  
ISTA will calculate the test plan to check the power supply of each control module that did not respond during the vehicle test.

1. Complete the test plan(s) until the problem is identified and corrected.
2. Delete the fault memory by selecting "Start quick delete" from the "Fault memory" screen.
3. If the "S0001 No communication possible" faults are still displayed, switch to the "Vehicle test" screen.
4. Highlight the control module not responding (yellow).
5. Select "Call up ECU functions".
6. Select "ECU test".
7. Once "ECU status:" changes to "ECU responding", the service fault code entry for that control module is deleted from the fault memory list, and the control module status in the "Vehicle test" screen turns to green.

8. Continue this procedure for each control module that did not respond during the initial vehicle test.

This error will be corrected in ISTA D2.19.0.

## WARRANTY

For information only

Technical Service Bulletin # **653209**

Date: **091101**

## Audio System - Interference/Noise From Door Speakers

SI B 65 32 09

Audio, Navigation, Monitors, Alarms, SRS

November 2009

Technical Service

## SUBJECT

Interference Noise from the Loudspeakers

## MODEL

All

## SITUATION

Interference noise from the door loudspeakers can be heard in all audio modes.

## CAUSE

Cause 1: The door panel is improperly fitted (torsion, stress, etc.).

Cause 2: The loudspeaker wiring or the loudspeaker itself is damaged.

## CORRECTION

Work through the appropriate test modules integrated in ISTA diagnosis.

Cause 1: Test module W6513\_WAS1 Noise from speaker (refer to Attachment A).

Cause 2: Test module B6512\_AudioCICR-Speaker (refer to Attachment B).

### Cause1:

**Defect Code:** 51 41 00 39 00

**Labor Operation:** **Labor Allowance:** **Description:**

Refer to KSD	Refer to KSD	Door trim panel, front (incl. module carrier, front)
		Unpleasant noise

**Defect Code:** 51 42 00 39 00

**Labor Operation:** **Labor Allowance:** **Description:**

Refer to KSD	Refer to KSD	Door trim panel, rear (incl. module carrier, rear)
		Unpleasant noise

### Cause2:

**Defect Code:** 65 12 00 39 00

**Labor Operation:** **Labor Allowance:** **Description:**

Refer to KSD	Refer to KSD	Speaker (including speaker carrier)
		Unpleasant noise

## WARRANTY INFORMATION

jmoraflores@hotmail.cl

## ATTACHMENTS

### B653209 Attachment\_A

#### PROCEDURE

Integrated Service  
Technical Application

Vehicle: 3YE3110URING/026UN03AUT0USA LEFT HAND DRIVE/2009S

Identification Vehicle test Activities Service plan

Information search Guided troubleshooting Programming/encoding Service function Workshop/Operating fluids Measuring devices

Product structure Function structure Components and signals Text search

Search term:  
W6513\_WAS1 Noise from speaker

☒ Search for document title  
☐ Search within the document  
☐ Search for document number

Filter: Default

Keyboard Filters Start search

1. After finishing the "Vehicle Identification" and the "Short Test", select "Activities" > "Information search" > "Text search".

In "Search term", enter:

**W6513\_WAS1 Noise from speaker**

Select "Start search".

Integrated Service  
Technical Application

Vehicle: 3YE3110URING/026UN03AUT0USA LEFT HAND DRIVE/2009S

Identification Vehicle test Activities Service plan

Filter Test plan

Note	Type	Title	Status
		Text search document title: W6513_WAS1 Noise from speaker	
	ABC	W6513_WAS1 Noise from speaker	

Hit: 1 Filter: Default ☐ not called ☐ performed ☐ analyzed ☒ canceled

Back Filters Display all Display

2. In the menu "Service plan" > "Hit list", select ABL "W6513\_WAS1 Noise from speaker", and select "Display" to start the test plan.

Integrated Service  
Technical Application

Vehicle: 3YE3110URING/026UN03AUT0USA LEFT HAND DRIVE/2009S

W6513\_WAS1 Noise from speaker

Procedure

Remove trim cover from faulty speaker. Test speaker in radio or CD mode.

Can speaker noise still be heard after removing the trim cover?

☐ Yes  
☒ No

Back Measuring devices Keyboard Update Continue

3. Before starting the following test step in the menu "Procedure", remove the trim cover from the faulty speaker (refer to RA 51 41 000 Removing and retrofitting/replacing the front left/right door panel).

NOTE: Test speaker in radio and CD mode.

Select either:

**Yes**

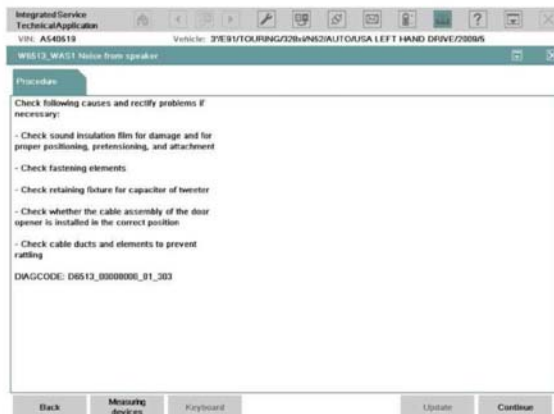
or

**No,**

depending on whether the speaker noise can still be heard after removing the trim cover or not.

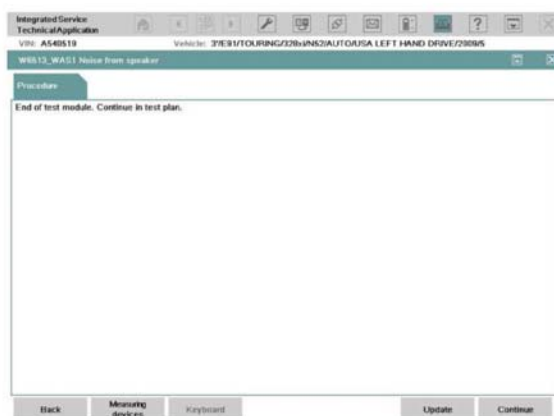
Press "Continue" to work through the appropriate test modules.





4. When "No" was selected (interference noise cannot be heard anymore), check the possible causes displayed on the screen and rectify the problems.

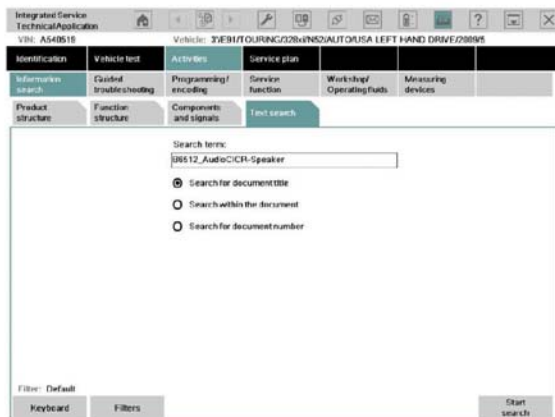
5. Press "Continue".



6. At "End of test module", press "Continue".

7. Reassemble the door trim panel and retest to ensure that the interference noise is eliminated.

view PDF attachment B653209\_Attachment\_A.

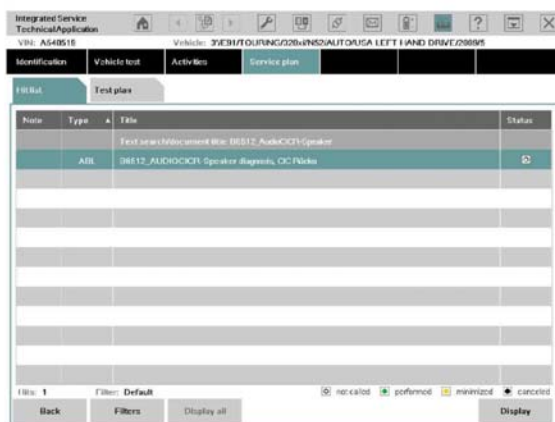
**PROCEDURE**

1. After finishing the "Vehicle Identification" and the "Short Test", select "Activities" > "Information search" > "Text search".

In "Search term", enter:

**B6512\_AudioCICR-Speaker**

Select "Start search".



2. In the menu "Service plan" > "Hit list", select ABL "B6512\_AudioCICR-Speaker diagnosis, CIC-Ruecko", and select "Display" to start the test plan.



3. In the menu "version query", select either:

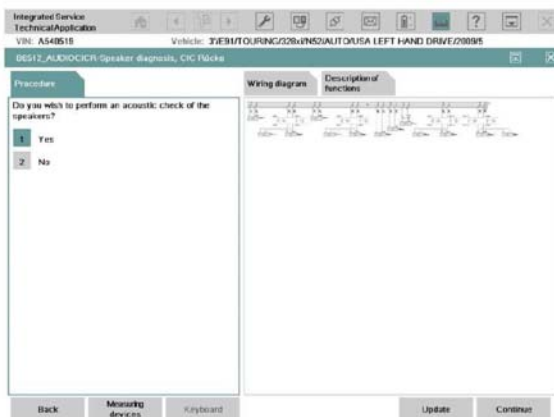
**Yes**

or

**No,**

depending of whether a "Stereo system – stereo" is fitted in the vehicle or not.

Press "OK".



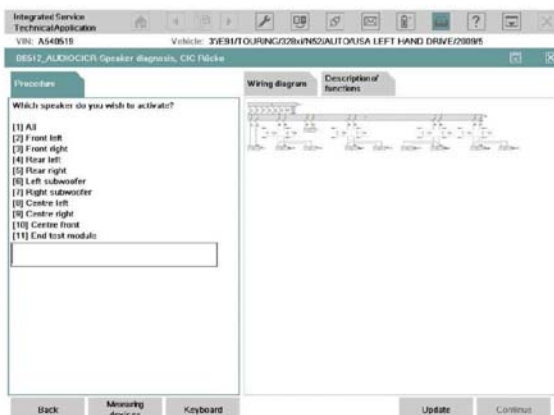
4. In the menu "Procedure" > "Do you wish to perform an acoustic check of the speakers", select either,

**Yes**

or

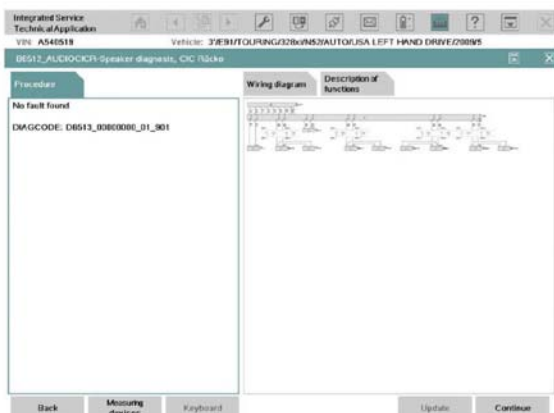
**No,**

Select "Continue".



5. When "Yes" was selected, in the next step select the loudspeaker you wish to activate (enter the number) and select "Continue".

6. Follow the on-screen instructions for the next test steps.



7. At the end of the test, a DIAGCODE will be displayed.

Select "Continue".

8. Follow the on-screen instructions to end the test plan.

view PDF attachment B653209\_Attachment\_B.

## ★ ★ FIX IT RIGHT THE FIRST TIME, ON TIME, EVERY TIME ★ ★

For administrative convenience and to reduce costs, this bulletin may contain repair procedures for authorized BMW car centers and/or authorized BMW SAV centers. All references to SAVs and/or the X5 are ONLY intended for authorized BMW SAV centers. Furthermore, ONLY BMW SAV centers are authorized to perform repair and service work on SAVs.

Disclaimer Technical Service Bulletin # **M610507**

Date: **091101**

## Electrical - Various Electrical Malfunctions

SI M 61 05 07

General Electrical Systems

November 2009

Technical Service

This Service Information bulletin supersedes SI M61 05 07 dated September 2007.

[NEW] designates changes to this revision

## SUBJECT

Bad Ground Causes Various Electrical Problems

## MODEL

[NEW] R55 (Cooper Clubman, Cooper S Clubman)

R56 (Cooper, Cooper S)

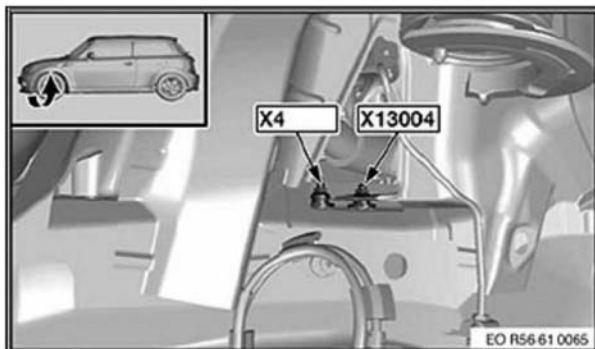
[NEW] R57 (Cooper Convertible, Cooper S Convertible)

## SITUATION

Various warning lights are illuminated, e.g., Airbag, ABS and DSC; electric windows or other systems are not working; and there is no communication with various control modules.

## CAUSE

Ground points X13004 and/or X4 are loose (not connected correctly).



Check and retighten ground points X13004 and X4, located in the **NEW** left side of the engine compartment.

## PROCEDURE

## WARRANTY INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty.

Please refer to the latest KSD for all applicable labor operations and allowances.

If the appropriate labor operation is not contained in KSD, then a work time labor operation should be used.

Defect Code Refer to KSD for the code that best represents the problem concerned.

Technical Service Bulletin # **M110308**

Date: **100101**

**Engine - Turbocharger Failure Prevention**

SI M 11 03 08

Engine

January 2010

Technical Service

This Service Information bulletin supersedes SI M11 03 08 dated July 2008.

[NEW] designates changes to this revision

## SUBJECT

Turbocharger Failure - Oil Supply Line Blockage

## MODEL

[NEW]R55 (Cooper Clubman S) with N14 engine

[NEW]R56 (Cooper S) with N14 engine

[NEW]R57 (Cooper S Convertible) with N14 engine

[NEW] Vehicles produced up to December 15th, 2009

## SITUATION

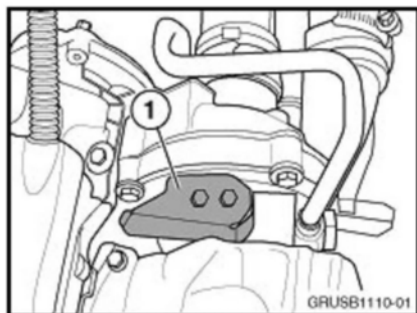
The customer complains of loss of performance and turbocharger noise.

## CAUSE

The turbocharger oil supply may be restricted, causing oil starvation and resulting in the seizing of the turbocharger assembly.

## [NEW]PROCEDURE

Upon replacement of the turbocharger assembly, always remove and inspect the oil supply lines for blockage or restriction. Ensure that the lines are not collapsed or kinked. Replace the lines if a blockage or restriction is detected. Inspection of the oil supply lines will avoid repeated failure of the turbocharger assembly. In addition, a protective cover should be installed on the supply line, as seen in the illustration below.



Protective cover (1)

## [NEW]PARTS INFORMATION

**NEW PARTS INFORMATION**

Part Number	Description	Quantity
11 65 7 534 454	Oil supply line	1
11 65 7 603 484	Cover	1

## WARRANTY INFORMATION

For information only

Technical Service Bulletin # **M240108**

Date: **100301**

**A/T - Gear Indicator Warning Lamp ON/Code A0B6**

SI M 24 01 08

Automatic Transmission

March 2010

Technical Service

This Service Information bulletin supersedes SI M24 01 08 dated August 2008.

[NEW] designates changes to this revision

## SUBJECT

R55, R56, [NEW]R57 with F21 Transmission - {NEW}Warning Light Illuminated with FC A0B6

## MODEL

R55, R56, [NEW]R57 (Cooper, Cooper S) with F21 ASIN 6-speed automatic transmission

## [NEW]SITUATION

Intermittently, the transmission warning lamp ("gear indicator") is displayed (in some instances, when the ignition is turned off). Also, the selector lever could not be moved out of the P position. Fault code A0B6 (Selector lever interlock signal, above threshold) may be stored in the CAS module.

## [NEW]CAUSE

Incorrect adjustment of the gearshift cable at the transmission selector level

## [NEW]CORRECTION

Adjust the gearshift selector cable according to Repair Instruction RA24 10 018. After the adjustment is performed, the M8 tightening nut of the

Do not replace any components. Clear the fault memory and test drive the vehicle.

**Note:**

On vehicles produced from 03/01/2008 to 03/31/2008, if fault code A0B6 is stored in the CAS module, the Steptronic gearshift assembly (P/N 25 16 7 577 589) should be replaced. For the replacement procedure, refer to RA25 16 056.

**WARRANTY INFORMATION**

Covered under the terms of the MINI New Vehicle Limited Warranty.

**Defect Code:** 25 16 09 66 00

**Labor Operation:** **Labor Allowance:** **Description:**

25 16 175\* 6 FRU Adjusting gearshift interlock cable

OR

25 16 056\* 18 FRU Replace Steptronic gearshift assembly

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this

is not the main repair, refer to KSD for the associated (+) labor operation code.

**WARRANTY INFORMATION**

Technical Service Bulletin # **M640208**

Date: **100501**

**A/C, Cooling System - Footwell Area Becomes Hot**

SI M 64 02 08

Heating and Air Conditioning

May 2010

Technical Service

This Service Information bulletin supersedes SI B M64 02 09 dated June 2008.

[NEW] designates changes to this revision

**SUBJECT**

Driver Footwell Area Becomes Hot

**MODEL**

R56 (Cooper, Cooper S)

**SITUATION**

The customer states that the driver footwell area becomes too hot once the vehicle warms up. Adjusting the climate control system has no effect.

**CAUSE**

The heater core pipes are poorly insulated.

**PROCEDURE**

[NEW] Follow the procedure outlined in the attachment to this Service Information bulletin.

**PARTS INFORMATION**

Part Number	Description	Quantity
64 11 3 453 594	Insulating Foam	1

**PARTS INFORMATION**



**WARRANTY INFORMATION**

Covered under the terms of the BMW New Vehicle Limited Warranty.

**Defect Code:****NEW** 64 11 01 79 00**Labor Operation:**

64 99 000

**Labor Allowance:**

5 FRU

**Description:**

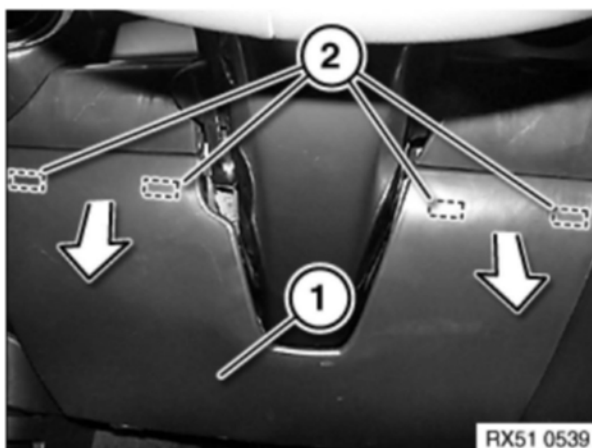
Install Insulating Foam

WARRANTY INFORMATION

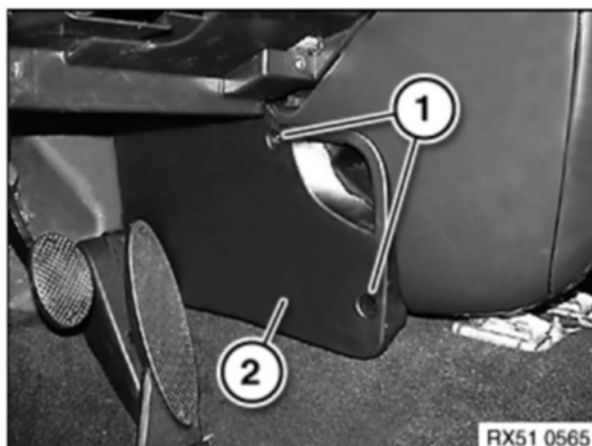
ATTACHMENTS

**SI M64 02 08 - Procedure for installing insulating foam      June 2008**

1. Remove the three screws (1) from the dash trim panel.



2. Unclip the bottom instrument panel trim (1) from the retaining clips (2) and remove.



3. Remove the 2 screws (1) and remove the panel toward the rear of the vehicle.



4. Install the foam around the heater pipe as shown in the picture.
5. Ensure that the foam covers the entire pipe up to the clamp at the heater core.
6. Secure the foam using cable ties. Cut off any excess cable tie and ensure that the cable tie will not contact the cover once installed.
7. Reinstall the heater core cover.
8. Reinstall the dash panel trim cover.

Attachment - M640208 Procedure.

Technical Service Bulletin # **M110207**

Date: **100402**

## Engine - Cold Start Up Rattling Noises

SI M 11 02 07

Engine

April 2010

Technical Service

This Service Information bulletin supersedes SI M11 02 07 dated April 2010.

[NEW] designates changes to this revision

### SUBJECT

Rattle Noise from Engine

### MODEL

R55 Cooper S with N14 engine

R56 Cooper S with N14 engine

From start of production up May 4th, 2009

### SITUATION

The customer complains of a rattle noise from the engine during cold start-up - most often at the 1,600-1,800 rpm range, or in some instances (elongated timing chain) from the idle speed up to 2,000 rpm.

The rattle noise occurs more frequently when driving short distances.

The noise is more prevalent when the outside temperature is approximately 15° Celsius (59° Fahrenheit) or below.

### CAUSE

The complaint can be caused by one or both of the following reasons:

^ Insufficient tension of the timing chain

^ The chain tensioner has not been bled sufficiently.

### PROCEDURE

Work through the following procedure in order to eliminate other possible causes:

1. If a fault is stored in the DME memory (e.g., misfiring, VANOS, etc.), then work through all relevant test plans first.
2. A one-off short shrill will be heard within the first two seconds of engine operation. This is an inherent noise caused by the first regulation cycle of the engine oil pump. This is normal operation and no parts should be replaced.
3. If the noise appears to be coming from the valve cover or the vacuum pump area, refer to SI M11 02 08. To verify the source of the noise, disconnect the vacuum hose from the mechanical vacuum pump to eliminate the knocking noise. This is not a failure of the mechanical vacuum



4. Ensure that the noise is not created or eliminated by depressing the clutch pedal, if equipped.

5. Disconnect the electrical connector from the tank ventilation valve. If the noise disappears when the connector is removed, reconnect to verify whether the noise returns. If the noise returns, replace the tank ventilation valve.

If all of the steps above are unsuccessful in eliminating the noise, please proceed to step 6.

6. Remove the right-hand wheel arch trim to access the crankshaft central bolt.

7. Disconnect the battery, remove ignition coils and spark plugs. Turn the engine by hand to move the flywheel to approximately 90° before TDC.

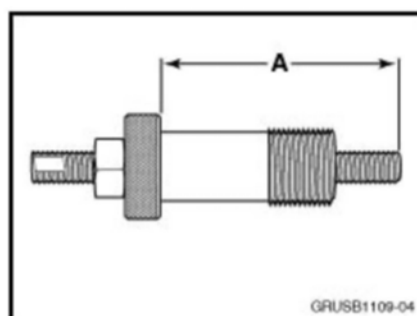


8. Install the locating pin (Special Tool 11 9 590) to lock the position of the engine.

9. Remove the chain tensioner and collect the residual oil with a shop towel.



10. Fit the chain tensioner (Special Tool 11 9 340) without the seal ring and with the lock nut loose. Pretension the chain tensioner with Special Tool 00 9 250 to 0.6 Nm. Finger-tighten the lock nut on Special Tool 11 9 340.



11. Remove the chain tensioner (Special Tool 11 9 340) from the engine, with the lock nut still tight. Measure the distance (A), as described in the illustration.

12. If distance (A) is less than 68mm (and the noise can be reproduced only between 1,600-1,800 rpm), then only replace the chain tensioner with P/N 11 31 7 607 551 (refer to parts list A), as per Repair Instruction REP 11 31 090 (Installing and removing/replacing chain tensioner piston N14).

13. If distance (A) is 68mm or greater (and the noise is reproducible both at 1,600-1,800 rpm range as well as at idle speed when cold), replace the following components in the list below (refer to parts list B). If you are uncertain regarding repair attempts already made, each chain tensioner part number is stamped on the outer sleeve. It must be removed from the engine in order to read the part number.

^ Chain tensioner P/N 11 31 7 597 895 only!

**Note:**

- ^ Timing chain
- ^ Guide rail
- ^ Tensioner rail
- ^ Sliding rail
- ^ Sprocket on the crankshaft

Bearing bolts for the tensioner and guide rails

Refer to Repair Instruction REP 11 31 051 (Replacing timing chain N14).

Refer to the EPC for additional parts required, i.e., gaskets, seals, etc.

#### **NEW** 11 21 Crankshaft and Bearings

1 AZ	Type	Thread	Tightening	Measure
Torsion	N14	M14 x 1.5 x 74	specification	
Dampener (hub) to crankshaft (central bolt)			Replace screws	
			Lightly oil screws and threads	
			Jointing torque	50 Nm
			Torque angle	180°

[NEW] The incorrect crankshaft central bolt tightening torque is stated in the current release of ISTA. Disregard the torque specified in the current Repair Instructions when performing repairs that include replacing the crankshaft central bolt, P/N 11 21 7 585 184. The torque specification information will be corrected in the release of ISTA/D 2.21. The correct torque specification is described below.

[NEW] Do not replace the hydraulic valve lifters (HV A), intake camshaft VANOS adjustment unit, or the exhaust camshaft sprocket for this type of noise. It is NOT necessary to obtain a Part Replacement Authorization (TeileClearing) for this specific issue. Refer to the Warranty section of this bulletin for more details.

14. After the repair is completed, reprogram the vehicle with the current ISTA/P version (2.37.0 or higher) to the target integration level R056-10-03-501 or higher.

Note that ISTA/P will automatically reprogram and code all programmable control modules that do not have the latest software.

For information on programming and coding with ISTA/P, refer to Centernet / Aftersales Portal / Service / Workshop Technology / Vehicle Programming.

**PARTS INFORMATION**

<b>Part Number</b>	<b>Description</b>	<b>Quantity</b>
<b>Parts List A</b>		
11 31 7 607 551	Chain tensioner	1
<b>Parts List B</b>		
11 31 7 597 895	Chain tensioner	1
11 31 7 534 251	Chain tensioner seal ring	1
11 31 7 534 784	Timing chain	1
11 31 7 568 241	Guide rail	1
11 31 7 534 833	Tensioner rail	1
11 31 7 534 771	Bearing bolt	1
11 31 7 534 768	Bearing bolt	2
11 31 7 550 461	Bearing bolt gasket ring A14x21	1
11 31 7 546 697	Slide rail	1
11 21 7 534 654	Crankshaft sprocket	1
<b>NEW</b> 11 21 7 585 184	Bolt	1

Refer to the EPC for additional gaskets, seals and bolts, as described in Repair Instruction REP 11 31 051.

**PARTS INFORMATION****WARRANTY INFORMATION**

Covered under the terms of the MINI New Vehicle Limited Warranty or the MINI NEXT Certified Pre-Owned Program.

<b>Defect Code</b>	<b>11 33 04 39 00</b>	
Labor Operation	11 99 000	Procedure steps 1-5

**Main Work**

Labor Allowance 4 FRU

Or

Labor Operation 11 99 000 Procedure steps 1-11

**Main Work**

Labor Allowance 10 FRU

Labor Operation: 11 31 090\* Replacing piston for timing chain  
+ Associated Work tensioner

Labor Allowance 5 FRU

or

Labor Operation: 11 31 051\* Replace timing chain (Parts list B)

+ Associated Work

Labor Allowance Refer to KSD2

Plus

Labor Operation Refer to KSD Reprogram/recode vehicle

Labor Allowance Refer to KSD2

Note: The following explanations will spell out the correct use of the work times.

**Main Work:** Use this labor operation number when the only repair performed is the listed warranty repair.

OR

**+Associated Work:** Use this labor operation number when other repairs or services are performed along with the listed warranty repair. Under no circumstances should both labor operation numbers be claimed. Attempts to claim both times will result in an unnecessary delay in claim processing and payment.

In cases where ISTA requires the replacement of control modules or additional programming because certain control modules failed to program correctly, print out the Measures Plan and Final Report and attach these reports to the RO in the vehicle file. This additional work should be claimed under the defect code listed in this bulletin, using the labor operation and labor allowance from the KSD2.

**Part replacement authorization is NOT required.** Do NOT submit a TeileClearing PuMA case. A copy of the diagnostic report (short test) must be kept with the Repair Order (RO) and FASTA data must be transmitted. When submitting a warranty claim, please include "replaced per SI M11 02 07" in the comments section.

## WARRANTY INFORMATION

Technical Service Bulletin # **M650110**Date: **100601****CCC - 'Please Insert Navigation DVD' appears On CID**

SI M 65 01 10

Audio, Navigation, Monitors, Alarms, SRS

June 2010

Technical Service

This Service Information bulletin supersedes SI M65 01 10 dated March 2010.

[NEW] designates changes to this revision

## SUBJECT

CCC - "Please Insert Navigation DVD" appears on CID

## MODEL

R55 (Cooper Clubman, Cooper Clubman S)

R56 (Cooper, Cooper S)

R57 (Cooper Convertible)

All vehicles produced from 9/2006 to 12/30/2009 and equipped with SA 609 (CCC Car Communication Computer)

## SITUATION

The navigation map DVD cannot be read or detected. The message "Please insert navigation DVD" appears in the CID (Central Information Display). The navigation system is inoperative.

## CAUSE

Faulty DVD drive; read error due to hardening of the anti-vibration gel on the read head

## PROCEDURE

Ensure that the map DVD is not faulty by swapping it with a map DVD known to work.

If the map DVD is not the problem, replace the DVD drive as per ISTA repair instructions "REP 6583580 Removing and installing/replacing DVD drive for Car Communication Computer".

## Note:

If the DVD drive is replaced, it is not necessary to replace the map DVD or program the vehicle.

Part Number	Description	Quantity
 65 83 9 241 764	DVD drive	1

## PARTS INFORMATION

Covered under the terms of the BMW New Vehicle Limited Warranty

**Defect Code:** 65 83 90 18 00

Labor Operation:	Labor Allowance:	Description:
00 58 306*	Refer to KSD2**	Replace the DVD drive for the Car

Communication

Computer

Labor Operation:	Labor Allowance:	Description:
+00 58 980	Refer to KSD2**	Replace the DVD drive for the Car
		Communication
		Computer

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, use the associated (+) labor operation code.

\*\* Labor time allowances can be located in the KSD2 by entering the VIN, clicking on the **Search** button and then entering the listed flat rate in the **FR code** field.

## WARRANTY INFORMATION

Technical Service Bulletin # **M540308**

Date: **100601**

## Body - Sunroof Won't Open In High Temperatures

SI M 54 03 08

Special Roofs

June 2010

Technical Service

This Service Information bulletin supersedes SI M54 03 08 dated July 2009.

[NEW] designates changes to this revision

jmoraflores@hotmail.cl

**SUBJECT**

Sunroof Will Not Open at High Temperatures

**MODEL**

R55, R56 (Cooper and Cooper S, Cooper Clubman and Cooper S Clubman)

**SITUATION**

At high ambient temperatures, typically above 90 degrees, the sunroof may not open from the fully closed position. When this occurs, the rear edge of the glass panels will rise by about 10mm and then either stall in that position or close again.

Assisting the glass by pressing upward on it or allowing the sunroof to cool slightly will restore normal function.

**CAUSE**

The blocking protection feature of the sunroof drive is being activated due to the presence of higher than expected frictional forces in the sunroof cassette. Such forces are only present at very high temperatures, and caused by a lack of proper lubrication along with incorrectly adjusted glass panels.

**CORRECTION**

Adjust the glass panels and perform the recommended lubrication procedures.

It is not advised to replace the sunroof cassette for this situation.

**PROCEDURE**

If the sunroof is binding at a position other than when it is first starting to open or at significantly lower temperatures, a sunroof cassette problem may be present. Normal diagnostic procedures should be followed for these cases.

1. Perform a short test and ensure that no charging system or battery-related problems are present.

**NOTE:**

If the battery is not fully charged, a similar sunroof problem may be present.

2. Remove both the front and rear glass panels per Repair Instruction RA 5410240 (front) and RA 5410250 (rear).
3. Measure the gap on the left and right side of the cassette, between the rear edge of the wind deflector base and the leading edge of the sliding mechanism.
  - a. If the gap on the left side is equal to that of the right side, continue to step 4.
  - b. If the gap is not equal, remove the sunroof drive per Repair Instruction RA 6761515.
  - c. Move one of the sliding mechanisms by hand until the spacing is equal on the left and right side.
  - d. Install the drive and operate the sunroof to ensure the sliders move together.
4. Use Kluberplex adhesive spray grease to thoroughly coat and lubricate the areas identified in the attached document.
5. Install the glass panels and adjust per Repair Instruction RA 5413002 with the following exceptions:
  - a. The front edge of the front panel should be 0.5 - 1.5mm lower than the roof line.
  - b. The rear edge of the front panel should be 0.5 - 1.5mm higher than the front edge of the rear panel.
  - c. The rear edge of the rear panel should be 0.5 - 1.5mm higher than the roof line.
6. Do not replace the perimeter seal unless it is damaged.
7. Initialize the sunroof with the engine running per Repair Instruction RA 5400...
  - a. Reinitializing the sunroof is essential to the effectiveness of this repair.
  - b. With the sunroof fully closed, hold the sunroof close switch at the first detent for approximately 20 seconds. Continue to hold until the sunroof completes one full cycle.
8. Cycle the sunroof at least 5 times to allow the lubricant to penetrate all moving parts of the sunroof cassette.

Part Number	Description	Quantity
83 22 0 397 761	Klüberplex adhesive grease	1
51 16 2 756 511	Sunroof panel screws	12

## PARTS INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty.

**Defect Code:** NEW 54 12 22 34 00

Labor Operation:	Labor Allowance:	Description:
54 10 240*	Refer to KSD	Removing and installing or replacing glass panel, front
+54 10 750	Refer to KSD	Removing and installing or replacing glass panel, rear
+54 13 502	Refer to KSD	Adjusting both slide/tilt sunroof glass panels
+54 99 000	2 FRU	Work time to lubricate the sunroof cassette

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

Sublet Code 4\*\* \$19.00 \*\* Reimbursement of up to the amount listed may be charged to sublet code 4 for the Adhesive Grease Spray (P/N 83 22 0 397 761) required to perform this repair. Claiming this part number outside of sublet code 4 will result in a delayed or denied claim payment.

## WARRANTY INFORMATION

## ATTACHMENTS

# SI M54 03 08

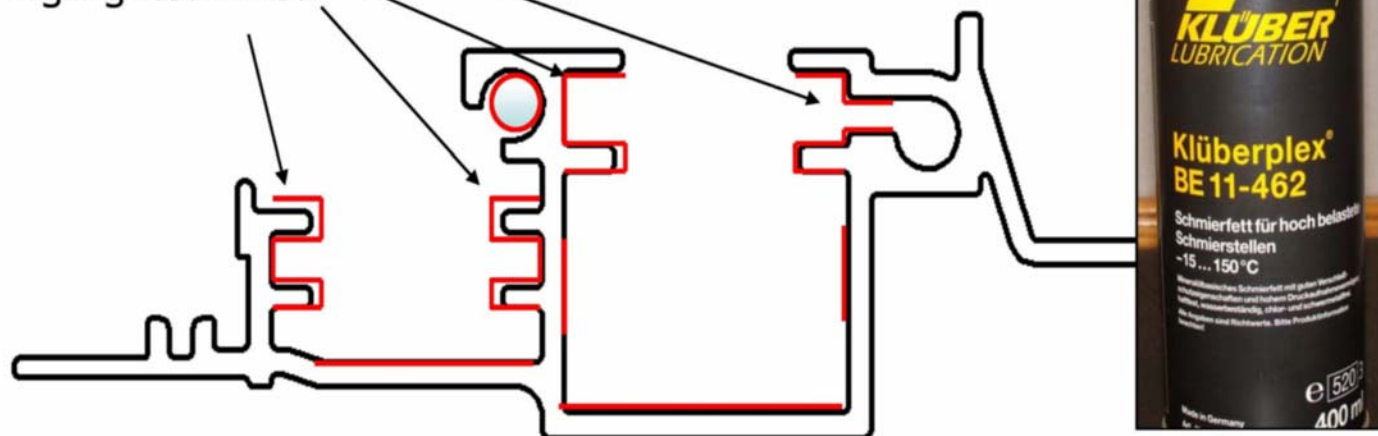
## R55/R56 Sunroof Lubrication Procedure



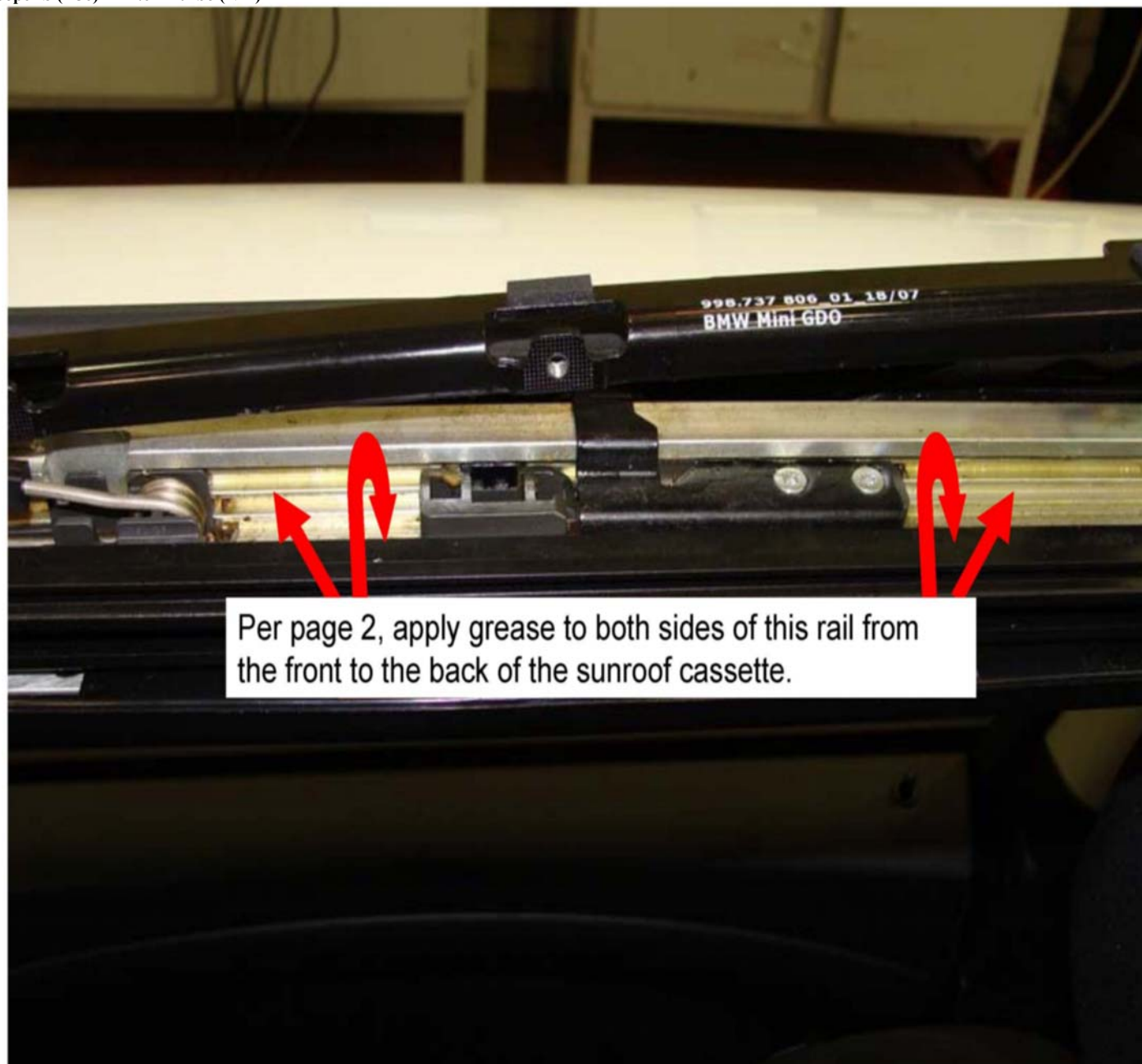


# Cross-sectional view of the aluminum guide rail

Grease needs to be added to all the areas highlighted in red

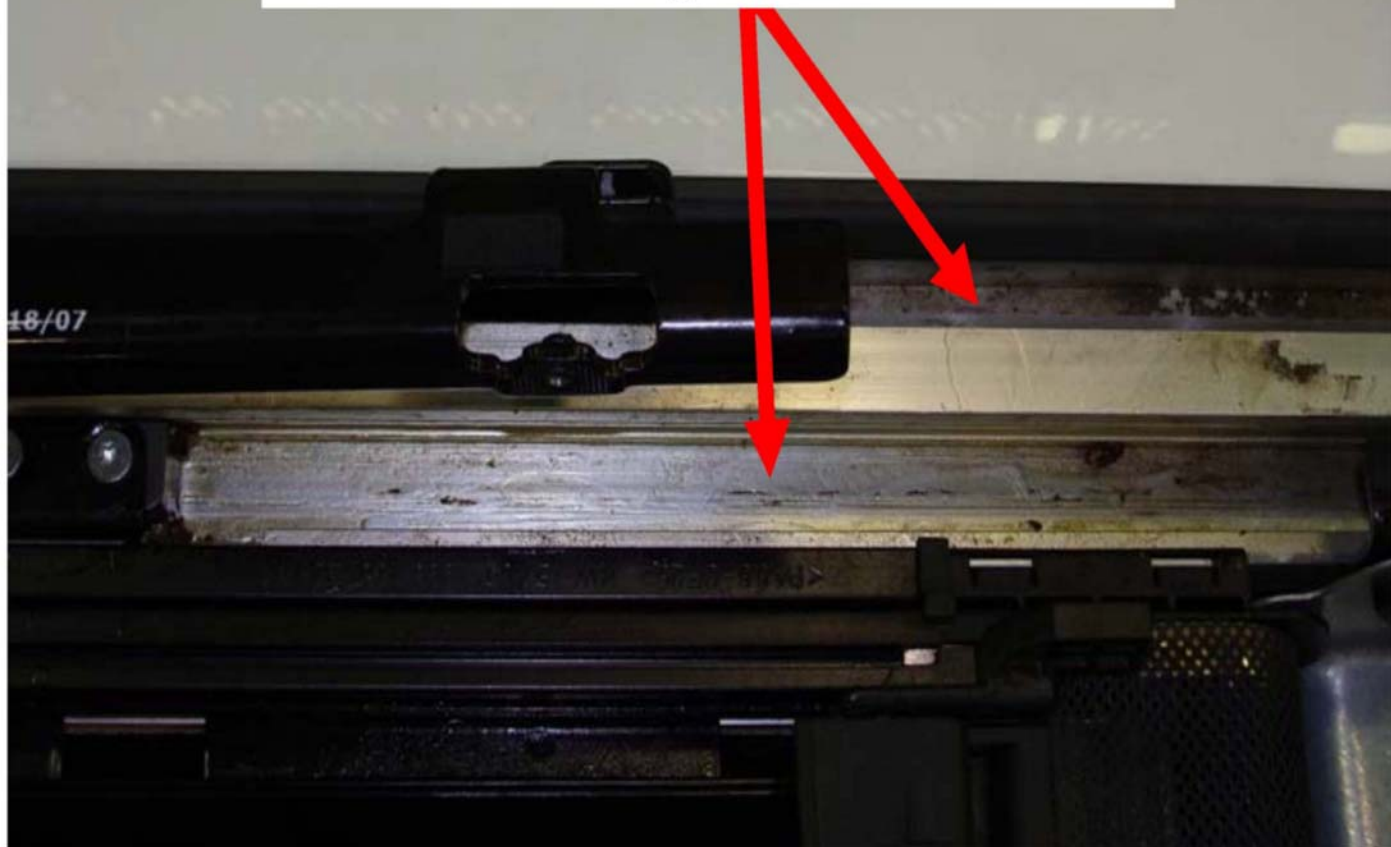


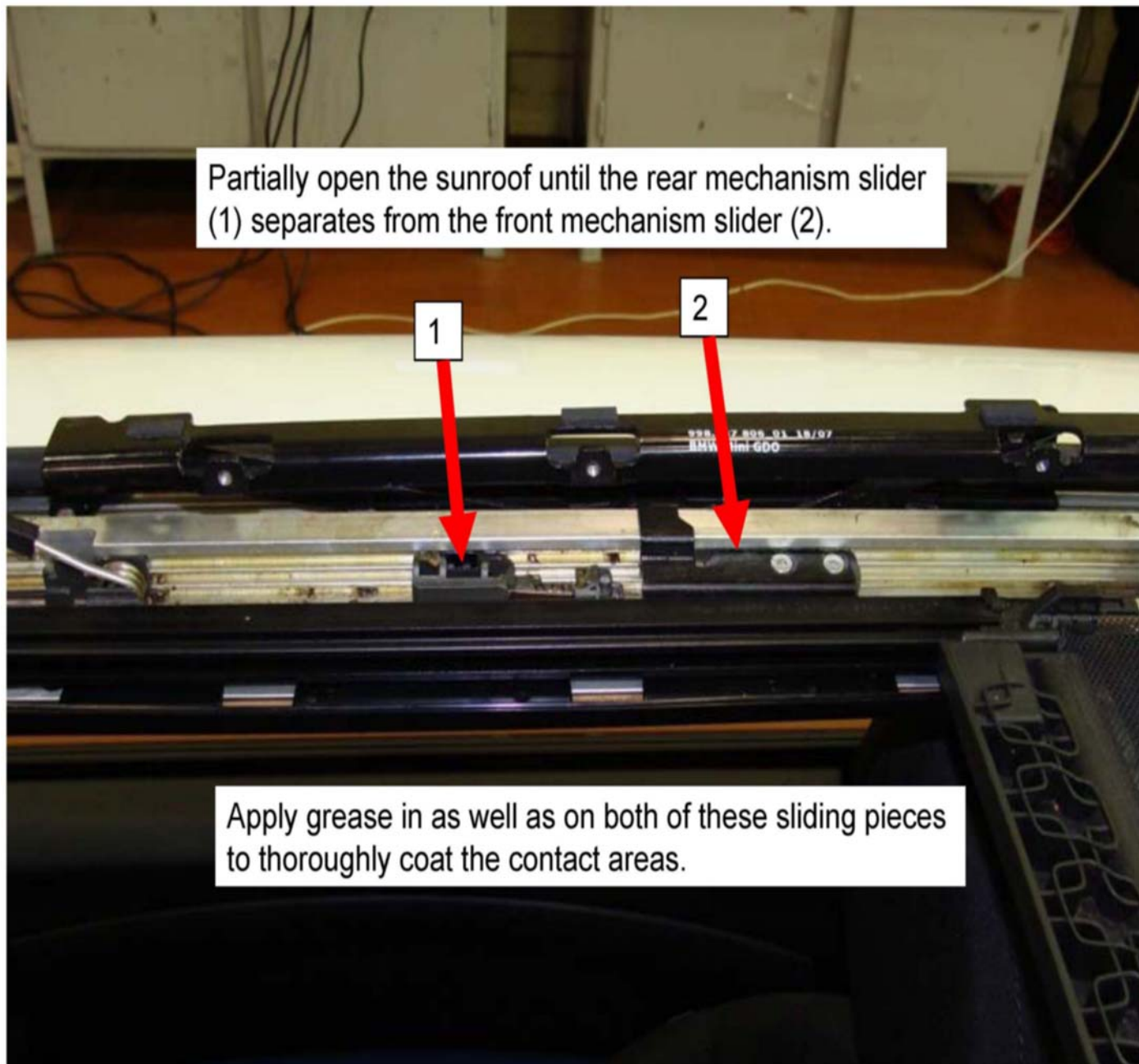
The cross-section to be lubricated should run the entire length of the guide on both the left and right side of the sunroof cassette. The following 2 pages will show this in more detail.



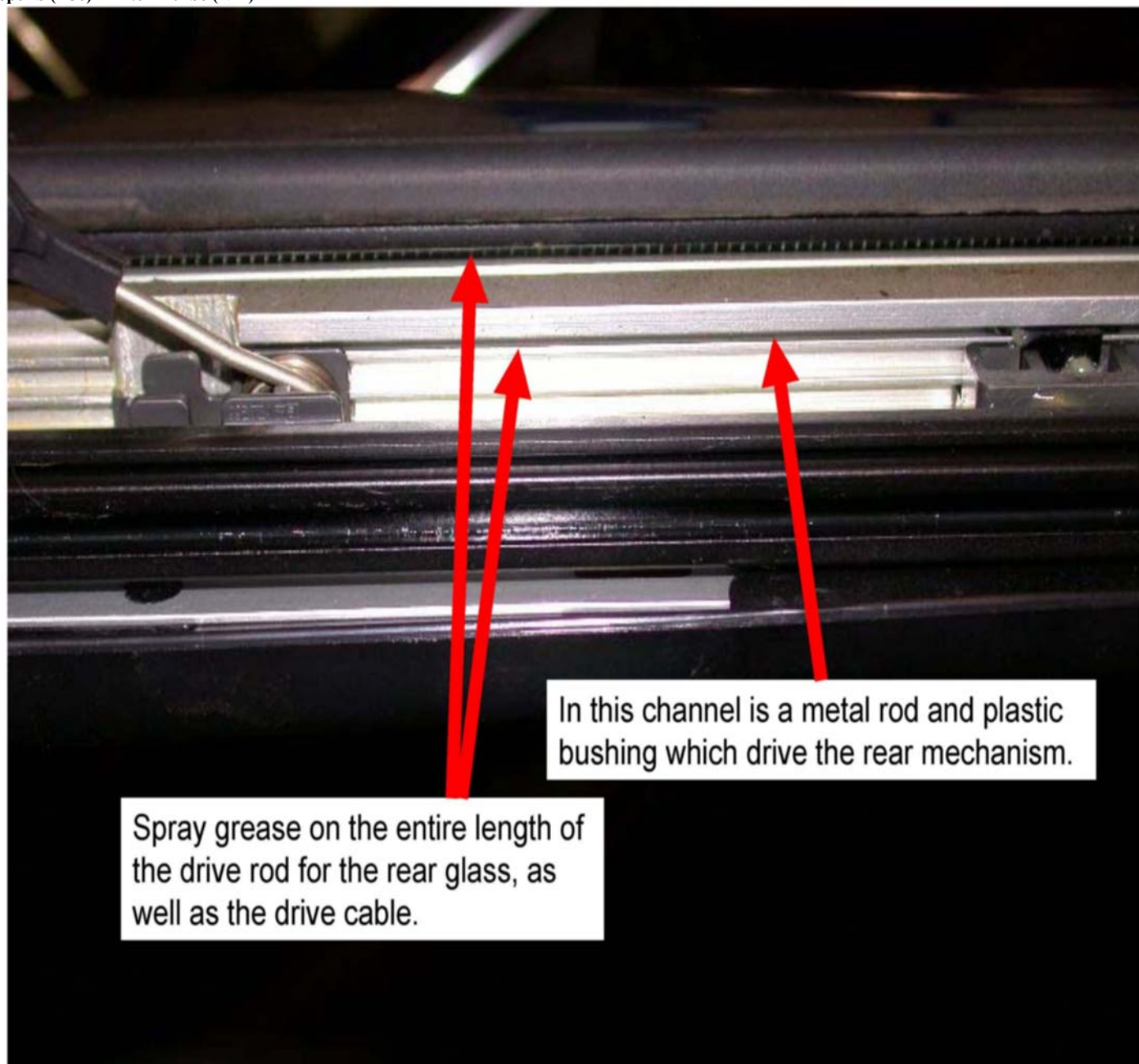
Per page 2, apply grease to both sides of this rail from the front to the back of the sunroof cassette.

Per page 2, apply grease to the bottom of the sliding track on both sides of the guide.





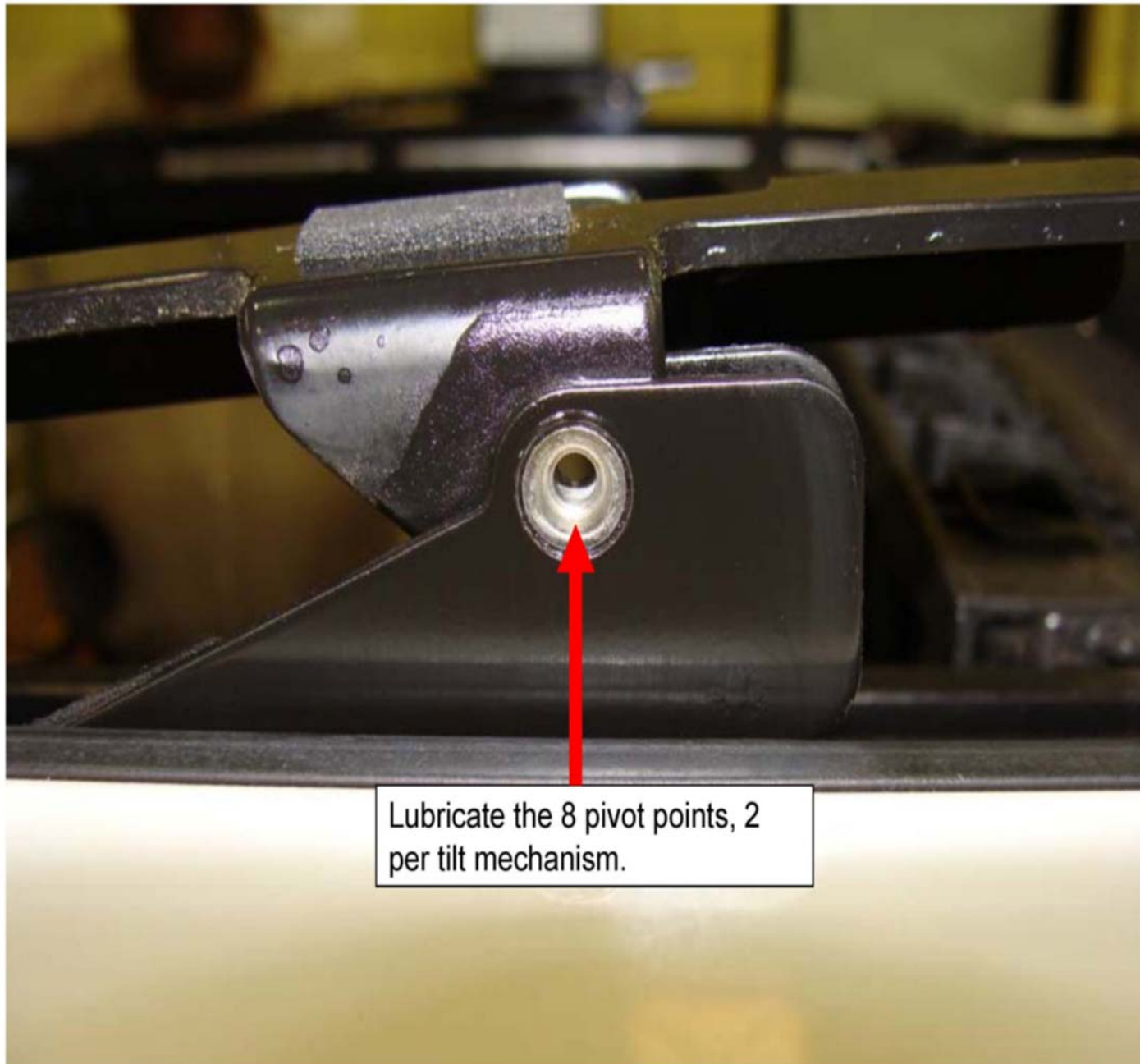




Spray grease on the entire length of the drive rod for the rear glass, as well as the drive cable.

In this channel is a metal rod and plastic bushing which drive the rear mechanism.





view PDF attachment M540308Lubrication\_Procedure.

Technical Service Bulletin # **M120110**

Date: **100601**

## **Engine Controls - MIL ON/Codes 2968/296B/2982/2983**

SI M 12 01 10

Engine Electrical Systems

June 2010

Technical Service

### **SUBJECT**

N12 and N14 Camshaft Sensor Fault Codes 2968, 296B, 2982, 2983

### **MODEL**

R55, R56, and R57 with the N12 and N14 engines produced up to 5/31/2009

### **SITUATION**

The Service Engine Soon (MIL) lamp is on, with any of the following camshaft sensor fault codes stored in the DME.

^ 2968 or 296B, signal plausibility

^ 2982 or 2983, short circuit

CAUSE

These faults can be caused by a faulty camshaft sensor or poor electrical connection.

The sensor may be damaged if the connector is loose, which could allow the blue sealing ring to be pushed out. If this occurs, the connector is no longer sealed against moisture.

CORRECTION

If camshaft sensor faults are stored, work through all corresponding test plans, using the latest version of ISTA.

If any of the faults 2968, 296B, 2982, or 2983 are stored, follow the procedure below:

^ Replace the camshaft sensor (refer to the EPC) and the camshaft connector using P/N 12 52 7 590 939.

After the repairs are completed, perform a function check and clear the fault memory entries.

<b>Defect Code:</b>	<b>12 14 90 12 00</b>	
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
00 58 964 +	6 FRU	Read fault memory, replace intake camshaft
00 58 299 *	8 FRU	sensor and connector, clear fault code
		memory (N12/N14)
00 58 965 +	6 FRU	Read fault memory, replace exhaust
00 58 300 *	8 FRU	camshaft sensor (N12) and connector,
		clear fault code memory
00 58 966+	8 FRU	Read fault memory, replace intake and
00 58 301*	9 FRU	exhaust camshaft sensors and connectors,
		clear fault code memory (N12)
*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to the associated (+) labor operation code.		

WARRANTY INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty, or the MINI Next Certified Pre-Owned Program.

Technical Service Bulletin # **M630108**

Date: **100501**

**Lighting - Automatic Headlamps Sensitivity**

SI M 63 10 08  
Lights

May 2010  
Technical Service

This Service Information bulletin supersedes SI M63 01 08 dated December 2008.

[NEW] designates changes to this revision

SUBJECT

Automatic Headlights: Adjusting Sensitivity

MODEL

All MOST bus vehicles with option 521 (Rain sensor and auto headlight)

SITUATION



The customer complains that the headlamps switch on too early or too late with the headlamp switch set to the "Automatic" position.

## CAUSE

Rain/light sensor sensitivity

## [NEW] INFORMATION

The problem has been integrated into ISTA diagnostics. Follow the diagnosis test plan, using the latest ISTA version.

In the "Information Search", select the "Text Search" tab and search for "W6300" as the search term.

Select the test plan "W6300\_WAS20 Sensitivity, automatic driving lights".

## WARRANTY INFORMATION

For information only. Warranty claims to adjust sensor sensitivity should not be made and will not be approved.

Technical Service Bulletin # **M230308**

Date: **100501**

## M/T - Stiff Diagonal Gear Shifts/Can't Select Gears

SI M 23 03 08

manual Transmission

May 2010

Technical service

This Service Information bulletin supersedes SI B24 03 08 dated January 2009.

[NEW] designates changes to this revision

## SUBJECT

[NEW] MINI with Manual Transmission - "Stiff" Diagonal Gearshift

## MODEL

R50, R52 with W10 and Getrag 5-speed manual transmissions (GS5-52BG)

[NEW] R55, R56, R57 with N12/N14 and Getrag 6-speed manual transmissions (GS6-55GB or GS6-53BG)

## SITUATION

The customer may complain of a "stiff diagonal shift" (e.g., N-R, R-N, 2-3/3-2 or 4-5/5-4). Also, in some cases, gears cannot be selected, or the selector lever does not go into the neutral position.

## CAUSE

Possibly corrosion at the gearshift mechanism (shift cables or transmission gearshift unit)

## SOLUTION

First verify that the shift cables operate freely by disconnecting them from the transmission gearshift unit.

- **NEW** R50, R52 Cooper (GS5-52BG) – P/N 23 11 7 545 076
- **NEW** R55, R56, R57; Cooper (GS6-55BG) – P/N 23 11 7 587 353
- **NEW** R55, R56, R57; Cooper S (GS6-53BG) – P/N 23 11 7 587 353

If the cables move freely after disconnection, replace the transmission gearshift switching unit, using the part numbers above.

For the gearshift replacement procedure, refer to Repair Instruction REP 23 11 310.

**NEW PARTS INFORMATION**

Part Number	Description	Quantity
23 11 7 545 076	Gearshift switching unit (R50, R52)	1
23 11 7 568 464	M8x25 Torx screw	3
	OR	
23 11 7 587 353	Gearshift switching unit (R55, R56, R57)	1
23 11 7 568 464	M8x25 Torx screw	4

**[NEW] PARTS INFORMATION**

Covered under the terms of the MINI New Vehicle Limited Warranty or the MINI NEXT Certified Pre-Owned Program.

**Defect Code:** 23 00 03 34 00

**Labor Operation:** **Labor Allowance:** **Description:**

Refer to KSD\* Refer to KSD Replace shift unit

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

**WARRANTY INFORMATION**

Technical Service Bulletin # **M640110**

Date: **101101**

**A/C - Excessive Compressor Noise/Runs Rough**

SI M64 01 10

Heating and Air Conditioning

November 2010

Technical Service

This Service Information bulletin supersedes M64 01 10 dated August 2010.

[NEW] designates changes to this revision

**SUBJECT**

Air Conditioning Compressor Excessively Loud

**MODEL**

R55 (Cooper Clubman, Cooper S Clubman)

R56 (Cooper, Cooper S)

R57 (Cooper Convertible, Cooper S Convertible)

[NEW] All vehicles produced from 9/30/2009 up to 11/30/2010

**SITUATION**

Air condition compressor is excessively loud/rough running when the air conditioning system is switched on and the compressor is active.


**CAUSE**

Vibration in the air condition suction line (low side)

**PROCEDURE**

See attachments.

PARTS INFORMATION

Part Number	Description	Quantity
64 50 9 231 714	Vibration absorber	1
 07 12 9 903 806	ISA Screw M6x20	2

PARTS INFORMATION

WARRANTY INFORMATION

Covered under the terms of the Mini New Passenger Car Limited Warranty.

<b>Defect Code:</b>	<b>64 52 00 25 00</b>		
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>	
64 99 000	3 FRUs	Install vibration absorber (weight)	

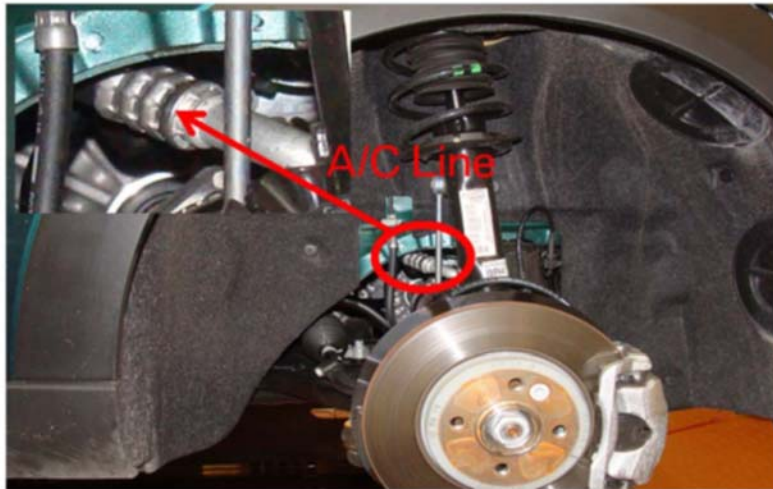
WARRANTY INFORMATION

ATTACHMENTS

**M64 01 10 Attachment****August 2010****A/C Compressor excessively loud****REPAIR PROCEDURE**

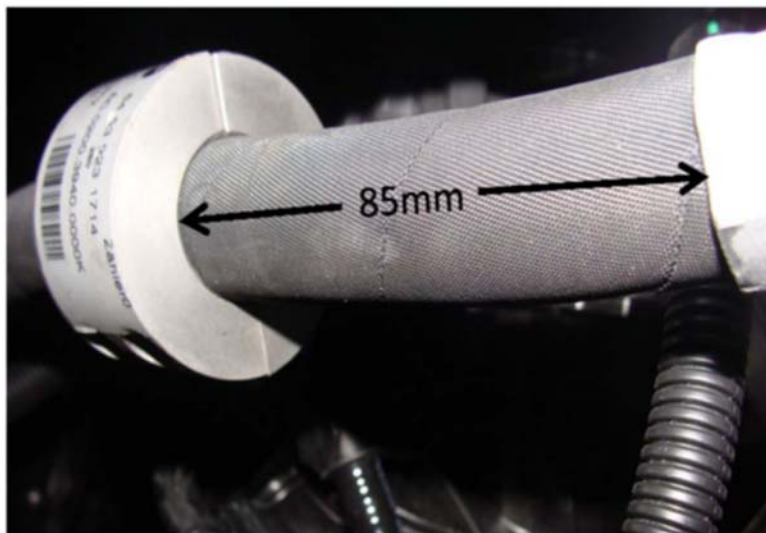
Note: Review the complete repair procedure before starting.

1. The air conditioning suction line (low side) must be accessed from under the vehicle. Place the vehicle on the lift and raise the vehicle to an acceptable height for the repairs to be completed.



2. This picture shows the location of the low side a/c line.

Note: The tire has been removed for illustration purposes only.



3. This picture shows the vibration absorber (weight) installed 85 mm from the end closest to the A/C compressor.

Note: Apply Wurth "Thread locker Blue" to the bolts prior to installation.

M64 01 10 - Procedure

Technical Service Bulletin # **M110207**Date: **101001****Engine - Rattling Noise On Cold Engine Start Up**

SI M11 02 07

Engine

October 2010

Technical Service

This Service Information bulletin supersedes SI M11 02 07 dated September 2010.

[NEW] designates changes to this revision

SUBJECT

Rattle Noise from Engine

MODEL

From start of production up May 4th, 2009

## SITUATION

The customer complains of a rattle noise from the engine during cold start-up - most often at the 1,600 - 1,800 rpm range, or in some instances (elongated timing chain) from the idle speed up to 2,000 rpm.

The rattle noise occurs more frequently when driving short distances.

The noise is more prevalent when the outside temperature is approximately 15° Celsius (59° Fahrenheit) or below.

## CAUSE

The complaint can be caused by one or both of the following reasons:

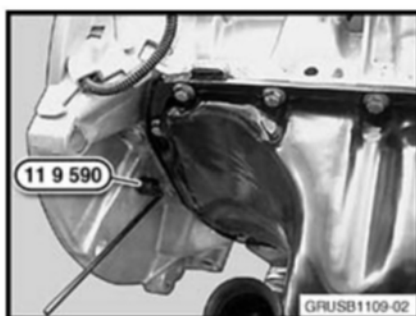
- ^ Insufficient tension of the timing chain
- ^ The chain tensioner has not been bled sufficiently.

Work through the following procedure in order to eliminate other possible causes:

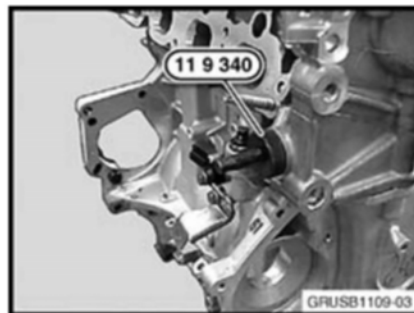
1. If a fault is stored in the DME memory (e.g., misfiring, VANOS, etc.), then work through all relevant test plans first.
2. A one-off short shrill will be heard within the first two seconds of engine operation. This is an inherent noise caused by the first regulation cycle of the engine oil pump. This is normal operation and no parts should be replaced.
3. If the noise appears to be coming from the valve cover or the vacuum pump area, refer to SI M11 02 08. To verify the source of the noise, disconnect the vacuum hose from the mechanical vacuum pump to eliminate the knocking noise. This is not a failure of the mechanical vacuum pump; do not replace any parts.
4. Ensure that the noise is not created or eliminated by depressing the clutch pedal, if equipped.
5. Disconnect the electrical connector from the tank ventilation valve. If the noise disappears when the connector is removed, reconnect to verify whether the noise returns. If the noise returns, replace the tank ventilation valve.

If all of the steps above are unsuccessful in eliminating the noise, please proceed to step 6.

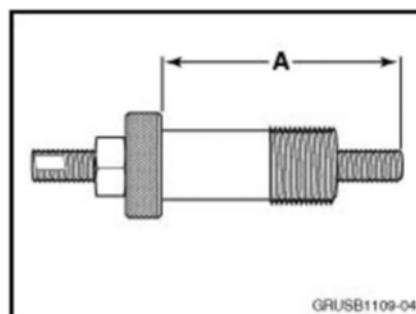
6. Remove the right-hand wheel arch trim to access the crankshaft central bolt.
7. Disconnect the battery, remove ignition coils and spark plugs. Turn the engine by hand to move the flywheel to approximately 90° before TDC.



8. Install the locating pin (Special Tool 11 9 590) to lock the position of the engine.
9. Remove the chain tensioner and collect the residual oil with a shop towel.



10. Fit the chain tensioner (Special Tool 11 9 340) without the seal ring and with the lock nut loose. Pretension the chain tensioner with Special Tool 00 9 250 to 0.6 Nm. Finger-tighten the lock nut on Special Tool 11 9 340.



11. Remove the chain tensioner (Special Tool 11 9 340) from the engine, with the lock nut still tight. Measure the distance (A), as described in the illustration.

12. If distance (A) is less than 68mm (and the noise can be reproduced only between 1,600-1,800 rpm), then only replace the chain tensioner with P/N 11 31 7 607 551 (refer to parts list A), as per Repair Instruction REP 11 31 090 (Installing and removing/replacing chain tensioner piston N14).

13. If distance (A) is 68mm or greater (and the noise is reproducible both at 1,600-1,800 rpm range as well as at idle speed when cold), replace the following components in the list below (refer to parts list B). If you are uncertain regarding repair attempts already made, each chain tensioner part number is stamped on the outer sleeve. It must be removed from the engine in order to read the part number.

^ Chain tensioner-P/N 11 31 7 597 895 only!

**Note:**

P/N 11 31 7 607 55 1, Timing chain tensioner, should not be installed with a new timing chain.

^ Timing chain

^ Guide rail

^ Tensioner rail

^ Sliding rail

^ Sprocket on the crankshaft

Bearing bolts for the tensioner and guide rails

Refer to Repair Instruction REP 11 31 051 (Replacing timing chain N14).

Refer to the EPC for additional parts required, i.e., gaskets, seals, etc.

The incorrect crankshaft central bolt tightening torque is stated in the current release of ISTA. Disregard the torque specified in the current Repair Instructions when performing repairs that include replacing the crankshaft central bolt, P/N 11 21 7 585 184. The torque specification information will be corrected in the release of ISTA/D 2.21. The correct torque specification is described below.

## 11 21 Crankshaft and Bearings

1 AZ	Type	Thread	Tightening	Measure
Torsion	N14	M14 x 1.5 x 74	specification	
Dampener (hub) to crankshaft (central bolt)			Replace screws	
			Lightly oil screws and threads	
			Jointing torque	50 Nm
		Torque angle	180°	

Do not replace the hydraulic valve lifters (HVA), intake camshaft VANOS adjustment unit, or the exhaust camshaft sprocket for this type of noise. It is NOT necessary to obtain a Part Replacement Authorization (Teileclearing) for this specific issue. Refer to the Warranty section of this bulletin for more details.

14. After the repair is completed, reprogram the vehicle with the current ISTA/P.

Manual transmission vehicles only:

Use version (2.37.0 or higher) to the target integration level R056-10-03-501 or higher.

Automatic transmission vehicles only:

Do not conduct the reprogramming step on Cooper S/Clubman S vehicles equipped with the ASIN F21 automatic transmissions. The updated DME software with drivability improvements will be released in [NEW]2.40.

Note that ISTA/P will automatically reprogram and code all programmable control modules that do not have the latest software.

For information on programming and coding with ISTA/P, refer to Centernet/Aftersales Portal/Service/Workshop Technology/Vehicle Programming.

## PARTS INFORMATION

Part Number	Description	Quantity
<b>Parts List A</b>		
11 31 7 607 551	Chain tensioner	1
<b>Parts List B</b>		
11 31 7 597 895	Chain tensioner	1
11 31 7 534 251	Chain tensioner seal ring	1
11 31 7 534 784	Timing chain	1
11 31 7 568 241	Guide rail	1
11 31 7 534 833	Tensioner rail	1
11 31 7 534 771	Bearing bolt	1
11 31 7 534 768	Bearing bolt	2
11 31 7 550 461	Bearing bolt gasket ring A14x21	1
11 31 7 546 697	Slide rail	1
11 21 7 534 654	Crankshaft sprocket	1

11 21 7 585 184

Bolt

1

Refer to the EPC for additional gaskets, seals and bolts, as described in Repair Instruction REP 11 31 051.

## PARTS INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty or the MINI NEXT Certified Pre-Owned Program.

**Defect Code**                    **11 33 04 39 00**

Labor Operation            11 99 000            Procedure steps 1-5

Main Work

Labor Allowance            4 FRU

Or

Labor Operation            11 99 000            Procedure steps 1-11

Main Work

Labor Allowance            10 FRU

Labor Operation:            11 31 090\*            Replacing piston for timing chain tensioner

+ Associated Work

Labor Allowance            5 FRU

or

Labor Operation:            11 31 051\*            Replace timing chain (Parts list B)

+ Associated Work

Labor Allowance            Refer to KSD2

Plus

Labor Operation            Refer to KSD            Reprogram/recode vehicle

Labor Allowance            Refer to KSD2

Note: The following explanations will spell out the correct use of the work times.

**Main Work:**            Use this labor operation number when the only repair performed is the listed warranty repair.

OR

**+Associated Work:**    Use this labor operation number when other repairs or services are performed along with the listed warranty repair.  
Under no circumstances should both labor operation numbers be claimed.

Attempts to claim both times will result in an unnecessary delay in claim processing and payment.

In cases where ISTA requires the replacement of control modules or additional programming because certain control modules failed to program correctly, print out the Measures Plan and Final Report and attach these reports to the RO in the vehicle file. This additional work should be claimed under the defect code listed in this bulletin, using the labor operation and labor allowance from the KSD2.

**Part replacement authorization is NOT required.** Do NOT submit a TeileClearing PuMA case. A copy of the diagnostic report (short test) must be kept with the Repair Order (RO) and FASTA data must be transmitted. When submitting a warranty claim, please include "replaced per SI M11 02 07" in the comments section.



## WARRANTY INFORMATION

Technical Service Bulletin # **M120310**Date: **101001****Engine Controls - Hot Starting Problem**

SI M12 03 10

Engine Electrical Systems

October 2010

Technical Service

## SUBJECT

N14 with AISIN Transmission - Hot Starting Problem

## MODEL

R55, R56, R57 with N14 engine and AISIN automatic transmission produced from 3/1/2010 to 7/30/2010, as well as earlier production cars which have been reprogrammed as noted below

## SITUATION

The engine fails to stay running when started hot, or may take several attempts to stabilize smooth idle speed.

This problem could occur with higher ambient temperatures (above 25°C) and engine temperatures above 97 °C.

The most common scenario is when starting after refueling or similar heat soak conditions.

**Note:**

In addition to cars from the affected production period, earlier production N14 AISIN vehicles programmed for other reasons, such as a control module replacement or retrofit, e.g., John Cooper Works Tuning kit, could be affected if they are currently at either the R056-10-03-50x to R056-10-06-500 integration levels.

## CAUSE

DME software

## CORRECTION

Do not replace any parts!

For this "Hot Start" problem, only program the vehicle using ISTA/P 2.39.x (R056-10-08-513 target integration level); install an earlier DME calibration.

A complete DME software solution is planned with ISTA/P 2.40.0, which corrects both this error and also includes the drivability improvements for N14 AISIN vehicles as described in SI M11 02 07.

## WARRANTY INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty.

**Defect Code:** 10 12 00 09 00

**Labor Operation:**      **Labor Allowance:**      **Description:**

00 00 710      Refer to KSD2      Programming / coding control units w/o CAS

00 00 720      Refer to KSD2      Programming / coding control units

with CAS

In cases where ISTA requires the replacement of control modules or additional programming because certain control modules failed to program correctly, or just an initialization is required, print out the Measures Plan and/or Final Report and attach these reports to the RO in the vehicle file. This additional work should be claimed under the defect code listed in this bulletin, using the labor operation and labor allowance from the KSD2.

## WARRANTY INFORMATION

Technical Service Bulletin # **M650510**Date: **101001**

**Cell Phone/Audio - iPod/iPhone(R) Poor Audio**

SI M65 05 10

Audio, Navigation, Monitors, Alarms, SRS

October 2010

Technical Service

**SUBJECT**

iPod/iPhone Has Extremely Poor Audio Quality and/or Is Not Recognized

**MODEL**

All models

Produced between 02/28/2007 and 10/31/2010 with option 6FL (USB Audio Interface)

**SITUATION**

When the iPod/iPhone is connected to the USB connector with the original Apple USB cable (white cable which comes with the iPod/iPhone):

^ The audio quality may be extremely poor

^ The device may not be recognized intermittently

**CAUSE**

1. Defective Apple USB cable or defective 30-pin socket on the iPod/iPhone
2. Defect in the USB audio interface (ULF, hands-free charging module integrated in the CIC)

**CORRECTION****Cause 1:**

Check the function with an Apple USB cable known to work properly; if it is still acting the same way, test the original Apple USB cable with an iPod/iPhone known to work properly.

If both tests do not resolve the issue, follow the procedure outlined for Cause 2.

**Cause 2:**

1. Connect an approved battery charger and perform a vehicle test using the latest ISTA (Integrated Service Technical Application) diagnostic software.
2. Diagnose any relevant faults that are stored by completing the test plans.
3. Perform and complete the test plan "AT8400\_SYSTEL - Check of telecommunications system". Please note the DIAGCODE (Diagnosis Code) presented at the end of the test plan. The test plan can be accessed via the following path:

^ Select "Activities\Information Search/Function structure\Body\Audio,Video,Navigation, Telephone (MOST ring)\Telecommunications" and start search.

^ In Telecommunications, select "AT8400\_SYSTEL - Check of telecommunications system" and press "Display".

^ Follow the on-screen instructions to work through the test plan.

**WARRANTY INFORMATION**

Covered under the terms of the MINI New Vehicle Limited Warranty.

**Defect Code:** 61 12 60 79 00

<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
00 00 006*	Refer to KSD2	Performing vehicle test (with vehicle diagnosis system)
61 00 006**	Refer to KSD2	Performing vehicle diagnosis – test module -

\* Main Work – Only one main labor operation (ending with 000-499) may appear on any claim or group of claims (warranty, maintenance or campaigns) that are generated from the same repair visit.

All other labor operations on the same line or other lines must be claimed using plus code labor operations (KSD2 labor operations that have a (+) prefix and the last three digits are 500 or a higher number).

\*\*Work Time- the amount of FRUs claimed for this labor operation must be documented by the individual punch time necessary to perform the required repair.

In this case labor code 61 00 006 only includes the time necessary to complete the specific task(s), it is therefore not considered a main labor operation.

**WARRANTY INFORMATION**

Technical Service Bulletin # **M070610**

Date: **101101**

**Computers/Controls - ISTA(R) Does Not ID The Vehicle**

SI M07 06 10

Workshop Environment Systems

November 2010

Technical Service

**SUBJECT**

ISTA Does Not Automatically ID the Vehicle

**MODEL**

All

**SITUATION**

When identifying a vehicle using ISTA (Integrated Service Technical Application), the error message "VIN unknown" is displayed on the ISID (Integrated Service Information Display). This situation occurs with both automatic identification (Read out vehicle data) and manual entry of the VIN.

The "Start vehicle test" button is grayed out after identification of the vehicle via "VIN" or "Basic feature".

**CAUSE**

The vehicle was produced after the production date of the ISTA DVD version. Therefore, its VIN was not included in the ISTA database.

**PROCEDURE**

In some cases, when deleting the transport mode and performing the pre-delivery inspection, the vehicle may be too new, and the VIN from the vehicle is not recognized by ISTA.

The procedure has changed with the introduction of ISTA D2.22 or later. Perform the following steps to delete transport mode and perform the pre-delivery inspection:

1. Manually ID the vehicle by selecting "Identification".
2. Select "Basic features".
3. Select "Model series".

4. Select "Development code".
5. Select "Sales designation".
6. Select "Engine".
7. Select "Transmission".
8. Select "Model year" (Production year).
9. Select the latest "Model month" (Production month) available.
10. Select "Accept".
11. The "Start vehicle test" button is grayed out and cannot be selected.
12. Select the "Connection manager" icon from the top ISTA menu bar.
13. Select the ICOM that is connected to the vehicle.
14. A pop-up message will appear. Select "Maintain connection and continue working".
15. After a few seconds, the "Start vehicle test" button is now selectable and can be started.
16. After the vehicle test is finished, select "Service function".
17. Select "Service function"
18. Select "04 Maintenance and Pre-delivery check".
19. Select "Transport mode/pre-delivery check".
20. Select "Delete transport mode".
21. Select "Start search".
22. Select the test plan for "pre-delivery check" and "Display".
23. Finish the test plan accordingly.

## WARRANTY INFORMATION

For information only

Technical Service Bulletin # **620309**

Date: **100801**

## Instruments - Outside Temperature Display Incorrect

SI B62 03 09

Instruments

August 2010

Technical Service

This Service Information bulletin supersedes SI B62 03 09 dated July 2009.

[NEW] designates changes to this revision

### SUBJECT

Outside Temperature Display Is Incorrect

### MODEL

All current production vehicles

### SITUATION

The outside temperature displayed in the instrument cluster is different from the known correct ambient temperature.

The noted situation is typically one of the following:

1. Temperature displayed is intermittently too high or low when the vehicle is stationary or shortly after start-up.
2. Temperature displayed is intermittently or permanently too high, showing a value of +122°F.
3. Temperature displayed is intermittently or permanently too low, showing a value of -40°F.
4. Temperature displayed is permanently too low, but not stuck on one value, during all vehicle operating conditions.
5. Temperature displayed is permanently too high, but not stuck on one value, during all vehicle operating conditions.

#### [NEW] INFORMATION

The problem has been integrated into ISTA diagnostics. Follow the diagnosis test plan, using the latest ISTA version.

^ In "Guided troubleshooting", select the "Fault pattern" tab.

^ Select "02 Display, information, communication / 0207 Instrument cluster"

^ Select "Accept fault pattern / Calculate test plan" and this will bring up a list of test plans.

^ Select the test plan "Outside temperature sensor".

#### [NEW] WARRANTY INFORMATION

For information only

Technical Service Bulletin # **M640110**

Date: **100801**

#### **M640110 - 08/01/10**

This TSB number M640110, dated 08/01/10 has been superceded by TSB number M640110 , dated 11/01/10

Technical Service Bulletin # **M120210**

Date: **101001**

#### **M120210 - 10/01/10**

This TSB number M120210, dated 10/01/10 has been superceded by TSB number M120210 , dated 10/02/10

Technical Service Bulletin # **M110207**

Date: **100901**

#### **M110207 - 09/01/10**

This TSB number M110207, dated 09/01/10 has been superceded by TSB number M110207 , dated 10/01/10

Technical Service Bulletin # **M120210**

Date: **100701**

#### **M120210 - 07/01/10**

This TSB number M120210, dated 07/01/10 has been superceded by TSB number M120210 , dated 10/02/10

Technical Service Bulletin # **M130107**

Date: **090301**

#### **M130107 - 03/01/09**

This TSB number M130107, dated 03/01/09 has been superceded by TSB number M130107 , dated 08/01/10

Technical Service Bulletin # **000702**

Date: **071101**

#### **000702 - 11/01/07**

This TSB number 000702, dated 11/01/07 has been superceded by TSB number 000702 , dated 02/01/09

Technical Service Bulletin # **M650808**

Date: **090301**

#### **M650808 - 03/01/09**

This TSB number M650808, dated 03/01/09 has been superceded by TSB number M650808 , dated 12/01/09

Technical Service Bulletin # **M110309**

Date: **091201**

#### **M110309 - 12/01/09**

This TSB number M110309, dated 12/01/09 has been superceded by TSB number M110309 , dated 12/02/09

Technical Service Bulletin # **M110207**

Date: **090601**

#### **M110207 - 06/01/09**

This TSB number M110207, dated 06/01/09 has been superceded by TSB number M110207 , dated 10/01/10

Technical Service Bulletin # **M510108**

Date: **090301**

#### **M510108 - 03/01/09**

Mini Cooper S (R56) L4-1.6L Turbo (N14)  
This TSB number M510108, dated 03/01/09 has been superceded by TSB number M510108 , dated 10/01/09  
Technical Service Bulletin # **M000202**

Date: **090301**

### **M000202 - 03/01/09**

This TSB number M000202, dated 03/01/09 has been superceded by TSB number M000202 , dated 10/01/10  
Technical Service Bulletin # **M510108**

Date: **081001**

### **M510108 - 10/01/08**

This TSB number M510108, dated 10/01/08 has been superceded by TSB number M510108 , dated 10/01/09  
Technical Service Bulletin # **M540308**

Date: **080601**

### **M540308 - 06/01/08**

This TSB number M540308, dated 06/01/08 has been superceded by TSB number M540308 , dated 06/01/10  
Technical Service Bulletin # **M610306**

Date: **090101**

### **Wipers/Washers - Maintenance Program Wiper Inserts**

This TSB number M610306, dated 01/01/09 has been superceded by TSB number M610306 , dated 08/01/09  
Technical Service Bulletin # **M630108**

Date: **081201**

### **Lighting - Automatic Headlamps Too Sensitive**

This TSB number M630108, dated 12/01/08 has been superceded by TSB number M630108 , dated 05/01/10  
Technical Service Bulletin # **620309**

Date: **090701**

### **Instruments Outside Temperature Display Incorrect**

This TSB number 620309, dated 07/01/09 has been superceded by TSB number 620309 , dated 08/01/10  
Technical Service Bulletin # **M540308**

Date: **090701**

### **Body - Sunroof Won't Open When Hot**

This TSB number M540308, dated 07/01/09 has been superceded by TSB number M540308 , dated 06/01/10  
Technical Service Bulletin # **M540308**

Date: **080801**

### **Body - Sunroof Will Not Open At High Temperatures**

This TSB number M540308, dated 08/01/08 has been superceded by TSB number M540308 , dated 06/01/10  
Technical Service Bulletin # **M510808**

Date: **080501**

### **Interior - Rattle Noise From Roof**

This TSB number M510808, dated 05/01/08 has been superceded by TSB number M510808 , dated 01/01/10  
Technical Service Bulletin # **M650608**

Date: **080601**

### **Audio System - CD Won't Eject From Radio**

This TSB number M650608, dated 06/01/08 has been superceded by TSB number M650608 , dated 02/01/09  
Technical Service Bulletin # **M650110**

Date: **100301**

### **CCC(R) - 'Please Insert Navigation DVD' Displayed On CID**

This TSB number M650110, dated 03/01/10 has been superceded by TSB number M650110 , dated 06/01/10  
Technical Service Bulletin # **M650110**

Date: **100201**

### **CCC(R) - 'Please Insert Navigation DVD' Appears On CID**

This TSB number M650110, dated 02/01/10 has been superceded by TSB number M650110 , dated 06/01/10  
Technical Service Bulletin # **M510808**

Date: **090801**

### **Interior - Rattle Noise From The Headliner Area**

This TSB number M510808, dated 08/01/09 has been superceded by TSB number M510808 , dated 01/01/10  
Technical Service Bulletin # **M630110**

Date: **100501**

### **Lighting - 'Bulb Out' Displayed/DTCs Stored**

This TSB number M630110, dated 05/01/10 has been superceded by TSB number M630110 , dated 10/01/10  
Technical Service Bulletin # **M510108**

Date: **090501**

### **Body - Window Control Function Inactive**

This TSB number M510108, dated 05/01/09 has been superceded by TSB number M510108 , dated 10/01/09

## M/T - Stiff 2-3 or 4-5 Shifts/Unable To Select Gears

This TSB number M230108, dated 07/01/08 has been superceded by TSB number M230108 , dated 01/01/09

Technical Service Bulletin # **240900**

Date: **090501**

## A/T - Repair And Replacement Information

SI B 24 09 00  
Automatic Transmission

May 2009  
Technical Service

This Service Information bulletin supersedes SI B24 09 00 dated February 2008.

[NEW] designates changes to this revision

SUBJECT  
Automatic Transmission Repair & Replacement Information

MODEL  
All with Automatic Transmissions manufactured by GM or ZF

### **GM5 5L40E Transmission Application**

E46 330iX, 325iX (M54)	ALL
E46 325iT (M54)	09/00 – 03/01 and from 03/03
E46 325i (M54)	From 03/02
E46 323i, 323iT (M52TU)	Up to 3/00
E46 328i (M52TU)	ALL
E46 325Ci, 325Cic (M54)	From 03/03
E46 330i, 330Ci, 330Cic (M54)	From 03/03
E39 530i, 525i, 530iT, 525iT (M54)	09/00 – 03/01
E39 528i (M52TU)	09/99 – 08/00
E53 X5 3.0i (M54)	ALL
E83 X3 2.5i, X3 3.0i (M54)	ALL
E36 Z3 3.0, Z3 2.5 (M54)	ALL

### **[NEW] GM6 Transmission Application**

E90 328i/xi (N51, N52KP)	As equipped
E91 328i/xi (N51, N52KP)	As equipped
E92 328i/xi (N51, N52KP)	As equipped
E93 328i (N52K/N51)	As equipped
E83 LCI (N52)	ALL
E82, E88 128i (N52K/N51)	ALL

**THMR1 4L30E Transmission Application**

E39 528iA	Up to 9/99
E36 318tiA, 323iA, 328iA, Z3 Roadster & Coupe	ALL
E36 318iA, 325iA	ALL
E34 525iA	ALL

**[NEW] ZF\* TRANSMISSION APPLICATION****ZF Transmission Application**

E53 X5 4.4i, X5 4.8is (N62/N62TU)	6HP26	ALL
E60 545i, 550i with N62/N62TU	6HP26	ALL
E60 525i, 530i (M54/N52)	6HP19	ALL
E63, E64 645i, 650i (N62/N62TU)	6HP26	ALL
E65, E66 745i, 750i, 760i (N62, N62TU/N73)	6HP26	ALL
E70 3.0i	6HP19TU (6HP21)	ALL
E70 4.8i	6HP26TU (6HP28)	ALL
E71 xDrive35i	6HP19TU (6HP21)	ALL
E71 xDrive50i	6HP26TU (6HP28)	ALL
E85, E86 Z4 N52	6HP19	From 01/06
E82, E88 135i (N54)	6HP19TU (6HP21)	ALL
E90 325i, 330i (N52)	6HP19	ALL
E90 335i (N54)	6HP19TU (6HP21)	ALL
E92 335i (N54)	6HP19TU (6HP21)	ALL
E93 335i (N54)	6HP19TU (6HP21)	ALL
E89 sDrive30i (N52K)	6HP19TU (6HP21)	ALL
F01 750i (N63)	6HP26TU (6HP28)	ALL
F02 750Li (N63)	6HP26TU (6HP28)	ALL

\*Transmission suppliers may change with future model releases

**GM\* TRANSMISSION APPLICATION INFORMATION****Transmission Repair**

Diagnosing symptoms involving automatic transmissions and determining when a replacement is appropriate are areas where specialized assistance is often needed. Due to the high cost and complexity of the 5 and 6-speed automatic transmissions, an Enhanced Technical Support process has been developed to help identify the root causes of customer complaints relating to automatic transmissions.

Service Information Bulletin B24 23 07 (Automatic Transmission Diagnosis and Troubleshooting) has been posted on BMW TIS. It contains important hints and procedures needed to properly diagnose automatic transmissions concerns.

It is required that all diagnostic and troubleshooting steps listed in Service Bulletin B24 23 07 should be performed when investigating all automatic transmission complaints prior to submitting a PuMA case ("TC Case" or regular technical support "Case").

A PuMA case may be submitted ONLY after all appropriate diagnostic steps and/or hints listed in SI B24 23 07 were completed and diagnostic results are inconclusive (regular technical support case), or when a component replacement (transmission, Mechatronic, or VB-TECHM) is requested ("TeileClearing Case"). Such a PuMA case has to include all the necessary information required by bulletin B24 23 07.

**IMPORTANT**

Both "TC Cases" and "regular automatic transmission technical support cases" are NOT going to be processed, and will be rejected as "unjustified", if the basic diagnostic troubleshooting procedures and pertaining information required by SI B24 23 07 are not performed and submitted.



The repair procedures and recommendations that the transmission technical specialist provides to you through the PuMA case are stored in the PuMA system. When BMW NA pays all or a portion of an automatic transmission replacement or repair in all Warranty, Goodwill, or Certified Pre-Owned claims, the PuMA case will be reviewed by the Warranty Department to verify that the inquiry and repair instructions match the claim submitted.

Manufacturer	Part	Part Replacement Authorization
GM	All 5-speed Auto. Transmissions (5L40E)	<b>Required*</b>
GM	All 6-speed Auto. Transmissions (6L45R)	<b>Required*</b>
GM	VB-TEHCM Module	<b>Required*</b>
GM	All 4-speed Auto. Transmissions (4L30E/THMR1)**	<b>Not Required**</b>
[NEW]ZF	All 5-speed Auto. Transmissions (5HP19, 5HP24 and 5HP30)	<b>Not Required***</b>
[NEW]ZF	All 6-speed Auto. Transmissions (6HP19/6HP19TU/6HP21 and 6HP26/6HP26TU/6HP28)	<b>Required*</b>
ZF	Mechatronic Module	<b>Required*</b>
ZF (Value Line)	All Auto. Transmissions	<b>Not Required**</b>

Manufacturer	Part	Part Replacement Authorization
ZF	All 4-speed Auto. Transmissions	<b>Not Required**</b>

\*A Part Replacement Authorization must be requested via PuMA by submitting a "TC Case". Please refer to [SI B24 24 07](#) for additional information about the Automatic Transmissions TeileClearing process.

\*\*It is no longer necessary to obtain a Part Replacement Authorization via PuMA for repairs or replacement of a 4-speed automatic transmission; however, **the available technical assistance should be utilized before repair attempts are made.**

[NEW] \*\*\* It is no longer necessary to obtain a Part Replacement Authorization via PuMA for repairs or replacement of a 5-speed automatic transmission; however, **the available technical assistance should be utilized before repair attempts are made. Additional diagnostic information for ZF 5-speed automatic transmissions is available via the "Diagnostic Troubleshooting Guide for ZF 5-speed Automatic Transmissions". For more information, please refer to [SI B24 02 09](#).**

## Transmission Replacement

When creating a PuMA case regarding any automatic transmission complaint, please ensure that it contains ALL of the information required by SI B24 23 07, including, but not limited to:

A full description of the complaint and whether or not the complaint has been verified.

A detailed description of the operating conditions, environment, road conditions, anything related to the complaint, or the conditions under which it can be duplicated. The details must be sufficient to ensure that the person reading your case will be able to understand the situation and/or duplicate it if necessary.

Identify any work performed during each service visit for the same complaint.

Results of tests performed, i.e., measurement of wiring harness resistance values, etc. Always provide specific readings and observations including Check Control messages, fault warning displays, range displays, modifications to the vehicle and verification of approved wheel and tire combinations. Statements such as "in spec" are not adequate.

Include "GM" or "ZF" in the subject line and the transmission serial and part numbers from the ID's tag in the "Work Performed" field of your case. Include the transmission fluid level and condition.

If the problem concerns shift characteristics, include the specific shift (i.e., 1-2, 2-1or 3-2), vehicle speed, road condition (e.g., uphill), etc. in which the complaint can be duplicated.

Where fault codes are stored, include the name of the module concerned in "problem description" and the actual fault codes in the "fault code" box. In order to aid the diagnosis, your diagnostic tester must have transmitted FASTA data indicating that all relevant test modules have been completed.

Always refer to SI B24 23 07 for diagnosis and troubleshooting hints regarding 5 and 6-speed automatic transmissions.

#### WARRANTY INFORMATION

[NEW] All 5-speed automatic transmissions manufactured by GM and all 6-speed automatic transmissions manufactured by ZF and GM, as well as GM VB-TEHCM modules and ZF Mechatronic modules, replaced without a prior Part Replacement Authorization in PuMA, will result in the Warranty, Goodwill or Certified Pre-Owned claim being rejected. When submitting a warranty claim, the PuMA TC case number must be specified in the comments section.

A Part Replacement Authorization must be obtained even if a Service Information Bulletin states to replace any of the above-affected TeileClearing parts. Exceptions are Service Actions and Recalls.

A Part Replacement Authorization is required even if the service is performed during official BMW NA non-working days, i.e., during weekends (Saturdays and Sundays) and any official BMW NA holidays.

### ★ ★ FIX IT RIGHT THE FIRST TIME, ON TIME, EVERY TIME ★ ★

For administrative convenience and to reduce costs, this bulletin may contain repair procedures for authorized BMW car centers and/or authorized BMW SAV centers. All references to SAVs and/or the X5 are ONLY intended for authorized BMW SAV centers. Furthermore, ONLY BMW SAV centers are authorized to perform repair and service work on SAVs.

Disclaimer

Technical Service Bulletin # **M240108**

Date: **080601**

#### **M240108 - 06/01/08**

This TSB number M240108, dated 06/01/08 has been superceded by TSB number M240108 , dated 03/01/10

Technical Service Bulletin # **M240108**

Date: **080901**

#### **A/T - Incorrect Gear Displayed In Cluster**

This TSB number M240108, dated 09/01/08 has been superceded by TSB number M240108 , dated 03/01/10

Technical Service Bulletin # **M510108**

Date: **090901**

#### **Electrical - Erratic Power Window Functions**

This TSB number M510108, dated 09/01/09 has been superceded by TSB number M510108 , dated 10/01/09

Technical Service Bulletin # **M510108**

Date: **090101**

#### **Body - Window Control Functions Inoperative**

This TSB number M510108, dated 01/01/09 has been superceded by TSB number M510108 , dated 10/01/09

Technical Service Bulletin # **M510108**

Date: **081101**

#### **M510108 - 11/01/08**

This TSB number M510108, dated 11/01/08 has been superceded by TSB number M510108 , dated 10/01/09

Technical Service Bulletin # **M510108**

Date: **080801**

#### **M510108 - 08/01/08**

This TSB number M510108, dated 08/01/08 has been superceded by TSB number M510108 , dated 10/01/09

Technical Service Bulletin # **110308**

Date: **081101**

#### **Emissions - Crankcase Ventilation System Information**

SI B 11 03 08

Engine

November 2008

Technical Service

This Service Information bulletin replaces SI B11 05 98 dated March 1998.

#### **SUBJECT**

Crankcase Ventilation System Specification

**MODEL**

All models

**INFORMATION**

All current BMW engines incorporate a pressure-controlled crankcase ventilation system. The crankcase ventilation systems use various different crankcase ventilation valves, depending on the engine type. Although the valves all look different, they function similarly, using a spring and diaphragm assembly to control the crankcase pressure. A properly functioning pressure control valve is designed to maintain a slight vacuum in the crankcase, which assures reliable crankcase venting during all engine operating conditions.

A malfunctioning crankcase ventilation valve may cause the following complaints:

- Engine runs roughly
- Whistling noise from the crankcase ventilation valve
- Check engine light on - possible DME faults stored: misfire all cylinders, oxygen sensor / mixture adaptation faults, etc.

DME faults stored in the memory will vary, depending on the DME version and the effect of the crankcase pressure (example: mixture adaptation faults, trim faults, etc.)

**NOTE:**

A higher than normal crankcase vacuum will also cause the crankshaft seals to leak outside air into the crankcase during engine operation. A whistling or howling noise is usually heard coming from the seal areas (front or rear) at idle.

Specification and actual readings from the vehicle may vary by up to plusmn;10%, but not more than **2.0 mBar**.

<b>Engine Variant</b>	<b>Specification (mBar)</b>
M42, M44, M52, M52TU, S52 ,M54, M60, M62, M62TU, M73	10.0
S54	0.0 +- 1.0
S62	0.0 +- 1.0
S65	0.0 +- 2.0
S85	0.0 +- 1.0
N52	26.0
N52K	30.0
N54	9.0
N62	22.0
N62TU	25.0
N63	9.0
N73	26.0

**WARRANTY INFORMATION**

Information only

**★ ★ FIX IT RIGHT THE FIRST TIME, ON TIME, EVERY TIME ★ ★**

For administrative convenience and to reduce costs, this bulletin may contain repair procedures for authorized BMW car centers and/or authorized BMW SAV centers. All references to SAVs and/or the X5 are ONLY intended for authorized BMW SAV centers. Furthermore, ONLY BMW SAV centers are authorized to perform repair and service work on SAVs.

DisclaimerTechnical Service Bulletin # **M090407**Date: **100601****Computer/Control - Programming Version Vehicle Status**

This TSB number M090407, dated 06/01/10 has been superceded by TSB number M090407 , dated 11/01/10

Technical Service Bulletin # **M120210**Date: **100601****Fuel System - Runs Rough/MIL ON/Misfire Codes Set**

## Computer/Control - Programming Version/Veh. Data Status

SI B 09 07 07

Programming/Coding Explanations

March 2010

Technical Service

This Service Information bulletin supersedes SI B09 07 07 dated January 2010.

[NEW] Changes only affect the attachment.

[NEW] designates changes to this revision

### SUBJECT

Programming Version Vehicle Data Status

### MODEL

All

### SITUATION

All affected vehicles have a Vehicle Data Status stored in the vehicle, e.g., E065-07-09-500.

This Vehicle Data Status describes the current configuration of the vehicle, and is used for programming by ISTA/P.

### INFORMATION

To check the Vehicle Data Status against the ISTA/P version, refer to the [NEW] attachment.

### ATTACHMENTS

## Programming Version vs. Vehicle Data Status

ISTAP Version	Online JS	DVD	7 Series			6 Series	5 Series		3 Series	1 Series	X5	X6
			E65/E6 < 03/2005	E65/E6 ≥ 03/2005	F01/F02	E63/E4	F07	E60/E1	E90/E91/E92/E93	E82/E88	E70	E71/E72
237.0		X	E065-09-12-810	E065-09-12-510	F001-10-03-501	E060-10-03-501	F001-10-03-501	E060-10-03-501	E89x-10-03-501	E89x-10-03-501	E070-10-03-501	E070-10-03-501
236.1	X		E065-09-12-810	E065-09-12-510	F001-09-08-532	E060-09-12-512	F001-09-08-532	E060-09-12-512	E89x-09-12-512	E89x-09-12-512	E070-09-12-512	E070-09-12-512
236.0		X	E065-09-12-810	E065-09-12-510	F001-09-08-531	E060-09-12-510	F001-09-08-531	E060-09-12-510	E89x-09-12-510	E89x-09-12-510	E070-09-12-511	E070-09-12-511
235.4	X		E065-09-03-510	E065-09-03-510	F001-09-08-531	E060-09-09-516	F001-09-08-531	E060-09-09-516	E89x-09-09-516	E89x-09-09-516	E070-09-09-522	E070-09-09-522
235.2	X		E065-09-03-810	E065-09-03-510	F001-09-08-517	E060-09-09-516	F001-09-08-517	E060-09-09-516	E89x-09-09-515	E89x-09-09-515	E070-09-09-515	E070-09-09-515
235.0		X	E065-09-03-810	E065-09-03-510	F001-09-03-510	E060-09-09-500		E060-09-09-500	E89x-09-09-500	E89x-09-09-500	E070-09-09-500	E070-09-09-500
234.0		X	E065-09-03-810	E065-09-03-510	F001-09-03-510	E060-09-03-515		E060-09-03-515	E89x-09-06-510	E89x-09-06-510	E070-09-03-525	E070-09-03-525
233.3	X		E065-09-03-810	E065-09-03-510	F001-09-03-525	E060-09-03-512		E060-09-03-512	E89x-09-03-520	E89x-09-03-520	E070-09-03-525	E070-09-03-525
233.2	X		E065-09-03-810	E065-09-03-510	F001-09-03-525	E060-09-03-512		E060-09-03-512	E89x-09-03-520	E89x-09-03-520	E070-09-03-525	E070-09-03-525
233.1		X	E065-09-03-810	E065-09-03-510	F001-09-03-525	E060-09-03-512		E060-09-03-512	E89x-09-03-520	E89x-09-03-520	E070-09-03-520	E070-09-03-520
233.0		X	E065-09-03-810	E065-09-03-510	F001-09-03-510	E060-09-03-510		E060-09-03-510	E89x-09-03-510	E89x-09-03-510	E070-09-03-510	E070-09-03-510
232.2	X		E065-08-03-800	E065-08-12-510		E060-08-09-530		E060-08-09-530	E89x-08-09-530	E89x-08-09-530	E070-08-09-530	E070-08-09-530
232.1	X		E065-08-03-800	E065-08-12-510		E060-08-09-530		E060-08-09-530	E89x-08-09-530	E89x-08-09-530	E070-08-09-530	E070-08-09-530
232.0		X	E065-08-03-800	E065-08-12-510		E060-08-09-530		E060-08-09-530	E89x-08-09-530	E89x-08-09-530	E070-08-09-530	E070-08-09-530
Progran												
32.1		X	E065-08-03-800	E065-08-12-510		E060-08-09-530		E060-08-09-530	E89x-08-09-530	E89x-08-09-530	E070-08-09-530	E070-08-09-530
32.0	X		E065-08-03-800	E065-08-12-510		E060-08-09-530		E060-08-09-530	E89x-08-09-530	E89x-08-09-530	E070-08-09-530	E070-08-09-530
31.2		X	E065-08-03-800	E065-08-03-550		E060-08-09-530		E060-08-09-530	E89x-08-09-530	E89x-08-09-530	E070-08-09-530	E070-08-09-530
31.1		X	E065-08-03-800	E065-08-03-550		E060-08-09-520		E060-08-09-520	E89x-08-09-520	E89x-08-09-520	E070-08-09-520	E070-08-09-520
31.0		X	E065-08-03-800	E065-08-03-550		E060-08-09-515		E060-08-09-515	E89x-08-09-515	E89x-08-09-515	E070-08-09-515	E070-08-09-515
30.0.2	X		E065-08-03-800	E065-08-03-550		E060-08-03-550		E060-08-03-550	E89X-08-03-540	E89X-08-03-540	E070-08-05-525	E070-08-05-525
30.0.1	X		E065-08-03-800	E065-08-03-550		E060-08-03-550		E060-08-03-550	E89X-08-03-540	E89X-08-03-540	E070-08-05-525	E070-08-05-525
30.0		X	E065-08-03-800	E065-08-03-550		E060-08-03-550		E060-08-03-550	E89x-08-03-530	E89x-08-03-530	E070-08-05-525	E070-08-05-525
29.2	X		E065-08-03-800	E065-08-03-550		E060-08-03-525		E060-08-03-525	E89X-08-03-530	E89X-08-03-530	E070-08-05-520	E070-08-05-520
29.1.1	X		E065-08-03-800	E065-08-03-510		E060-08-03-525		E060-08-03-525	E89X-08-03-520	E89X-08-03-520	E070-08-03-510	E070-08-03-510
29.1.0	X		E065-08-03-800	E065-08-03-510		E060-08-03-515		E060-08-03-515	E89X-08-03-510	E89X-08-03-510	E070-08-03-510	E070-08-03-510
29.0		X	E065-08-03-800	E065-08-03-510		E060-08-03-510		E060-08-03-510	E89X-08-03-510	E89X-08-03-510	E070-08-03-510	E070-08-03-510
28.0.2	X		E065-07-09-800	E060-07-09-530		E060-07-09-530		E060-07-09-530	E89x-07-12-515		E070-07-12-530	
28.0.1	X		E065-07-09-800	E060-07-09-530		E060-07-09-530		E060-07-09-530	E89x-07-12-515		E070-07-12-530	
28.0		X	E065-07-09-800	E065-07-09-520		E060-07-09-521		E060-07-09-521	E89X-07-12-515		E070-07-09-520	
27.2.1	X		E065-07-09-800	E065-07-09-520		E060-07-09-521		E060-07-09-521	E89X-07-09-520		E070-07-09-520	
27.2	X	X	E065-07-09-800	E065-07-09-520		E060-07-09-521		E060-07-09-521	E89X-07-09-520		E070-07-09-520	
27.1.2	X		E065-07-03-800	E065-07-09-520		E060-07-09-521		E060-07-09-521	E89X-07-09-520		E070-07-09-520	
27.1.1	X		E065-07-03-800	E065-07-09-520		E060-07-09-521		E060-07-09-521	E89X-07-09-520		E070-07-09-520	
27.1	X	X	E065-07-03-800	E065-07-09-520		E060-07-09-520		E060-07-09-520	E89X-07-09-520		E070-07-09-520	
27.0		X	E065-07-03-800	E065-07-09-515		E060-07-09-515		E060-07-09-515	E89X-07-09-518		E070-07-03-525	
26.2.2	X		E065-07-03-800	E065-07-03-510		E060-07-03-525		E060-07-03-525	E89X-07-06-520		E070-07-03-525	
26.2.1	X		E065-07-03-800	E065-07-03-510		E060-07-03-525		E060-07-03-525	E89X-07-06-520		E070-07-03-525	
26.2	X	X	E065-07-03-800	E065-07-03-510		E060-07-03-525		E060-07-03-525	E89X-07-06-520		E070-07-03-525	
26.1.2	X		E065-07-03-800	E065-07-03-510		E060-07-03-525		E060-07-03-525	E89X-07-06-520		E070-07-03-525	
26.1.1	X		E065-07-03-800	E065-07-03-510		E060-07-03-525		E060-07-03-525	E89X-07-06-520		E070-07-03-525	
26.1	X	X	E065-07-03-800	E065-07-03-510		E060-07-03-525		E060-07-03-525	E89X-07-06-510		E070-07-03-525	
26.0		X	E065-07-03-800	E065-07-03-510		E060-07-03-525		E060-07-03-525	E89X-07-06-510		E070-07-03-525	
25.2	X	X	E065-07-03-800	E065-07-03-510		E060-07-03-525		E060-07-03-525	E89X-07-03-521		E070-07-03-525	
25.1.1	X		E065-07-03-800	E065-07-03-510		E060-07-03-520		E060-07-03-520	E89X-07-03-521		E070-07-03-515	
25.1	X	X	E065-07-03-800	E065-07-03-510		E060-07-03-520		E060-07-03-520	E89X-07-03-520		E070-07-03-515	
25.0.5	X		E065-07-03-800	E065-07-03-510		E060-07-03-510		E060-07-03-510	E89X-07-03-516		E070-07-03-510	
25.0.4	X		E065-07-03-800	E065-07-03-510		E060-07-03-510		E060-07-03-510	E89X-07-03-516		E070-07-03-510	
25.0.3	X		E065-07-03-800	E065-07-03-510		E060-07-03-510		E060-07-03-510	E89X-07-03-516		E070-07-03-510	
25.0.2	X		E065-07-03-800	E065-07-03-510		E060-07-03-510		E060-07-03-510	E89X-07-03-516		E070-07-03-510	
25.0.1	X		E065-07-03-800	E065-07-03-510		E060-07-03-510		E060-07-03-510	E89X-07-03-515		E070-07-03-510	
25.0		X	E065-07-03-800	E065-07-03-510		E060-07-03-510		E060-07-03-510	E89X-07-03-510		E070-07-03-510	
24.2.1			E065-06-09-800	E065-06-09-530		E060-06-12-510		E060-06-12-510	E89X-06-12-510		E070-06-12-550	

## Programming Version vs. Vehicle Data Status

ISTAP Version	Online JS	DVD	7 Series			6 Series	5 Series		3 Series	1 Series	X5	X6
			E65/E6 < 03/2005	E65/E6 ≥ 03/2005	F01/F02		F07	E60/E1				
24.2	X	X	E065-06-09-800	E065-06-09-530		E060-06-12-510		E060-06-12-510	E89X-06-12-510		E070-06-12-550	
24.1.1	X		E065-06-09-800	E065-06-09-530		E060-06-12-510		E060-06-12-510	E89X-06-12-510		E070-06-12-550	
24.1	X	X	E065-06-09-800	E065-06-09-530		E060-06-12-510		E060-06-12-510	E89X-06-12-510		E070-06-12-540	
24.0		X	E065-06-09-800	E065-06-09-530		E060-06-12-510		E060-06-12-510	E89X-06-12-510		E070-06-12-530	
23.2.2	X		E065-06-09-800	E065-06-09-530		E060-06-09-520		E060-06-09-520	E89X-06-09-540		E070-06-12-530	
23.2.1	X		E065-06-09-800	E065-06-09-530		E060-06-09-520		E060-06-09-520	E89X-06-09-540		E070-06-12-520	
23.2	X	X	E065-06-09-800	E065-06-09-530		E060-06-09-520		E060-06-09-520	E89X-06-09-540		E070-06-12-520	
23.1.3	X		E065-06-09-800	E065-06-09-530		E060-06-09-520		E060-06-09-520	E89X-06-09-530		E070-06-10-520	
23.1.2	X		E065-06-09-800	E065-06-09-530		E060-06-09-520		E060-06-09-520	E89X-06-09-530		E070-06-10-520	
23.1.1	X		E065-06-09-800	E065-06-09-530		E060-06-09-520		E060-06-09-520	E89X-06-09-530		E070-06-10-520	
23.1			E065-06-09-800	E065-06-09-530		E060-06-09-520		E060-06-09-520	E89X-06-09-530		E070-06-10-520	
23.0.1	X		E065-06-09-800	E065-06-09-530		E060-06-09-520		E060-06-09-520	E89X-06-09-520		E070-06-10-520	
23.0		X	E065-06-09-800	E065-06-09-520		E060-06-09-520		E060-06-09-520	E89X-06-09-520		E070-06-10-520	
22.2.1	X		E065-06-03-810	E065-06-03-510		E060-06-06-510		E060-06-06-510	E089-06-06-540			
22.2	X	X	E065-06-03-810	E065-06-03-510		E060-06-06-510		E060-06-06-510	E089-06-06-540			
22.1.2	X		E065-06-03-810	E065-06-03-510		E060-06-06-510		E060-06-06-510	E89X-06-06-520			
22.1.1	X		E065-06-03-810	E065-06-03-510		E060-06-06-510		E060-06-06-510	E89X-06-06-520			
22.1	X	X	E065-06-03-810	E065-06-03-510		E060-06-06-510		E060-06-06-510	E89X-06-06-520			
22.0.2	X		E065-06-03-810	E065-06-03-510		E060-06-06-510		E060-06-06-510	E89X-06-06-520			
22.0.1	X		E065-06-03-810	E065-06-03-510		E060-06-06-510		E060-06-06-510	E89X-06-06-520			
22.0		X	E065-06-03-810	E065-06-03-510		E060-06-06-510		E060-06-06-510	E89X-06-06-520			
21.2.2	X		E065-06-03-810	E065-06-03-510		E060-06-03-515		E060-06-03-515	E89X-06-03-511			
21.2.1	X		E065-06-03-810	E065-06-03-510		E060-06-03-515		E060-06-03-515	E89X-06-03-511			
21.2	X	X	E065-06-03-810	E065-06-03-510		E060-06-03-515		E060-06-03-515	E89X-06-03-511			
21.1	X	X	E065-05-09-820	E065-06-03-500		E060-06-03-515		E060-06-03-515	E89X-06-03-510			
21.0.1	X		E065-05-09-820	E065-06-03-500		E060-06-03-510		E060-06-03-510	E89X-06-03-510			
21.0		X	E065-05-09-820	E065-06-03-500		E060-06-03-510		E060-06-03-510	E89X-06-03-510			
20.2	X	X	E065-05-09-820	E065-05-09-520		E060-05-12-510		E060-05-12-510	E89X-05-12-510			
20.1	X	X	E065-05-09-820	E065-05-09-520		E060-05-12-510		E060-05-12-510	E89X-05-12-510			
20.0		X	E065-05-09-820	E065-05-09-520		E060-05-12-500		E060-05-12-500	E89X-05-12-500			
19.2.3	X		E065-05-09-800	E065-05-09-510		E060-05-09-535		E060-05-09-535	E89X-05-09-530			
19.2.2	X		E065-05-09-800	E065-05-09-510		E060-05-09-530		E060-05-09-530	E89X-05-09-530			
19.2.1	X		E065-05-09-800	E065-05-09-510		E060-05-09-530		E060-05-09-530	E89X-05-09-530			
19.2	X	X	E065-05-09-800	E065-05-09-510		E060-05-09-530		E060-05-09-530	E89X-05-09-530			
19.1.1	X		E065-05-09-800	E065-05-09-510		E060-05-09-530		E060-05-09-530	E89X-05-09-530			
19.1	X	X	E065-05-09-800	E065-05-09-510		E060-05-09-530		E060-05-09-530	E89X-05-09-530			
19.0		X	E065-05-09-800	E065-05-09-500		E060-05-09-510		E060-05-09-510	E89X-05-09-521			
18.1	X	X	E065-05-06-800	E065-05-06-510		E060-05-06-510		E060-05-06-510	E89X-05-06-520			
18.0.1	X		E065-05-06-800	E065-05-06-510		E060-05-06-510		E060-05-06-510	E89X-05-06-520			
18.0	X	X	E065-05-06-800	E065-05-06-510		E060-05-06-510		E060-05-06-510	E89X-05-06-520			
17.1.1	X		E065-05-06-800	E065-05-06-500		E060-05-06-500		E060-05-06-500	E89X-05-06-510			
17.1	X	X	E065-05-06-800	E065-05-06-500		E060-05-06-500		E060-05-06-500	E89X-05-06-510			
17.0.1	X		E065-05-03-810	E065-05-03-510		E060-05-03-520		E060-05-03-520	E89X-05-03-520			
17.0		X	E065-05-03-810	E065-05-03-510		E060-05-03-520		E060-05-03-520	E89X-05-03-520			
16.2	X	X	E065-05-03-810	E065-05-03-510		E060-05-03-520		E060-05-03-520	E89X-05-03-520			
16.1	X	X	E065-05-03-810	E065-05-03-510		E060-05-03-520		E060-05-03-520	E89X-05-03-520			
16.0		X	E065-05-03-810	E065-05-03-500		E060-04-09-555		E060-04-09-555	E89X-05-03-506			
15.2	X	X	E065-04-12-501			E060-04-09-555		E060-04-09-555				

view attachment B090707\_ISTAP\_Version\_Data\_Status.

## Technical Service Bulletin # M090407

Date: **090601**

## Engine Controls - Programming Vs Vehicle Data Status

This TSB number M090407, dated 06/01/09 has been superceded by TSB number M090407 , dated 11/01/10

## Technical Service Bulletin # M090407

Date: **090501**

## Engine Controls - Programming Version/Vehicle Status

This TSB number M090407, dated 05/01/09 has been superceded by TSB number M090407 , dated 11/01/10

## Technical Service Bulletin # M090407

Date: **090401**

## Engine/Control - Programming Version Vehicle Data Status

This TSB number M090407, dated 04/01/09 has been superceded by TSB number M090407 , dated 11/01/10

## Technical Service Bulletin # M090407

Date: **080901**

## Progman(R) - Progman Version Versus Vehicle Data Status

This TSB number M090407, dated 09/01/08 has been superceded by TSB number M090407 , dated 11/01/10

## Technical Service Bulletin # M090407

Date: **080701**

## Progman(R) - Version Vs. Vehicle Data Status

This TSB number M090407, dated 07/01/08 has been superceded by TSB number M090407 , dated 11/01/10

## Technical Service Bulletin # M090407

Date: **091201**

## Computers/Controls - Vehicle Vs. Programming Status

This TSB number M090407, dated 12/01/09 has been superceded by TSB number M090407 , dated 11/01/10

## Technical Service Bulletin # M120210

Date: **100602**

**Engine Controls/Fuel - MIL ON/Misfire DTC's Set**

This TSB number M120210, dated 06/02/10 has been superceded by TSB number M120210 , dated 10/02/10  
Technical Service Bulletin # **M120210**

Date: **100801****Fuel/Engine Controls - MIL ON/Misfire DTC's Set**

This TSB number M120210, dated 08/01/10 has been superceded by TSB number M120210 , dated 10/02/10  
Technical Service Bulletin # **M130107**

Date: **100701****Fuel System - Fuel Injection, Induction System Cleaning**

This TSB number M130107, dated 07/01/10 has been superceded by TSB number M130107 , dated 08/01/10  
Technical Service Bulletin # **M110207**

Date: **090602****Engine - Rattling Noises On Cold Start Up**

This TSB number M110207, dated 06/02/09 has been superceded by TSB number M110207 , dated 10/01/10  
Technical Service Bulletin # **M110308**

Date: **080701****Engine - Poor Performance/Turbocharger Noise**

This TSB number M110308, dated 07/01/08 has been superceded by TSB number M110308 , dated 01/01/10  
Technical Service Bulletin # **M110207**

Date: **100401****M110207 - 04/01/10**

This TSB number M110207, dated 04/01/10 has been superceded by TSB number M110207 , dated 10/01/10  
Technical Service Bulletin # **M110207**

Date: **100301****Engine - Rattling Noises On Cold Start-Up**

This TSB number M110207, dated 03/01/10 has been superceded by TSB number M110207 , dated 10/01/10  
Technical Service Bulletin # **M110207**

Date: **090501****Engine - Cold Start Up Rattling Noise**

This TSB number M110207, dated 05/01/09 has been superceded by TSB number M110207 , dated 10/01/10  
Technical Service Bulletin # **M110207**

Date: **090301****Engine - Rattle Noise On Cold Start Up**

This TSB number M110207, dated 03/01/09 has been superceded by TSB number M110207 , dated 10/01/10  
Technical Service Bulletin # **M610102**

Date: **081201****Electrical - Battery Maintenance/Charging**

This TSB number M610102, dated 12/01/08 has been superceded by TSB number M610102 , dated 02/01/09  
Technical Service Bulletin # **M640208**

Date: **080601****A/C - Driver Footwell Area Becomes Hot**

This TSB number M640208, dated 06/01/08 has been superceded by TSB number M640208 , dated 05/01/10  
Technical Service Bulletin # **M000202**

Date: **100801****Vehicle - Operating Fluids Info.**

This TSB number M000202, dated 08/01/10 has been superceded by TSB number M000202 , dated 10/01/10  
Technical Service Bulletin # **M000202**

Date: **100701****Vehicle - Mini Operating Fluids Information**

This TSB number M000202, dated 07/01/10 has been superceded by TSB number M000202 , dated 10/01/10  
Technical Service Bulletin # **M000202**

Date: **090302****Vehicle - Operating Fluids**

This TSB number M000202, dated 03/02/09 has been superceded by TSB number M000202 , dated 10/01/10  
Technical Service Bulletin # **M120102**

Date: **090301****Ignition System - Spark Plug Applications/Usage**

This TSB number M120102, dated 03/01/09 has been superceded by TSB number M120102 , dated 08/01/10  
Technical Service Bulletin # **990108**

Date: **080901**

SI B 99 01 08  
Paint Work

September 2008  
Aftersales

SUBJECT  
Environmental Paint Damage Repair

MODEL  
All

SITUATION  
Environmental issues can damage painted surfaces. Issues such as acid rain, industrial fallout, rail dust, bird droppings, and bugs can all damage the paint surface. Repair processes are in place to repair damage caused by these issues.

Industrial fallout or rail dust issues typically occur when new vehicles have been transported by rail to a location, or when a vehicle is located near rail tracks for an extended period of time. Rail dust is comprised of heated iron particles from train brakes that, when airborne, will land on the horizontal surfaces of vehicles and imbed themselves into the paint surface.

Typical sanding and polishing techniques alone will not resolve the issue of rail dust. BMW, in cooperation with 3M, has developed a procedure for removing and correcting rail dust damage for the paint surface of a vehicle. Below are the process and product for removing and correcting rail dust damage.

PROCEDURE  
The process below is for the removal of contamination and minor paint surface defects resulting from transportation and storage of new vehicles. Please be sure to use only BMW approved products when attempting to make a repair to the paint surface!

1. Wash and rinse the vehicle thoroughly, using BMW approved car wash soap\*.
2. Check exterior surfaces for contaminants a rough or gritty feel, or use a white terry cloth towel to see if you get small snags of material on the surface.
3. Work contaminated areas with a 3M clay bar, using light pressure and car wash soap or 3Mtrade; Gloss Enhancer as a lubricant.
4. Rinse and dry the surface.
5. Knead the clay periodically to expose a new surface.
6. Polish the surface, using BMW approved polishing materials and techniques

**Note:**  
Refer to the BMW Color system manual for approved polishing materials and proper techniques.

\* Please see page two for a list of BMW approved materials.

PARTS INFORMATION  
The following materials are approved by BMW for the removal of rail dust and for the repair of the paint surface:

- ^ 3M(TM) 200 gram clay bar - PN 38070
- ^ 3M(TM) Finesse-Ittrade; SRC Finishing Material - PN 05927
- ^ 3M(TM) Wool Pad - PN 05703 or 05719
- ^ 3M(TM) Detailing Cloth - PN 06016
- ^ 3M(TM) Black Foam Pad - PN 05725 or 05738
- ^ 3M(TM) Perfect-It 3000trade; Ultrafin SE - PN 06068
- ^ 3M(TM) Yellow Wool Pad - PN 05713
- ^ 3M(TM) Perfect-It trade; Foam Polishing Pad Glaze - PN 05996
- ^ 3M(TM) Black Foam Pad - PN 05729
- ^ 3M(TM) Car Wash Soap - PN 39000



^ 3M(TM) Detailing Cloth - PN 06017

^ BMW Car Wash Soap - 83 12 0 412 530

^ BMW Polishing Cloth - 83 12 0 411 891

For product safety and health information, please see the Material Safety Data Sheet (MSDS 08-5407-5), or contact:

3M Automotive Aftermarket Division

3M Center, Bldg. 223-6N-01

St. Paul, MN 55144-1000

**★ ★ FIX IT RIGHT THE FIRST TIME, ON TIME, EVERY TIME ★ ★**

For administrative convenience and to reduce costs, this bulletin may contain repair procedures for authorized BMW car centers and/or authorized BMW SAV centers. All references to SAVs and/or the X5 are ONLY intended for authorized BMW SAV centers. Furthermore, ONLY BMW SAV centers are authorized to perform repair and service work on SAVs.

Disclaimer

Technical Service Bulletin # **M840308**

Date: **080501**

## Cell Phone - Voice Tags Lost After Vehicle Programming

SI M84 03 08

Communication Systems

May 2008

Technical Service

SUBJECT

Voice Tags Lost After Programming

MODEL

R55 (Cooper Clubman, Cooper S Clubman) with Bluetooth (SA644, 6ND or 6NE) and not equipped with navigation (SA609)

R56 (Cooper Hardtop, Cooper S Hardtop) with Bluetooth (SA644, 6ND or 6NE) and not equipped with navigation (SA609)

INFORMATION

Vehicles with SA644 or SA6ND (Interface box [MULF-SBX-Low]) up to 9/08 production

The first time the vehicle is programmed with Progman V31.0 or a more recent version, all entries in the voice tag phone book will be lost. Once the vehicle has software status V31.0 or a more recent version, the problem no longer occurs with subsequent programming sessions.

After programming, the voice recognition system cannot be used again until the vehicle has entered sleep mode twice.

Vehicles with SA6NE (Interface box [MULF-SBX-Hi]) up to 3/08 production

The first time the vehicle is programmed with Progman V29.0 or a more recent version, all entries in the voice tag phone book are lost. Once the vehicle has software status V29.0 or a more recent version, the problem no longer occurs with subsequent programming sessions.

PROCEDURE

Work with the customer to create new voice tags.

On vehicles equipped with SA644 or SA6ND, after programming and prior to using the voice recognition system, allow the vehicle to assume sleep mode two (2) times.

WARRANTY INFORMATION

Information only

**★ ★ FIX IT RIGHT THE FIRST TIME, ON TIME, EVERY TIME ★ ★**

For administrative convenience and to reduce costs, this bulletin may contain repair procedures for authorized BMW car centers and/or authorized BMW SAV centers. All references to SAVs and/or the X5 are ONLY intended for authorized BMW SAV centers. Furthermore, ONLY BMW SAV centers are authorized to perform repair and service work on SAVs.

DisclaimerTechnical Service Bulletin # **M170107**

Date: **081001**

## Cooling System - Maintenance/Repairs/Requirements

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SI M 17 01 07

Cooling Systems

October 2008

Warranties

This Service Information bulletin supersedes SI M17 01 07 dated October 2007.

[NEW] designates changes to this revision

## SUBJECT

MINI Long-Term Antifreeze/Coolant: Maintenance, Repairs and Replacement Requirements

## MODEL

[NEW] R56 (Cooper/Cooper S Hardtop/JCW), 2007 MY and newer, since start of production

[NEW] R55 (Cooper/Cooper S Clubman/JCW), 2008 MY and newer, since start of production

[NEW] R57 (Cooper/Cooper S Convertible/JCW), 2009 MY, since start of production

## INFORMATION

The cooling systems for the MINI vehicles listed above must only be filled with a long-term ethylene glycol antifreeze/coolant solution containing corrosion inhibitors that are compatible with aluminum components.

Engine Antifreeze/Coolants for MINI vehicles have four basic functions:

- ^ Help provide sufficient cooling;
- ^ Help provide the cooling system with protection against winter freeze-ups and summer boil-overs;
- ^ Protect various metals (gray cast iron, steel, aluminum alloys, brass, copper and solder) against corrosion; and
- ^ Prevent excessive silicate gel precipitation, which may cause clogging of the cooling system.

## Coolant System Repairs

In conjunction with any repairs where aluminum or metal cooling system components are replaced, drain and completely replace the long-term antifreeze/coolant. These components require corrosion protection that's only available with new long-term antifreeze/coolant.

For all other repairs involving the draining of partial quantities of coolant, replenish those drained quantities with new long-term antifreeze/coolant. It is important in order to maintain corrosion protection to not reuse any drained coolant. Always recycle or properly dispose of used engine coolant.

## Initial Filling at the Factory and Refilling

The antifreeze concentration of the coolant filled at the factory is valid for all areas of the U.S. and Canadian markets. This should be checked before the beginning of each winter for sufficient protection against freezing. An antifreeze tester is required to correctly determine the level of antifreeze concentration.

## Diluted or Contaminated Long-Term Antifreeze/Coolant

The corrosion inhibitors of long-term and short-term antifreeze/coolants do not work together, so it is not advisable to mix the two products. Topping off a long-term antifreeze/coolant solution with a short-term antifreeze/coolant solution dilutes the level of corrosion protection. In an emergency situation, when long-term antifreeze is not available, top off with water until a long term antifreeze/coolant is obtained. Since adding water will dilute the level of antifreeze protection, always remember to check and adjust the antifreeze concentration as necessary after such situations.

The color of MINI Long-Term Antifreeze/Coolant is blue; however, the colors of other locally available long and short-term coolants vary. These colors include green, orange, pink, red or yellow. Mixing MINI Long-Term Antifreeze/Coolant with these different color and types of antifreeze/coolants can result in a discolored solution in the cooling system. If a discolored antifreeze/coolant solution is found in the cooling system, determine the cause, repair the vehicle as needed and, if necessary, replace the antifreeze/coolant completely to ensure adequate corrosion protection.

## MINI Long-Term Antifreeze/Coolant Chemistry

Long-term antifreeze/coolants utilize Organic Acid Technology (OAT). OAT-type antifreeze/coolant solutions use organic acid salts in place of the inorganic corrosion inhibitor additives found in traditional short-term antifreeze/coolants. OAT-type corrosion inhibitors are slower-acting, last longer and provide excellent long-term corrosion protection for various coolant system aluminum and metal components, along with no required change interval.

MINI Long-Term Antifreeze/coolant (82 14 0 031 133) is a Hybrid OAT (HOAT) solution, since it also has added silicates to provide quick-acting

MINI Long-Term Antifreeze/Coolant does not contain nitrites or phosphates and has been formulated to prevent excessive silicate gel precipitation, significantly reducing the possibility of harmful deposit formation.

### MINI Antifreeze/Coolant Maintenance Summary

MINI Long-Term Antifreeze/Coolant can be used for all model years; however, its use does not eliminate or supercede a stated change interval. Always maintain the antifreeze/coolant in accordance with the cooling system maintenance requirements outlined in the corresponding vehicle's Service and Warranty Information Booklet.

Coolant Maintenance Interval	Every 4 years Starting from the date of production	Long-Term No Replacement Interval
MY 2003	R50 Cooper	
to	R53 Cooper S	N/A
MY 2006	Hardtop	
MY 2005	R52 Cooper/Cooper S	
to	Convertible	N/A
MY 2008		
MY 2007		R56 Cooper/Cooper S/JCW
and	N/A	Hardtop
MY 2008		
MY 2008	N/A	R55 Cooper/Cooper S/JCW Clubman
<div>NEW</div>		
MY 2009 On	N/A	All Models R56 Cooper/Cooper S/JCW Hardtop R55 Cooper/Cooper S/JCW Clubman R57 Cooper/Cooper S/JCW Convertible

The summary above details the MINI conversion, by year (MY) and model, to a long-term antifreeze/coolant solution.

### WARRANTY INFORMATION

Covered under the terms of the MINI New Passenger Car Limited Warranty or the MINI Maintenance Programs.

Technical Service Bulletin # **M090107**

Date: **080801**

## Progman(R) - Programming/Coding/Individualization

SI M 09 01 07  
Programming/Coding Explanations

August 2008  
Technical Service

This Service Information bulletin supersedes SIM09 01 07 dated March 2007.

[NEW] designates changes to this revision

## SUBJECT

Programming, Coding, Individualization with Progman

## MODEL

All

## SITUATION

Progman is the service application for programming, coding and individualization.

Individualization regarding Progman includes Car and Key Memory (CKM) and retrofits.

The Progman application runs on the Software Service Station (SSS).

Updates are available either as Online Updates or on DVD.

## [NEW] PROCEDURE

Complete Progman documentation can be found in the online documentation in Progman.

This documentation also contains E-Series related data and retrofit procedures.

This online documentation can be accessed from the Progman main screen by selecting the button with the book symbol on it.

General Rules for Programming		M090107-General Rules
Procedure A	Module replacement	M090107-ProcA-ModuleReplacement
Procedure B	Software Update	M090107-ProcB-SoftwareUpdate
Procedure C	Troubleshooting	M090107-ProcC-Troubleshooting
Procedure D		No longer used
Procedure E	Coding	M090107-ProcE-Coding

For detailed information on Progman procedures, refer to the attachments.

## ATTACHMENTS

[view PDF attachment M090107General\\_Rules.](#)

[view PDF attachment M090107Proc\\_A\\_Module\\_Replacement](#)

[view PDF attachment M090107Proc\\_B\\_Software\\_Update.](#)

[view PDF attachment M090107Proc\\_C\\_Troubleshooting.](#)

[view PDF attachment M090107Proc\\_E\\_Coding.](#)

## General Rules for Programming

### I. Interfaces

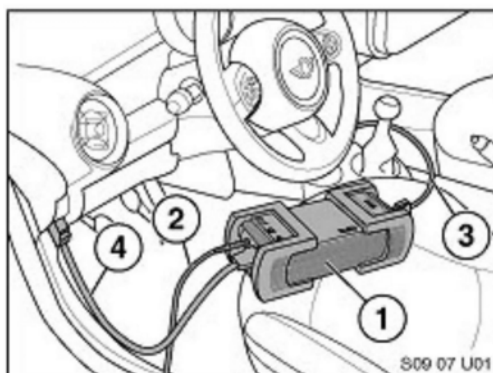
Prior to any work related to programming, coding, individualization or retrofit, select the right interface to avoid programming and/or coding aborts.

The following table shows the vehicle interface which must be used for programming and/or coding:

E Series		Vehicle Interface	
		Diagnostic Head	OPPS/OPS (*)
MINI	R50, R52, R53	X	
MINI	R55, R56		X

(\*) The OPS/OPPS allows parallel programming, meaning that MOST control modules can be programmed at the same time as CAN control modules.

To ensure parallel programming, the OPS/OPPS head must be connected in this order:



1. DK LAN cable (3)
2. MOST bus connector using cable (4) P/N 663 121 (83 30 0 494 332)
3. The vehicle diagnostic connector using the short OBD cable (2) P/N 663 111 (83 30 0 494 339)

#### NOTE:

1. TO ENSURE UNINTERRUPTED PROGRAMMING, DO NOT USE WIRELESS CONNECTIONS TO THE NETWORK. ALWAYS USE CABLE CONNECTIONS.
2. THE LONG VERSION OBD CABLE MUST NOT BE USED FOR PROGRAMMING – PROGRAMMING COULD ABORT IF THIS CABLE IS USED.
3. THE DK LAN CABLE MUST NOT BE GUIDED THROUGH ANY OPEN WINDOW OF THE VEHICLE. IT MIGHT BE DAMAGED DURING AUTOMATIC WINDOW INITIALIZATION.

## II. Vehicle preparation

This section describes the preparation procedure for the vehicle, which has to be followed prior to any programming or coding.

- Park the vehicle where it is not in the way (programming may take up to 4 hours).
- Windshield wipers must be unobstructed (they might be activated during programming).
- All stored FM and AM stations must be noted.
- All electrical consumers must be off.
- Engine must be off and cooled down (trans oil < 85°C).
- Approved battery charger must be attached and switched on.
- The car must not be disturbed during programming (trunk lid, doors, windows, etc.).

## III. GT1/DISplus/SSS preparation

- Always ensure that the latest available software of DIS/Progman is loaded on the GT1/DISplus and the SSS.
- GT1/DISplus/SSS must be connected to the workshop network to ensure proper functionality and transfer of FASTA data.
- GT1/DISplus can be used to remotely control the SSS. Therefore, the latest Progman DVD must be loaded on the GT1/Displus.
- Date and time must be set correctly in the Software Service Station (SSS)

## IV. Diagnosis

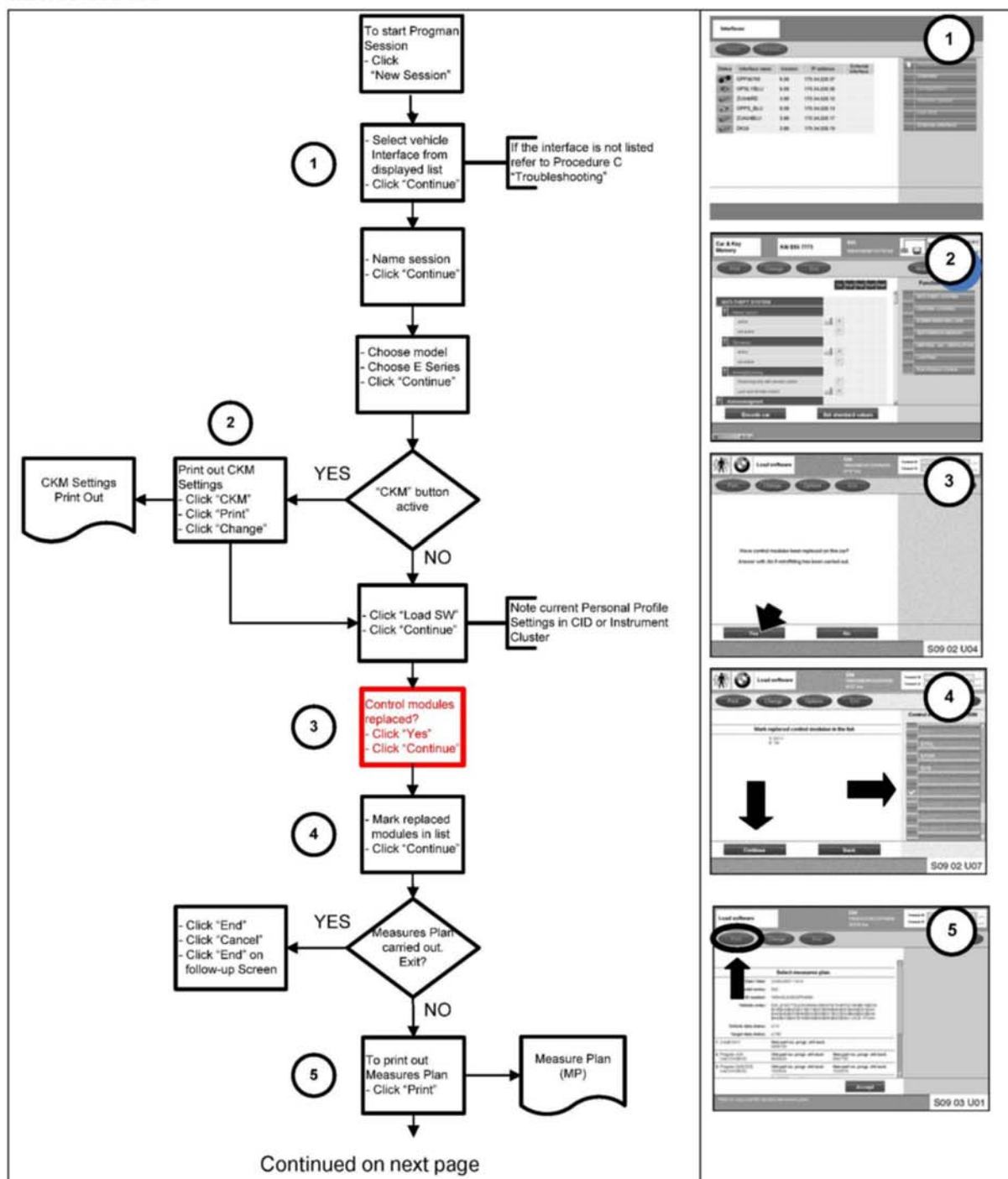
**Prior to any programming and/or coding, it is absolutely mandatory that all control units be installed and functional.**

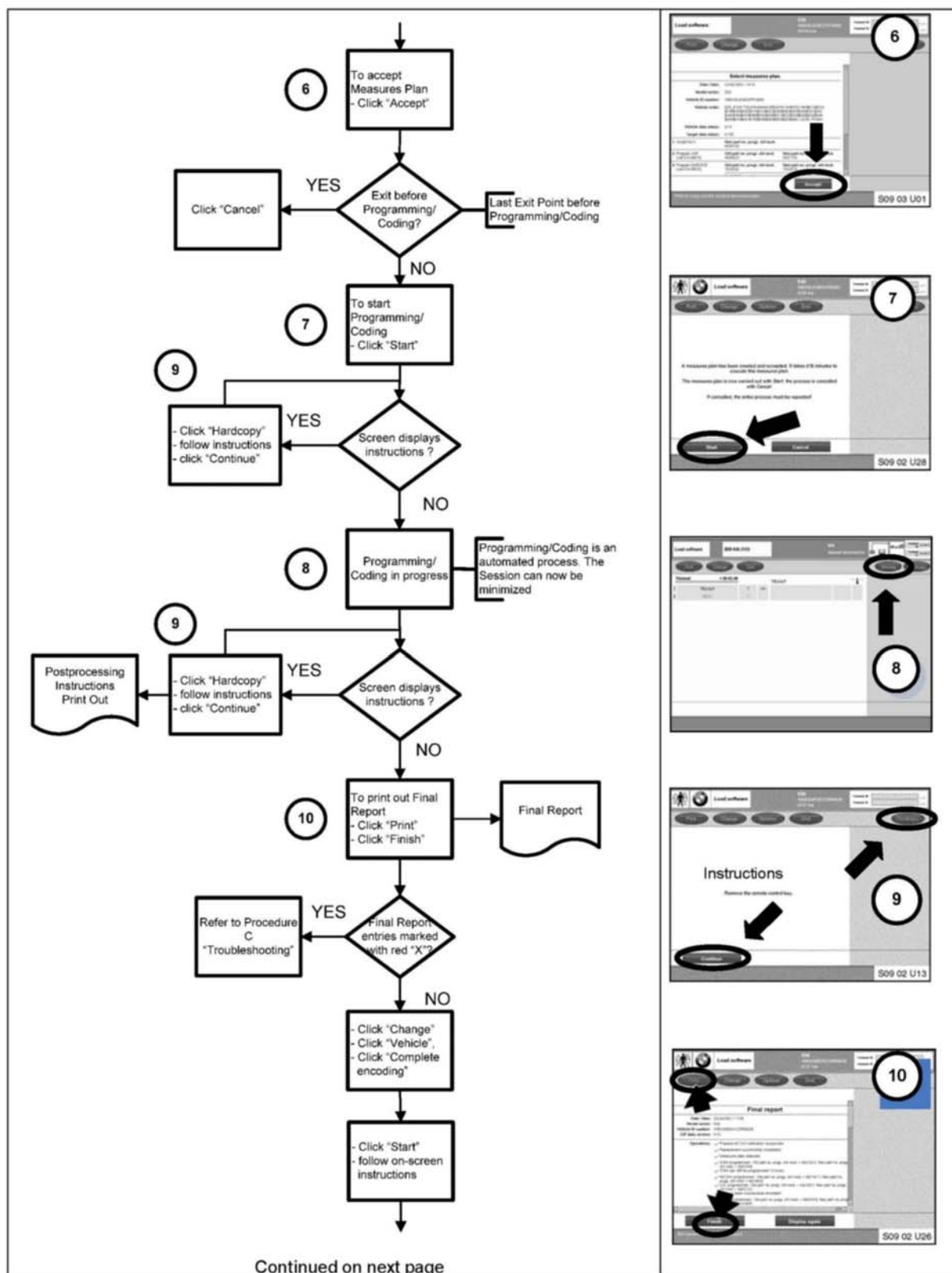
**Any non-communicating control module will lead to a corresponding message in Progman.**

- Carry out a "short test" using DISplus/GT1 Diagnosis to identify and rectify any present complaints; all fault codes must be cleared.
- Print out the CKM (Vehicle and Key Memory) settings – this does not apply to R55 vehicles and later.
- Attach all printed Reports and Measure Plans to the repair order to document the work performed.

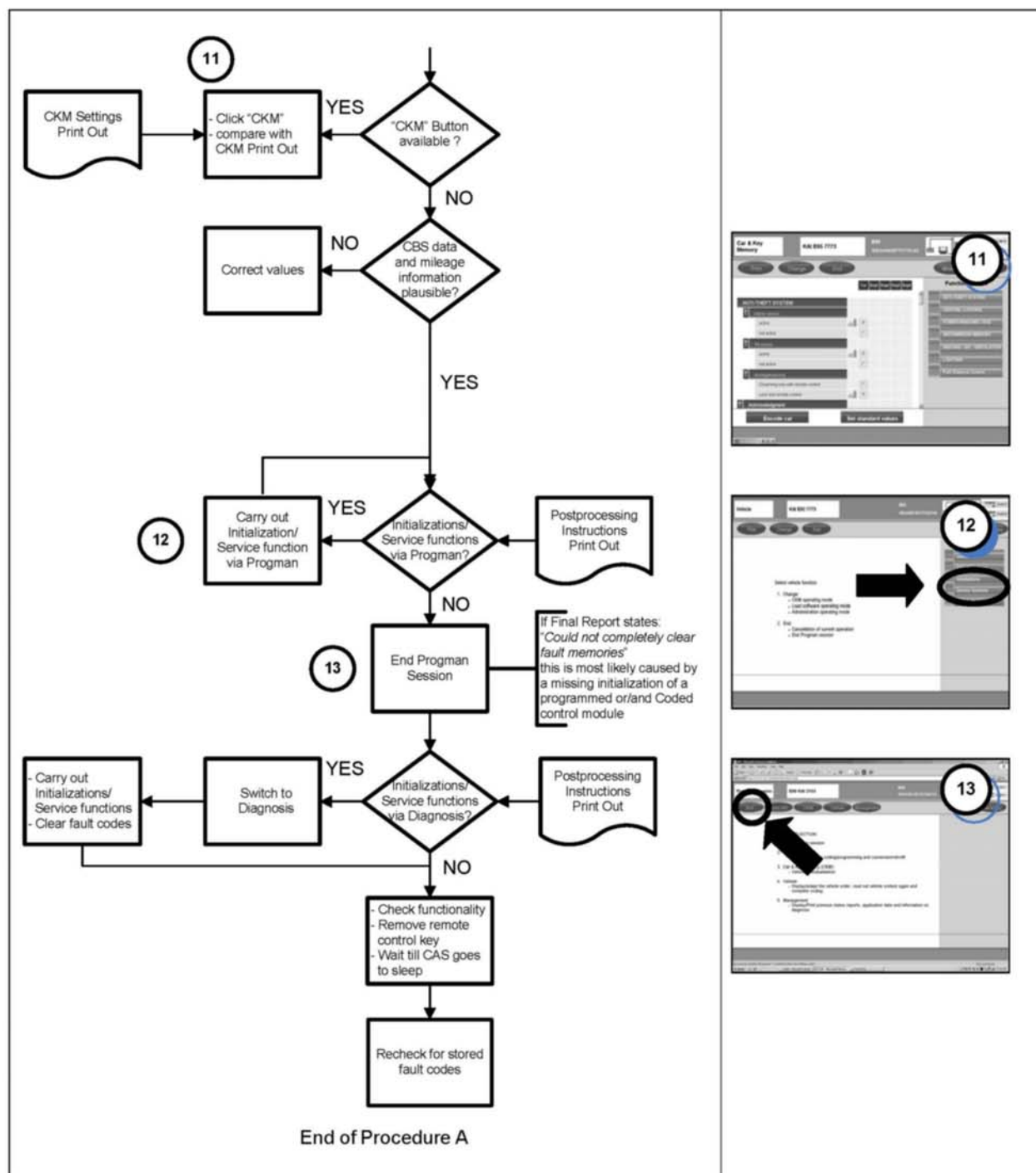
## Procedure A: Module Replacement

Follow the tasks described in the flow chart on the left hand side. For orientation in Progman, refer to the sample screen shots on the right hand side. Please refer to SI M09 07 01, "Programming/Coding Explanations", before starting to work with Procedure A.



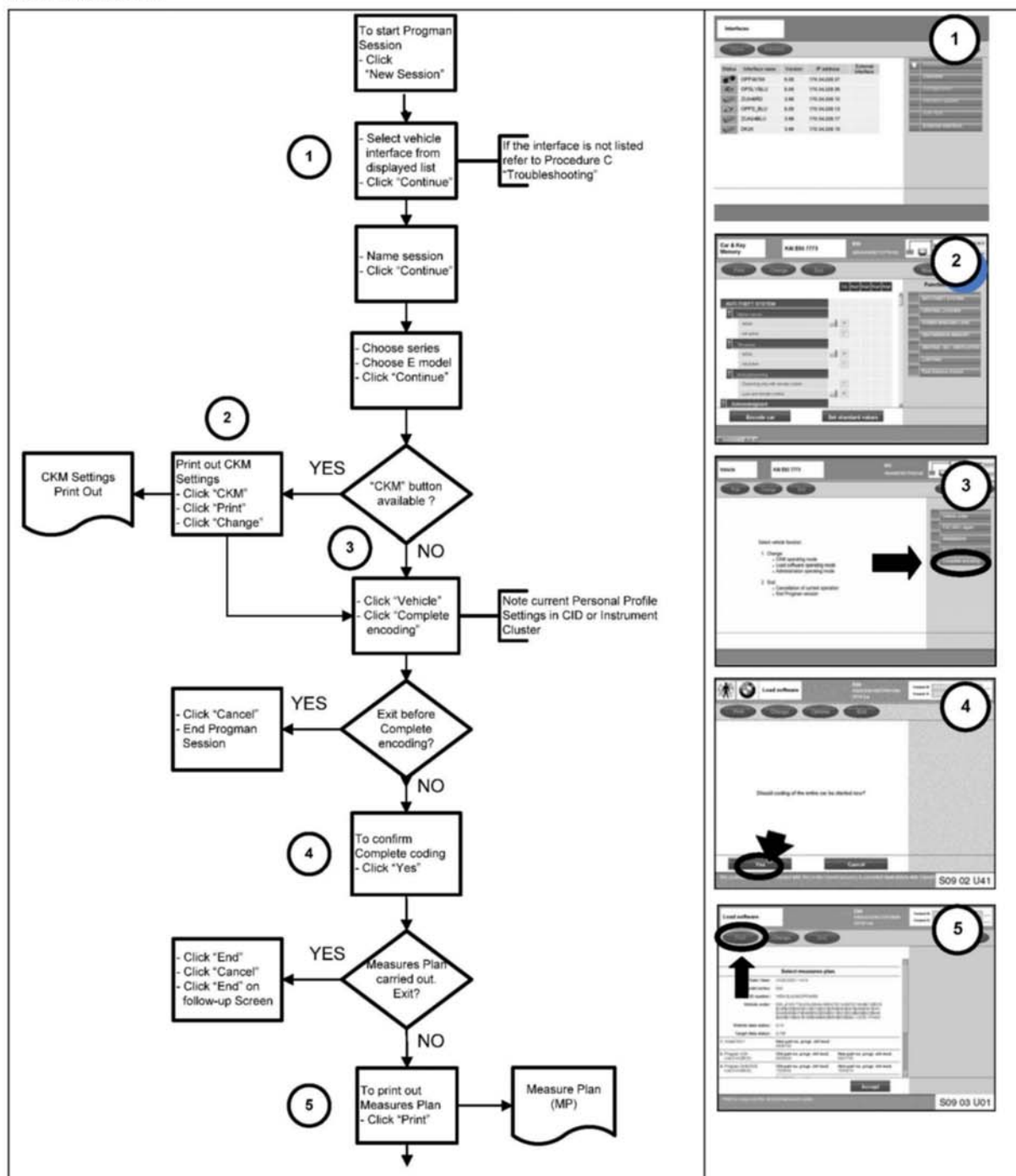


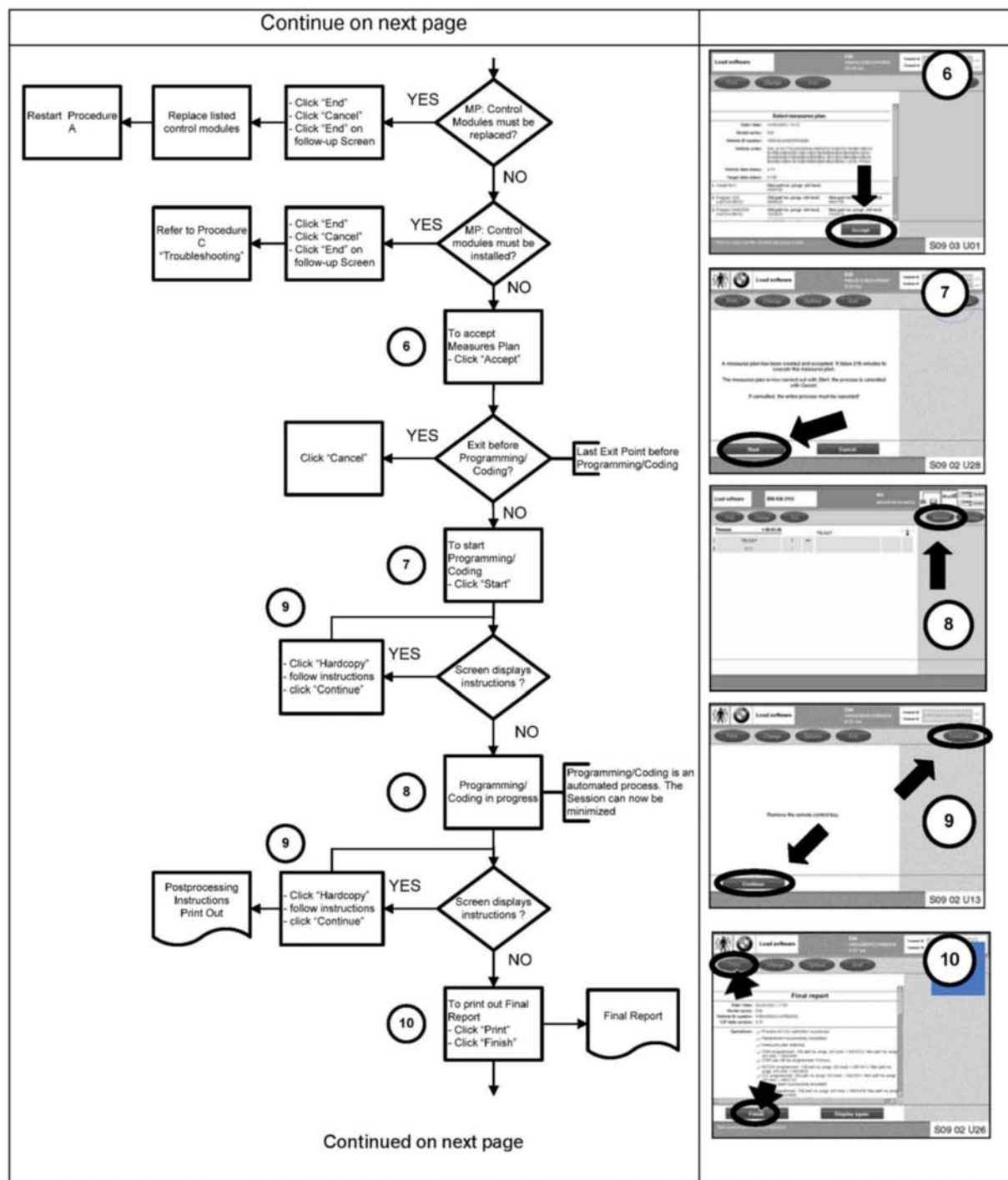


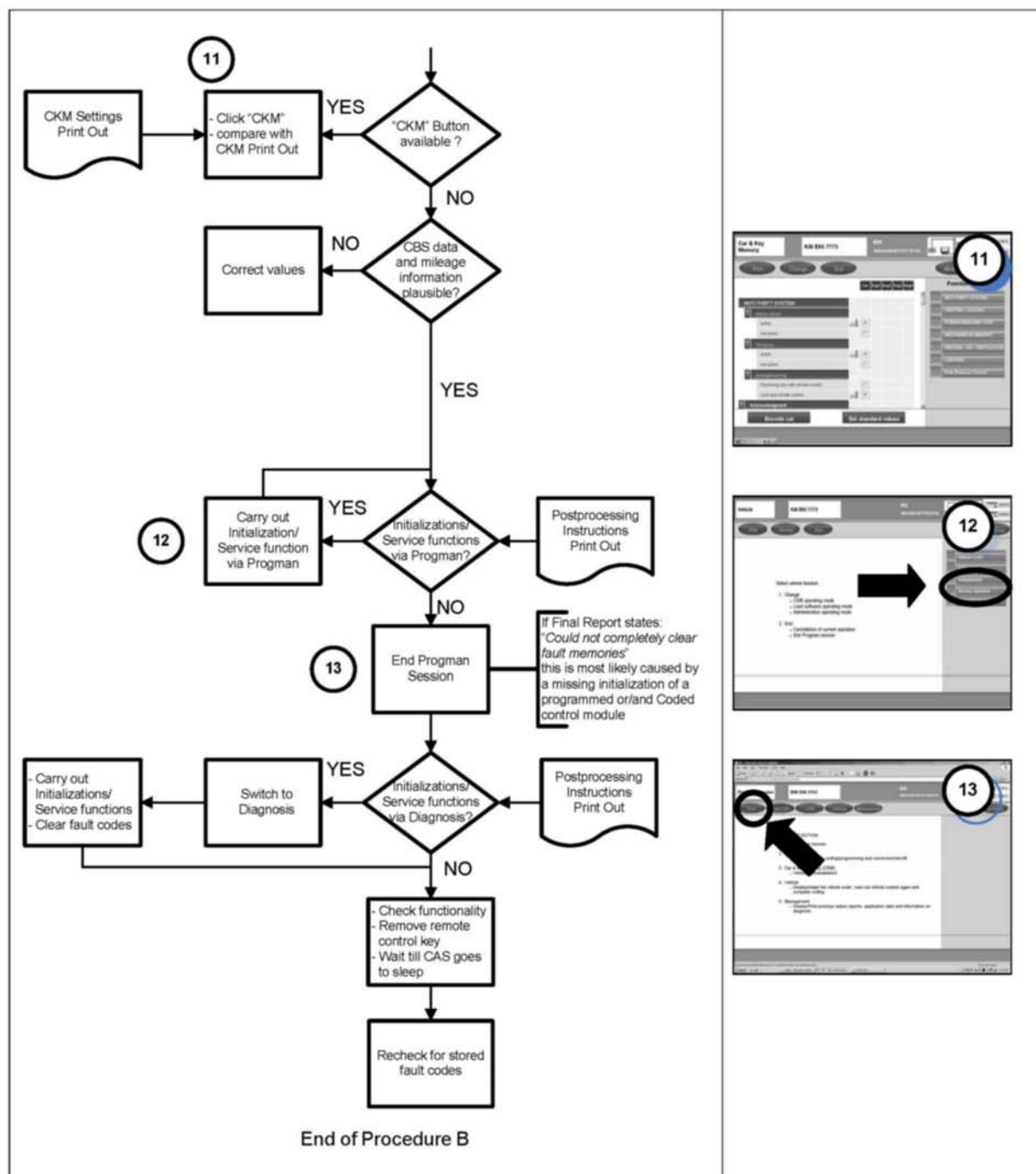


## Procedure B Software Update

Follow the tasks described in the flow chart on the left hand side. For orientation in Progman, refer to the sample screen shots on the right hand side. Please refer to SI M 09 01 07, "Programming/Coding Explanations", before starting to work with Procedure B.











## Procedure C – Troubleshooting

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# 1 Introduction

Procedure C addresses procedures for trouble situations that occur before, during and after programming/coding a car using the Progman application. For orientation within Progman, the situations are arranged into four sections. The sections are ordered in the direction of the Progman application workflow. Each section represents a unit of work steps. Before starting to work with Procedure C, consider in which section your problem occurred. Refer to the table of contents for a page index.

Sections	Start screen of the section
<p><b>Section I:</b> <b>Preparing a Progman Session</b> The User establishes a connection between Progman Application and vehicle.</p>	
<p><b>Section II:</b> <b>Progman Session Initialization</b> Progman Session Initialization. The Progman Application determines vehicle data such as the Vehicle Order and the current data status.</p>	
<p><b>Section III:</b> <b>Before Programming/Coding</b> The Progman Application generates a module list. The Status Report is created. The Measures Plan is calculated. The User reaches the last point of exit before Programming/Coding.</p>	
<p><b>Section IV:</b> <b>After Programming/Coding</b> Progman carried out the Final Report.</p>	

## 2 Section I: Preparing a Progman Session

### Prerequisites:

- The vehicle is physically connected to the interface.
- The button “New session” on the Progman screen was clicked.

### 2.1 Vehicle interface not in list displayed on the Progman Screen

#### Situation:

- The interface is not available on the Progman “Interface” screen.

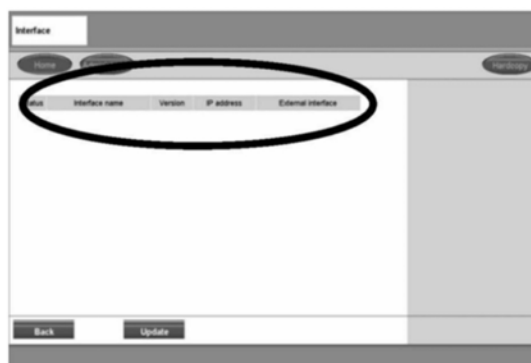


Illustration 1: Progman “Interface” screen

#### Cause:

- Interface is connected to another SSS/GT1/DISplus; or
- Interface is not connected; or
- Interface is booting; or
- Interface software fault; or
- Interface power off.

#### Procedure:

- View the connection side for the OBD cable and network cable on the interface.
- Next to the network cable connection, an LED can be found.



Illustration 2: Interface (OPPS) connection side for the OBD and workshop network

- The LED displays in two colors: green and orange.
- Observe the LED's behavior.
- Refer to the table below for the appropriate procedure.

Display	Interface Status	Procedure
Flashing green	Ready for connection	Update Progman screen
Steady green	Connected SSS/GT1/DiSplus	Find the SSS/GT1/DiSplus that the interface is connected to and disconnect it
Steady orange for less than one minute	Boot process	Wait one minute, then update the Progman screen
Steady orange for less than one minute, then turns off	Software fault	Contact Technical Service
Off	No power	Check the OBD cable connection

Table 1: Interface connection indicator - LED display logic



### 3 Section II: Progman Session Initialization

**Prerequisites:**

- The interface is connected to the Progman application.
- The session was named.
- The series were chosen.
- The Progman screen states that the application determines the vehicle order.

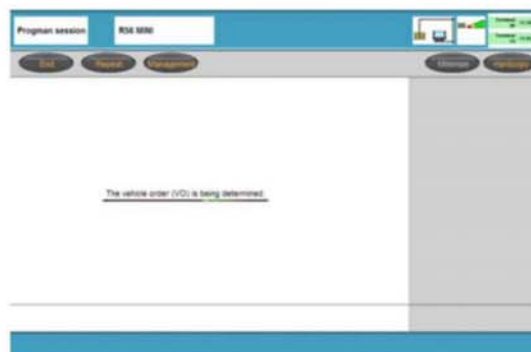


Illustration 3: Progman screen "VO is being determined"

#### 3.1 Screen: Information on the vehicle could not be determined

**Situation:**

- The Progman application states that information on the vehicle could not be determined.

**Cause:**

- The network cable connection between the interface and Progman application is interrupted; or
- The Vehicle Order is corrupted.

**Procedure:**

- View the connection and power supply indicator in the upper right corner of the Progman screen.

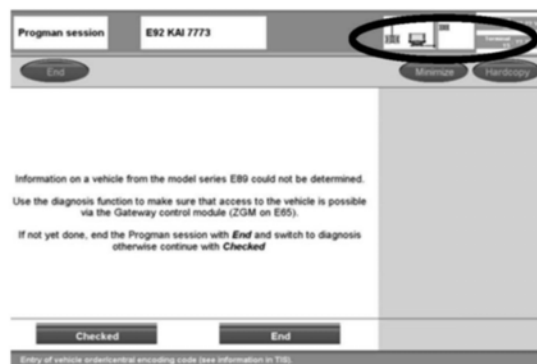


Illustration 4: Information on the vehicle not determined

- If the indicator does not display the connection bar or voltage:

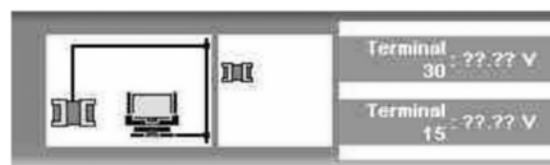


Illustration 5: Detailed connection and power supply indicator: not OK

- Click the "End" button.
  - Check the network cable connections between the vehicle interface and SSS/GT1/DISplus.
  - To ensure uninterrupted programming/coding, do not use wireless connections with the diagnostic head.
  - End and restart the Progman session.
- If the indicator displays the connection bar and the voltage:

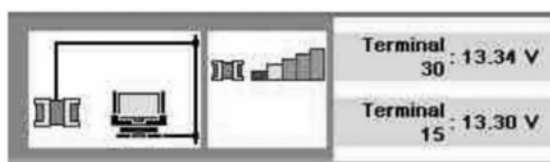


Illustration 6: Detailed connection and power supply indicator: OK

- Submit a PuMA case to receive a vehicle order.

## 3.2 Screen: Communication between the interface and Progman application disturbed

### Situation:

- The Progman application states that "Communication between diagnostic system and radio head is disturbed".

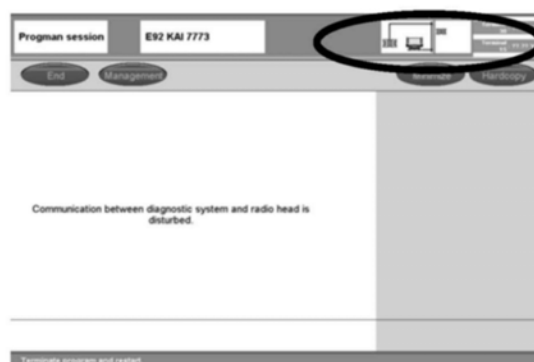


Illustration 7: Progman screen - Communication between diagnostic system and radio head is disturbed

- The connection and power supply indicator in the upper right corner of the Progman screen does not display the connection bar or a voltage.

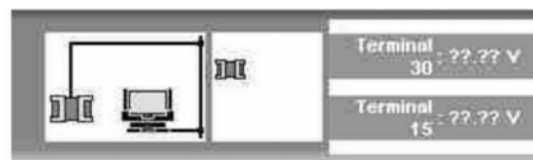


Illustration 8: Detailed connection and power supply indicator: not OK

### Cause:

- The OBD cable connection between the interface and Progman application is interrupted.

### Procedure:

- Click the "End" button to end the Progman session.
- Check the OBD connection on the vehicle and interface connection side.
- Restart the Progman session.

### 3.3 Screen: "Turn ignition on"

**Situation:**

- The Progman screen states "Turn on ignition".

**Cause:**

- The ignition is off; or
- The CAS is defective.

**Procedure:**

- Turn the ignition on.
- Click the "Repeat" button on the Progman screen.
- If the problem persists; or
- If the ignition cannot be turned on:
  - Check the CAS connection. See Repair Instruction M61 35 015 for information, on how to remove a CAS control module from a vehicle.
  - If the problem persists, replace the CAS.
  - Restart the Progman session.

### 3.4 Screen: Initialization unsuccessful

**Situation:**

- The Progman application states that "Initialization was unsuccessful".

**Cause:**

- Progman session lost; or
- SSS deployment is corrupted.

**Procedure:**

- Disconnect and reconnect the OBD cable on the vehicle side.
- End and restart the session.
- If the problem persists, reboot the SSS.
- If the reboot does not solve the issue, reinstall Progman.

### 3.5 Screen: Data status cannot be handled

**Situation:**

- The Progman application states that the data status of the vehicle cannot be handled.

The Progman screen shows current data status and plant data status in brackets, e.g., (R056-07-12-521, R056-07-12-521)

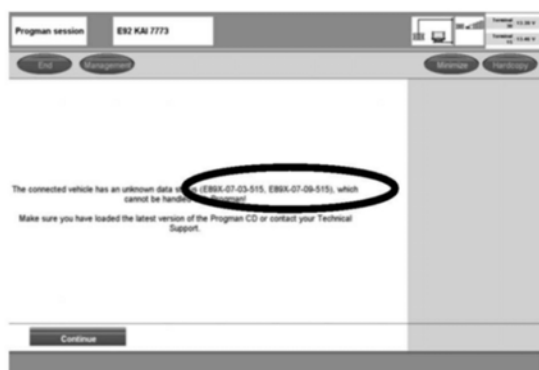


Illustration 9: Progman screen - Unknown vehicle data status

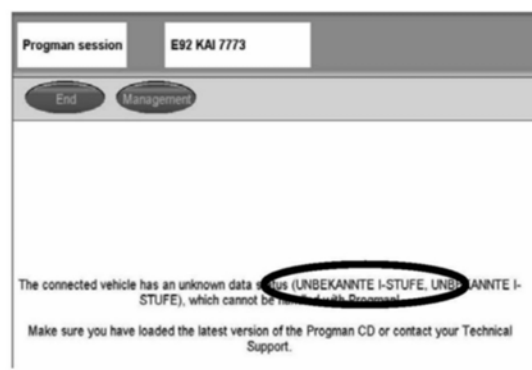


Illustration 10: Progman screen - "UNBEKANNT I-STUFE"

#### Cause:

- Current and/or plant data status of the vehicle is newer than the Progman version; or
- Plant data status is "UNBEKANNT I-STUFE".

#### Procedure:

- Refer to SIM 090707, Progman Version vs. Vehicle data status.

See the attachment if the data status is supported by the Progman version; or

- If the plant data status (second term in brackets) is displayed as "UNBEKANNT I-STUFE":
  - Submit a PuMA case.

## 4 Section III: Before Programming/Coding

### Prerequisite:

- The Progman session was initialized successfully.
- The Progman screen “Program Selection” is displayed.
- The “Load SW” and “Vehicle” buttons are available.



Illustration 11: “Progman Program Selection” screen

**Situation:**

- [illegible]

**Cause:**

- Procedure:**

- 
- Terminal 30 - ??,?? V
- Terminal 15 - ??,?? V

- Click “Cancel Update” and end the Progman session.
- Check the OBD connection on the vehicle and interface connection side.
- To ensure uninterrupted programming/coding, do not use wireless connections with the diagnostic head.
- Check the network cable connections between the vehicle interface and SSS/GT1/DISplus.
- Check the condition of the network cables.
- End and restart the Progman session.
- Repeat programming and/or coding; or
- If the connection and power supply indicator display a connection bar or voltage:

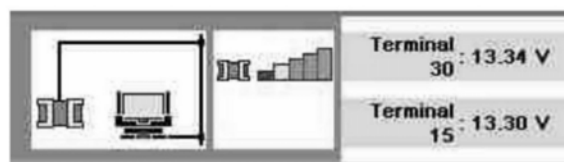


Illustration 14: Detailed connection and power supply indicator OK

- Click "Start Update" on the status report. The follow up screen states: "No further measures necessary".
- End the Progman session.
- Submit a PuMA case, including the data status.

## 4.2 Status Report: All built-in control modules failed to respond/responded incorrectly

### Situation:

- The Progman application created a status report in which every built-in control module failed to respond/responded incorrectly.



Illustration 15: All built-in control modules failed to respond

### Cause:

- The connection between the interface and Progman application is interrupted.

### Procedure:

- Check the connection and power supply indicator in the upper right corner of the Progman screen.
- If the connection and power supply indicator do not display a connection bar or voltage:

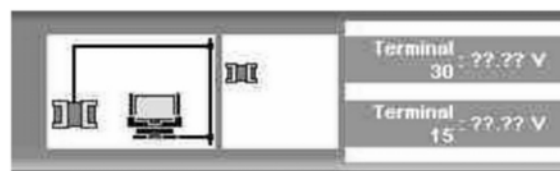


Illustration 16: Connection and power supply indicator not OK

- Click "Cancel Update" and end the Progman session.



- Check the OBD connection on the vehicle and interface connection side.
- To ensure uninterrupted programming/coding, do not use wireless connections with the diagnostic head.
- Check the network cable connections between the vehicle interface and SSS/GT1/DISplus.
- Check the condition of the network cables.
- End and restart the Progman session.
- Repeat programming and/or coding.

### 4.3 Measures Plan entries list control modules to be installed

**Situation:**

- The Measures Plan lists entries that state that control modules must be installed.

**Cause:**

- The MOST-Bus might be interrupted.

**Procedure:**

- If all listed control modules are on the MOST-Bus:
  - Check the MOST-Bus connections on the vehicle interface side and vehicle side.
- If the MOST-Bus was properly connected to the interface:
  - End the Progman session.
  - Unplug the MOST connection on the vehicle side.
  - Close the MOST ring on the vehicle side.
  - Turn the ignition off.
  - Wait 15 minutes.
  - Turn the ignition on.
  - Repeat the programming and/or coding.
- If the problem persists:
  - End the Progman session.
  - Disconnect the OBD connection of the diagnostic head/OPPS.
  - Remove the remote control key.
  - Disconnect the battery charger.
  - Disconnect the battery ground.
  - Wait 16 minutes.
  - Connect all again and turn on the ignition.

- Repeat programming and/or coding.

## 4.4 Measures Plan lists that SINE must be installed

### Situation:

The status report states that the SINE control module did not respond/responded incorrectly.

### Cause:

- The DWA is programmed incorrectly.

### Fix:

- End and restart the Progman session.
- Repeat programming and/or coding until the status report is displayed.
- Click the "Cancel Update" button.
- The control module list is displayed on the right side of the Progman screen.
- Click the button for "DWA".
- Click "Special measure" and perform the special measure.
- If the DWA could not be programmed:
  - End the Progman session.
  - Disconnect the OBD connection of the diagnostic head/OPPS.
  - Remove the remote control key.
  - Disconnect the battery charger.
  - Disconnect the battery ground.
  - Wait 16 minutes.
  - Connect all again and turn on the ignition.
  - Repeat programming and/or coding.
  - If the problem persists, repeat the procedure a second time.
- If the problem persists, replace the DWA.

## 4.5 Measures Plan lists entries that control modules must be replaced

**Situation:**

- The Measures plan lists entries that state that the control modules must be replaced.

**Cause:**

- Wrong part might be installed in the vehicle.

**Procedure:**

- Contact the parts department and let them check whether the control module installed in the vehicle is correct.
- If the installed control module is correct:
  - Submit a PuMA case.

## 5 Section IV: After Programming/Coding

### Prerequisite:

The automated programming and/or coding process is finished.

### 5.1 Minimized Progman session cannot be retrieved

#### Situation:

- A Progman session cannot be retrieved after being minimized while programming.
- After trying to retrieve the session, Progman states "Initialization was unsuccessful".

#### Cause:

- The session is lost.

#### Procedure:

- Although the session is lost, the application will continue to program the vehicle in the background.
- Observe the minimized session bar on the right hand side of the Progman screen.



Illustration 17: Minimized session bar

- If the session bar is not yellow, and there is no exclamation point in a triangle on it:
  - Estimate the time until the programming and/or coding should be finished.
  - Wait for the estimated time until the session bar text becomes yellow and/or shows the exclamation point in a triangle on it.
- If the session bar is yellow, and/or shows an exclamation point in a triangle on it:

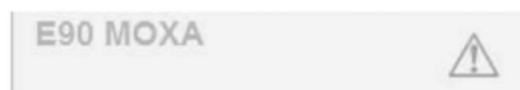


Illustration 18: Session bar

- Progman awaits user input, which means programming and/or coding was probably performed and only initialization and service functions have to be carried out; therefore:
  - Reboot SSS and restart the session.
  - Repeat programming and/or coding.

## 5.2 Final report entry: Diagnostic Trouble Code 14031

### Situation:

- In the "Operations" row, the final report states entry "Diagnostic Trouble Code 14031".
- The entry usually occurs in combination with programming and/or coding error entries for a number of control modules.



Illustration 19: Final report "Diagnostic trouble Code 14031"

### Cause:

- The connection between the interface and Progman application is interrupted.

### Procedure:

- Check the OBD connection on the vehicle and interface connection side.
- To ensure uninterrupted programming and/or coding, do not use wireless connections with the diagnostic head.
- Check the network cable connections between the vehicle interface and SSS/GT1/DISplus.
- Check the condition of the network cables.
- End and restart the Progman session.
- Repeat programming and/or coding.

## 5.3 Final report: control modules are marked with a red "X"

### Situation:

- All or single entries on the final report are marked with a red "X".
- There are three different types of control modules.  
The situation can occur with each type of control module in the following combinations:
  1. The control module is programmable and able to be coded.
    - a) Control module could not be programmed but was coded.
    - b) Control module could be programmed but not coded.

- c) Control module could not be programmed or coded.
- 2. The control module is programmable but not able to be coded.
  - a) Control module could not be programmed.
- 3. The control module is able to be coded, but not programmable.
  - a) Control module could not be coded.

**Cause:**

- Programming abort; or
- Control module did not boot correctly; or
- VO is faulty; or
- Coding data is faulty; or
- Timeout during programming and/or coding.

**Procedure 1a) and 2a):**

- End and restart the Progman session.
  - Repeat the programming procedure until the Measures Plan is displayed.
  - If the Measures Plan states to program the relevant control modules:
    - Repeat programming at least 2 times.
  - If the problem persists:
    - Submit a PuMA case.
  - If the Measures Plan lists entries that state that the control modules must be installed:
    - Click "Cancel Update".
    - Click the relevant control module in the control module list shown on the right side of the Progman screen.
    - If the "Special measure" button is available:
      - Perform the Special measure.
- If the "Special measure" button is available; or
- If the problem persists:
    - End the Progman session.
    - Disconnect the OBD connection of the diagnostic head/OPPS.
    - Remove the remote control key.
    - Disconnect the battery charger.
    - Disconnect the battery ground.
    - Wait 16 minutes.
    - Connect all again and turn on the ignition.
    - Repeat programming and/or coding.

- If the problem persists, repeat the procedure a second time.
- If the problem persists repeatedly:
  - Replace the control module.

**Procedure 1b) and 3a):**

- End and restart the Progman session.
- Click "Vehicle".
- Click "Complete encoding".
- Perform "Complete encoding" at least 2 times.
- If the problem persists:
  - End the Progman session.
  - Disconnect the OBD connection of the diagnostic head/OPPS.
  - Remove the remote control key.
  - Disconnect the battery charger.
  - Disconnect the battery ground.
  - Wait 16 minutes.
  - Connect all again and turn on the ignition.
  - Repeat programming and/or coding.
  - If the problem persists, repeat the procedure a second time.
- If the problem persists repeatedly:
  - Submit a PuMA case.

**Procedure 1c):**

- End and restart the Progman session.
- Repeat the programming procedure until the Measures Plan is displayed.
- If the Measures Plan states to program and code the relevant control modules:
  - Repeat programming and coding.
  - If the problem persists, repeat the procedure a second time.
- If the problem persists repeatedly:
  - Submit a PuMA case.
- If the Measures Plan lists entries that state that the control modules must be installed:
  - Click "Cancel Update".
  - Click the relevant control module in the control module list shown on the right side of the Progman screen.

- If the "Special measure" button is available:
  - Perform the Special Measure.
- If the "Special measure" button is not available; or
- If the problem persists:
  - End the Progman session.
  - Disconnect the OBD connection of the diagnostic head/OPPS.
  - Remove the remote control key.
  - Disconnect the battery charger.
  - Disconnect the battery ground.
  - Wait 16 minutes.
  - Connect all again and turn on the ignition.
  - Repeat programming and/or coding.
  - If the problem persists, repeat the procedure a second time.
- If the problem persists repeatedly:
  - Replace the control module.



## 5.4 Final report entry: could not completely clear fault memories

### Situation:

- The final report shows the entry marked with a yellow exclamation point: "could not completely clear fault memories".

### Cause:

- Initializations or and/or service functions might not have been carried out.

### Procedure:

- Perform all necessary service functions and initializations.
- If the problem persists:
  - Check the control module via diagnosis.

## 5.5 Remote control key cannot be inserted into the CAS

### Situation:

After programming the CAS (Car Access System), the remote control key cannot be inserted into the CAS.

### Cause:

- OBD socket pin

### Procedure:

- Click "Hardcopy" to print out the screen with the text "Programming of the CAS control module is completed. To continue, insert the remote...".
- Follow the instructions on the printout.
- If the problem persists:
  - End the Progman session and disconnect the vehicle from the interface.
  - Remove the driver sidekick panel.
  - Put the jumper between pin 1 (wire colors green/red) and pin 16 (wire colors red/blue/yellow) at the back of the OBD II socket.
  - Reconnect the vehicle to the interface and restart the Progman session.
  - Repeat programming and/or coding until the status report is displayed.
  - Click the "Cancel Update" button.
  - The control module list is displayed on the right side of the Progman screen.
  - Click the button for the CAS module.
  - Click "Special measure" and perform the special measure.
  - Note: Remove the jumper when prompted to remove the remote control key.
  - Follow the on-screen prompts to finish the procedure.

- If the CAS could not be programmed:
  - End the Progman session.
  - Disconnect the OBD connection of the diagnostic head/OPPS.
  - Remove the remote control key.
  - Disconnect the battery charger.
  - Disconnect the battery ground.
  - Wait 16 minutes.
  - Connect all again and turn on the ignition.
  - Repeat programming and/or coding.
  - If the problem persists, repeat the procedure a second time.
- If the problem persists, replace the CAS.

## 5.6 Final report states that an entry SINE did not respond/responded incorrectly

### Situation:

After programming and/or coding, the final report states that the SINE control module did not respond/responded incorrectly.

### Cause:

DWA programming abort

### Fix:

- End and restart the Progman session.
- Repeat programming and/or coding until the status report is displayed.
- Click the "Cancel Update" button.
- The control module list is displayed on the right side of the Progman screen.
- Click the button for "DWA".
- Click "Special measure" and perform the special measure.
- If the DWA could not be programmed:
  - End the Progman session.
  - Disconnect the OBD connection of the diagnostic head/OPPS.
  - Remove the remote control key.
  - Disconnect the battery charger.
  - Disconnect the battery ground.
  - Wait 16 minutes.
  - Connect all again and turn on the ignition.
  - Repeat programming and/or coding.
  - If the problem persists, repeat the procedure a second time.
- If the problem persists, replace the DWA.

## Illustrations

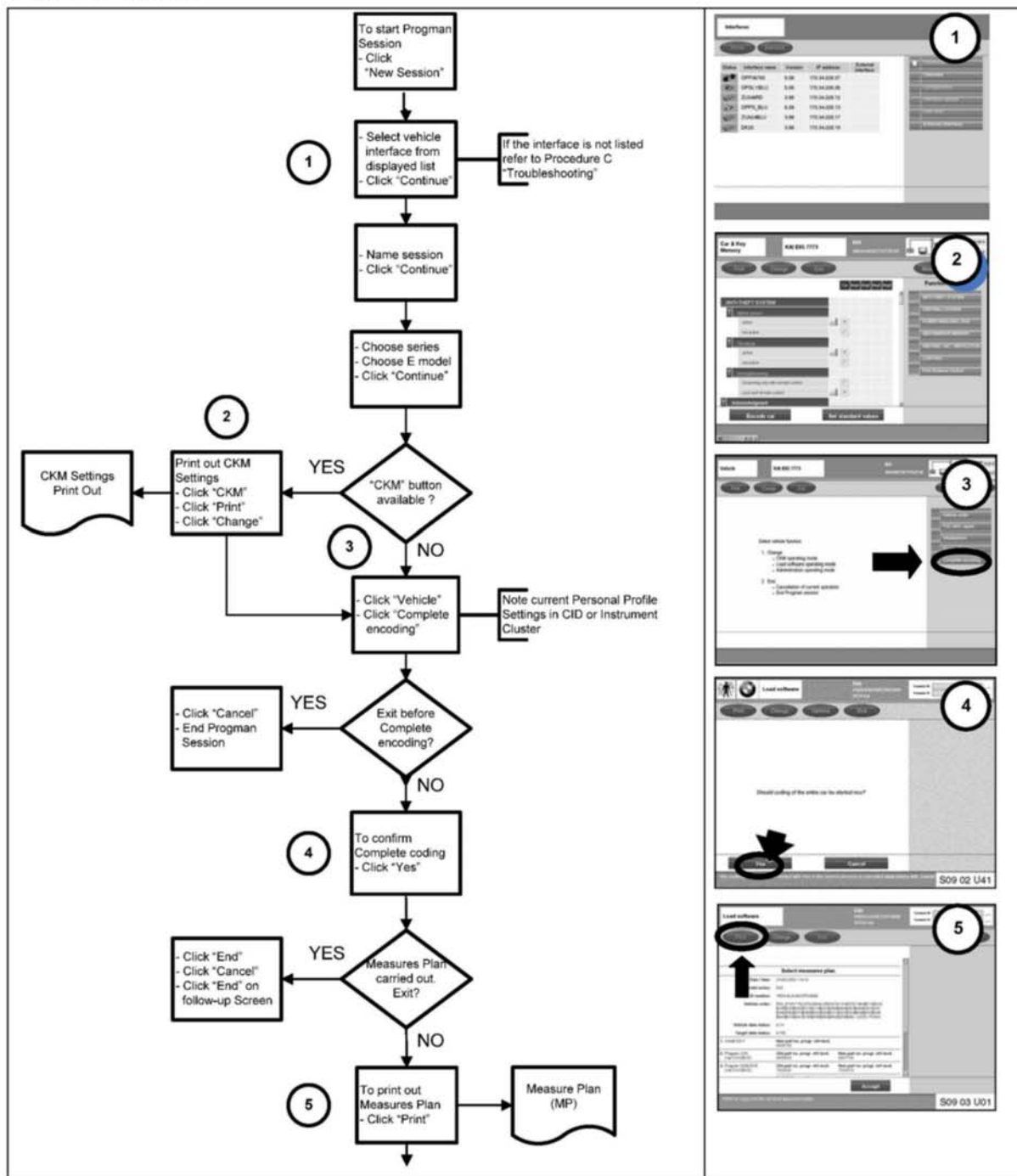
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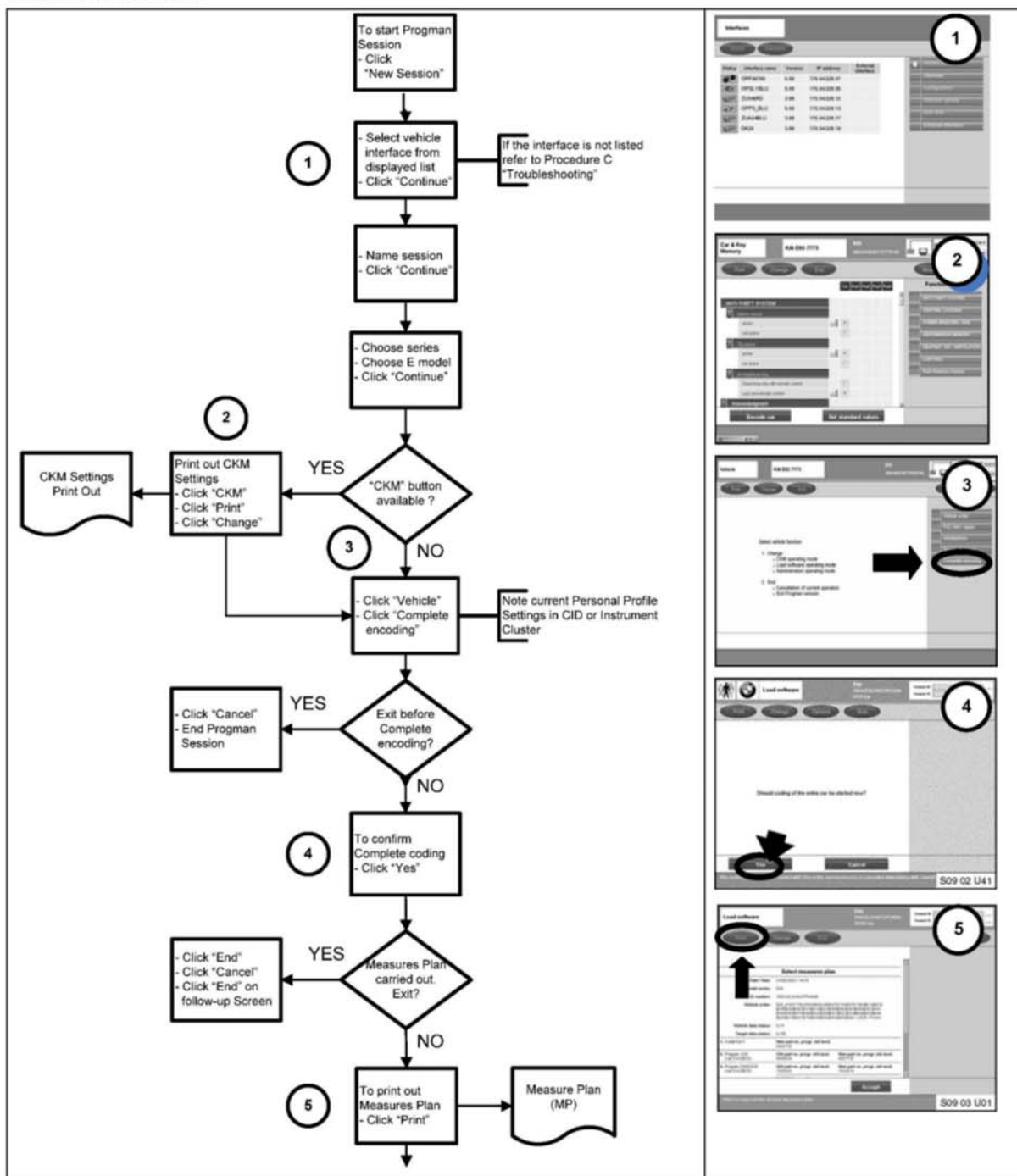
## Procedure E - Coding

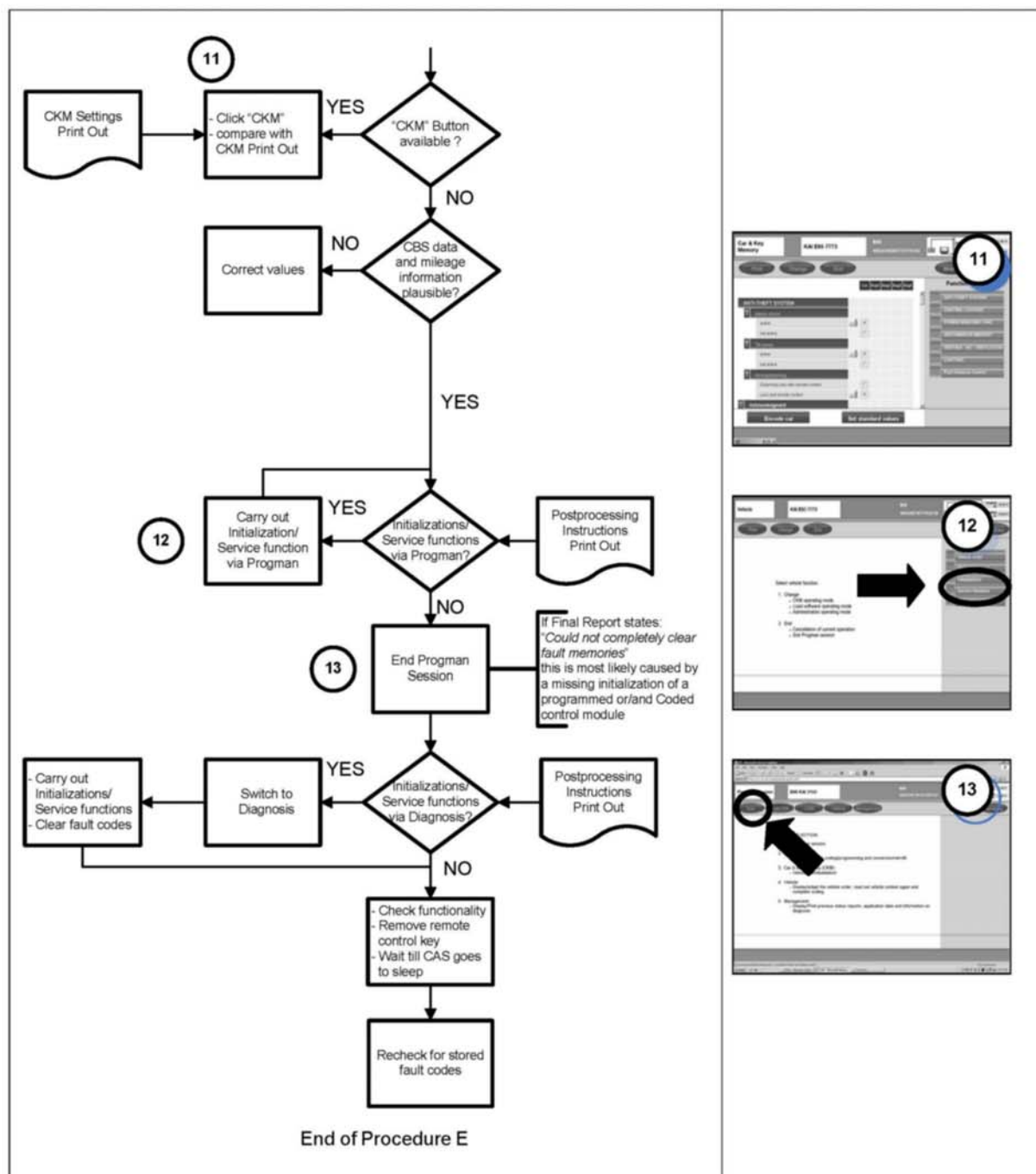
Follow the tasks described in the flow chart on the left hand side. For orientation in Progman, refer to the sample screen shots on the right hand side. Please refer to SI M09 01 07, "Programming and Coding/Explanations", before starting to work with Procedure E.



## Procedure E - Coding

Follow the tasks described in the flow chart on the left hand side. For orientation in Progman, refer to the sample screen shots on the right hand side. Please refer to SI M09 01 07, "Programming and Coding/Explanations", before starting to work with Procedure E.





## SUBJECT

Crankcase Ventilation System Specification

## MODEL

All models

## INFORMATION

All current MINI engines incorporate a pressure-controlled crankcase ventilation system. The crankcase ventilation systems use various different crankcase ventilation valves, depending on the engine type. Although the valves all look different, they function similarly, using a spring and diaphragm assembly to control the crankcase pressure. A properly functioning pressure control valve is designed to maintain a slight vacuum in the crankcase, which assures reliable crankcase venting during all engine operating conditions.

A malfunctioning crankcase ventilation valve may cause the following complaints:

- ^ Engine runs roughly
- ^ Whistling noise from the crankcase ventilation valve
- ^ Check engine light on - possible DME faults stored: misfire all cylinders, oxygen sensor / mixture adaptation faults, etc.

DME faults stored in the memory will vary, depending on the DME version and effect of crankcase pressure (example: mixture adaptation faults, trim faults, etc.)

**Note:**

A higher than normal crankcase vacuum will also cause the crankshaft seals to leak outside air into the crankcase during engine operation. A whistling or howling noise is usually heard coming from the seal areas (front or rear) at idle.

Engine Variant	Specification (mBar)
W10	1.0- 6.0
W11	2.5-4.0
N12	22.0
N14	37.0

Specification and actual readings from the vehicle may vary by up to plusmn;10%, but not more than 2.0 mBar.

## WARRANTY INFORMATION

Information only

Technical Service Bulletin # **M120108**

Date: **080801**

**Engine - MIL ON/DTC's 2746/2B5B/2B5C**

SI M 12 01 08

Engine Electrical Systems

August 2008

Technical Service

## SUBJECT

Service Engine Soon Lamp Illuminated: Lean Mixture Faults Stored in DME

## MODEL

R55 (Cooper Clubman S) with N14 engine

R56 (Cooper S) with N14 engine

Vehicles produced from January 1st, 2008 to June 1st, 2008

## SITUATION

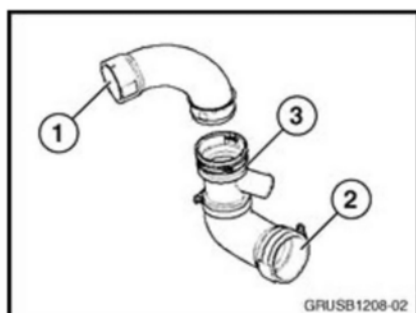
The customer complains that the Service Engine Soon Lamp is illuminated in conjunction with loss of power or hesitation while accelerating. One or more of the following faults are stored:

- ^ 2746 multiplicative mixture adaptation - Mixture too lean



^ 2B5B Air-mass sensor, plausibility - Air mass compared with model too high

^ 2B5C mass sensor, plausibility



1. Connection to the charge air pipe coming from the intercooler
2. Connection to the EDK throttle valve
3. Location of the fractured intake pipe



1. Location of the fractured intake charge pipe

#### CAUSE

An induction leak can occur at the charge air pipe; the fracture is located in the charge pipe, just before the EDK throttle valve.

#### PROCEDURE

On a customer complaint basis, identify the location of the leak, using a smoke machine. If leakage is identified, then replace the intake charge pipe with PN 13 71 2 753 078. A removal procedure for the intake charge pipe is not available; refer to Repair Instruction RA 13 54 030, Removing and installing/sealing throttle valve assembly (N14), to assist in the removal of the charge pipe. Removal of the EDK throttle valve is not necessary.

MINI recommends using the VACUTEC(R) Smoke Machine 625-522B-BMW. This device automatically converts air to high purity nitrogen, using Pressure Swing Absorption (PSA) nitrogen technology. Orders for the VACUTEC(R) Smoke Machine 625-522B-BMW can be placed by calling the Equipment Program.

Part Number	Description	Quantity
13 71 2 753 078	Intake Charge Pipe	1

#### PARTS INFORMATION

<b>Defect Code:</b>	<b>13 72 01 48 00</b>	
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
13 99 000	Refer to KSD	Replacing Intake Charge Pipe

#### WARRANTY INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty

#### ★ ★ FIX IT RIGHT THE FIRST TIME, ON TIME, EVERY TIME ★ ★

For administrative convenience and to reduce costs, this bulletin may contain repair procedures for authorized BMW car centers and/or authorized BMW SAV centers. All references to SAVs and/or the X5 are ONLY intended for authorized BMW SAV centers. Furthermore, ONLY BMW SAV centers are authorized to perform repair and service work on SAVs.

Disclaimer

Technical Service Bulletin # **M650708**

Date: **080501**

jmoraflores@hotmail.cl

**Audio System - CD Player Bezel Rattles On Bumps**

SI M 65 07 08

Audio, Navigation, Monitors, Alarms, SRS

May 2008

Technical Service

**SUBJECT**

CCC: CD Player Bezel Rattles over Bumps

**MODEL**

R55 (Cooper Clubman, Cooper S Clubman) with Car Communication Computer (SA 609)

R56 (Cooper, Cooper S) with Car Communication Computer (SA 609)

**SITUATION**

The customer states that while driving over rough roads or bumps, a rattling noise is heard near the CD player in the CCC.

**CAUSE**

The CCC bezel ribs come in contact with the CCC brackets.

**PROCEDURE**

The noise can be duplicated by tapping or pressing on the bezel area above the upper right hand side of the CD player (near the "MINI Navigation System" writing).

In the case of a customer complaint, follow the procedure as outlined in the attachment for this service information.

<b>Part Number</b>	<b>Description</b>	<b>Quantity</b>
61 13 6 920 760	Tape	1

**PARTS INFORMATION**

<b>Defect Code:</b>	<b>65 12 45 37 00</b>	
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
65 83 560	Refer to KSD	Removing and installing front panel for Car Communication Computer

**WARRANTY INFORMATION**

Covered under the terms of the MINI New Vehicle Limited Warranty.

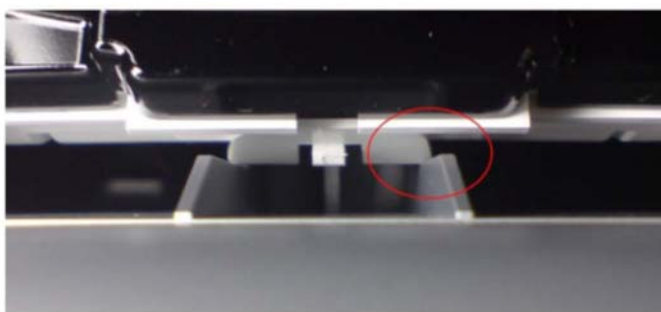
**ATTACHMENTS**

M65 07 08

May 2008

**M65 07 08 Procedure to repair rattle**

1. Remove the front CCC trim panel per repair instructions RA 51 16 150.
2. The 2 pictures to the left indicate the area that is causing the rattle.



3. Install the anti-squeak tape in the area indicated in the picture to the left
4. Reinstall the previously removed trim pieces and verify that the noise is no longer present.

view PDF attachment M650708Procedure.Technical Service Bulletin # **M651108**

Date: **081001**

## **Audio System - Various CD/DVD Issues**

SI M65 11 08

Audio, Navigation, Monitors, Alarms, SRS

October 2008

Technical Service

### **SUBJECT**

Audio Complaints Relating to Audio CD/Audio DVD Drive

### **MODEL**

All vehicles with CD drive, CD changer and/or audio DVD drive

### **SITUATION**

Certain issues with the audio when listening to CDs, such as:

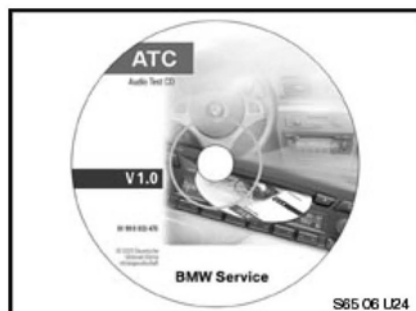
- ^ CD is not accepted
- ^ CD skips
- ^ CD cannot be read

^ Permanent or intermittent audio interruptions

## CAUSE

The CD drive/audio DVD drive is not working correctly, or the media used by the customer is defective.

## INFORMATION



In the case of a customer complaint regarding the CD drive/audio DVD drive, the Audio-Test-CD must be used for a preliminary analysis in the customer vehicle. Audio-Test-CD track # 12 contains the borderline case, in which the CD or audio DVD drive must be able to play CDs without faults.

All the other tracks on the Audio-Test-CD can be used for additional audio system issues.

## PROCEDURE

1. Insert the Audio-Test-CD into the CD drive, audio DVD drive or CD changer.
2. Select and play track # 12.
3. If there is no malfunction (CD skips, interruptions, etc.) when playing track # 12:
  - ^ Do not replace parts.
  - ^ Check the CD used by the customer.
4. If there is a malfunction (CD skips, interruptions, etc.) when playing track # 12:
  - ^ Replace the defective CD/audio DVD drive or CD changer.

### Please note:

- ^ Do not touch the reflective surface.
- ^ Do not stick labels or write on the surface.
- ^ Do not expose the CD to direct sunlight or high temperatures.
- ^ Remove the CD from its protective cover only prior to immediate use.

Part Number	Description	Quantity
01 99 0 033 475	Audio-Test-CD	1

One (1) copy of the ATC will be shipped to every MINI dealer through the Automatic Tool Shipment Program.

Additional copies of the ATC can be ordered if necessary.

## PARTS INFORMATION

Covered under the terms of the BMW New Vehicle Limited Warranty.

**Defect Code****Refer to KSD**

Labor Operation:

Refer to KSD

Labor Allowance:

Refer to KSD

IMPORTANT: The Audio-Test-CD has to be used for a preliminary analysis before replacing parts.

**WARRANTY INFORMATION**Technical Service Bulletin # **640508**Date: **081001****A/C - Control Assembly Damage Information**

SI B 64 05 08

Heating and Air Conditioning

October 2008

Technical Service

**SUBJECT**

Damage to the Air Conditioning Control Panel

**MODEL**

ALL

**INFORMATION**

For occupant safety in the event of a crash, the operating elements must, by law, give a visual indication of a specific level of force. This force is sufficiently high that damage will not occur under normal operation. If this force is exceeded as a result of external factors, and damage is thereby caused to the Air Conditioning Control Panel, this damage is graded as being caused by the use of excessive force.

Typical examples of damage caused by excessive force are, for example, where the temperature controller/rotary controls and buttons on the air conditioning control panel have been pushed in or have impact, scratch or pressure marks. In other cases, the rotary controls and buttons are stiff; they make noise when turned and their function is limited.

In order to be able to identify these cases of damage caused by the use of excessive force, pictures are attached with examples of such cases.

**Example illustrations**

Picture 1: Damage to the surface and buttons by excessive force

Picture 2: Button pushed in too far

Picture 3: Scratched panel surface

If the Air Conditioning Control Panel has clearly been damaged due to the use of excessive force, the replacement part cost cannot be claimed under Warranty.

**WARRANTY INFORMATION**

Control panels which have physical damage are not covered under Warranty.

**ATTACHMENTS**



view B640508Picture\_1.



view B640508Picture\_2.



view B640508Picture\_3.

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Disclaimer

Technical Service Bulletin # **M640508**

Date: **081001**

**A/C - Control Panel Damage Information**

SI M64 05 08

Heating and Air Conditioning

October 2008

Technical Service

**SUBJECT**

Damage to the Air Conditioning Control Panel

**MODEL**

R55 (Cooper Clubman, Cooper S Clubman)

R56 (Cooper, Cooper S)

**SITUATION**

For occupant safety in the event of a crash, the operating elements must, by law, give a visual indication of a specific level of force. This force is sufficiently high that damage will not occur under normal operation. If this force is exceeded as a result of external factors, and damage is thereby caused to the Air Conditioning Control Panel, this damage is graded as being caused by the use of excessive force.

Typical examples of damage caused by excessive are, for example, where the temperature controller/rotary controls and buttons on the air conditioning control panel have been pushed in or have impact, scratch or pressure marks. In other cases, the rotary controls and buttons are stiff; they make noise when turned and their function is limited.

If the Air Conditioning Control Panel has clearly been damaged due to the use of excessive force, the replacement part cost should not be claimed under Warranty.

**WARRANTY INFORMATION**

Control panels which have physical damage are not covered under Warranty.

Technical Service Bulletin # **M320108**

Date: **080801**

**Steering/Suspension - Wheel Alignment Information**

SI M 32 01 08

Steering and Wheel Alignment

August 2008

Technical Service

SUBJECT:

Wheel Alignment Data

MODEL:

All

**INFORMATION**

The need to perform a wheel alignment is generally dictated by a component replacement, such as a steering gear, or to address a customer complaint related to a vehicle's handling characteristics.

Many wheel alignment machines use a multicolored display to indicate alignment measurements, such as camber and toe. Some machines will display a reading in a red font to indicate that an adjustment is recommended. However, a red display in and of itself does not indicate that the vehicle falls outside of the alignment specifications. Since many of the alignment specifications include a tolerance or variation, always refer to the alignment specifications in the Repair Manual.

Please note that brand new vehicles and vehicles which have been suspended on a lift may exhibit some deviation from nominal specifications, due to the fact that the suspension has not fully settled.

**WARRANTY INFORMATION**

For information only

Technical Service Bulletin # **M650908**Date: **080501****Audio System - iPod(R) Discharges After Inactivity**

SI M65 09 08

Audio, Navigation, Monitors, Alarms, SRS

May 2008

Technical Service

SUBJECT

iPod Classic is Discharged after an Extended Period of Inactivity

MODEL

R55\* (Cooper Clubman, Cooper S Clubman)

R56\* (Cooper, Cooper S)

\*Only with USB Audio Interface (option 6FL)

**SITUATION**

When connected to the USB audio interface via the Y-cable and not used for an extended period of time (e.g., the vehicle is parked overnight), the iPod Classic becomes discharged.

When starting the vehicle, the iPod cannot be turned on for up to 30 minutes, due to the extensive discharging of the internal iPod battery. After that time, it can be used again without problems.

For other symptoms when the iPod won't turn on, please refer to the Apple website: [support.apple.com/kb/TS1383?viewlocale=en\\_US](http://support.apple.com/kb/TS1383?viewlocale=en_US)

**CAUSE**

Software (lower than version 1.1) in the iPod Classic

**CORRECTION**

In the event of a customer complaint, inform the customer that the software in the iPod Classic must be updated to version 1.1 or later. This can be done by the customer.

For the software update procedure, the customer should refer to the iPod instruction manual or to the Apple website, [docs.info.apple.com/article.html?artnum=60944](http://docs.info.apple.com/article.html?artnum=60944).



^ The software version of the iPod can be read directly from the device:

1. On all iPod models (except iPod shuffle), press the Menu button repeatedly until you see the Main menu.
2. Scroll to and then select Settings.
3. Scroll to and then select About. Note: This may be labeled "Info" on the original iPod.
4. Information about your iPod appears. You should see a line item labeled Version. You will see the software version installed on your iPod listed to the right.

^ Information on how to detect the software version of an iPod is available online: [docs.info.apple.com/article.html?artnum=60984](https://docs.info.apple.com/article.html?artnum=60984)

## WARRANTY INFORMATION

Information only

### ★ ★ FIX IT RIGHT THE FIRST TIME, ON TIME, EVERY TIME ★ ★

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Disclaimer Technical Service Bulletin # **M650508**

Date: **080601**

## Campaign - Voice Input System Inoperative

SI M65 05 08

Audio, Navigation, Monitors, Alarms, SRS

June 2008

Technical Service

PERFORM THE PROCEDURE OUTLINED IN THIS SERVICE INFORMATION ON ALL AFFECTED VEHICLES BEFORE CUSTOMER DELIVERY OR THE NEXT TIME THEY ARE IN THE SHOP FOR MAINTENANCE OR REPAIRS.

### SUBJECT

Service Action: Check SVS Function

### MODEL

R55 (Cooper Clubman, Cooper S Clubman) with SA609 Navigation System

R56 (Cooper, Cooper S) with SA609 Navigation System

### SITUATION

On certain vehicles, the Voice Input System (SVS SA 620) does not function.

### CAUSE

SVS was not installed in the vehicle.

### AFFECTED VEHICLES

This Service Action involves R55 and R56 vehicles which were produced from October 2007.

In order to determine whether a specific vehicle is affected by this Service Action, it will be necessary to reference the attached VIN list. If the vehicle is included on the VIN list, check the driver's door jamb for a service action label code with code number 37 punched out. If code number 37 is already punched out, this Service Action has already been completed.

Model	Chassis Number Range
R55 Cooper Clubman	TJ46064 – TJ46280
R55 Cooper Clubman Auto	TN66211 – TN66633
R55 Cooper S Clubman	TP70428 – TP87564
R56 Cooper Auto	TT59237 – TT88898
R56 Cooper	TU63937 – TU65209
R56 Cooper S Auto	TV32126 – TV34383

The chassis number ranges listed below are only for informational purposes, and are not to be considered as the only deciding factor.

## PROCEDURE

1. Verify that this vehicle is affected by this Service Information by checking the attached VIN list.
2. If the VIN number is included on the list, submit a PuMA case with the subject "SVS missing SI M65 05 08". **Note** in the case comments if the vehicle has a JCW (John Cooper Works) kit installed.
3. A modified vehicle order (VO) and enabling code (SWT), together with the SVS retrofit instructions, will be attached to the case.
4. Following the retrofit instructions, install any necessary hardware.
5. Import the vehicle order, using the latest version of Progman. **Note:** Other modules may be updated at the same time if the vehicle has an older integration level.
6. After the new vehicle order has been imported, select "CCC" from the module list.
7. Select "Encoding" of the CCC.
8. After the encoding is completed, turn the ignition off and let the CCC go to sleep (after 5 minutes).
9. Check the functionality of the SVS system.SVS system.

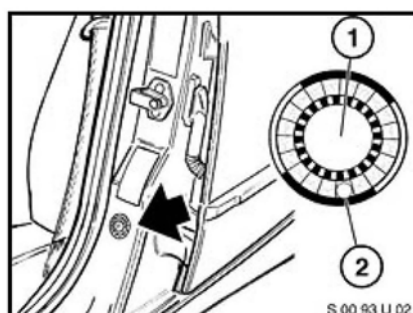
Part Number	Description	Quantity
84 31 6 938 762	Microphone (If necessary)	1
61 11 9 156 289	SVS Harness (If necessary)	1

## PARTS INFORMATION

## LABEL INSTRUCTIONS

This Service Action has been assigned code number 37. After the vehicle has been checked and/or corrected, obtain a label (MD20-036) and:

- A. Emboss your MINI dealer warranty number in the middle of the label (1);
- B. Punch out code number 37 (2), printed on the label; and



- C. Affix the label to the B-pillar as shown.

If the vehicle already has a label from a previous Service Action/Recall Campaign, affix the new label next to the old one. Do not affix one label on top of another one because a number from an underlying label could appear in the punched-out hole of the new label.

## WARRANTY INFORMATION

**Defect Code:** 84 11 25 77 NA

**Labor Operation:**      **Labor Allowance:**      **Description:**

84 99 000      20 FRU      Installation of Voice Input System

Refer to KSD      Refer to KSD      Coding control units

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

Covered under the terms of the MINI New Vehicle Limited Warranty.

## ATTACHMENTS

TJ46064	TT61686	TV32296
TJ46123	TT61762	TV32304
TJ46161	TT83571	TV32377
TJ46168	TT86642	TV32378
TJ46280	TT86644	TV32521
TN66211	TT86685	TV32533
TN66340	TT86748	TV32535
TN66357	TT86762	TV32539
TN66393	TT86822	TV32580
TN66413	TT86876	TV32587
TN66430	TT86916	TV32668
TN66487	TT86921	TV32737
TN66499	TT86997	TV32789
TN66541	TT87117	TV32804
TN66633	TT87364	TV32848
TP70428	TT87446	TV32932
TP70491	TT87599	TV32934
TP70620	TT87749	TV32944
TP70654	TT87777	TV32950
TP87177	TT87910	TV32992
TP87270	TT88043	TV33042
TP87299	TT88293	TV33081
TP87335	TT88322	TV33111
TP87364	TT88378	TV33281
TP87407	TT88612	TV33283
TP87461	TT88786	TV33333
TP87464	TT88831	TV33372
TP87564	TT88898	TV33394
TT59237	TU63937	TV33488
TT59590	TU63939	TV33599
TT59753	TU63972	TV33731
TT59840	TU64117	TV33830
TT59897	TU64186	TV33883
TT60045	TU64744	TV33927
TT60051	TU65022	TV33967
TT60393	TU65127	TV34081
TT60567	TU65209	TV34133
TT60621	TV32126	TV34215
TT60816	TV32132	TV34238
TT60850	TV32165	TV34255
TT61058	TV32238	TV34274
TT61206	TV32285	TV34283
TT61487	TV32291	TV34302
		TV34314
		TV34316
		TV34381
		TV34383

view PDF attachment M650508VIN\_List.

**★ ★ FIX IT RIGHT THE FIRST TIME, ON TIME, EVERY TIME ★ ★**

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Disclaimer Technical Service Bulletin # **M520208**

Date: **080501**

**Interior - Rattle From Rear Seat Back Rest**

SI M52 02 08

Seats

May 2008

Technical Service

SUBJECT

Rattle from the Rear Seat Backrest

**MODEL**

R55 (Cooper Clubman and Cooper S Clubman)

R56 (Cooper and Cooper S)

**SITUATION**

A rattle or squeaking noise may be heard from the rear seat backrest while driving over rough roads. The noise can usually be localized to the latch on the backrest, which secures it in the upright position.

**CAUSE**

Incorrect alignment of the backrest latch and striker

**PROCEDURE**

1. Ensure that the backrest striker is fully engaging the latch when the backrest is folded up, to be sure that this isn't the cause of the noise.



2. Fold down the affected side of the rear seat.
3. Inspect the striker (1) to determine which side (top or bottom) shows witness marks and/or scratches.
4. If the witness marks and/or scratches are on:
  - a. The top Loosen the 2 striker securing bolts and adjust it down 1-2mm.
  - b. The bottom Loosen the 2 striker securing bolts and adjust it up 1-2mm.

**NOTE:**

Do not apply grease, felt or Teflon tape to the striker, as it will not provide a permanent solution.

5. Road test the vehicle to ensure that the noise has been eliminated.

**WARRANTY INFORMATION**

**Defect Code:** 52 20 15 39 00

<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
52 99 000*	3 FRU	Work time to adjust backrest striker

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

Covered under the terms of the MINI New Vehicle Limited Warranty.

**★ ★ FIX IT RIGHT THE FIRST TIME, ON TIME, EVERY TIME ★ ★**

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DisclaimerTechnical Service Bulletin # M110208

Date: 080701

**Engine - Knocking Noise From Engine Compartment**

SI M 11 02 08

jmoraflores@hotmail.cl

July 2008  
Technical Service

SUBJECT  
Knocking Noise from Vacuum Pump

MODEL  
R55 (Cooper Clubman S) with N14 engine  
  
R56 (Cooper S) with N14 engine

SITUATION  
The customer complains of a knocking noise from the engine compartment. The noise is considerably louder when the engine hood is opened.

CAUSE  
The mechanical vacuum pump creates a knocking noise when in operation. The noise should be considered normal.

PROCEDURE  
To verify the source of the noise, disconnect the vacuum hose from the mechanical vacuum pump; this eliminates the knocking noise of the pump.  
  
This is not a failure of the mechanical vacuum pump, but rather the component's characteristic. Do not replace any parts.

WARRANTY INFORMATION  
Information only

**★ ★ FIX IT RIGHT THE FIRST TIME, ON TIME, EVERY TIME ★ ★**

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Disclaimer

Technical Service Bulletin # **M240208**

Date: **080701**

**A/T - Harsh Shifts/Hard To Select 'D' Or 'R'**

SI M 24 02 08  
Automatic Transmission

July 2008  
Technical Service

SUBJECT  
R55, R56 with F21 Transmission - Various EGS Faults Caused by Wiring Harness Damage

MODEL  
R55 (Clubman, Clubman S) with F21 ASIN 6-speed automatic transmission  
  
R56 (Cooper, Cooper S) with F21 ASIN 6-speed automatic transmission

SITUATION  
The customer may complain of the following:

- ^ It is difficult to engage the D or R gears from the Park position.
- ^ Gear shifts are extremely harsh during driving.
- ^ Intermittently, the transmission warning light ("gear indicator") may be displayed.

During the diagnosis, various combinations of the following fault codes may be stored in the EGS module:

- ^ 4E21, 4E22 - Electronic pressure control valve SLT
- ^ 4E2C - Electronic pressure control valve SLU
- ^ 4E35, 4E36 - Electronic pressure control valve SLC1
- ^ 4E3F, 4E40 - Electronic pressure control valve SLC2

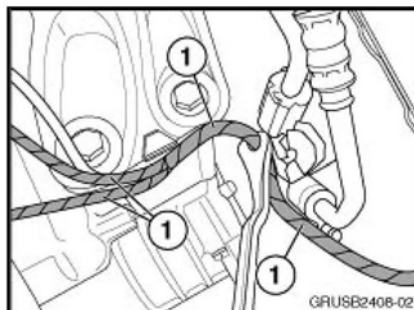
^ 4E4A, 4E49 - Electronic pressure control valve SLC3

^ 4E54 - Electronic pressure control valve SLB1.

### CAUSE

Possibly the transmission wiring harness is damaged and is chafing against the transmission housing; or the A/C condenser pipe or an electronic pressure valve fails intermittently.

### SOLUTION



On a customer complaint basis, prior to executing the appropriate DIS Test Plan, visually inspect the transmission harness in the area close to the transmission mount, and behind the A/C condenser pipe (on top of the gear box areas indicated by # 1).

If chafing is detected, the damaged part of the harness should be repaired and insulated, using a good quality adhesive tape (Wurth Black Cloth Friction Tape, article number 1985 620, may be used for this procedure).

For more information on this product, please visit [www.wurthusa.com](http://www.wurthusa.com) or call 1-800-WURTHUSA.

### Diagnostic Hint:

If there is no defect found in the transmission wiring harness or connectors, then most likely the faults are caused by the intermittent failure of one of the electronic pressure control valves. In such a case, the valve body assembly should be replaced.

Do not replace the complete automatic transmission assembly for the complaints caused by the fault codes related to the electronic pressure control valves.

**Defect Code:** 24 00 38 61 00

<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
24 99 000	7 FRUs	Repair transmission harness

Sublet Code 4\*\* \$4.00 Wurth Black Cloth Friction Tape (Art. # 1985 620)

\*\* Reimbursement of up to the amount listed may be charged to sublet code 4 for the Wurth Black Cloth Friction Tape (Art. # 1985 620) required to perform this repair. Claiming this part number outside of sublet code 4 will result in a delayed or denied claim payment.

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

### WARRANTY INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty or the MINI NEXT Certified Preowned Program.

### ★ ★ FIX IT RIGHT THE FIRST TIME, ON TIME, EVERY TIME ★ ★

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Disclaimer Technical Service Bulletin # M090307

Date: 080501

### CCC(R) - Loss Of Voice Recognition After Programming

SI M 09 03 07

May 2008  
Technical Service

This Service Information bulletin supersedes S.I. M09 03 07 dated May 2007.

[NEW] designates changes to this revision

SUBJECT  
CCC: Enabling Code (FSC) Required to Activate Voice Recognition System

MODEL  
[NEW] R55 (Cooper Clubman, Cooper S Clubman) with CCC Navigation (SA 609)  
R56 (Cooper, Cooper S) with CCC Navigation (SA 609)

## SITUATION

- ^ Progman V25.00.00 or higher prompts the importing of an enabling code during programming.
- ^ Loss of Voice Recognition System (SVS SA 620) functions after programming with Progman V25.00.00 or higher.
- ^ On vehicles produced after March 2007, if a CCC (Car Communication Computer) is replaced an enabling code must be ordered in order to activate the SVS function on the replacement CCC.
- ^ If during the course of diagnosis a CCC needs to be replaced, the only part that should be installed is a new part that has not been previously installed in a vehicle. The CCC enabling code is VIN specific and if installed in another vehicle, the SVS (Voice Input System) will not function. Do not swap parts from donor vehicles.

CAUSE  
Enabling codes (FSC) make it possible to link special functions to a vehicle. Without these enabling codes these functions will not operate. In this specific case, the enabling codes must be imported any time the Car Communication Computer (CCC) is programmed in order to ensure that SVS is functioning properly. If the enabling codes are not imported during the programming procedure, the SVS function will not be available.

## PROCEDURE

Vehicles produced prior to March 2007:

A special DVD (labeled "SWT V1.1") is supplied together with the Progman V25.1 DVD set. The enabling codes contained on this DVD are for all vehicles with CCC and SVS.

After Progman has been installed on the SSS, place the FSC (SWT) DVD into the DVD drive and leave it there. This will ensure that the enabling codes are available for every Progman session as needed.

Refer to the "Procedure" attachment which outlines the procedure on how to import the enabling codes with the SSS.

If an enabling code is not provided following this procedure, refer to the "Parts" information attached to this Service Information.

Vehicles produced March 2007 and later:

Order enabling code, refer to "Parts" information attached to this Service information.

Refer to the "Procedure" attachment which outlines the procedure on how to import the enabling codes with the SSS.

Enabling codes that are downloaded via ASAP or PuMA are contained in a compressed file format. The file must be uncompressed, and the contents copied to the root directory (not in a folder) of a blank formatted floppy disk or burned to a CD.

WARRANTY INFORMATION  
No additional labor allowance included in the allotted programming time.

## ATTACHMENTS



## M09 03 07 Procedure to import enabling codes

3/21/07



1. Before starting a Progman session ensure that the FSC DVD is inserted into the DVD drive of the SSS.
2. Start a Progman session.  
Note: this procedure is only necessary on vehicles equipped with CCC (SA 609).



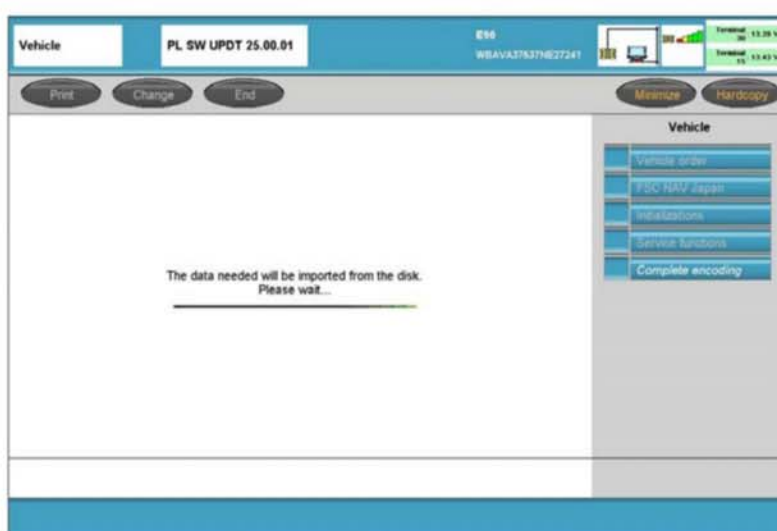
3. The measures plan will display the function to import and activate the enabling codes.



4. If the CCC is part of the Measure plan, the technician will be prompted before the programming begins to import the enabling codes.
5. With the FSC DVD already in the drive select the "Import" button.



6. "Please insert a disk with the enabling codes" and continue.



7. "The data needed will be imported from the disk "please wait..."



8. The message "The following enabling code files must be imported:" is displayed, with the status: "Imported".
9. Select "Import end" and continue.

Vehicle: PL SW UPDT 25.00.01 E90 WBAVA37637HE27241

Print Change End Minimize Hardcopy

Remng. period: 02:57:56

DME/DOE: BO

1	CAS	03:24	✓		
2	JBE	01:12	✓		
3	GW	22:05	✓		
4	SMFA	03:58	✓	CCC-ASK	08:30 ✓
5	CID	03:29	✓	CCC-ANT	03:46 ✓
6	FZD	01:25	✓	BO	47:41 ✓
7	HKA	02:49	✓	CCC-A	115:08
8	MRS	02:50	✓	SDARS	04:06
9	DME/DOE	95:43	✓	AMP	09:19
10	DSC	07:27			
11	KOMBI	05:17			

Cancel

Vehicle:

- Vehicle order
- FSC NAV Japan
- Initializations
- Service functions
- Complete encoding

10. Finish the programming

Vehicle: PL SW UPDT 25.00.01 E90 WBAVA37637HE27241

Print Change End Minimize Hardcopy

✓ Writing individual data to CCC user interface successful  
 ✓ TELAAJF has been successfully encoded!  
 ✓ FRM has been successfully encoded!  
 ✓ EKP has been successfully encoded!  
 ✓ NE27241\_00020001.xml  
 The enabling code has been successfully imported  
 ✓ Software with applic. no. 2 has been successfully activated.  
 ✓ Data status successfully stored  
 ✓ ASR calibration successful  
 ! Could not completely clear fault memories.  
 The following control module(s) contain(s) further entries in the fault memory:

- EGS/SMG
  - 2x1F18 (10003)
  - 2x1F1C (10009)
  - 2x3821 (22343)
- DSC
  - 2x1822 (24058)
  - 2x1880 (24054)

✓ Measures plan successfully carried out.  
 ✓ Car context check carried out.

Finish Display again

Vehicle:

- Vehicle order
- FSC NAV Japan
- Initializations
- Service functions
- Complete encoding

11. The Final Report indicates the following:

- "The enabling code has been successfully imported"
- "Software with applic no 2 has been successfully activated."

view PDF attachment M090307\_Procedure.

## Product Information

February 2007  
Aftersales/Accessories/Parts/Miscellaneous  
Pt: PARTS\_003\_02\_07

### Use of activation codes (FSC) with reference to SA 620 (extended voice input function) in the car communication computer (CCC)

#### Parts

Management
Marketing
Sales of new Cars
Sales of used Cars
<b>Aftersales</b>
Administration

#### Product description

Through the application of activation codes (FSCs), components and functions can be uniquely associated with a particular vehicle. The activation code is an electronic data record generated by MINI using special security mechanisms.

From March 2007 an activation code will be required for the use of the SA 620 in connection with a car communication computer (CCC). It is necessary to copy the activation code into the CCC if:

- 1) Cars built before March 2007 are flashed to this March I-stage or subsequent I-stages, or the CCC has to be replaced during repairs.
- 2) the CCC has to be replaced during repair work for cars built after March 2007.

**This activation code must be copied into the car with the aid of the action plan, via the dealer's programming system. If the code is not transferred to the car, the SA 620 can no longer be used.**

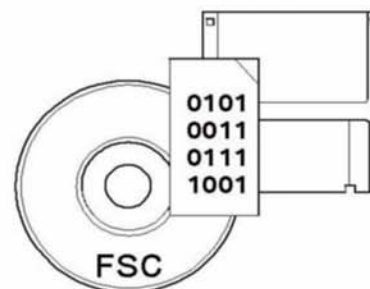


#### Note

A PuMA (Product and Market Support Aftersales) measure is being prepared for this topic! ◀

#### Ordering and delivery of the FSC

- The activation codes are "coded route sections", i.e. FSCs are always generated for a specific vehicle and must therefore be ordered from MINI as FSI parts (Production – Line Section – Invest) quoting the chassis number.
- The FSC for the SA 620 in the CCC must be ordered by quoting the chassis number and the part number that is published in the electronic parts catalogue (EPC) (current part number 6 976 389, on table 651798).



- The FSCs are delivered free of charge in the BMW After Sales Portal (ASAP). The dealer organizations can download the FSC from the Internet onto their PC. The code must then be stored on media such as a CD before it can be copied via the programming system into the car.

#### Availability

From 03/2007

#### EPC DVD

From 03/2007

#### Installation instructions / installation certificate

Aftersales Assistance Portal (ASAP)

#### Part number (EPC Table 651798)

Activation Code CCC	
Voice ASAP	65 83 6 976 389

**Please refer to your price system or the latest price publications for the latest prices.**

view PDF attachment M090307Parts\_FSC.

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SI M 36 02 08

Wheels and Tires

August 2008

Technical Service

## SUBJECT

Tire Monitor Warning Caused by Damaged Wheel Electronics

## MODEL

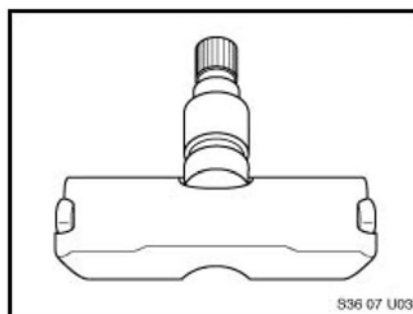
R52 (Cooper and Cooper S Convertible) from 9/07

R55 (Cooper Clubman)

R55 (Cooper S Clubman)

R56 (Cooper and Cooper S) from 8/07

## SITUATION



The Tire Pressure Monitor (RDC) uses separate wheel electronics mounted at the base of each tire valve inside the wheel. Extra care must be taken when changing tires to avoid any damage to the wheel electronics. A damaged wheel electronic can cause the Tire Warning indicator to illuminate. The necessary precautions for mounting and dismounting tires are listed in Repair Instruction 36 12 005 "Replacing a Run-flat tyre or a UHP tyre". When diagnosing complaints related to the RDC system, the tires and wheels should be inspected for damage and/or prior replacement. The last four digits of the tire's DOT number indicate the calendar week, followed by the year in which the tire was produced. This information can be used to determine if one or more tires have been replaced.

## WARRANTY INFORMATION

Wheel electronics which are damaged from improper mounting/dismounting procedures and/or road hazards are not covered under warranty.

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Disclaimer Technical Service Bulletin # M110608

Date: 081201

**Engine - MINI(R) Emblem Missing From Valve Cover**

SI M 11 06 08

Engine

December 2008

Technical Service

## SUBJECT

MINI Emblem Missing from Valve Cover

## MODEL

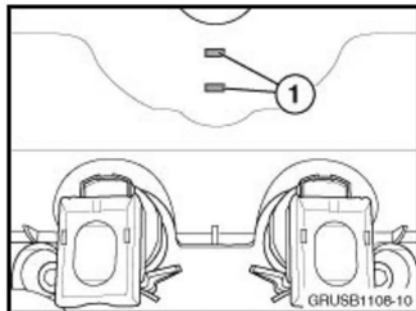
R55 Cooper S Clubman

R56 Cooper S

## SITUATION

The MINI emblem will no longer be installed on the valve cover of the N14 engine as of 03/2008 production. Some vehicles may still have the "old" style valve cover with mounting holes for the MINI emblem.

## PROCEDURE



Mounting holes (1)

If the mounting holes are present in the valve cover, as shown in the illustration below, then the emblem should be installed on the valve cover, using PN 11 12 7 568 034. Do not replace the entire valve cover.

Part Number	Description	Quantity
11 12 7 568 034	Emblem	1

## PARTS INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty.

<b>Defect Code</b>	<b>99 99 01 01 00</b>	
Labor Operation:	11 99 000	Installing emblem
Labor Allowance:	2 FRU	

## WARRANTY INFORMATION

Technical Service Bulletin # **M610102**

Date: **090201**

## Electrical - Required Battery Maintenance

SI M61 01 02

General Electrical Systems

February 2009

Technical Service

This Service Information bulletin supersedes SI M61 01 02 dated December 2008.

[NEW] designates changes to this revision

## SUBJECT

Battery Maintenance Requirements

## MODEL

All (new and used MINI in dealer inventory)

## SITUATION

We are providing a flexible battery maintenance system that can be used by every MINI dealer in accordance with its particular needs. This bulletin announces the 2009 Battery Charging calendars.

## PROCEDURE

The maintenance tracking system provides for 3 distinct options:

1 The vehicle electrical system is "Customer ready".

^ The battery main disconnect switch has been removed; or

^ The vehicle has been taken out of Transport Mode using the BMW Group Diagnosis System

1.1 Vehicle goes into storage (back lot)

A four-week charging cycle and calendar have been established for these cases.

The vehicle arrives, marked with a color-coded round sticker on the windshield. The respective color (one out of four possible colors) designates that the vehicle's battery must be charged in accordance with the new calendar on a four-week cycle.

Also, the vehicle is received with a BATTERY LOG FORM. This form has to be completed upon receipt, and subsequently has to be filed in the BATTERY CHARGE LOG (binder) under the applicable color coded section. All vehicles identified by their respective sheets in one section will have to be recharged in that week.

## 1.2 Vehicle goes into showroom or new vehicle display

A four-week charging cycle will not suffice due to the increased current draw imposed on the battery. This is because of frequent usage of the vehicle's electrical components (demonstrations, product familiarization, etc.).

Use an approved battery charger (recommended charging unit: Deutronic DBL 430) or an external power supply whenever the vehicle is in the showroom.

Please fill in section "A" of the BATTERY LOG FORM upon receipt of the vehicle. Further, the battery voltage should be monitored depending on the extent of customer traffic if the vehicle is subjected to or used for demonstrations. (Maximum: 1 check per day; minimum: 1 check per week.) The battery has to be recharged as frequently as necessary to ensure that the voltage never drops below 12.3V.

Please note every instance of recharging on the BATTERY LOG FORM, section "C". Please file in the BATTERY LOG FORM in the BATTERY CHARGE LOG (binder) under the section "SHOWROOM", to provide an instant overview of the charging activities on these vehicles at all times.

## 2 The battery draw has been minimized for storage purposes.

^ The battery main disconnect switch remains on the vehicle in the "OFF" position; or

^ The vehicle is still in Transport Mode.

With the battery draw minimized, a 12-week charging cycle can be followed. Please use section "D" of the BATTERY LOG FORM to document every occurrence of charging.

Please fill in section "A" of the BATTERY LOG FORM upon receipt of the vehicle. The new windshield labels can be used to track these vehicles, with the exception of those vehicles bearing a "yellow" label. These yellow labels have to be removed and replaced by one of the three applicable colors.

Please file the BATTERY LOG FORM in the BATTERY CHARGE LOG (binder) and also under the "SHOWROOM" section.

## 3 Used vehicles

Used vehicles in MINI dealer inventory should be monitored and recharged according to the above principles. There is no reason why the battery maintenance should be neglected, since poor reliability of a pre-owned MINI may deter a customer from buying a new one at a later date.

The above guidelines for proper battery maintenance are meant to provide maximum flexibility for every MINI dealer. Regional personnel will be happy to assist with setting up an effective charging and monitoring program.

## IMPORTANT:

Always use an approved battery tester to evaluate the battery's state of charge.

On MINIs equipped with maintenance free batteries (with integrated hydrometer - "Magic Eye"), under certain circumstances (vehicle parked for an extensive period of time) due to electrolyte density stratification inside the battery, the internal hydrometer ("Magic Eye") may remain black after recharging even though the battery tester shows it to be fully charged. Such batteries are fully serviceable.

Replace the battery if the battery acid level is too low (Magic Eye light yellow).

Since MINI uses only maintenance-free batteries, DO NOT ADD DISTILLED WATER!

[NEW] If, at any time, the battery open circuit voltage should drop below 12.0V, or a battery replacement is indicated during the CBS handover inspection, perform Energy Diagnosis (refer to SI M61 06 07) to determine the cause. Any necessary repairs should be carried out and the battery MUST BE REPLACED. The replacement battery should be registered using the service function in the diagnosis equipment.

Dispose of all batteries properly, observing legal regulations.

## Charging Procedure:

Battery charging must be performed using an approved battery charger (recommended charging unit:

Deutronic DBL 430) at a constant voltage up to max. 14.8V.



For an optimized charging procedure, the ambient temperature should be between 60°F and 75°F. Under these conditions, the battery can be considered fully charged when the charging current has fallen below 2.5 Amps.

Charges below 60°F should be avoided if possible, since the capacity of the battery to take up current is reduced and the charging time is extended considerably. However, if provisional charging below 60°F is performed, the charging voltage must be set to 14.8V. Charging shall be discontinued no earlier than when the charging current falls below 1.5 Amps.

Further technical notes

To ensure that the battery remains fully charged, start the engine before demonstrating the operation of components to the customer at the time of delivery.

## **WARNING**

**UNDER NO CIRCUMSTANCES** should a vehicle equipped with a battery disconnect switch be sold or delivered to a customer.

When reconnecting the battery, torque the battery nut by following the appropriate specification listed in Tightening Torque 61 21 ...

If a vehicle is used as a demonstrator, the battery disconnect switch **MUST BE REMOVED**.

Under special circumstances where the battery disconnect switch is not removed, extreme caution must be taken not to turn off the battery disconnect switch while driving (for example, when moving the vehicle on the lot).

Since leaving a battery in a discharged state has a detrimental effect on its service life, improper battery maintenance may result in rejected battery warranty claims.

Please note that the procedures outlined above are meant to be guidelines to assist MINI dealers in assuring a sufficient state of charge of vehicle batteries at all times. Following these procedures, however, will not guarantee a sufficient state of charge on all batteries: there may be exceptional cases of excessive current draw through very frequent movement of back lot vehicles, for example, which may call for more frequent recharging than otherwise necessary.

The CBS Handover Inspection must be performed as the last process step, immediately before delivery to the customer! Refer to the Service Information entitled "New Vehicle Preparation and Maintenance Requirements" for the vehicle model concerned.

Upon the sale of a MINI, its BATTERY LOG FORM should be removed from the BATTERY CHARGE LOG (binder) and filed in the vehicle file, to be available for future reference.

Refer to the attachment to this bulletin for the procedure flowchart.

<b>Description</b>	<b>Item No.</b>	<b>Quantity/Price</b>
Windshield labels-white (reusable)	MD20-008	10 per sheet/1.00
Windshield labels-red (reusable)	MD20-009	10 per sheet/1.00
Windshield labels-green (reusable)	MD20-010	10 per sheet/1.00
Windshield labels-yellow (reusable)	MD20-011	10 per sheet/1.00
Battery Log Form	MD20-012	pad of 25/3.00
Battery Charge Log Binder with separators & 75 forms	MD20-015	1/15.00

These items are available online at MINI TIS, under Materials Ordering. Refer to bulletin M10 01 02 for instructions on how to place an order.

PARTS INFORMATION (LABELS, FORMS ETC.)



A battery log form and binder have been developed to assist in tracking the battery maintenance of the vehicles at MINI dealers. The form is 2-sided, which allows the use of a 4-week charging cycle or a 12-week cycle for those vehicles that have the battery draw minimized.

The form will be put in the glove box of each MINI and the charging cycle windshield label will be applied at the VDC. When the vehicle arrives at the MINI dealer, the form should be completed in the first section **(A)**. **This** lists basic vehicle information, with the MINI dealer stock # entered on top.

The form has 3 charging cycles that can be used, depending on the location of the vehicle at the MINI dealer (showroom display or storage); or for vehicles that have the battery draw minimized.

For storage vehicles that do **not** have the battery draw minimized, Section **B** should be used. These vehicles follow a 4-week charging cycle, indicated by the windshield label color (white, red, green or yellow). This section of the form has 4 columns with the 4 individual colors and dates of the weeks when the vehicle must be recharged. The windshield label color indicates the column to be used for the charging cycle. The voltage should be checked and noted before charging and the form initialed after charging has been completed.

Section **C** has been designed for showroom vehicles and all vehicles in a "display" area. Any of these vehicles with a high rate of activity (i.e., customer demonstrations, etc.) should have the battery voltage monitored daily, and if the battery voltage drops below 12.3V, must be recharged and entered on the log form. As a minimum, each vehicle must be monitored once per week.

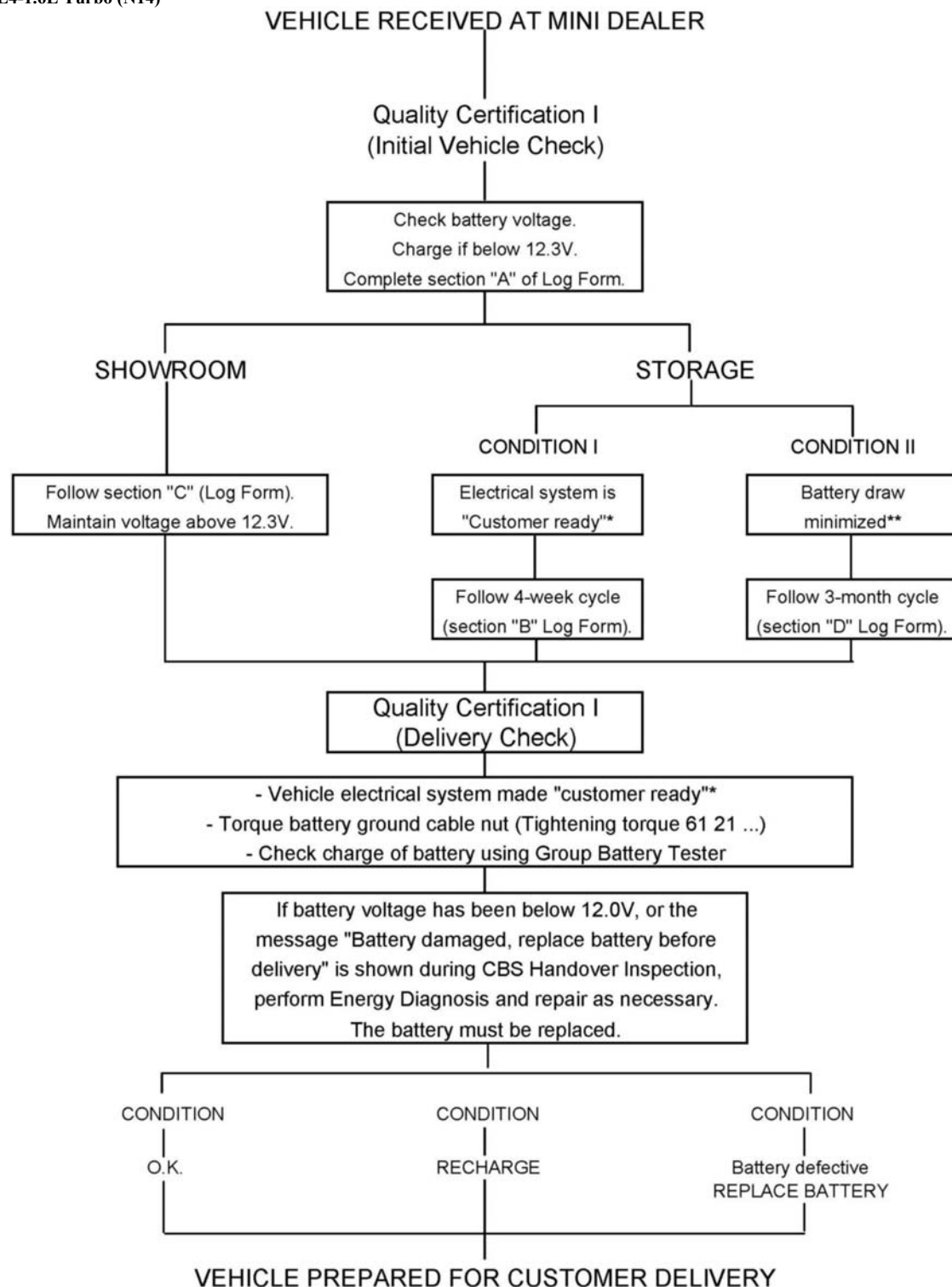
Note 1: For those MINI dealers who have established their own working battery maintenance procedure which falls within the guidelines, Section **C** can be used to track the charging of those vehicles.

Any storage vehicle moved to a display area should then follow the daily or weekly monitoring cycle and should be tracked using Section **C** of the form.

Section **D** should be used for those vehicles with battery draw minimized to extend their battery maintenance requirements. These vehicles will follow the previous 3-month charging calendar. The columns on the form are identified by the colors white, red and green of the 3-month charging calendar, designating the months when the vehicles are to be charged. The windshield labels can also be used to track these vehicles with the exception of the 4th color, yellow. Therefore, the colored windshield labels will be available to reassign a vehicle (with a yellow charging cycle) to another cycle of the 12-week calendar, if necessary.

To facilitate the use of the forms and vehicle monitoring, a BATTERY CHARGE LOG binder was developed with 5 separators to file the maintenance forms by charging cycle. Four of the separators come in the colors of the charging cycles and the 5th separator will be marked SHOWROOM. As each form is received along with a new vehicle, it should then be filed in the binder in the appropriate section for easier tracking.

Each form should remain in the binder until the vehicle is sold, at which point it should be moved to the vehicle history file.



Move Battery Log Form to vehicle history file

\* Battery main disconnect switch removed/out of Transport Mode.

\*\* Battery main disconnect switch installed and turned off/vehicle in Transport Mode.

Attachment - Flow Chart

Technical Service Bulletin # **M340109**

Date: **090101**

## ABS/TCS - TCS Lamp ON/Code 5DF3 Set

SI M 34 01 09

Brakes

January 2009

Technical Service

SUBJECT

Traction Control Warning Illuminated; Fault Code 5DF3 Stored

## MODEL

Cooper with manual transmission (R55, R56)  
Cooper S with manual transmission (R55, R56)  
Cooper S JCW (R55, R56)

## SITUATION

The customer may report that the traction control warning illuminated while driving. Depending on the vehicle's equipment level, fault code 5DF3 "Interface: DME/DDE signal fault" may be stored in either the Automatic Stability Control Module (ASC) or the Dynamic Stability Control Module (DSC).

## INFORMATION

The fault code 5DF3 is set in the ASC/DSC module whenever an implausible signal is received from the Engine Control Module (DME). Therefore, it is important to check the DME fault memory when diagnosing the ASC/DSC fault code 5DF3. If the DME fault memory contains fault code 2FC1 "Clutch switch signal", then the clutch switch input to the DME should be checked. If the clutch switch is not functioning properly, continue diagnosing the clutch switch electrical circuit. If the clutch switch is operating properly, then the most likely cause of the fault is driver error. If the driver rests his or her foot on the clutch pedal while accelerating, the fault will be stored. If operator error is suspected, please inform the customer accordingly.

## WARRANTY INFORMATION

For information only

Technical Service Bulletin # **M840607**

Date: **090401**

**Cell Phone - Bluetooth(R) Hand Set Connects/Disconnects**

SI M 84 06 07  
Communication Systems

April 2009  
Technical Service

This Service Information bulletin supersedes SI M84 06 07 dated August 2007.

[NEW] designates changes to this revision

## SUBJECT

Bluetooth Handset Constantly Connects/Disconnects

## MODEL

R56 (Cooper, Cooper S) with Bluetooth(R) (SA644)

## SITUATION

The Bluetooth connection, between the Interface box (MULF-SBX) and a compatible handset, connects and then disconnects on a cyclical basis.

^ "No phone found" appears in the CID (Central Information Display) every few seconds.

^ The handset alternately displays "Connected to MINI..." and then "Not connected to MINI..."

If a telephone call is in progress, it can no longer be heard via the hands-free system.

**Note:**

Pairing an incompatible handset to the vehicle can exhibit the same complaint if the handset does NOT support a certain Bluetooth protocol. Please review the handset compatibility section of the Service Information bulletin for more details on compatible handsets.

## CAUSE

MULF-SBX software error

## [NEW] PROCEDURE

Program the vehicle using the current version of ISTA/P.

Note that ISTA/P will automatically reprogram and code all programmable control modules that do not have the latest software.

For information on programming and coding with ISTA/P, refer to CenterNet / Aftersales Portal / Service / Workshop Technology / Vehicle Programming".

## COMPATIBLE HANDSETS

Before the complaint can be addressed, the particular handset must be verified for compatibility with the SBX Bluetooth system installed in the vehicle. To confirm whether or not the handset is compatible, visit [www.wireless4mini.com](http://www.wireless4mini.com) for a list of handsets that have passed MINI testing for compatibility. Note the following disclaimer on this web site:

^ "This list is provided for reference only. The mobile phones listed here have passed compatibility tests as of the date of testing and meet or exceed minimum standards established by MINI. The list is not a warranty for phone performance or functionality. MINI makes no guarantees or warranties as to the performance of each phone while connected to your MINI via Bluetooth Wireless Technology. Furthermore, software releases by MINI, the phone supplier or the wireless carrier dated after testing might alter compatibility results. While many phones are offered with Bluetooth Wireless Technology, not all phones support the necessary profiles to work with your MINI. MINI does not guarantee availability or functionality with all wireless carriers. Functions such as synchronizing the address book and transferring a call into or out of the vehicle may function differently from phone to phone".

Covered under the terms of the MINI New Vehicle Limited Warranty.

<b>Defect Code:</b>	<b>84 11 27 11 00</b>	
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
Refer to KSD	Refer to KSD	Program and code control modules

## WARRANTY INFORMATION

Technical Service Bulletin # **M130109**

Date: **090201**

## Fuel System - Fuel Feed Line Removal/Installation

SI M 13 01 09

Fuel Systems

February 2009  
Technical Service

### SUBJECT

Removing and Installing N14 Fuel Feed Line

### MODEL

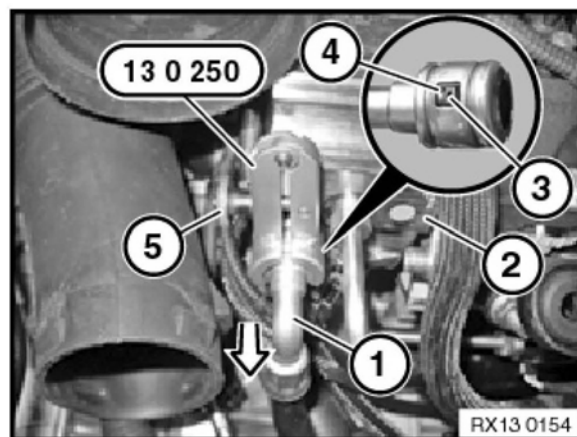
R55 (Cooper Clubman S) with N14 engine  
R56 (Cooper S) with N14 engine  
R57 (Cooper S convertible) with N14 Engine

### SITUATION



Release tool  
Engine: N14  
Use: For releasing the high pressure  
pipe  
ORDER PN 83 30 0 496 242  
Cartool PN 13 0 250

The low pressure fuel feed line that supplies the high pressure fuel pump requires Special Tool 13 0 250 (PN 83 30 0 496 242) for removal. Failure to use this tool will result in damage to its quick connect coupler. Hoses found to be damaged during the Warranty parts inspection will result in the claim payment being rejected.



1. Fuel feed line
2. High pressure pump
3. Fuel feed line coupler
4. Fuel feed line coupler release
5. Thumbscrew to apply pressure on Special Tool 13 0 250

For detailed descriptions of tool operation, refer to Repair Instruction RA 13 31 035.

#### WARRANTY INFORMATION

Information only Technical Service Bulletin # **M630109**

Date: **090301**

### **Lighting - Headlamps Flicker/Move Up And Down**

SI M 63 01 09

Lights

March 2009

Technical Service

#### SUBJECT

Headlamps Flicker and Move Up and Down by Themselves

#### MODEL

R55 (Cooper Clubman, Cooper S Clubman)

R56 (Cooper, Cooper S)

Vehicles produced from August 31, 2006 to February 2, 2009

#### SITUATION

While driving or at idle, the headlamps flicker or sporadically move up or down by themselves.

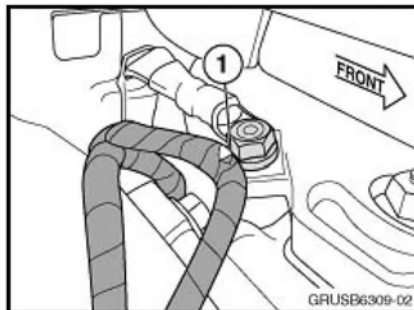
#### CAUSE

The headlamp wiring harness is damaged due to chaffing at the engine ground point.

#### CORRECTION

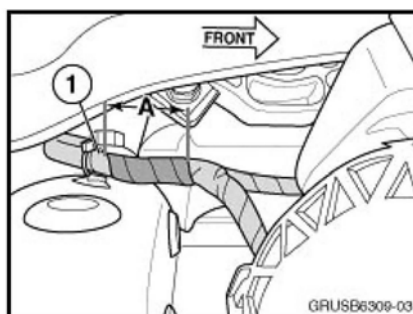
Do not replace any parts.

In the following illustrations, the large arrow points towards the front of the vehicle.



Check the wiring harness for chaffing at the engine ground point (1), located in the right side of the engine compartment.

If the wiring is chaffed, repair any affected wires (refer to M61 02 07). In most cases, reinsulating the affected wires will provide an effective repair. If no chaffing is located, continue troubleshooting other sections of the headlamp wiring.



Apply fabric harness tape for a distance of A=50mm from the clip (1) to close the two harness sections together, and to move the harness away from the engine ground point.

Confirm that the possibility of a future short has been eliminated.

Part Number	Description	Quantity
61 13 6 902 588	Fabric harness tape	As needed

#### PARTS INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty or the MINI Next Certified Pre-Owned Program.

**Defect Code:** 61 11 00 79 00

**Labor Operation:** **Labor Allowance:** **Description:**

66 99 000      3 FRU      Troubleshoot and repair wiring harness and tape to prevent recurrence

Sublet Code 4\*\*      \$1      \*\* Reimbursement of up to the amount listed may be charged to sublet code 4 for the fabric harness tape (P/N 61 13 6 902 588) required to perform this repair. Claiming this part number outside of sublet code 4 will result in a delayed or denied claim payment.

#### WARRANTY INFORMATION

Technical Service Bulletin # **M120209**

Date: **090201**

#### Emissions - MIL ON/Gas Cap Warning ON/EVAP DTC's

SI M12 02 09

Engine Electrical Systems

February 2009  
Technical Service

SUBJECT

jmoraflores@hotmail.cl

## MODEL

R55 (Cooper Clubman and Cooper Clubman S)

R56 (Cooper and Cooper S)

All vehicles from start of production up to September 30th, 2008

## SITUATION

The Service Engine Soon lamp or the Check Gas Cap warning is illuminated while driving. When diagnosed, the DME has stored faults for a small leak, micro leak, super fine leak, or large leak in relation to the tank ventilation or evaporative system.

## CAUSE

Leakage is detected in the tank ventilation or evaporative system.

## PROCEDURE

1. Run the Tank Leakage (DMTL) test plan, using the current diagnostic device loaded with the latest software. If a leak has been detected, remove the fuel cap and inspect for damage, i.e., the seal is torn; the seal is worn; or the seal is curling. If any damage is detected, replace the fuel cap and run the Tank Leakage (DMTL) test plan again, to check repair effectiveness.
2. If no damage has been detected, reinstall the cap and run the DMTL test plan again.
3. If the system is now leak-proof, the customer may have incorrectly installed the fuel cap. No further action is necessary. Advise the customer that after refueling, the cap must be fitted tightly until a click is heard.
4. If the system continues to leak, refer to SI M16 01 07 for detailed leak diagnosis procedures; replace any parts that were identified as leaking.

Covered under the terms of the MINI New Vehicle Limited Warranty.

For vehicles where the **fuel cap was identified as leaking**:

<b>Defect Code:</b>	<b>16 11 02 48 00</b>	
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
16 00 102	Refer to KSD	Checking fuel tank and tank venting system for leaks

For vehicles where the **fuel cap was identified as leaking**:

**Defect Code:** 16 11 02 48 00

<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
-------------------------	-------------------------	---------------------

16 00 102	Refer to KSD	Checking fuel tank and tank venting system for leaks
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*Main Work		with tank leakage diagnosis module (DMTL)
or		

16 00 502	Refer to KSD	Checking fuel tank and tank venting system for leaks
-----------	--------------	--

+ Associated Work		with tank leakage diagnosis module (DMTL)
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For vehicles which had the **DMTL test plan completed successfully (no leak in the system)**:

**Defect Code:** 16 13 91 87 00

<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
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16 00 102	Refer to KSD	Checking fuel tank and tank venting system for leaks
-----------	--------------	--

*Main Work		with tank leakage diagnosis module (DMTL)
------------	--	---

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

If the vehicle has a leak in the system other than the fuel cap then refer to KSD for appropriate Defect Code, Labor Operation and Labor Allowance

## WARRANTY INFORMATION

Technical Service Bulletin # **610109**

Date: **090301**

## Wipers/Washers - Windshield Washer Malfunctions

SI B61 01 09

General Electrical Systems

March 2009

Technical Service

### SUBJECT

Windshield Washer Malfunction

### MODEL

All models

### SITUATION

The windshield washer jets spray a very low volume of fluid, or no fluid at all. In many cases, the strainer, located on the windshield washer fluid pump, has become clogged by debris or an algae-like substance.

### CAUSE

A buildup of debris or the presence of an algae-like substance on the strainer

^ The buildup of debris is typically caused by particles remaining in the system from manufacturing, and primarily occurs on low-mileage vehicles.

^ The algae-like substance is typically caused by using non-approved washer fluid or straight water in the washer fluid reservoir.



## PROCEDURE

1. Remove the washer fluid pump per Repair Instruction REP 61 71 100.
2. When the pump is removed, most of the existing washer fluid in the reservoir should be drained and properly discarded.
3. Replace the strainer, which is installed on the end of the pump. The updated strainer has a larger mesh to avoid future occurrences.
4. Do not replace the washer pump, provided that it is still functioning properly.
5. Refill the washer fluid reservoir with BMW washer fluid at the specified concentration.

Part Number	Description	Quantity
61 66 7 006 063	Strainer	1
83 12 0 405 186	Washer fluid – with Antifreeze	As needed
83 12 0 405 179	Washer fluid – without Antifreeze	As needed

## PARTS INFORMATION

**Defect Code:** 61 66 03 76 00

Labor Operation:	Labor Allowance:	Description:
61 71 100*	Refer to KSD	Remove and install washer fluid pump
61 99 000	WT	Additional work to drain and fill the washer fluid reservoir

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

## WARRANTY INFORMATION

Covered under the terms of the BMW New Vehicle Limited Warranty.

**★ ★ FIX IT RIGHT THE FIRST TIME, ON TIME, EVERY TIME ★ ★**

For administrative convenience and to reduce costs, this bulletin may contain repair procedures for authorized BMW car centers and/or authorized BMW SAV centers. All references to SAVs and/or the X5 are ONLY intended for authorized BMW SAV centers. Furthermore, ONLY BMW SAV centers are authorized to perform repair and service work on SAVs.

## Disclaimer

Technical Service Bulletin # **M510109**

Date: **090201**

## Body - Windshield Damage Evaluation

SI M51 01 09

Body Equipment

February 2009

Technical Service

## SUBJECT

Cracked or Damaged Windshield

## MODEL

All models

## SITUATION

The windshield may become cracked or damaged for a variety of reasons. Although the windshield requires repair or replacement, it is important to take note of the following guidelines regarding what types of damage may or may not be covered by the MINI New Vehicle Warranty.

## CAUSE

Windshield damage is typically caused by one of the following:

1. Outside influence - typically stone chips in nearly all cases
2. Excessive force applied - such as levering out the A-pillar trim
3. Stress crack - due to heavy torsional loads on the vehicle's body or an incorrectly-fitted windshield (least common cause)

## PROCEDURE

When evaluating a cracked or damaged windshield to determine whether it is eligible to be claimed under warranty, it is necessary to determine the root cause of the damage. Reviewing the following possible causes will help to determine the root cause.

## Outside Influence

^ An outside influence is responsible for the damage if:

1. One or more chips are present on the outside of the glass along the crack;
2. A crack started from anywhere other than an outside edge.

^ Run a non-permanent felt tip pen or small marker over the length of the damaged area. Even very minor surface damage will be felt.

^ Often when a small stone chip occurs, the subsequent crack takes time to develop, as the vehicle is subject to normal torsional loads or temperature fluctuations. Any damage due to an outside influence will not be covered under warranty.

## Excessive force

^ A windshield may become damaged due to excessive force being applied while performing other repairs, such as levering out the A-pillar trim or removing a rear view mirror.

^ If the windshield is damaged as a result of excessive force being applied, warranty consideration will not be given.

## Stress crack

^ Under very isolated circumstances, a stress crack may form due to a combination of glass position and heavy torsional loads on the body of the vehicle.

^ These cracks always start from an outside edge of the glass.

^ Most often the cracks begin at one of the corners of the windshield.

^ Stress cracks typically occur within the first year or 10,000 miles of the vehicle's service life.

## Additional Notes:

Only OEM MINI windshields may be considered for a warranty claim where a stress crack is the root cause. If a non MINI windshield was installed in the vehicle, any resulting damage (i.e., cracks, water leaks, etc.) will not be covered. MINI windshields can be identified by a MINI logo stamped on the glass in one of the lower corners.

If the damage to the glass is due to an outside influence, very often the glass can be repaired as opposed to being replaced. For additional information on this repair and recommended repair kits, refer to Parts bulletin 51 09 06.

Covered under the terms of the MINI New Vehicle Limited Warranty.

**Defect Code:** 51 31 00 07 00

**Labor Operation:** **Labor Allowance:** **Description:**

51 31 011\* Refer to KSD Replace windshield – Only applies to stress cracks

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

## WARRANTY INFORMATION

Technical Service Bulletin # **M511308**

Date: **081201**

## **Interior - Center Arm Rest Rattles While Driving**

SI M 51 13 08

Body Equipment

December 2008

Technical Service

### **SUBJECT**

Rattle from the Center Armrest

### **MODEL**

R55, R56 (Cooper, Cooper S, Cooper Clubman, Cooper S Clubman) equipped with the Center Armrest (SA 473)

### **SITUATION**

The base of the center armrest may rattle while driving over rough surfaces.

### **CAUSE**



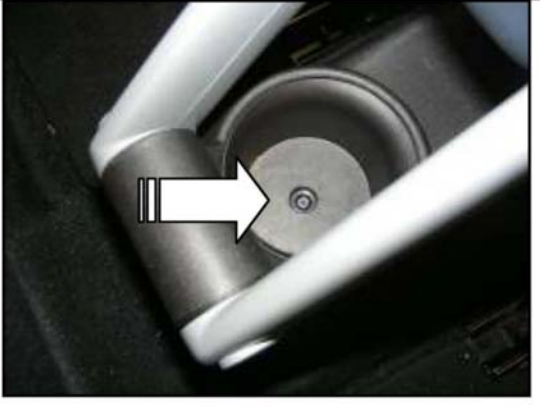
Hard contact between the plastic hinge of the armrest and the metal support bracket




### **CORRECTION**

Apply felt tape to the contact point.

### **PROCEDURE**

**SI M51 13 08**  
**Rattle from Center Armrest –**  
**Repair Procedure**

<b>Procedure</b>	1. Remove the screws at the left and right base of the armrest (T20).	
	2. Remove the side trim covers.	
	3. Remove the screw in the center of the rear cup holder (T20).	

	4. Remove the cup holder by carefully lifting it upwards from the console base, as well as from the armrest hinge.	
	5. Apply 2 strips of felt tape to the hinge supports, as shown.  The felt tape used should be 20mm long (3/4"), and should be located across the top (horizontal surface) of the support and down the front of the support (vertical surface).	
	6. Reassemble the armrest.  Note: When fitting the cup holder, make certain the rear bottom section fits the armrest casting, as shown.  Tighten the screws until snug.	

Refer to the procedure Above to access and isolate the contact point.

Part Number	Description	Quantity
11 12 7 568 034	Emblem	1

## PARTS INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty.

<b>Defect Code</b>	<b>99 99 01 01 00</b>	
Labor Operation:	11 99 000	Installing emblem
Labor Allowance:	2 FRU	

## WARRANTY INFORMATION

Technical Service Bulletin # **M650608**

Date: **090201**

## Audio System - CD Will Not Eject

SI M65 06 08

Audio, Navigation, Monitors, Alarms, SRS

February 2009

jmoraflores@hotmail.cl

This Service Information bulletin supersedes SI M65 06 08 dated June 2008.

[NEW] designates changes to this revision

SUBJECT  
CD Doesn't Eject

MODEL  
R55\* (Cooper Clubman, Cooper S Clubman)  
R56\* (Cooper, Cooper S)

\*Only with MINI Boost CD Radio (option 6FC)

#### SITUATION

Intermittently, the CD doesn't eject from the in-dash radio. If pressure is put on the front panel of the radio, the CD will eject.

#### CAUSE

The radio is not fitted correctly in the bracket on the dashboard.

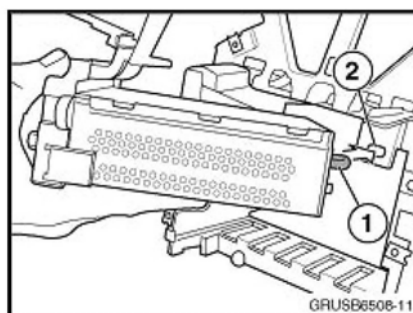
#### CORRECTION

Do not replace parts!

Remove the radio and reinstall it correctly.

#### PROCEDURE

1. Remove the radio from the bracket in the dashboard.
2. Reinstall the radio.



Ensure that the supporting pin (1) at the back of the radio is correctly fitted into the adjustment hole on the radio bracket (2).

3. Test the CD eject functionality after reassembling all parts.

<b>Defect Code:</b>	<b>NEW</b> 65 12 74 02 00	
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
65 11 080*	Refer to KSD	Removing and installing radio receiver (installed unit)
*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.		

#### WARRANTY INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty.

## Audio System - HD Radio(R) Functionality/Diagnosis

SI M 65 02 09

Audio, Navigation, Monitors, Alarms, SRS

February 2009

Technical Service

### SUBJECT

HD Radio(TM) - Functionality and Diagnosis

### MODEL

R55 \*(Cooper Clubman, Cooper S Clubman, Cooper S Clubman JCW)

R56 \*(Cooper, Cooper S, Cooper S JCW)

R57 \*(Cooper Convertible, Cooper S Convertible, Cooper S Convertible JCW)

\*Only vehicles with factory-equipped HD radio(TM) (option 653)

### Important:

HD radio(TM) cannot be retrofitted. There is no retrofit kit and procedure available.

### INFORMATION

The company iBiquity Digital Corporation is the sole developer of HD radio technology with input from radio broadcasters, consumer electronics and broadcast equipment manufacturers, automakers, retailers, and consumers.

iBiquity Digital's IBOC (In-Band On-Channel) Digital Audio Broadcasting technology provides for enhanced sound fidelity, improved reception and new wireless data services. This enhancement to AM and FM offers tremendous growth opportunities for broadcasters, manufacturers, retailers and automotive manufacturers.

What does "HD" stand for?

Originally, the initials "HD" stood for "Hybrid Digital," because the digital signals were carried with the analog wave. According to iBiquity Digital Corporation, that's been changed and the letters "HD" now don't stand for anything. Some articles and news stories have erroneously assumed that "HD" stands for "high definition", which has contributed to the confusion between HD radio(TM) technology and high definition TV.

The term "HD radio"(TM) is iBiquity Digital Corporation's trademarked name for their digital audio broadcasting technology, which has become the IBOC standard adopted for the United States.

How is HD radio(TM) different from current FM and AM radio?

HD radio is a new technology that enables AM and FM radio stations to broadcast their programs digitally, a tremendous technological leap from today's familiar analog broadcasts.

Because HD radio signals are digital, they aren't subject to atmospheric interference in the way that current FM and AM signals are. Background crackle and hiss are eliminated. The effect is similar to the difference between CDs and records.

How does HD radio(TM) sound?

Check it out: [www.hdradio.com/how\\_does\\_hd\\_digital\\_radio\\_sound.php](http://www.hdradio.com/how_does_hd_digital_radio_sound.php)

What is HD2?

HD2 is the term that multicasting stations are using for their secondary digital-only channel. Some stations are using this second channel to offer more specialized programming, such as classical opera, electronica, Latin hits, etc.

What happens if the HD radio(TM) signal is no longer available?

If the HD radio(TM) tuner loses the station's digital signal, it will automatically switch over to the analog signal broadcast at the same frequency. There may be a slight break in the sound when this happens. When the tuner is back in range of the selected station's HD radio signal, it will automatically go back to the digital broadcast.

### NOTE:

This only happens on HD1 radio stations (primary digital channel). On secondary digital-only channels (HD2) or any additional HD subchannels (HD3, HD4, etc.), the audio is muted when no digital signal is available. On MINI vehicles, "No HD" is shown in the display to inform the customer.

BENEFITS OF HD RADIO(TM)

- ^ FM broadcasts have CD-quality sound.
- ^ AM broadcasts will sound as good as today's analog FM stereo.
- ^ Static-free without pops, hiss and fades
- ^ New data services, such as scrolling text displayed on a radio screen with song titles and artist names
- ^ No subscription fees. It is FREE for consumers, just like today's analog AM and FM radio.
- ^ Easy transition for broadcasters and consumers by using the existing infrastructure and spectrum while, at the same time, preserving the existing analog service for as long as needed
- ^ Continue listening to local AM/FM stations on existing analog radios as well as on new HD radio(TM) receivers, with all the added services and benefits that HD radio(TM) offers.

## FREQUENT CAUSES OF HD RADIO(TM) COMPLAINTS

Audio is muted intermittently when an HD2 or HD3 digital-only channel is selected.

- ^ This is normal operation, since there is no analog signal broadcast for that station.

The HD signal often switches back and forth and/or fewer HD radio stations are available at night.

- ^ Many smaller AM radio stations are required to sign off or reduce power sharply at sunset.

An "echo" sound can be heard during the switchover.

- ^ HD radio stations are NOT time-aligning their analog signals with the digital signals.

Sound switches between digital and analog audio quality.

- ^ Reception is at the edge of a listenable area.

Crackling or static can be heard when HD is inactive.

- ^ Signal transmission problems

Crackling or static can be heard all the time.

- ^ Poor antenna connections

- ^ Poor electrical connections (ground or power)

Environmental conditions

- ^ Driving through valleys or between tall buildings

## DIAGNOSIS

Effective radio diagnosis starts with screening the complaint. When a customer complains about a radio problem, it is very important to screen such complaints (as explained above), prior to turning the car in for diagnosing and repairing.

1. Get a detailed description of the complaint from the customer, including the precise circumstances under which the problem occurs.
2. Whenever possible, the customer should be asked to demonstrate the problem.
3. If the problem is caused by external interference, ask the customer which stations or frequencies are delivering poor reception. This will help to determine whether the problem is location or distance-related.
4. Through the customer interview, try to determine whether the problem is intermittent or constant.
5. Determine whether the problem is weather or temperature-related.

Once all pertinent information relating to the complaint has been gathered, perform the following steps:

1. Verify the customer complaint and attempt to duplicate the problem. Find out if the problem occurs on AM band, FM band or both.
2. On vehicles with rear window defogger/grid antennas, thoroughly clean the inside of the rear window with MINI Window Cleaner, using a



lint-free cloth to eliminate any conductive coatings on the glass. The grids can easily be damaged by rubbing too strongly or using an abrasive detergent.

3. Check existing Service Information bulletins in order to determine whether a service procedure has already been developed for the problem in question. If an SI for the problem is available, troubleshooting can begin as described in that bulletin.

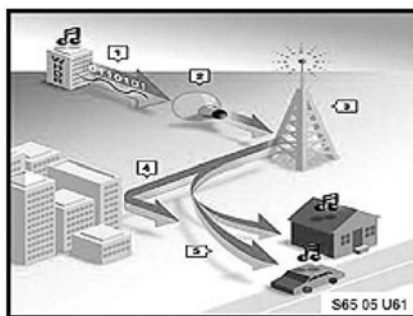
4. If no information can be found in existing Service Information bulletins, it is your responsibility to decide what the logical source of the problem might be, by troubleshooting the vehicle itself. If the problem appears to be in a sound system component other than the radio - or perhaps some other component of the vehicle - the entire system should be diagnosed.

5. Through system diagnosis, it is possible to find things like a loose ground wire on the antenna, or a pinched speaker cable.

## FUNCTIONALITY

### HD radio(TM)

The HD radio(TM) system is designed to permit a smooth transition from current analog Amplitude Modulation (AM) and Frequency Modulation (FM) radios to a fully digital In-Band On-Channel (IBOC) system known as HD radio(TM). This system delivers digital audio and data services to mobile, portable, and fixed receivers from terrestrial transmitters in the existing Medium Frequency (AM) and Very High Frequency (FM) radio bands. It allows digital radio signals to ride the same airwaves as analog AM/FM radio. Broadcasters may continue to transmit analog AM and FM simultaneously with the new, higher quality and more robust digital signals, allowing themselves and their listeners to convert from analog to digital radio while maintaining their current frequency allocations.



1. Stations bundle analog and digital audio signals (with textual data, such as artist and song information, weather and traffic, and more).

2. The digital signal layer is compressed using iBiquity's HDC compression technology.

3. The combined analog and digital signals are transmitted.

4. The most common form of interference, multipath distortion, occurs when part of a signal bounces off an object and arrives at the receiver at a different time than the main signal. HD radio(TM) receivers are designed to sort through the reflected signals and reduce static, hiss, pops, and fades.

5. The signal is compatible with HD radio(TM) receivers and analog radios. analog radios.

In much the same way that a portable CD player digitally stores a short passage of music in order to overcome any momentary interruptions, the interleaver approach, incorporated into IBOC technology, further enhances performance. By "caching" or storing the broadcast into short-term memory, the interleaver allows for the uninterrupted transition between analog and digital signal within the same channel, in order to avoid the drop-off that might occur due to a bridge or other obstruction. In order to deliver instantaneous tuning, the interleaver also seamlessly enables the initial selection of the analog signal and subsequent transition to the digital signal, once properly cached. Compression of audio data will increase transmission without losing sound quality.

By employing the above techniques incorporating multiple digital signal techniques, such as redundant sidebands, blend, first adjacent cancellation, and code and power sharing, iBiquity Digital's IBOC technology is designed to capture a superior robust signal within a station's coverage area. This ensures delivery of the benefits of HD radio(TM) technology.

Provided that sufficient signal strength is available, customers with HD radio(TM) receivers will receive CD-quality sound in the FM band, along with song title and artist information where available, and FM quality sound in the AM band (AM stereo) along with song title and artist information, where available. HD radio(TM) reception range is slightly less than the analog reception range. The HD radio(TM) receiver will revert back (known as a blend) to the analog signal at the edge of coverage. Also, when first tuning into the station, the analog audio will play first, and then the radio will blend over to the digital audio after a short period of time.

### Important:

The Federal Communications Commission (FCC), which regulates US radio transmissions, only allows transmitting of the HD digital signal with a radiated power of "1% of the effective radiated power". For example, if the effective radiated power is 600 watts, the radiated power for the HD digital signal is only 6 watts!

For a complete list of on-air and licensed stations, go to the iBiquity website: [www.hdradio.com/find\\_an\\_hd\\_digital\\_radio\\_station.php](http://www.hdradio.com/find_an_hd_digital_radio_station.php)

## Multicast

Multicasting is a big deal for radio stations and listeners alike. A radio station can now better serve its listeners. For instance, a public radio station can broadcast morning jazz music on one "channel" and morning talk programming on another "channel" (same radio station; same frequency on the dial; but multiple options for the listener). Commercial radio stations will be able to branch out into multiple formats - rock and country, for example. Now consider the possibilities if all of the radio stations in an area have the ability to offer two or three channels for the listener to choose from.

In addition to duplicating their analog programming with an HD radio(TM) broadcast, stations can subdivide the digital portion of their signal. This allows a station to "multicast" - that is, to broadcast two or more programs simultaneously. Listeners might have a choice of, say, a sports game or music.

Being digital only, these additional channels could only be received on an HD radio(TM) tuner. But just as cable TV allowed specialized networks to flourish, multicasting provides the potential for stations to offer more niche programming - ultimately giving the listener a greater variety of formats to choose from.

## Finding an HD2 channel on the radio dial

While multicast channels today are commercial and subscription free, consumers do need an HD radio(TM) receiver that can receive multicast channels. For the most part, to find new HD2 channels, listeners turn the dial from channel to channel in the same manner that they have always tuned in to their favorite radio stations. HD radio(TM) products detect digital and multicast station availability and tune to these stations automatically.

Of the more than 1,100 stations across the country broadcasting with HD radio(TM) technology, more than 500 FM stations are offering a second (HD2) and, in many cases, a third (HD3) multicast channel.

For more information, visit: [www.ibiquity.com/hd\\_radio/hdradio\\_multicasting](http://www.ibiquity.com/hd_radio/hdradio_multicasting)

## ABOUT SIGNAL COVERAGE AREA AND INTERFERENCE

### Useful coverage area

How far away from the radio station being listened to is it possible to receive an HD digital radio signal?

That depends on the local terrain, other radio stations in the area, and man-made interference. All of these things can affect how well a radio station can be received.

Each radio station has a local, distant and fringe coverage area defined by the Federal Communications Commission (FCC), which regulates US radio transmissions. Local coverage is the area where the radio signal is strong, and almost any radio should get good or acceptable reception.

Distant coverage requires a good antenna; smaller portable radios or car radios may not receive the signal or have distortion.

Fringe coverage is the area where reception is possible only with a good stationary external antenna, if at all.

For more technical and overall information (location, coverage, etc.) on radio stations, go to:

[www.radio-locator.com](http://www.radio-locator.com)

An HD radio(TM) should get reliable digital signals in the local coverage area, and may get digital signals in distant coverage areas, depending on the environment. In fringe areas, radios usually don't receive digital signals because, unlike a traditional analog signal that fades out when traveling away from it, the digital signal will simply disappear when the signal isn't strong enough.

### **Note:**

Interference can cause radio reception to vary significantly from one location to another, even in the same area and/or region.

### The antenna

Since HD radio(TM) technology utilizes the same frequencies as traditional AM and FM radio, the antenna system remains the same.

### **Note:**

Therefore, the same problems that occur with normal AM/FM antennas are applicable for HD radio(TM) systems.

Many of the problems that occur with a car and not with a home stereo system stem from the differences between home and car antennas. The car antenna is often multi-directional for tuning in the best possible reception, and a home antenna always remains in one place.

On the other hand, the antenna in a car is much smaller. It sits close to the ground rather than being high in the air and it is always in motion, with rotational movement from the antenna and natural obstacles affecting reception distance.

Given the difficult job car antennas are asked to perform, should problems with AM/FM reception be encountered by customers, it is most likely not the fault of the radio.

The stations the customer is able to receive will depend largely upon signal strength. This varies depending upon the time of day, the season and other factors.

## FM reception

FM reception - which can include the car's local weather band station - usually has better sound quality than AM reception. However, unlike AM waves, FM signals are weaker, delivering reception for only about forty to fifty miles, under even the best conditions.

HD radio(TM) receivers will have slightly less reception range than the traditional FM signal. The radio will blend back to FM analog at the edge of the digital coverage area.

## FM signals transmission situation

With FM signals, several problems can occur as a result of the way in which these signals travel and their relative lack of strength.

HD radio(TM) signals are generally immune to the traditional FM analog problems.

## "Dead Spots"

The first of these problems is called a "dead spot". If a direct FM wave and a reflected FM wave reach the car antenna at the same time, they will cancel each other out.

These "Dead Spots" will be eliminated with the HD radio(TM) receiver.

## "Multipath"

The second problem specific to FM signals is called "multipath". This is similar to a dead spot in that two stations are fighting for the same general frequency. A "multipath" is an area in which a reflected FM signal is occupying a frequency very close to that of a direct signal. If the reflected wave is stronger than the direct wave, the result will be a fluttering sound as the car passes through that area. This happens very often in inner-city areas.

HD radio(TM) signals are designed to be robust in "multipath" environments, eliminating this fluttering effect. HD radio(TM) receivers are designed to sort through the reflected signals and reduce static, hiss, pops, and fades.

iBiquity Digital's IBOC technology overcomes multipath interference and sources of noise through the use of proprietary coding and power-combining techniques. This proprietary approach to error correction utilizes digital processors and powerful algorithms to constantly compare the quality of the two digital sideband transmissions. It combines them to deliver additional power gain whenever possible, and when not possible, seamlessly switching to the more powerful of the two.

## "Fading"

The third problem often encountered with FM signals is called "fading". "Fading" occurs as the car is leaving the effective reception range of the FM station. The signal becomes weak and fuzzy. Because the range of most FM stations is only about forty miles, fading may be experienced quite often during long trips - and even in a motorist's own neighborhood - if a particular FM station is broadcasting forty miles away or more.

HD radio(TM) receivers have slightly less reception range than traditional FM signals. At the edge of coverage, the radio will blend back to the analog signal.

## "Station Swapping"

Another problem often heard when listening to an FM signal is called "station swapping". An FM receiver is designed to search for and lock onto the strongest signal in any area. However, if there are two stations in a given area that are broadcasting on very close frequencies, the radio may "swap" back and forth between these two stations, depending on which signal is stronger.

The HD radio(TM) audio will not be affected by "station swapping". The range of the digital signal may be slightly reduced in this circumstance.

## "Sound is skipping"

The radio sound skips back and forth.

This happens when the HD radio(TM) station is not time-aligning its analog signal with the digital signal.

## Stereo broadcasts

Stereo broadcasts have an effective range of only about forty miles - unlike mono broadcasts, whose effective range is usually about fifty miles. This means that if someone is listening to an FM stereo broadcast and the car is thirty miles away from the transmitter, interference may be experienced.

With a mono broadcast, on the other hand, such interference will not be heard until the car is approximately forty to fifty miles away from the transmitter.

HD radio(TM) signals are stereo up until the point that the signal blends back to analog at the edge of coverage. This is usually occurs somewhere between the effective stereo and effective mono range of the station (in this case, 42 - 45 miles away from the transmitter).

This is normal operation, but the customer could complain of losing the stereo surround sound intermittently.

**Note:**

Sport events are not broadcasted in HD radio(TM) digital audio quality; they are still in mono (analog signal).

### AM reception

AM radio waves generally deliver a powerful, continuous signal over more than a one-hundred mile radius from their point of origin - even in mountainous or inner-city areas.

This is because AM waves are dispersed as ground waves, which follow the curvature of the earth, and space waves, which actually bounce off the upper ionosphere, creating a downward route to the automobile, no matter where it is driven. This factor is much better at night, and also tends to be better in winter than in summer.

**Note:**

Since they are in the same frequency band, AM HD radio(TM) signals are affected the same way as traditional AM signals. Their coverage area is slightly reduced compared with that of AM analog signals.

### AM signal transmission situation

The problem with AM reception is that it is highly susceptible to electrical interference from sources such as power lines, electrical storms, or even from nearby vehicles.

HD radio(TM) signals (since they are digital) are generally more immune to this type of interference, but can still be affected by strong electrical interference. In this instance, the radio will revert to the analog signal.

**Important:**

In the United States, due to the large number of stations, many smaller AM stations are required to sign off or reduce power sharply at sunset, in order to reduce interference with distant stations.

The FCC prohibits AM radio stations from transmitting HD digital quality after sunset.

This is due to the greater distances that AM signals can travel at night. At night, a strong HD digital signal from one location could interfere with distant radio stations that are on a similar frequency.

Some AM radio stations are even required to reduce the power of their analog signal at night for the same reason.

For AM signals, the single most important factor for good reception is the time of day.

AM signals almost always get absorbed by the diffusion layer of the ionosphere during daylight hours.

As a result, all AM signals received during daylight hours will arrive by ground wave, making reception of signals over a few hundred miles away unusual in daylight.

**Note:**

It is possible to have poor or no reception in the "Weather Band" mode.

Technical Service Bulletin # **M650109**
Date: **090301**

## Audio System - USB Audio Interface

SI M 65 01 09

Audio, Navigation, Monitors, Alarms, SRS

March 2009

Technical Service

SUBJECT

USB Audio Interface

MODEL

\*with option 6ND (BLUET.HANDS FREE KIT W.USB/AUD.INTER) or option 6NE (BLUET.MOBILE.PREP.W.USB/AUD.INTFACE)

## INFORMATION

The USB audio interface is only available as a factory-installed option and cannot be retrofitted.

The USB audio interface allows the connection of compatible MP3 players, such as an Apple iPod (Generation4 or higher), to the vehicle, and operates it through the vehicle's audio controls.

In addition to MP3 players, audio files on USB sticks can also be played through the USB audio interface.

Only audio files can be played. Accessing other files such as videos is not possible.

The USB audio interface currently supports the following compressed formats:

- ^ MP3 (mp3)
- ^ AAC (aac, m4a, m4b)
- ^ WAV/PCM (wav)
- ^ WMA (wma, asf)
- ^ Playlists in M3U format

## NOTE:

WAV files are not supported in playlists.

It is possible to access all stored audio data directly through a playlist, as well as searching for genre, artist, album or title. However, the sorting and displaying of audio files in the vehicle can only be carried out correctly if all the data stored on the MP3 player (e.g., ID3 tags) contains only Roman characters. Playlists must contain absolute path indications if the audio file is not located in the same directory as the playlist itself.

## Storage of the device and first installation

Observe all operating and storage instructions for the device if the iPod, MP3 player or USB stick is stored in the vehicle. It is recommended not to store iPods, MP3 players or USB sticks in the vehicle for any length of time, since extreme environmental conditions (temperature, humidity) may cause damage to the device.

Upon initial connection of an iPod, MP3 player or USB stick containing large amounts of data, audio files can be only accessed through the directory structure of the device. The search by genre, artist, album or title only becomes available after the corresponding file information has been transferred to the vehicle. The performance of an iPod, MP3 player or USB stick in the vehicle (such as duration of synchronization or operation speed) depends on the storage capacity and technology of the device, as well as the number and the format of stored audio files. For example, the synchronization of a USB stick with 8 GB of flash storage can take up to 10 minutes; longer synchronization times could be due to device specific characteristics. During this time, music titles can be selected through indexes and file names.

Should the interaction of an iPod, MP3 player or USB stick with the USB audio interface not function correctly, it may also be due to defective or unsupported encoding of audio files (e.g., bit rates greater than 256 kbit/s).

For questions, please contact MINI customer service via email at: [customer.service@mini.com](mailto:customer.service@mini.com).

## Compatible devices

Due to the variety of MP3 players and USB sticks and their technical differences, faultless operation with the USB audio interface cannot be guaranteed for all devices.

For more detailed information on how to operate the connected audio device (iPod, MP3 or USB device) through the vehicle audio system, refer to the Owner's Manual.

The message "Incompatible Device" indicates the usage of an incompatible type of device.

## IMPORTANT:

The playing of audio files from mobile phones equipped with a USB interface through the USB audio interface is not recommended. The receiving or placing of phone calls cannot be guaranteed, because some mobile phone models cannot provide Bluetooth functionality in conjunction with a USB connection.

**NOTE:**

Charging the device through the cigar lighter should be avoided because of possible audio distortions caused by the cigar lighter.

Apple iPod devices

Identifying iPod models:

[docs.info.apple.com/article.html?artnum=61688](https://docs.info.apple.com/article.html?artnum=61688)

Approved iPod models are shown in Attachment A.

^ iPod shuffle (with flash storage).

**NOTE:**

Can only be connected and used as a "USB Mass Storage Class" device along with a USB cable, if the File Allocation Table (FAT) format is used.

^ Details for using the iPod as a "storage drive" can be found online:

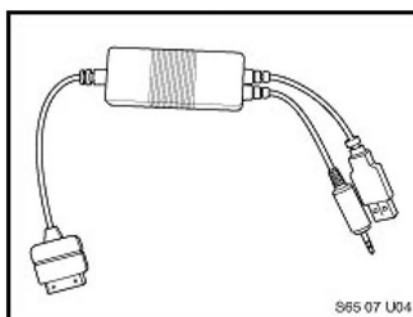
[docs.info.apple.com/article.html?artnum=61131](https://docs.info.apple.com/article.html?artnum=61131)

^ Information on how to detect the software version of an iPod is available online:

[docs.info.apple.com/article.html?artnum=60984](https://docs.info.apple.com/article.html?artnum=60984)

**NOTE:**

When the iPod is connected to iTunes through a PC, iTunes is capable of automatically updating the iPod software. This could adversely affect the interaction of the iPod with the USB audio interface.



Apple iPod devices must be connected to the vehicle through the adapter cable provided (Y cable from 30-pin-connector to USB and AUX-In). It enables quick access to the iPod's audio files and also charges the iPod while connected to the vehicle via the USB connector. In addition, copy-protected music files can also be played.

**IMPORTANT:**

If the provided adapter cable for the Apple iPod is not used, iPod devices can only be used as a "storage drive" with the FAT format; the operation of iPod devices with the MacOS is also not possible.

iPod devices can be disconnected from the vehicle at any time.

Only the audio content of videos can be played.

MP3 devices

MP3 players can be connected to the vehicle through an aftermarket USB cable.

These devices will then also be charged through the USB connection.

**IMPORTANT:**

Copy-protected music files are not supported for these devices.

Devices with "Media Transfer Protocol (MTB)" cannot be used with the USB audio interface.

This applies especially to devices with the "PlaysForSure" logo. To convert the device into "USB Mass Storage Class" mode, refer to the owner's

The MP3 player needs to be formatted with the FAT file system. Only the files of the first partition will be displayed.

#### **NOTE:**

During synchronization of an MP3 player with a PC, the software of the MP3 player could be automatically updated.

This could adversely affect the compatibility of the MP3 player with the USB audio interface.

#### **USB devices**

USB sticks can be connected directly to the USB audio interface.

#### **IMPORTANT:**

Copy-protected music files are not supported for these devices. USB hard disks and USB hubs and/or card readers with several inputs cannot be used with the USB audio interface.

#### **IMPORTANT:**

The use of USB sticks with an integrated hard disk is not recommended, since tests have shown that their audio quality may not be acceptable. USB sticks need to be formatted with the FAT format. Only the files of the first partition will be displayed.

Due to the variety of USB sticks on the market and their technical differences, faultless operation in the vehicle can only be ensured through testing the product in the vehicle.

#### **TROUBLESHOOTING**

##### Technical limitations of the USB audio interface

1. The connected USB device is not recognized and cannot be selected as an entertainment source. This is with the USB device connected at vehicle start-up, or if the USB device is connected with the ignition on (KL15):

^ Not all USB devices are compatible with option 6ND and 6NE.

2. A track cannot be played and/or is skipping:

^ The file has an invalid format (not mp3, wma or aac), is corrupt, or protected by Digital Rights Management (DRM).

3. Playlists, genres, artists, albums and tracks on USB devices are not displayed:

^ Only Roman text characters are supported. Other character sets (Greek, Japanese, etc.) cannot be displayed.

4. Time period differs for playlists, genres, artists, albums and tracks on USB devices to be displayed:

^ The time period for playlists, genres, artists, albums and tracks on USB devices to be displayed depends upon the number of audio files on the final device. In the case of a device with 80GB storage and 15,000 audio files, for example, this could take several hours.

5. The iPod can't be fully operated through the vehicle audio system:

^ For use of an Apple iPod, it is recommended to use the "Adapter cable for Apple iPod" (Y-cable). If the Apple iPod is connected using the USB connector cable supplied with the iPod, the iPod is activated as a USB MSC device. This is only possible if the iPod has been configured accordingly, using iTunes, and formatted using an FAT file system (Windows systems only, not Mac). In addition, no access to the playlists is possible in this operating mode, and the DRM-protected audio files cannot be played.

6. Distortions through the audio system when the device is connected to the cigar lighter for charging:

^ There are malfunctions and audio interference, if a device is connected to both the USB interface and the 12V socket. Depending on the model, the USB devices may be supplied with power by the USB interface itself. This means that no additional power connection is required, nor is one recommended.

7. USB hard drive is not working correctly:

^ Trouble-free operation of USB hard drives cannot be guaranteed. The power supply of the USB is not sufficient for most hard drives. Audio interference may also occur. The use of hard drives is neither supported nor recommended.

8. iPod 3rd Generation is not working:

^ iPods of the 3rd generation are not supported.

9. With the CCC head unit, the browsing history is not stored. For example, if the list of artists is browsed and an artist is selected, the cursor will appear at the beginning when returning to the artists list.

^ Normal operation.

10. There are malfunctions if a mobile phone is connected to the USB interface and paired with the Bluetooth hands-free system:

^ Some mobile phones deactivate Bluetooth if connected to USB.

#### Known issues

1. Intermittent inability to select and/or activate categories such as playlists, genres, artists, albums, and tracks after starting the vehicle with the USB device already connected. This occurs if very few audio files (less than 70) are stored on the USB device:

^ Disconnect and/or reconnect the USB device, or store more audio files.

2. Message "Reading data" is permanently displayed:

^ Make a new selection; disconnect and/or reconnect the device; change the entertainment source and change back again; allow the vehicle to enter sleep mode.

3. Message "No supported audio files found" is displayed when a playlist is selected:

^ If playlists and audio files are stored in different folders, absolute paths must be used, e.g., /dir1/dir2/track.mp3.

4. Interference is heard instead of an audio track after a vehicle start with a USB stick connected:

^ Select a new track manually, or skip forward or back.

Technical Service Bulletin # **M510208**

Date: **090201**

## Body - One-Touch Window feature Inop. After FRM R & I

SI M51 02 08

Body Equipment

February 2009

Technical Service

This Service Information bulletin supersedes SI M51 02 08 dated April 2008.

[NEW] designates changes to this revision

#### SUBJECT

[NEW] One-Touch Window Function Inactive After FRM Replacement

#### MODEL

R55 (Cooper Clubman, Cooper S Clubman)

R56 (Cooper, Cooper S)

#### SITUATION

After replacement of the FRM (Footwell Module) or after vehicle programming, the one-touch window control and anti-trap function on the front side windows is inactive.

#### CAUSE

FRM/power window regulator

#### PROCEDURE

Do not replace any parts.

[NEW] Reinitialize the power windows via the initialization test plan in ISTA. This test plan may be found under Service Functions/Body/Locking and Security/Power Windows/Initialize Power Window.

[NEW] As an alternative, the windows may be initialized manually, using the following procedure:

[NEW] **Note:**



This procedure replaces that in repair instruction 67 62..., which will be updated. The procedure shown in the repair manual is for vehicles without the one-touch window control.

1. Close the window and door fully.
2. Lower the window by holding the switch in the "down" position. Continue to hold the switch down for at least 5 seconds after the window has been fully lowered.
3. Raise the window by holding the switch in the "fully up" position. Continue to hold the switch in the up position for at least 5 seconds after the window has been fully raised.
4. Repeat steps 1 to 3 for the window on the other side.

Covered under the terms of the MINI New Vehicle Limited Warranty.

Defect Code	61 35 05 15 00	Main Work*
Labor Operation:	61 00 830	Initializing power windows and sunroof (together
Labor Allowance:	Refer to KSD	with programming control modules)
*Main Work:	Use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.	

#### WARRANTY INFORMATION

Technical Service Bulletin # **M230108**

Date: **090101**

### M/T - Stiff 'Diagonal' Gear Shifts

SI M 23 01 08

Manual Transmission

January 2009

Technical Service

This Service Information bulletin supersedes SI M23 01 08 dated July 2008.

[NEW] designates changes to this revision

#### SUBJECT

R55, R56 with Manual Transmission - "Stiff" Diagonal Gearshift

#### MODEL

R55, R56 with N12/N14 and Getrag 6-speed manual transmissions (GS6-53BG/55BG)

#### SITUATION

The customer may complain of a "stiff diagonal shift" (e.g., N-R, R-N, 2-3/3-2 or 4-5/5-4). Also, in some cases, gears cannot be selected, or the selector gear does not go into the neutral position.

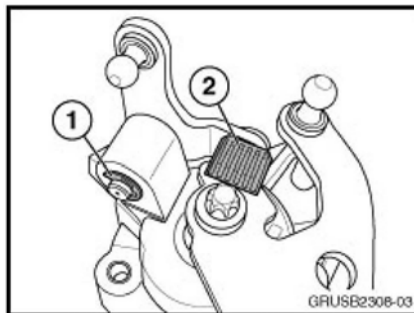
#### [NEW] CAUSE

1. The deflection lever circlip of the gearshift mechanism is damaged or missing.
2. Possible corrosion at the gearshift mechanism (shift cables or transmission gearshift unit)

#### [NEW] SOLUTION

First verify that the shift cables operate freely by disconnecting them from the transmission gearshift unit.

1. Inspect the shifting gear mechanism deflection lever for the missing or damaged circlip (1) and the plastic sliding sleeve (2).



2. Install or replace, if needed, using new parts P/N 23 11 7 593 200 (circlip) and P/N 23 11 7 593 217 (sliding sleeve).

In case the cables move freely after disconnection and the level circlip and/or sliding sleeve are not found to be defective, then replace the transmission gearshift switching unit (P/N 23 11 7 587 353).

For the gearshift replacement procedure, refer to Repair Instruction RA23 11 310.

#### **NEW PARTS INFORMATION**

Part Number	Description	Quantity
23 11 7 593 200	Gearshift lever circlip	1
23 11 7 593 217	Sliding sleeve	1
23 11 7 587 353	Gearshift switching unit	1
23 11 7 568 464	M8x25 Torx screw	4

#### [NEW] PARTS INFORMATION

<b>Defect Code:</b>	<b>23 00 03 34 00</b>	
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
25 11 000*	WT	Inspect and replace lever circlip/sleeve
	Suggested Allowance	8 FRU
	OR	
25 11 007*	15 FRU	Replace shift unit

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

#### [NEW] WARRANTY INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty or the MINI NEXT Certified Pre-Owned Program.

Technical Service Bulletin # **M170109**

Date: **090501**

### **Cooling System - MIL ON/ Code 2F22 Set**

SI M 17 01 09  
Cooling System

May 2009  
Technical Service

SUBJECT  
DME Fault Code 2F22 "Engine Temperature Plausibility"

MODEL  
R55, R56, R57 with N12, N14

SITUATION

Service Engine Soon lamp is illuminated and the fault code 2F22 (Engine temperature plausibility) is stored in DME.

## CAUSE

The DME calculates an implausible signal from the coolant temperature sensor. The diagnostic influences on this signal include:

1. Engine speed
2. Heating output
3. Outside temperature
4. Warm-up phase condition

## CORRECTION

1. Check the coolant level: Check and repair any causes for leaks. After completing repairs, pressure test the system, including the overflow cap. Top up to correct level if needed.
2. Check the antifreeze condition: Ensure there is a sufficient 50/50 mix.
3. Bleed the system; Follow Repair Instruction RA17 00 005 for proper bleeding of the cooling system

## WARRANTY INFORMATION

For information only

Technical Service Bulletin # **M620307**

Date: **090401**

## Instruments - Fuel Gauge LED Flickering

SI M 62 03 07

Instruments

April 2009

Technical Service

This Service Information bulletin supersedes SI M62 03 07 dated November 2007.

[NEW] designates changes to this revision

## SUBJECT

Change in Brightness of Fuel Gauge

## MODEL

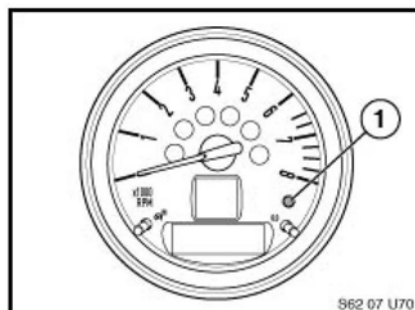
[NEW] R55, R56 (Cooper Clubman, Cooper Clubman S, Cooper, Cooper S)

[NEW] Vehicles produced August 31, 2006 to August 30, 2008

## SITUATION

Under certain circumstances, the illumination of the fuel gauge in the vehicle speedometer can change brightness when the vehicle is in motion.

## GENERAL INFORMATION



The brightness of the fuel gauge is controlled by a photosensor (1) located in the vehicle tachometer. The brightness control is designed in such a way that it rapidly responds to environmental influences. Due to the design of the system, it is possible for the fuel gauge illumination to flicker when the vehicle is driven on a road lined with many trees in cloudy weather. This is normal operation.

**[NEW] PROCEDURE**

Explain how the brightness is controlled by the photosensor. The dimming behavior can be changed to a more gradually increasing characteristic curve. Note that once implemented, the change cannot be reversed.

Using the BMW Group diagnostic system loaded with ISTA D2.11.0 or higher, fault pattern selection - >6200 display and information system  
>620038 fuel gauge LEDs flicker.

**Note:**

In vehicles manufactured since 01/09/08 or in the event of a repair involving a retrofitted speedometer unit produced after this date, this diagnostics job CANNOT affect the general characteristic curve!

<b>Defect Code:</b>	<b>62 11 06 18 00</b>		
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>	
62 99 000	3 FRU	Change dimming characteristic of fuel gauge	

**[NEW] WARRANTY INFORMATION**

Covered under the terms of the MINI New Vehicle Limited Warranty.

Technical Service Bulletin # **M110209**

Date: **090401**

**Engine - Vacuum Pump Knocking Noises (Normal)**

SI M 11 02 08

Engine

April 2009

Technical Service

This Service Information bulletin supersedes SI M11 02 08 dated July 2008.

**[NEW]** designates changes to this revision

**SUBJECT**

Knocking Noise from Vacuum Pump

**MODEL**

R55 (Cooper Clubman S) with **[NEW]** N12 and N14 engine

R56 (Cooper S) with **[NEW]** N12 and N14 engine

**[NEW]** R57 (Cooper Convertible and Cooper S Convertible) with N12 and N14 engine

**SITUATION**

The customer complains of a knocking noise from the engine compartment. The noise is considerably louder when the engine hood is opened.

**CAUSE**

The mechanical vacuum pump creates a knocking noise when in operation. The noise should be considered normal.

**PROCEDURE**

To verify the source of the noise, disconnect the vacuum hose from the mechanical vacuum pump; this eliminates the knocking noise of the pump.

This is not a failure of the mechanical vacuum pump, but rather the component's characteristic. Do not replace any parts.

**WARRANTY INFORMATION**

Information only

Technical Service Bulletin # **M640107**

Date: **090601**

**A/C - Whistling Noise On Start Up In 'AUTO' Mode**

SI M 64 01 07

Heating and Air Conditioning

June 2009

## Technical Service

This Service Information bulletin supersedes SI M64 01 07 dated March 2007.

[NEW] designates changes to this revision

## SUBJECT

IHKA Whistling Noise During Warm-up While in AUTO mode

## MODEL

R56 (Cooper, Cooper S)

Vehicles produced up to February 28, 2007 with IHKA (SA 534)

## SITUATION

A whistling noise may be noticed from the air area of the vent flaps in the dashboard. The noise appears during the warm-up phase of the vehicle, when the IHKA (Integrated Automatic Heating and Air Conditioning) is set to AUTO mode. The noise is most noticeable at ambient temperatures below 50°F (10°C).

## CAUSE

Vent flap adjustment during warm-up phase

## [NEW] PROCEDURE

Do not replace any parts.

This problem has been integrated into ISTA diagnostics. Follow the diagnostics and relevant test plan using the latest ISTA version. The test plan can be selected with the following path:

1. Perform Vehicle test
2. Select the "Fault pattern" tab from the "Fault memory" screen
3. Select "System oriented"
4. Select " 6400 heater and A/C systems"
5. Select "640025 Whistling noises from the instrument panel at low temperatures"
6. Select "Accept fault pattern"
7. Select "Calculate test plan"
8. Select test plan "ABL W6450\_WAS12-Noise from dashboard at low temperatures"
9. Complete the test plan and perform the recommendations given by the test plan noted any "DIAGCODE" given at the end of the test plan.

## WARRANTY INFORMATION

For information only

Technical Service Bulletin # **M650409**

Date: **090901**

**Cell Phone - iPhone(R) Won't Charge Using USB Interface**

SI M 65 04 09

Audio, Navigation, Monitors, Alarms, SRS

## SUBJECT

iPhone Doesn't Charge When Connected To The USB Audio Interface

## MODEL

R55 \*(Cooper Clubman, Cooper S Clubman)

R56 \*(Cooper, Cooper S)

R57 \*(Cooper Convertible, Cooper S Convertible)

\*with option 6ND (BLUET.HANDS FREE KIT W.USB/AUD.INTERFACE) or option 6NE (BLUET.MOBILE.PREP.W.USB/AUD.INTERFACE)

## SITUATION

The iPhone 3G and 3GS do not charge when connected to the USB audio interface via the Y-cable.

The following two messages can be displayed on the iPhone 3GS screen:

^ "THIS ACCESSORY IS NOT MADE TO WORK WITH iPhone" (When a iPhone 3GS is connected via the Y-cable to the USB audio interface).

^ "CHARGING IS NOT SUPPORTED WITH THIS ACCESSORY" (If a iPhone 3GS is connected via an aftermarket USB cable to the USB audio interface, but only to the USB connector).

## CAUSE

The iPhone 3G and 3GS are not compatible for charging through the USB audio interface.

## INFORMATION

Do not replace parts.

Inform the customer that Apple introduced a new charging protocol with the iPhone 3G and 3GS.

As a result, the devices will not charge through the USB audio interface.

## WARRANTY INFORMATION

For information only

Technical Service Bulletin # **M160109**

Date: **090801**

**Fuel System - Fuel Level Sender Replacement Information**

SI M 16 01 09

Fuel Supply Systems

August 2009

Technical Service

## SUBJECT

Fuel Level Sensor Repair Procedure

## MODEL

R55 (Cooper Clubman and Cooper Clubman S)

R56 (Cooper and Cooper S)

R57 (Cooper Convertible and Cooper S Convertible)

## INFORMATION

Where it is necessary to replace the right or left side fuel level sensor due to a failure, the entire pump and housing (right side) or the filter assembly (left side) does not need to be replaced. For example, the customer complains that the fuel gauge is inoperative. When diagnosed, the problem is found to be a defective fuel level sensor. Replacement of the fuel level sensor should be performed using P/N 16 14 2 754 862 (right side) or PN 16 14 2 754 869 (left side). Refer to Repair Instruction RA 16 14 080, Replacing fuel level sensor (right side) or RA 16 14 084, Replacing fuel level sensor (left side) for complete details.

The fuel pump repair kit or fuel filter repair kit should not be used to repair fuel level sensor concerns, and will not be covered under the terms of the MINI New Vehicle Limited Warranty.

## WARRANTY INFORMATION

Information Only

Technical Service Bulletin # **512909**

Date: **090901**

**Body - Windshield Urethane Sealant Information**

SI B 51 29 09

Body Equipment

September 2009

Technical Service

**SUBJECT**

1-Hour Windshield Urethane

**MODEL**

All models

**INFORMATION**

A "1-hour" system windshield urethane is currently available (PN 83 19 0 147 369) and should be used in place of the previous "1-day" system (PN 83 19 0 444 141).

The primary advantage to the "1-hour" system is a significantly quicker curing time.

The properties of the "1-hour" system are comparable to that of the "1-day" system, but the curing time is reduced from 9 hours to 1 hour.

The "1-hour" system is applied at room temperature and with the same procedure as the "1-day" system.

For additional details and precautions regarding the use of the "1-hour" urethane for windshield replacement refer to Repair Instruction REP 51 31... "Instructions on gluing windscreen"

**WARRANTY INFORMATION**

For information only.

**★ ★ FIX IT RIGHT THE FIRST TIME, ON TIME, EVERY TIME ★ ★**

For administrative convenience and to reduce costs, this bulletin may contain repair procedures for authorized BMW car centers and/or authorized BMW SAV centers. All references to SAVs and/or the X5 are ONLY intended for authorized BMW SAV centers. Furthermore, ONLY BMW SAV centers are authorized to perform repair and service work on SAVs.

Disclaimer Technical Service Bulletin # **M610306**

Date: **090801**

**Wipers/Washers - Wiper Insert Replacement Information**

SI M61 03 06

General Electrical Systems

August 2009

Warranties

This Service Information bulletin supersedes SI 61 03 06 dated January 2009.

[NEW] designates changes to this revision

**SUBJECT**

MINI Maintenance Program - Replacement Wiper Inserts

**MODEL**

All

**SITUATION**

A new style replacement wiper insert is available for the following the models:

[NEW] R50, R52, R53, R55, R56, R57

All MINI Maintenance Program claims for replacing the wiper blade inserts will require the use of the part numbers listed in this bulletin.

R55 and R56 rear wipers, continue to use the wiper blade inserts or assembly part numbers listed in the EPC until further notice. For the R55, use the "Set of wiper blades" part number.

**Wiper Insert Replacement Interval**

The MINI Maintenance Programs allow for the replacement of wiper blade inserts at intervals of 12 months or longer for the models outlined in this Service Information bulletin. The replacement interval begins on the vehicle's original in-service date.

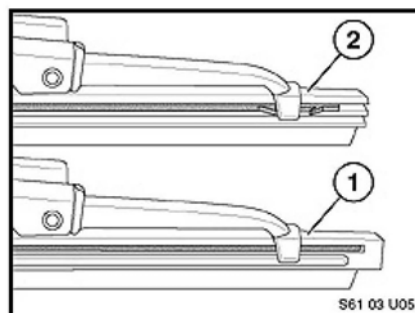
This policy supersedes all other statements concerning wiper blade maintenance replacement intervals.

**[NEW] Wiper Blade and Insert Care**

Regularly clean the wiper blade assemblies with soapy water to avoid streaking.


**[NEW] Windshield Care**

Wax, dirt and road film buildup on the windshield can cause streaking, poor wiper operation and premature wear of the wiper blade inserts. The windshield should be cleaned regularly to remove contamination. Use MINI approved car care products to clean and care for the vehicle.



The new style wiper insert (2) will have a different locking tab on one end. Old style insert (1).

**Wiper Insert Part Number Guide**

Vehicle	Driver's	Passenger's	Rear
R50	61 61 0 034 748	61 61 0 034 748	61 61 0 034 750 (up to 07/04) 61 61 0 034 751 (7/04 and later)
.			
R52	61 61 0 034 748	61 61 0 034 748	N/A
.			
R53	61 61 0 034 748	61 61 0 034 748	61 61 0 034 750 (up to 07/04) 61 61 0 034 751 (7/04 and later)
.			
R55	61 61 0 034 748	61 61 0 034 748	Refer to EPC
R56	61 61 0 034 748	61 61 0 034 748	Refer to EPC
 R57	61 61 0 034 748	61 61 0 034 748	N/A

The new wiper insert will fit all listed models (front and rear), using the installation instructions in this bulletin.

**PARTS INFORMATION****WARRANTY INFORMATION**

Covered under the terms of the MINI Maintenance Programs

**Procedure****IMPORTANT Installation Hints:**

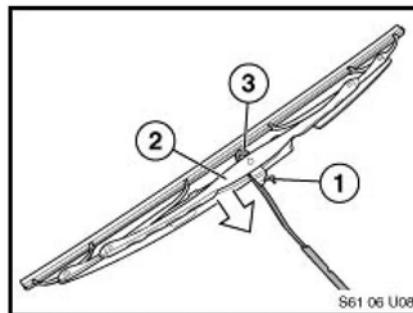
^ The new rubber insert must be cut 5mm longer than the metal spines.

^ The metal spine must be approximately 10mm longer than the last claw on the wiper blade.

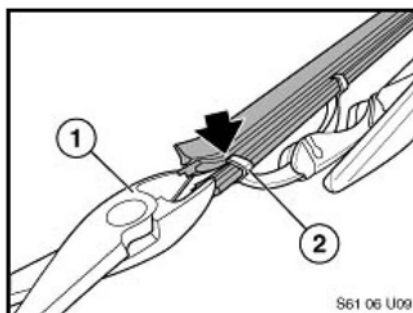
**THE PLASTIC CLAMPS ARE PREINSTALLED TO HOLD THE SPINES ON THE INSERT. DO NOT REMOVE THE CLAMPS PRIOR TO INSTALLING THE INSERT.**

**WIPER INSERT REMOVAL PROCEDURE**

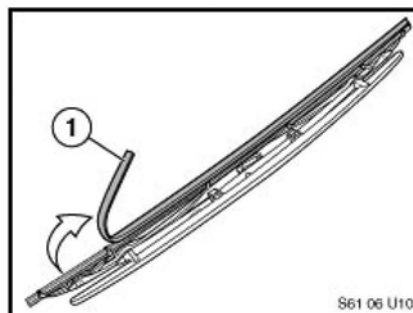




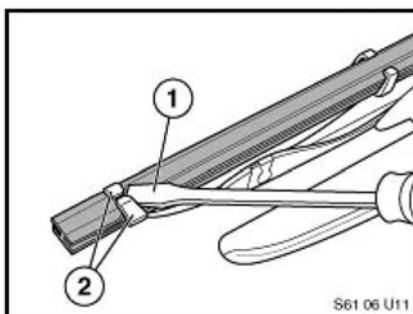
1. Remove the blade (2) by flipping the lever (1) and slide from the hook (3).



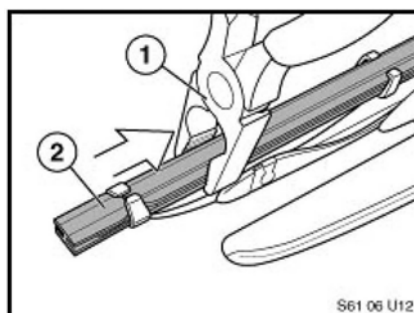
2. Cut the end of the wiper insert with a cutter or suitable tool (1) up to the claw (2).



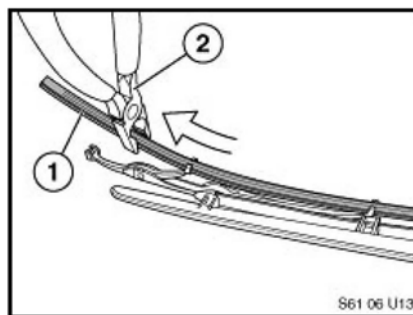
3. With the end cut, peel back the tip (1) across the entire length of the wiper insert.



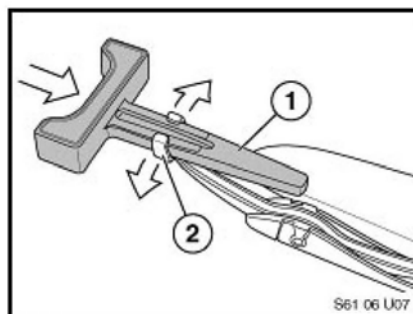
4. Use a flathead screw driver or suitable tool (1) to open the claw (2) just enough to release the wiper insert.



5. Slide the wiper insert (2) from the claw with a suitable tool (1).



6. Slide the wiper insert (1) completely out of the blade.

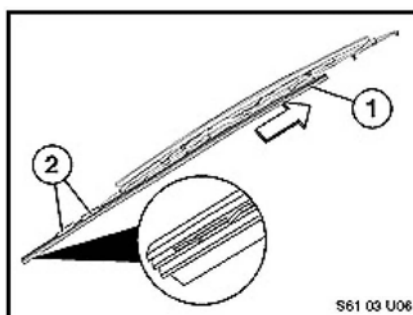


7. Before installing the new wiper insert, completely insert the spreader tool (1) into the crimped end claw (2) to ensure the correct width.

#### NOTE:

Two spreader tools are packaged in each wiper box.

#### WIPER INSERT INSTALLATION PROCEDURE



1. With the wiper insert removed, install the entire replacement insert (1) prior to snapping the spine and cutting the rubber. Slide the wiper insert end without the locking tabs in first. crimped end claw (2) to ensure the correct width.

#### Note:

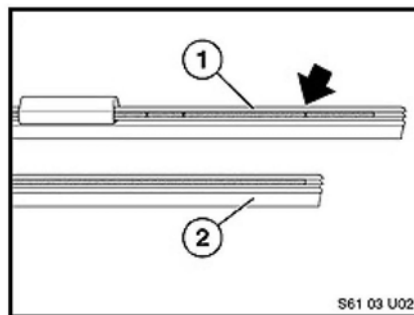
Two spreader tools are packaged in each wiper box.

2. As the insert is installed, slide the plastic clamps (2) down to the end and over the locking tabs, allowing them to drop off.

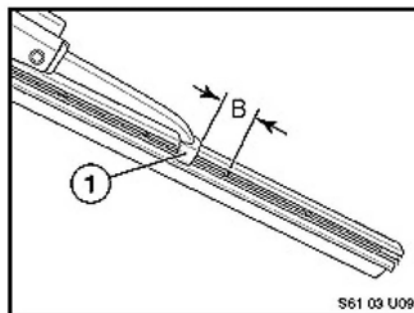
#### NOTE:

Removing the clamps (2) prior to installing the insert will result in longer installation time.

3. When completely installed, the bottom claw will straddle the locking tab notch.

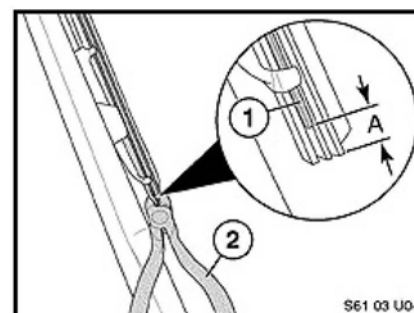


4. There are detents (arrow) in the spines of the new insert (1) that correspond to the length of the old spine (2).



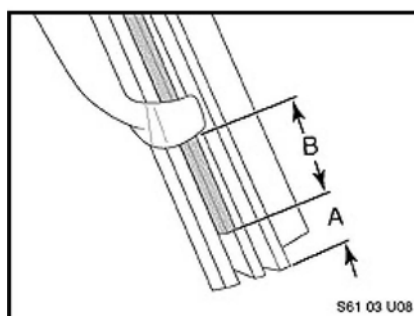
5. With the wiper blade positioned against the windshield, note the spine detent that is approximately 10mm longer than the last claw (1). Snap off (or cut) both spines at this detent.

B is approximately equal to 10mm



6. With the wiper blade positioned against the windshield, measure the distance of the rubber insert A=5 mm longer than the metal spines (1), and cut the rubber insert with a suitable tool or blade (2) that will produce a clean, square cut.

A = 5mm



7. Check the insert for correct fit and installation. All claws should be properly engaged with the metal spines. If the end claw was spread for removal of the original insert, make sure it is adjusted back to the original width.

The final measurements are:

A = 5mm

B is approximately equal to 10mm

## REAR WIPER INSERT REMOVAL AND INSTALLATION

1. Remove the insert from the end claw and slide the wiper insert completely out of the blade.

2. Slide the new wiper insert through the middle claw and into the claw at the end of the blade.
3. Slightly bend the free end of the wiper insert towards the blade, and place the wiper insert in the claw.

Technical Service Bulletin # **M090109**

Date: **090801**

## **Audio System - RAD2(R) Locks Up When Programming**

SI M09 01 09

Programming/Coding Explanations

August 2009

Technical Service

### **SUBJECT**

RAD2 Programming with ISTA/P 2.34.2 - No MOST Communication

### **MODEL**

R56 (Cooper, Cooper S)

R55 (Cooper Clubman, Cooper S Clubman)

R57 (Cooper, Cooper S)

All vehicles equipped with option 6FC (Radio MINI boost CD, RAD2)

### **SITUATION**

When programming a RAD2-equipped car with ISTA/P 2.34.2, a message is displayed: "During control module determination, it was ascertained that control modules connected to the MOST ring are not responding", followed by a second message that begins "The gateway GW is likely to be defective ....." The user is then asked to perform a gateway repair. After following the on-screen instructions, the measures plan directs to replace all MOST control modules.

### **CAUSE**

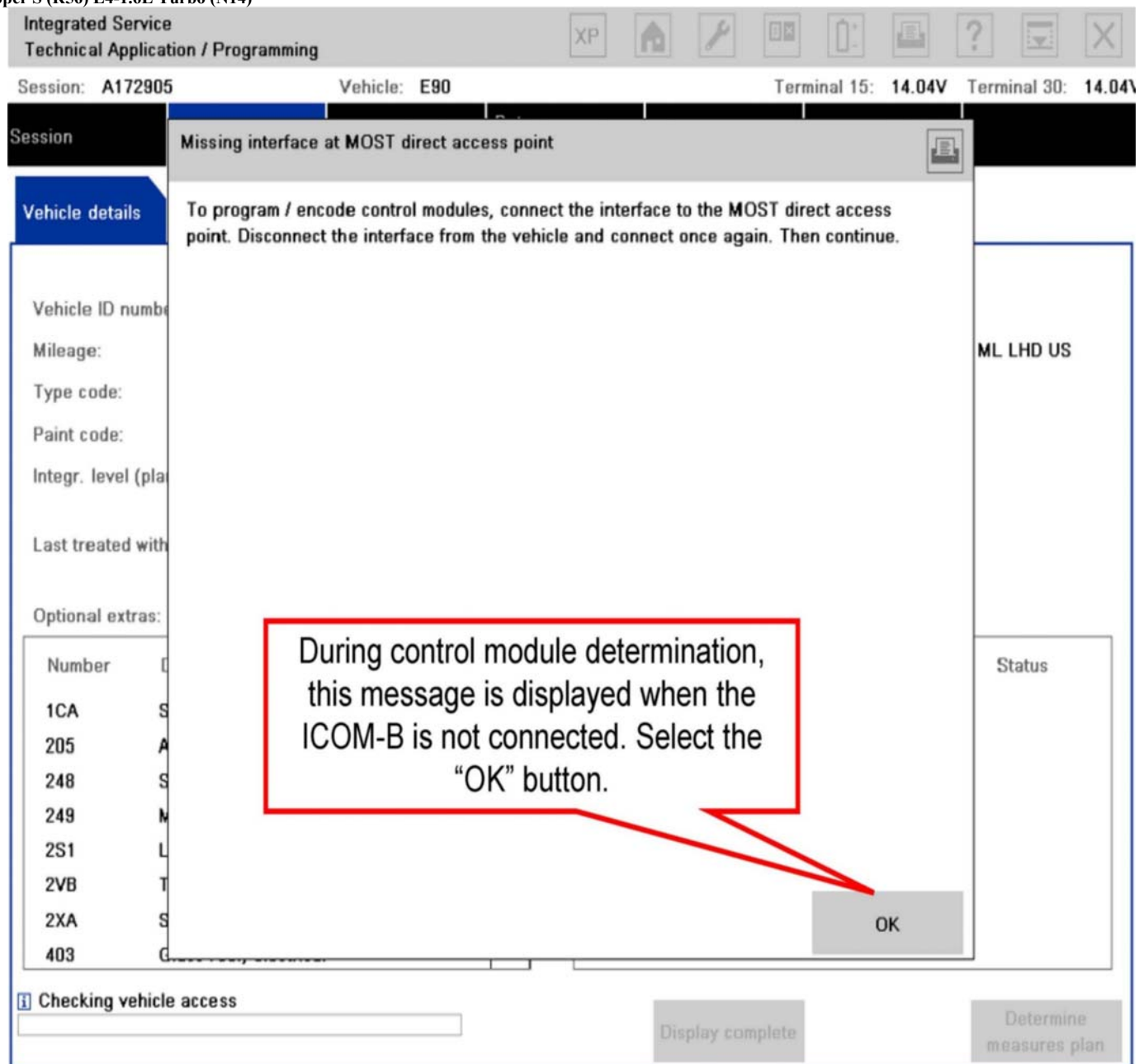
The RAD2 GW locks up during identification with ISTA/P 2.34.2, causing no communication on the MOST ring.

### **PROCEDURE**

If the GW is already locked up (the radio is still works even if you lock the car, and no warning gong sounds), perform a battery reset for 15+ minutes.

^ Only connect an ICOM-A to the vehicle (do not connect an ICOM-B).

^ Start a new programming session.



^ Ignore the message that tells you that the MOST-bus is not connected by selecting the OK button (see attachment above).

^ Determine the measures plan.

Depending on the situation, follow 1) or 2) below:

Integrated Service  
Technical Application / Programming

Session: A172905 Vehicle: E90 Terminal 15: 14.56V Terminal 30: 14.56V

Display measures plan

Measures plan Control module tree Action list

Integr. level (actual) 0 Integr. level (target) E89X-09-06-510

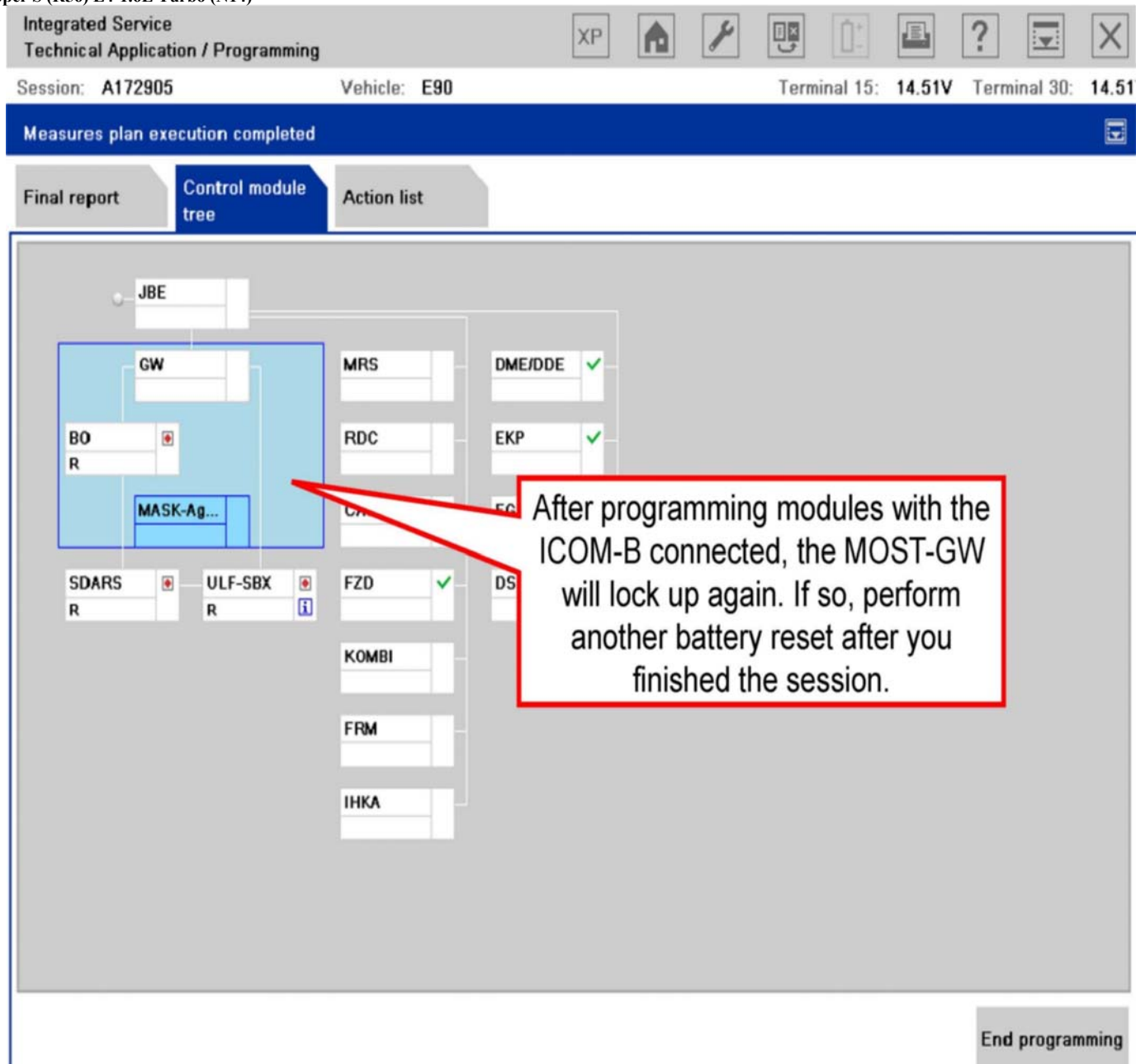
Status	Action	Short name	Channel	Note
✓	Vehicle order ali...		DIAGBUS	
🔧	Save individual d...	DME/DDE	DIAGBUS	
🔧	Program P	DME/DDE	DIAGBUS	
🔧	Program P	EKP	DIAGBUS	
🔧	Program P	FZD	DIAGBUS	
🔧	Program P	SDARS	MOST	
🔧	Program P	ULF-SBX	MOST	
🔧	Code C	ULF-SBX	DIAGBUS	
🔧	Code C	EKP	DIAGBUS	
🔧	Code C	DME/DDE	DIAGBUS	
🔧	Code C	FZD	DIAGBUS	
🔧	Write individual ...	DME/DDE	DIAGBUS	

Check the measures plan if MOST modules have to be updated.

If MOST modules have to be updated, hook up the ICOM-B before you hit "Accept measures plan".

Back Display complete Accept measures plan

1. The measures plan shows that MOST modules have to be programmed (see attachment above):



^ Hook up the ICOM-B and wait until you have 2 green lights on the ICOM-B. Then accept the measures plan. Programming will take place, but the GW will lock up again during post processing (see attachment above). If so, perform another battery reset for 15+ minutes.

2. The measures plan shows no MOST modules:

Accept the measures plan and programming will take place (do not connect the ICOM-B).

#### ATTACHMENTS

View attachment's shown above in the bulletin's contents.

Technical Service Bulletin # **M110309**

Date: **091202**

### Engine - Whistle Noise From The Water Pump Area

SI M 11 03 09

Engine

December 2009

Technical Service

This Service Information bulletin supersedes SI M11 03 09 dated December 2009.

[NEW] designates changes to this revision

SUBJECT

MODEL  
R55, R56, R57 produced up to June 2009

## SITUATION


A whistling or squealing noise is heard from the engine at idle and/or at higher engine speeds.

## CAUSE

1. Noise is caused by the water pump.
2. Noise is caused by the friction wheel of the belt tensioner.

## PROCEDURE

1. Run the engine up to the operating temperature. Confirm that the noise is coming from the area around the water pump during engine idle speed.
2. Increase the engine speed up to 1,000 rpm.
3. If a noise disappears at 1,000 rpm or higher, replace the water pump.
4. If a noise is still present at 1,000 rpm or higher, replace the friction wheel of the belt tensioner with the improved part, P/N 11 28 7 571 833. Refer to Repair Instruction RA11 28 035.

Part Number	Description	Quantity
 11 28 7 571 833	Friction wheel	1
11 51 7 550 484	Water pump	1

## PARTS INFORMATION

<b>Defect Code:</b>	<b>11 51 04 39 00</b>	
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
11 28 035*	Refer to KSD2	Replace friction wheel
or		

<b>Defect Code:</b>	<b>11 51 01 39 00</b>	
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
<b>11 51 000*</b>	Refer to KSD2	Replace water pump

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

## WARRANTY INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty.

Technical Service Bulletin # **M510808**

Date: **100101**

## Body/Interior - Rattle Noise From Roof Area

SI M51 08 08  
Body Equipment

December 2009  
Technical Service

This Service Information bulletin supersedes SI M51 08 08 dated August 2009.

[NEW] designates changes to this revision



**SUBJECT**

Rattle Noise from Roof

**MODEL**

R55 (Cooper Clubman, Cooper S Clubman)

R56 (Cooper, Cooper S)

Vehicles produced up to November 30, 2008

**SITUATION**

Rattle noise from the roof lining area in the area of the FZD (Roof Function Center)

**CAUSE**

The plastic mounting ring for the FZD has worked loose, allowing the FZD to vibrate. A loose mounting ring can be confirmed by pressing the FZD upwards and checking for free movement.

**[NEW] PROCEDURE**

The problem has been integrated into ISTA diagnostics. Select the tab "Text search" and search using the search term: "W6575\_WAS3". Highlight "Document title", and then press the "Search" button.

**[NEW] WARRANTY INFORMATION**

For information only

Technical Service Bulletin # **M510108**

Date: **091001**

**Body - Window Control Functions Inactive**

SI M51 01 08

Body Equipment

October 2009

Technical Service

This Service Information bulletin supersedes SI M51 01 08 dated September 2009.

[NEW] designates changes to this revision

**SUBJECT**

Window Control Function Inactive

**MODEL**

R55 (Cooper Clubman, Cooper S Clubman) produced from 12/2007 up to 4/2009

R56 (Cooper, Cooper S) produced from 12/2007 up to 4/2009

**SITUATION**

One or more of the following conditions may be present:

1. The one-touch open or close feature is inoperative.
2. The windows open automatically immediately after closing (anti-trap activation).
3. The window motor does not respond when the window switch is pressed briefly.
4. Fault codes 9CC7 or 9CC8 (power window Hall sensor faulty) are stored in the Footwell Module (FRM).
5. The window initialization check control message is displayed.

**CAUSE**

Initialization is lost and/or anti-trap protection is triggered unnecessarily, due to the sensitivity of the FRM software and the way in which it resets the Hall sensor counter on the window motor.

Typically, numerous operations of the window, without the window being fully opened, will trigger this loss of initialization. This is due to the fact that the Hall sensor counter is not being reset on a regular basis.

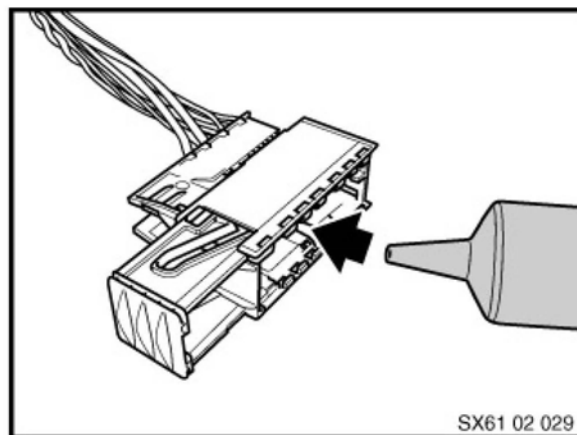
**CORRECTION**

A software solution is available.

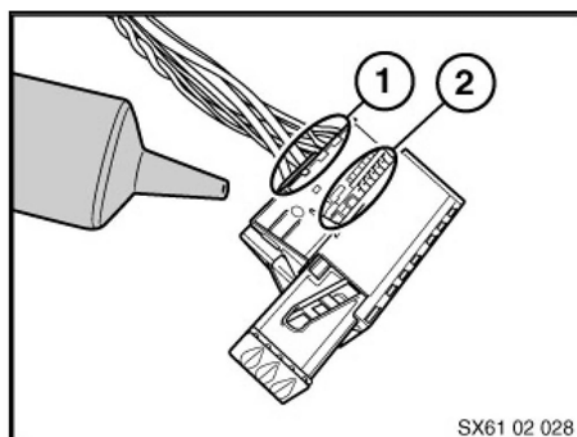
The FRM no longer needs to be replaced for this situation.

## PROCEDURE

1. Connect the vehicle to ISTA and conduct a vehicle test.
2. If fault codes 9CC8 and/or 9CC7 are present in the FRM, continue to step 3. If these faults are not present, continue to step 7.
3. Inspect both the left and right side A-pillar connectors for signs of corrosion. If any corrosion is present, continue to step 4. If no corrosion is present, continue to step 7.
4. Replace all corroded pins on the body side of the connector. If the door side of the connector is also corroded, the door harness should be replaced.



5. Apply dielectric grease to the pin side of the connector.



6. Apply dielectric grease to the terminals (2), and between the wires (1) where they enter the connector on the terminal side of the connector.
7. Program the vehicle using ISTA/P 2.35.1 or later.

Note that ISTA/P will automatically reprogram and code all programmable control modules that do not have the latest software.

For information on programming and coding with ISTA/P, refer to Centernet / Aftersales Portal / Service / Workshop Technology / Vehicle Programming.

8. Reinitialize the power windows via the initialization test plan in ISTA D2.13.0 or later. This test plan may be found under Service Functions/Body/Locking and Security/Power Windows/Initialize Power Window.

At the completion of the initialization test plan, if "Unknown variant of control unit" is displayed, it should be ignored. It does not indicate a failure of the initialization

As an alternative, the windows may be initialized manually, using the following procedure:

### Note:

This procedure replaces that in Repair Instruction 67 62..., which will be updated. The procedure shown in the repair manual is for vehicles without the one-touch window control.

- a. Close the window and door fully.
- b. Lower the window by holding the switch in the "down" position. Continue to hold the switch down for at least 5 seconds after the window has been fully lowered.
- c. Raise the window by holding the switch in the "fully up" position. Continue to hold the switch in the up position for at least 5 seconds after the window has been fully raised.
- d. Repeat steps 1 to 3 for the window on the other side.

Part Number	Description	Quantity
Refer to EPC	Terminals	If necessary
Refer to EPC	Door wiring harness	If necessary

## PARTS INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty or the MINI Next Certified Pre-Owned Program with the exception of procedure steps 3-6.

**Defect Code:** NEW 61 38 06 02  
00

Labor Operation:	Labor Allowance:	Description:
00 58 133*	Refer to KSD2	Program and code control unit[s] (w/o CAS) and initialize the windows.
+ 00 58 737	Refer to KSD2	Program and code control unit[s] (w/o CAS) and initialize the windows.
00 58 134*	Refer to KSD2	Program and code control unit[s] (w/ CAS) and initialize the windows.
+ 00 58 739	Refer to KSD2	Program and code control unit[s] (w/ CAS) and initialize the windows.
00 58 137*	Refer to KSD2	Program and code control unit[s] (w/o CAS), initialize the windows, check and grease one door

		harness connection.
+ 00 58 742	Refer to KSD2	Program and code control unit[s] (w/o CAS), initialize the windows, check and grease one door harness connection.
00 58 138*	Refer to KSD2	Program and code control unit[s] (w/o CAS), initialize the windows, check and grease both door harness connection.
+ 00 58 743	Refer to KSD2	Program and code control unit[s] (w/o CAS), initialize the windows, check and grease both door harness connection.
00 58 139*	Refer to KSD2	Program and code control unit[s] (w/ CAS), initialize the windows, check and grease one door harness connection
+ 00 58 744	Refer to KSD2	Program and code control unit[s] (w/ CAS), initialize the windows, check and grease one door harness connection.
00 58 140*	Refer to KSD2	Program and code control unit[s] (w/ CAS), initialize the windows, check and grease both door harness connection.
+ 00 58 745	Refer to KSD2	Program and code control unit[s] (w/ CAS), initialize the windows, check and grease both door harness connection.
00 58 145*	Refer to KSD2	Program and code control unit[s] (w/o CAS), initialize the windows, check, repair, and grease the left side door harness connection, and replace one door harness.
+ 00 58 750	Refer to KSD2	Program and code control unit[s] (w/o CAS), initialize the windows, check, repair, and grease the left side door harness connection, and replace

		one door harness.
00 58 146*	Refer to KSD2	Program and code control unit[s] (w/o CAS), initialize the windows, check, repair, and grease the right side door harness connection, and replace one door harness.
+ 00 58 751	Refer to KSD2	Program and code control unit[s] (w/o CAS), initialize the windows, check, repair, and grease the right side door harness connection, and replace one door harness.
00 58 147*	Refer to KSD2 )	Program and code control unit[s] (w/o CAS), initialize the windows, check, repair, and grease left and right side door harness connection, and replace both door harnesses.
+ 00 58 752	Refer to KSD2	Program and code control unit[s] (w/o CAS), initialize the windows, check, repair, and grease left and right side door harness connection, and replace both door harnesses.
00 58 148*	Refer to KSD2	Program and code control unit[s] (w/ CAS), initialize the windows, check, repair, and grease left side door harness connection, and replace one door harness.
+ 00 58 753	Refer to KSD2	Program and code control unit[s] (w/ CAS), initialize the windows, check, repair, and grease left side door harness connection, and replace one door harness.
00 58 149*	Refer to KSD2	Program and code control unit[s] (w/ CAS), initialize the windows, check, repair, and grease right side door harness connection, and replace one door harness.

+ 00 58 754

Refer to KSD2

)

Program and code control unit[s] (w/ CAS),  
initialize the windows, check, repair, and grease  
right side door harness connection, and  
replace one door harness.

00 58 150\*

Refer to KSD2

Program and code control unit[s] (w/ CAS),  
initialize the windows, check, repair, and grease  
left and right side door harness connection,  
and replace both door harnesses.

+ 00 58 755

Refer to KSD2

Program and code control unit[s] (w/ CAS),  
initialize the windows, check, repair, and grease  
left and right side door harness connection,  
and replace both door harnesses.

Labor time allowances can be located in the KSD2 by entering the VIN, clicking on the **Search** button and then entering the listed flat rate in the **FR code** field.

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to the associated (+) labor operation code.

NOTE: As the FRM no longer needs to be replaced for this situation, claiming that part in reference to this SIB will result in a denied claim.

#### WARRANTY INFORMATION

Technical Service Bulletin # **M510509**

Date: **091001**

### Restraints - Seat Belt Sliding Clip Deleted

SI M51 05 09

Body Equipment

October 2009

Technical Service

#### SUBJECT

Safety Belt Sliding Clip Deleted

#### MODEL

R55 (Cooper and Cooper S) produced from 7/2009

R56 (Cooper Clubman and Cooper S Clubman) produced from 7/2009

#### INFORMATION

The sliding plastic clip which is used to change the height of the buckle on the safety belt has been eliminated from production.

The clips have been deleted as follows:

^ R55: The clip has been deleted from the left front seat safety belt.

^ R56: The clip has been deleted from both front seat safety belts.

^ R57: No changes were made in regards to this clip.

This plastic clip is no longer necessary, as the button on the webbing has been moved in order to prevent the buckle from rattling against the door panel.

#### WARRANTY INFORMATION

For information only

Warranty claims for the above-mentioned clip should not be made and will not be approved.

Technical Service Bulletin # **M630309**

Date: **091201**

## **Lighting - Headlamp Moisture Fault Diagnostics**

SI M 63 03 09

Lights

December 2009

Technical Service

### **SUBJECT**

Headlamp Moisture: Fault Diagnostics

### **MODEL**

All models

### **SITUATION**

There is water or condensation in one or both headlamps.

### **INFORMATION**

Under some environmental conditions, condensation can occur without there being a faulty headlamp. A comprehensive test plan that will allow an accurate diagnosis and repair is available. Follow the relevant test plan in diagnostics, using the latest ISTA diagnosis version. Select "Information search" and the test plan may be accessed in two ways:

1. Using the "Text search" tab, select "Search for document title" and search using the term "Headlight fogging".
2. Using the "Function structure" tab, select "Body / Mechanism, noises, optical element, leaks / Water ingress / Headlight fogged on inside / Start search".

Note that a Diagnosis Code will be produced at the end of the test module. Be sure to include the code in the "Comments" section of the warranty claim.

### **WARRANTY INFORMATION**

For information only

Technical Service Bulletin # **M330209**

Date: **100101**

## **Suspension - Rear End Knocking Noise On Bumps**

SI M33 02 09

rear Axle

January 2010

Technical Service

### **SUBJECT**

Rattling and/or Knocking Noise from the Rear Axle

### **MODEL**

R55, R56, R57 without Sport Suspension

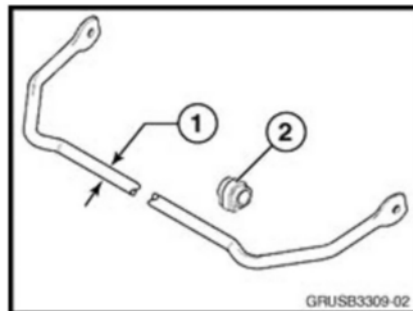
### **SITUATION**

A rattling and/or knocking noise may be heard from the rear axle and/or rear suspension while driving over uneven roads.

### **CAUSE**

The inner diameter of the stabilizer bar mounts may be too large for this application.

### **PROCEDURE**



Use a caliper gauge to determine whether the rear stabilizer bar is 16mm (1) (non-sports suspension). If the stabilizer bar is 16mm, replace the stabilizer mounts (2) with P/N 33 55 6 754 823.

Part Number	Description	Quantity
33 55 6 754 823	Stabilizer mount	2

## PARTS INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty

**Defect Code:** 33 55 01 39 00

<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
33 55 021*	Refer to KSD2	Replacing both rubber mounts for stabilizer

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

## WARRANTY INFORMATION

Technical Service Bulletin # **M650808**

Date: **091201**

## Antitheft System - Unexpected Alarm Triggering

SI M 65 08 08

Audio, Navigation, Monitors, Alarms, SRS

December 2009

Technical Service

This Service Information bulletin supersedes SI M65 08 08 dated March 2009.

[NEW] designates changes to this revision

### SUBJECT

Anti-theft Alarm Is Triggered Unexpectedly

### MODEL

R55 (Cooper Clubman, Cooper S Clubman)

R56 (Cooper, Cooper S)

Vehicles produced up to September 29, 2009 and with option 302 (DWA)

### SITUATION

The DWA (anti-theft alarm) is triggered unexpectedly. The alarm can be triggered by gusts of wind, heavy rain, vibration caused by passing vehicles, etc. The following faults are stored in the FZD (Roof Function Center) control module: A872 (Interior protection defective) and 9315 (Interior alarm\_sensor).

### CAUSE

1. The plastic mounting ring for the FZD has worked loose, allowing the FZD to vibrate. The vibrations can cause the anti-theft alarm to be



2. The short drop/lift function of the windows is inoperative, causing the windows to not close fully and thus cause pressure variations in the vehicle that can trigger the alarm. For this cause, refer to SI M51 01 08.

[NEW] PROCEDURE

The problem has been integrated into ISTA diagnostics. Select the tab "Text search" and search using the search term: "W6575\_WAS3". Highlight "Document title", and then press the "Search" button.

[NEW] WARRANTY INFORMATION

For information only

Technical Service Bulletin # **M610309**

Date: **091001**

**Computer/Control - Coding Failure After FRM Replacement**

SI M 61 03 09

General Electrical Systems

October 2009

Technical Service

SUBJECT

Coding Fails After Replacing the FRM

MODEL

R55 (Cooper Clubman, Cooper S Clubman)

R56 (Cooper, Cooper S)

R57 (Cooper and Cooper S Convertible)

Vehicles produced from August 31, 2009 to December 30, 2009

SITUATION

After replacing the FRM3 (Footwell control module), the module fails coding at the first attempt.

CAUSE

Coding data error in ISTA/P 2.35.x.

The coding data file is expected to be corrected with ISTA/P 2.36.0 in December 2009.

CORRECTION

Code the FRM3 a second time. For information on programming and coding with ISTA/P, refer to Centernet / Aftersales Portal / Service / Workshop Technology / Vehicle Programming.

WARRANTY INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty.

Defect Code        61 38 06 00

Labor Operation:   Labor Allowance:   Description:

Refer to KDS        Refer to KDS        Code FRM3 control module

Technical Service Bulletin # **M070110**

Date: **100101**

**Computers/Controls - Code S0001 After Quick Delete**

SI M 07 01 10

Workshop Environment Systems

January 2010

Technical Service

SUBJECT

ISTA Fault Code "S0001" Entries Still Present After Quick Delete

MODEL

All

**SITUATION**

When a vehicle test is performed and control modules are not responding (modules shown in yellow in the control module tree), a fault code starting with an "S" and followed by a 4 digit number, such as "S0001 No communication possible", is displayed. After finishing diagnosis and deleting the fault memory of the vehicle, these control module faults are not deleted and are still displayed in the fault memory list.

**CAUSE**

These service fault code entries are known as virtual fault code entries for each control module that does not respond. However, when "Quick delete" is performed and the service fault code entries are only momentarily deleted but return right away, this is an ISTA error.

**PROCEDURE**

ISTA will calculate the test plan to check the power supply of each control module that did not respond during the vehicle test.

1. Complete the test plan(s) until the problem is identified and corrected.
2. Delete the fault memory by selecting "Start quick delete" from the "Fault memory" screen.
3. If the "S0001 No communication possible" faults are still displayed, switch to the "Vehicle test" screen.
4. Highlight the control module not responding (yellow).
5. Select "Call up ECU functions".
6. Select "ECU test".
7. Once "ECU status:" changes to "ECU responding", the service fault code entry for that control module is deleted from the fault memory list, and the control module status in the "Vehicle test" screen turns to green.
8. Continue this procedure for each control module that did not respond during the initial vehicle test.

This error will be corrected in ISTA D2.19.0.

**WARRANTY**

For information only

Technical Service Bulletin # **653209**

Date: **091101**

**Audio System - Interference/Noise From Door Speakers**

SI B 65 32 09

Audio, Navigation, Monitors, Alarms, SRS

November 2009

Technical Service

**SUBJECT**

Interference Noise from the Loudspeakers

**MODEL**

All

**SITUATION**

Interference noise from the door loudspeakers can be heard in all audio modes.

**CAUSE**

Cause 1: The door panel is improperly fitted (torsion, stress, etc.).

Cause 2: The loudspeaker wiring or the loudspeaker itself is damaged.

**CORRECTION**

Work through the appropriate test modules integrated in ISTA diagnosis.

Cause 1: Test module W6513\_WAS1 Noise from speaker (refer to Attachment A).

Cause 2: Test module B6512\_AudioCICR-Speaker (refer to Attachment B).

**Cause1:****Defect Code:** 51 41 00 39 00**Labor Operation:** **Labor Allowance:** **Description:**

Refer to KSD      Refer to KSD      Door trim panel, front (incl. module carrier, front)  
Unpleasant noise

**Defect Code:** 51 42 00 39 00**Labor Operation:** **Labor Allowance:** **Description:**

Refer to KSD      Refer to KSD      Door trim panel, rear (incl. module carrier, rear)  
Unpleasant noise

**Cause2:****Defect Code:** 65 12 00 39 00**Labor Operation:** **Labor Allowance:** **Description:**

Refer to KSD      Refer to KSD      Speaker (including speaker carrier)  
Unpleasant noise

**WARRANTY INFORMATION**

Covered under the terms of the BMW New Vehicle Limited Warranty.

**ATTACHMENTS**

**PROCEDURE**

Integrated Service  
Technical Application

Vehicle: 37E91704PUNG/226WINS2AUTOLUSA LEFT HAND DRIVE/2008/5

VIN: A540519

Identification	Vehicle test	Activities	Service plan	Workshop/Operating fluids	Measuring devices
Information search	Guided troubleshooting	Programming/encoding	Service function		
Product structure	Function structure	Components and signals	Text search		

Search term:  
W6513\_WAS1 Noise from speaker

☒ Search for document title  
☐ Search within the document  
☐ Search for document number

Filter: Default  
Keyboard Filters

Start search

- After finishing the "Vehicle Identification" and the "Short Test", select "Activities" > "Information search" > "Text search".

In "Search term", enter:

**W6513\_WAS1 Noise from speaker**

Select "Start search".

Integrated Service  
Technical Application

Vehicle: 37E91704PUNG/226WINS2AUTOLUSA LEFT HAND DRIVE/2008/5

VIN: A540519

Identification	Vehicle test	Activities	Service plan
----------------	--------------	------------	--------------

Hit list

Note	Type	Title	Status
		Test search hit document title: W6513_WAS1 Noise from speaker	
	AD	W6513_WAS1 Noise from speaker	

Hit: 1 Filter: Default ☐ not called ☒ performed ☐ minimized ☐ canceled

Back Filters Display all Display

- In the menu "Service plan" > "Hit list", select ABL "W6513\_WAS1 Noise from speaker", and select "Display" to start the test plan.

Integrated Service  
Technical Application

Vehicle: 37E91704PUNG/226WINS2AUTOLUSA LEFT HAND DRIVE/2008/5

VIN: A540519

W6513\_WAS1 Noise from speaker

Procedure

Remove trim cover from faulty speaker. Test speaker in radio or CD mode.

Can speaker noise still be heard after removing the trim cover?

1 Yes  
2 No

Back Measuring devices Keyboard Update Continue

- Before starting the following test step in the menu "Procedure", remove the trim cover from the faulty speaker (refer to RA 51 41 000 Removing and retrofitting/replacing the front left/right door panel).

NOTE: Test speaker in radio and CD mode.

Select either:

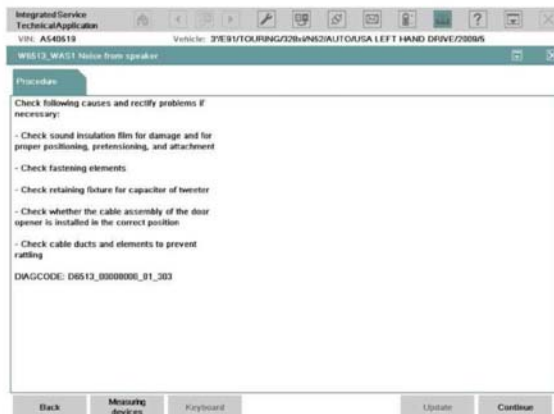
**Yes**

or

**No,**

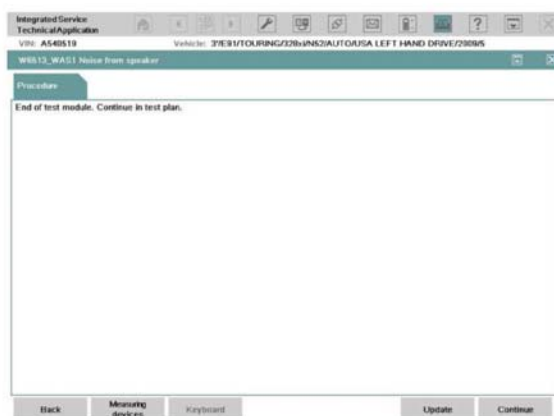
depending on whether the speaker noise can still be heard after removing the trim cover or not.

Press "Continue" to work through the appropriate test modules.



4. When "No" was selected (interference noise cannot be heard anymore), check the possible causes displayed on the screen and rectify the problems.

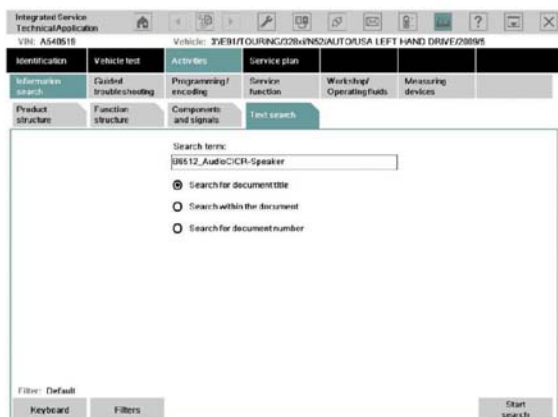
5. Press "Continue".



6. At "End of test module", press "Continue".

7. Reassemble the door trim panel and retest to ensure that the interference noise is eliminated.

view PDF attachment B653209\_Attachment\_A.

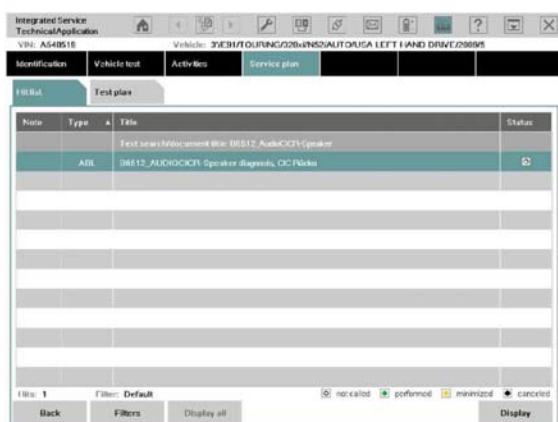
**PROCEDURE**

1. After finishing the "Vehicle Identification" and the "Short Test", select "Activities" > "Information search" > "Text search".

In "Search term", enter:

**B6512\_AudioCICR-Speaker**

Select "Start search".



2. In the menu "Service plan" > "Hit list", select ABL "B6512\_AudioCICR-Speaker diagnosis, CIC-Ruecko", and select "Display" to start the test plan.



3. In the menu "version query", select either:

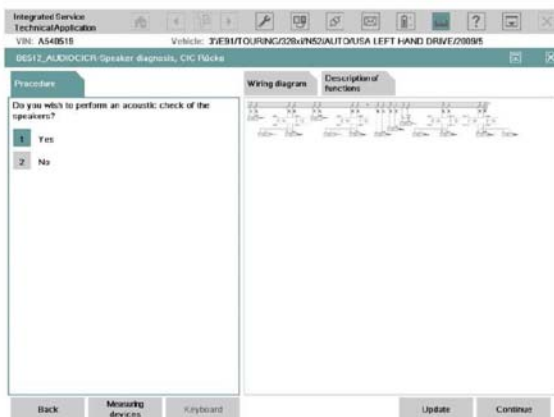
**Yes**

or

**No,**

depending of whether a "Stereo system – stereo" is fitted in the vehicle or not.

Press "OK".



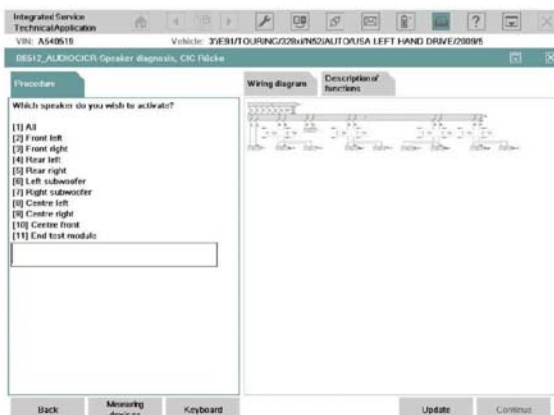
4. In the menu "Procedure" > "Do you wish to perform an acoustic check of the speakers", select either,

**Yes**

or

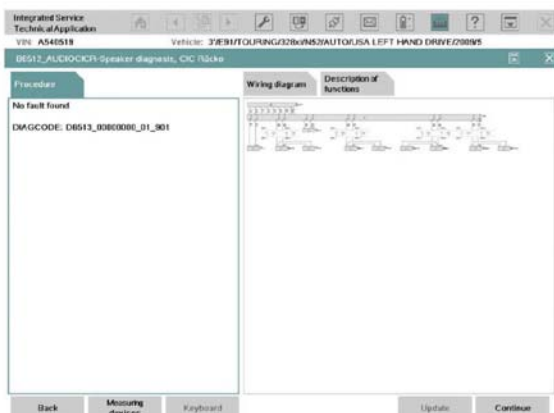
**No,**

Select "Continue".



5. When "Yes" was selected, in the next step select the loudspeaker you wish to activate (enter the number) and select "Continue".

6. Follow the on-screen instructions for the next test steps.



7. At the end of the test, a DIAGCODE will be displayed.

Select "Continue".

8. Follow the on-screen instructions to end the test plan.

view PDF attachment B653209\_Attachment\_B.

## ★ ★ FIX IT RIGHT THE FIRST TIME, ON TIME, EVERY TIME ★ ★

For administrative convenience and to reduce costs, this bulletin may contain repair procedures for authorized BMW car centers and/or authorized BMW SAV centers. All references to SAVs and/or the X5 are ONLY intended for authorized BMW SAV centers. Furthermore, ONLY BMW SAV centers are authorized to perform repair and service work on SAVs.

Disclaimer Technical Service Bulletin # **M610507**

Date: **091101**

## Electrical - Various Electrical Malfunctions

SI M 61 05 07

General Electrical Systems

November 2009

Technical Service

This Service Information bulletin supersedes SI M61 05 07 dated September 2007.

[NEW] designates changes to this revision

## SUBJECT

Bad Ground Causes Various Electrical Problems

## MODEL

[NEW] R55 (Cooper Clubman, Cooper S Clubman)

R56 (Cooper, Cooper S)

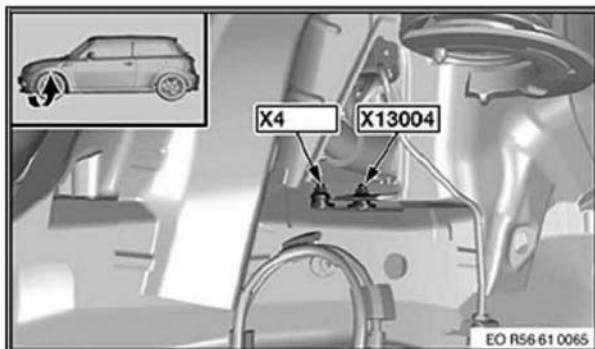
[NEW] R57 (Cooper Convertible, Cooper S Convertible)

## SITUATION

Various warning lights are illuminated, e.g., Airbag, ABS and DSC; electric windows or other systems are not working; and there is no communication with various control modules.

## CAUSE

Ground points X13004 and/or X4 are loose (not connected correctly).



Check and retighten ground points X13004 and X4, located in the **NEW** left side of the engine compartment.

## PROCEDURE

## WARRANTY INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty.

Please refer to the latest KSD for all applicable labor operations and allowances.

If the appropriate labor operation is not contained in KSD, then a work time labor operation should be used.

Defect Code Refer to KSD for the code that best represents the problem concerned.

Technical Service Bulletin # **M110308**

Date: **100101**

**Engine - Turbocharger Failure Prevention**

SI M 11 03 08

Engine

January 2010

Technical Service

This Service Information bulletin supersedes SI M11 03 08 dated July 2008.

[NEW] designates changes to this revision

## SUBJECT

Turbocharger Failure - Oil Supply Line Blockage

## MODEL

[NEW]R55 (Cooper Clubman S) with N14 engine

[NEW]R56 (Cooper S) with N14 engine

[NEW]R57 (Cooper S Convertible) with N14 engine

[NEW] Vehicles produced up to December 15th, 2009

## SITUATION

The customer complains of loss of performance and turbocharger noise.

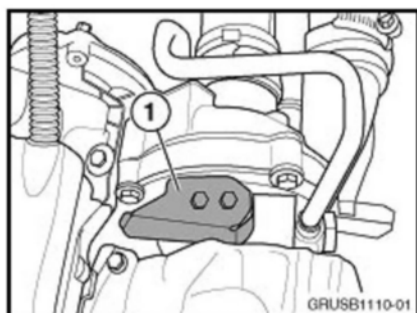


## CAUSE

The turbocharger oil supply may be restricted, causing oil starvation and resulting in the seizing of the turbocharger assembly.

## [NEW]PROCEDURE

Upon replacement of the turbocharger assembly, always remove and inspect the oil supply lines for blockage or restriction. Ensure that the lines are not collapsed or kinked. Replace the lines if a blockage or restriction is detected. Inspection of the oil supply lines will avoid repeated failure of the turbocharger assembly. In addition, a protective cover should be installed on the supply line, as seen in the illustration below.



Protective cover (1)

## [NEW]PARTS INFORMATION

**NEW PARTS INFORMATION**

Part Number	Description	Quantity
11 65 7 534 454	Oil supply line	1
11 65 7 603 484	Cover	1

## WARRANTY INFORMATION

For information only

Technical Service Bulletin # **M650210**

Date: **100301**

**Mission Control(R) System - Overview/Diagnostic Info.**

SI M 65 02 10

Audio, Navigation, Monitors, Alarms, SRS

February 2010

Technical Service

## SUBJECT

Mission Control

## MODEL

R56 \*(Cooper, Cooper S)

\*with option 7HB (Camden Package) and without option 609 (Navigation System Professional)

## INFORMATION

The Mission Control system provides the driver with a variety of advice, as well as situation-related, environmental, and car condition information, in a typically entertaining MINI way. The feature gives the driver the impression of directly interacting with the vehicle, and gives the vehicle its own personality.

## NOTE:

The voice can be turned off by the customer when desired.

For more information, refer to the Owner's Manual (attachment A).

## IMPORTANT:

The Mission Control system cannot be diagnosed using the BMW Group diagnosis system. If the system is inoperative, check the following:

[jmoraflores@hotmail.cl](mailto:jmoraflores@hotmail.cl)

^ The on/off switch in the glove compartment is switched on, and the green LED is on (refer to attachment A).

^ If the LED is flashing, the SD card is not being read. Remove and reinstall the SD card.

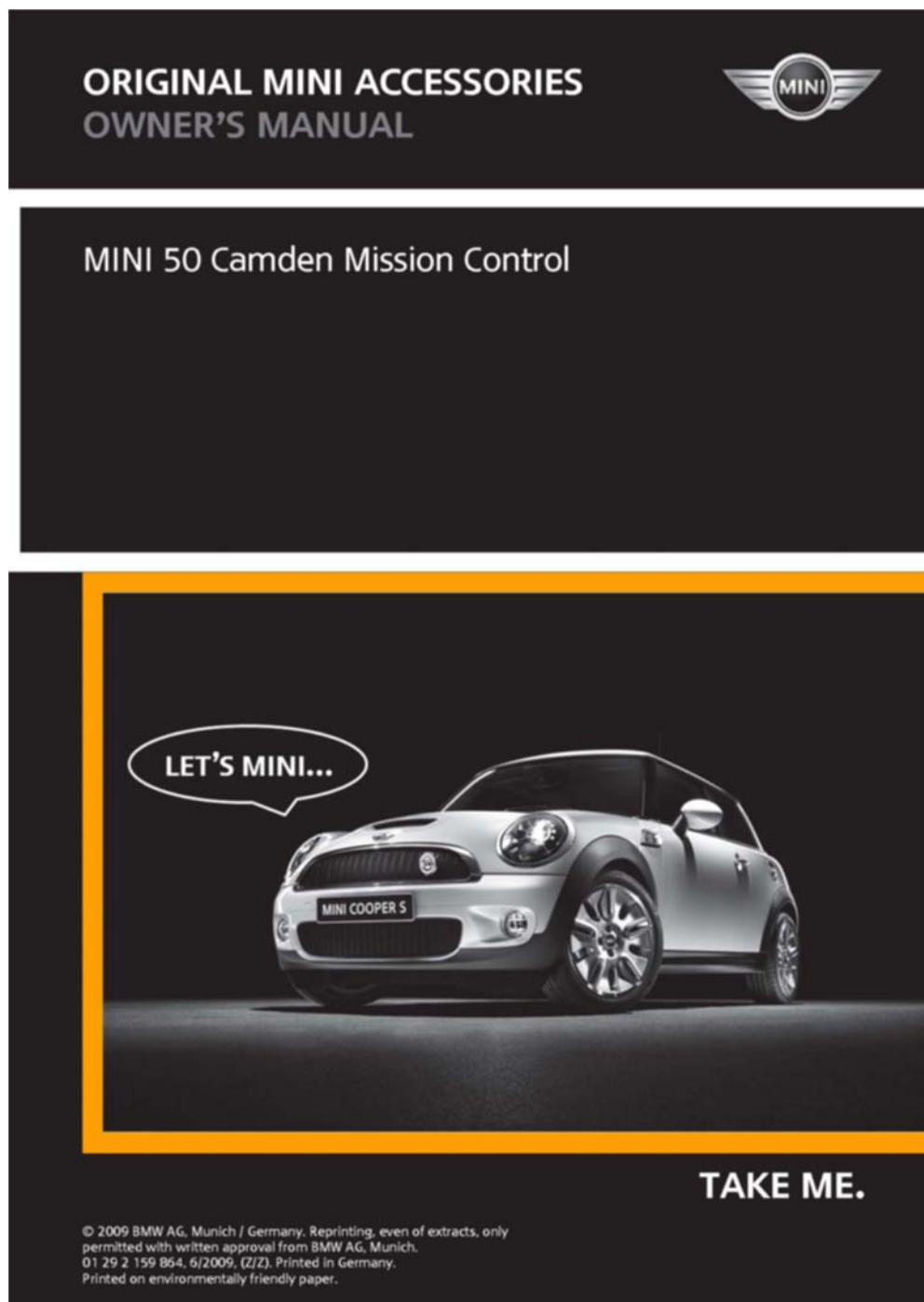
^ For wiring-related issues, check the wiring (see the wiring diagram in attachment B).

^ For the Mission Control module, test by substitution.

## WARRANTY INFORMATION

For information only

## ATTACHMENTS



## What is MINI 50 Camden Mission Control?

It's your MINI's own personality!

Mission Control represents a first step into a completely new world of interactive in-car entertainment and facilitates an unprecedented driving experience.

In typical MINI fashion, you receive information, for example, about engine temperature, fuel level, seat belt warnings or air conditioning controls.

Mission Control selects the information according to the situation and relays it in continuously changing formats.

To celebrate 50 years of the MINI, all information and instructions are relayed traditionally in English. Keep yourself informed about the latest developments in "Mission Control". Register yourself with MINI 50 Camden at [www.MINIUnited.com](http://www.MINIUnited.com).

## Operation

The SD card **A** supplied must not be used in other devices.

No data on the SD card **A** may be modified or deleted, or additional data stored.

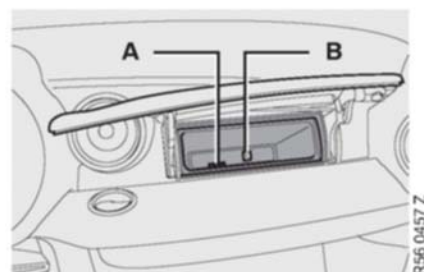
The system is reset and started by pressing and holding the switch **B** for a few seconds.

The audio output of the Mission Control can be adjusted by means of the radio settings menu. The volume in relation to the normal audio source can be adjusted from -5 to +5.

If Mission Control is active, the words "Mission Control active" appear on the radio display.

Other sources in the car such as mobile phone, PDC, gongs and voice controlled operation have priority and will interrupt the Mission Control system.

Mission Control messages are shown on the radio display and the radio cannot be adjusted during an announcement.



Settings should only be adjusted when the vehicle is stationary.

The system can be switched on or off at any time using the switch **B**.

The LED indicates when the system is in operation.

- LED on: System is switched on
- LED off: System is switched off
- LED flashing: SD card **A** not inserted correctly or data cannot be read.

**A** SD card (supplied already fitted)

**B** ON/OFF switch with LED

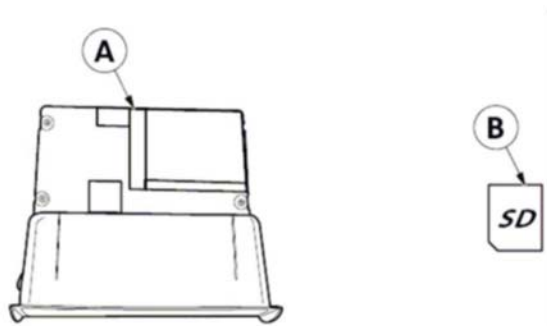
## Legal notes

Please note that Mission Control is intended exclusively as an entertainment system. It is not a safety system.

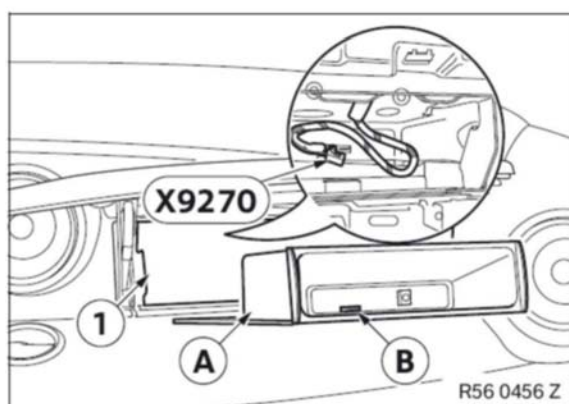
Please use the system only if traffic conditions allow. Settings should only be made when the vehicle is stationary. The driver is responsible for the safe use of the vehicle.

Announcements by Mission Control may be delayed. In case of doubt, the other instruments in the car take priority over the announcements by Mission Control.

The volume level of Mission Control should be adjusted so that it does not distract the driver or hinder the perception of traffic noise.

**PARTS INFORMATION AND WIRING DIAGRAM FOR THE MISSION CONTROL SYSTEM****Parts List**

- A: Storage box with the Mission Control system  
 B: SD card

**Installation Location**

The storage box with the Mission Control system (A) is located in the glove compartment recess (1).

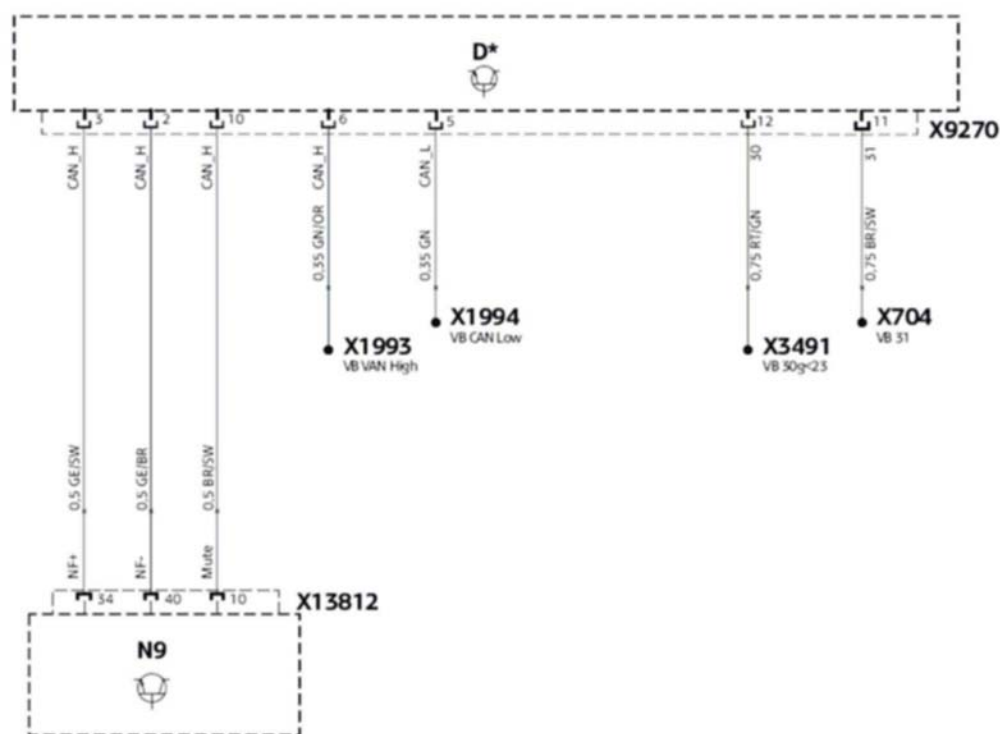
The SD card (B) inserted into the Mission Control.

Connector X9270 in the glove compartment recess (1)

**System check**

- LED On: Mission Control is switched on.
- LED Flashing: The SD card is not inserted correctly or data cannot be read.
- LED Off: Mission Control is switched off.

## Circuit Diagram of the MINI Mission Control system



## Legend

- X704** Terminal 31 connector  
**X1993** CAN High connector  
**X1993** CAN Low connector  
**X3491** Terminal 30g connector  
**X9207** 12-pin SW socket casing, to Mission Control unit **D\***  
**X13812** 40-pin socket casing, SW, to radio, **N9**

All the designations marked with an asterisk (\*) apply only to these installation instructions or this circuit diagram.

## Cable colours

BR	Brown	OR	Orange
GE	Yellow	RT	Red
GN	Green	SW	Black

Circuit Diagram of the MINI Mission Control System

Technical Service Bulletin # **M710109**

Date: **100301**

## Recall 09V-474 - Tire Information Placard

SI M 71 01 09

Tools and Accessories (Engine\_Chassis)

March 2010

Technical Service

PERFORM THE PROCEDURE OUTLINED IN THIS SERVICE INFORMATION ON ALL AFFECTED VEHICLES BEFORE CUSTOMER DELIVERY OR THE NEXT TIME THEY ARE IN THE SHOP FOR MAINTENANCE OR REPAIRS.

Under the National Traffic and Motor Vehicle Safety Act of 1966, as amended, if there has been a recall campaign, dealers must assure that all new vehicles and new items of replacement equipment are free of safety defects and comply with all applicable Federal Motor Vehicle Safety Standards at the time of delivery to the consumer. This means that dealers may not deliver new motor vehicles or new items of replacement equipment to consumers unless the safety defect or noncompliance has been remedied before delivery.

**SUBJECT**

Recall Campaign 09V-474: Inspect Tire Information Placard

**MODEL**

Cooper and Cooper S (R56)

**SITUATION**

Certain vehicles were produced with the incorrect Tire Information Label installed. The Tire Information Label may not reflect the actual tire size fitted on the vehicle. This Recall Campaign is being performed to inspect and correct the label, as necessary.

Customers will receive notification letters, installation instructions and a Tire Information Label. Customers will be given the option of installing the label themselves or having an authorized MINI dealer perform the procedure. Copies of the Customer Letter and installation instructions are attached to this bulletin.

**AFFECTED VEHICLES**

This Recall Campaign involves Cooper and Cooper S models which were produced from August 20th, 2009, to October 9th, 2009.

In order to determine whether a specific vehicle has had this Recall Campaign completed or is affected by this Recall Campaign, first check the B-pillar label for code number 45. If code number 45 has been punched out, the campaign has already been performed. If code number 45 has not been punched out, it will be necessary to utilize the "Service Menu" of DCSnet (Dealer Communication System) or the Key Reader. Based on the response of the system, either proceed with the corrective action or take no further action.

**PROCEDURE**

Open the driver's door and inspect the Tire Information Label located on the B-pillar. The affected vehicles were produced with 205/45 R17 Tires.

If the tire size listed on the label is 205/45 R17, no further action is necessary.

If the tire size listed is not 205/45 R17, wipe off the label with a clean, lint-free cloth and apply a new label directly over the existing label.

**PARTS INFORMATION**

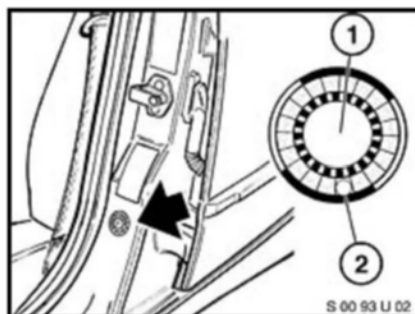
Part Number	Description	Quantity
71 24 6 790 874	Tire Information Label	1

**PARTS INFORMATION****LABEL INSTRUCTIONS**

This Recall Campaign has been assigned code number 45. After the vehicle has been checked and/or corrected, obtain a label (MD 20-040) and;

A. Emboss your MINI dealer warranty number in the middle of the label (1);

B. Punch out code number 45 (2), printed on the label; and



C. Affix the label to the B-pillar as shown.

If the vehicle already has a label from a previous Service Action/Recall Campaign, affix the new label next to the old one. Do not affix one label on top of another one, because a number from an underlying label could appear in the punched-out hole of the new label.



**WARRANTY INFORMATION**

The repair described in this bulletin is covered under warranty regardless of time or mileage. Reimbursement for this Recall will be via normal claim entry utilizing the following information:

**Defect Code:** 00 71 45 01 00

**Labor Operation:**      **Labor Allowance:**      **Description:**

00 58 920

Refer to KSD2 \*\*

Inspect/install tire pressure label

\*\* Labor time allowances can be located in the KSD2 by entering the VIN, clicking on the **Search** button and then entering the listed flat rate in the **FR code** field.

**WARRANTY INFORMATION****Recall Campaign No. 09V-474: Tire Information Label Installation Instructions**

In order to save you a trip to an authorized MINI dealer to have the correct label installed, you may perform the required steps below yourself.

To install the label on your car:

- Open the driver's door and locate the white Tire Information Label, as shown below (item 1).



- Wipe off the label with a clean, dry cloth.
- Fold back a corner of the enclosed sheet containing the new label, and peel off the label.
- Carefully place the new label directly over the one on the car, and press it firmly into place.
- Repeat the procedure for the smaller yellow label (item 2).

If you do not wish to perform this yourself, you may bring your car and the label to an authorized MINI dealer, and they will perform the work at no charge.

M71 01 09

Attachment - Recall Campaign No. 09V-474: Tire Information Label Installation Instructions

**February 2010****Recall Campaign No. 09V-474: Tire Pressure Label**

Dear MINI Owner:

This notice is sent to you in accordance with the requirements of the National Traffic and Motor Vehicle Safety Act.

BMW AG has decided that certain Model Year 2010 MINI Cooper and Cooper S vehicles fail to conform to Federal Motor Vehicle Safety Standard No. 110 (Tire Selection and Rims). Our records indicate that you are the owner of a potentially affected vehicle.

We sincerely apologize for any inconvenience this may cause you.

**DESCRIPTION OF DEFECT**

The issue involves the tire pressure label on your MINI. Specifically, your MINI was equipped with 17-inch wheels, but the label states that the MINI was equipped with 16-inch wheels. On MINI Cooper S vehicles, the tire pressure contained on the label is incorrect; however, it is correct in your Owner's Manual.

**You may continue to drive your vehicle; however, you must have this problem corrected immediately.**

**For MINI Cooper S owners, should you need to adjust the tire pressure, please consult your vehicle's Owner's Manual for the correct pressure based upon your vehicle's specific tire size. You will find the tire size stamped on the sidewall of the tire.**

**PRECAUTIONS**

- 1. MINI recommends that you always wear your safety belt, and that all passengers are properly seated and restrained at all times.**
- 2. If you are not the only driver of this vehicle, please advise all other drivers and passengers of this important information.**

**DESCRIPTION OF REPAIR**

Enclosed with this letter is a new tire information label, along with instructions for you to affix the label to your vehicle.

**Please install the new label as soon as possible.**



If you do not wish to perform this yourself, you may bring your vehicle to an authorized MINI dealer who will perform this service for you, free of charge. The label installation should take approximately 15 minutes.

#### **OTHER INFORMATION**

Should you need MINI Roadside Assistance during operation of your vehicle, they may be reached at 1-866-646-4772.

If you are no longer the owner of this vehicle, we would appreciate your furnishing us with the name and address of the new owner, using the enclosed postage-paid card.

If you are a lessor of this vehicle, Federal Regulations require you to forward this notice to your lessee.

If you have already had this repair performed at your own expense, please see the attachment regarding possible eligibility for reimbursement.

**Should you have any questions about this campaign, please contact your authorized MINI dealer.**

Again, we sincerely apologize for any inconvenience this may cause you.

We appreciate your confidence in our product, and we wish to do everything we can to retain your confidence. Should you need additional assistance, you may contact MINI Customer Relations and Services at 1-866-ASK-MINI (1-866-275-6464), or via Email at [MINI.Assistance@askminiusa.com](mailto:MINI.Assistance@askminiusa.com).

If the MINI dealer is unable to remedy the defect without charge or within a reasonable period of time, you may notify the Administrator, National Highway Traffic Safety Administration, 1200 New Jersey Ave., S.E., Washington, DC 20590; call the toll-free Vehicle Safety Hotline at 1-888-327-4236 (TTY: 1-800-424-9153); or go to <http://www.safercar.gov>.

MINI, a Division of BMW OF NORTH AMERICA, LLC

Technical Service Bulletin # **M070210**

Date: **100101**

## **Computers/Controls - ISTA Test Plan Priority Error**

SI M 07 02 10  
Workshop Environment Systems

January 2010  
Technical Service

SUBJECT  
ISTA Test Plan Priority Error

MODEL  
All

### **SITUATION**

When diagnosing a vehicle using ISTA (Integrated Service Technical Application), fault code test plans are intended to be listed by "Priority". However, the priority given to test plans by ISTA may not be reliable. This may lead to unnecessary diagnosis being performed.

### **CAUSE**

When ISTA was introduced, the entire diagnostics from DIS were migrated over to ISTA. Until all of the diagnostic data has been revised within ISTA, this type of error may occur.

### **PROCEDURE**

Before starting diagnosis, the entire test schedule should be considered. Always use fault symptom diagnosis when available, and use the customer complaint as the basis for determining which test plan to start first.

**Note:**

With each ISTA release, the priority given in the test schedule will become more reliable.

**WARRANTY INFORMATION**

For information only

Technical Service Bulletin # **M240108**

Date: **100301**

**A/T - Gear Indicator Warning Lamp ON/Code A0B6**

SI M 24 01 08

Automatic Transmission

March 2010

Technical Service

This Service Information bulletin supersedes SI M24 01 08 dated August 2008.

[NEW] designates changes to this revision

**SUBJECT**

R55, R56, [NEW]R57 with F21 Transmission - {NEW}Warning Light Illuminated with FC A0B6

**MODEL**

R55, R56, [NEW]R57 (Cooper, Cooper S) with F21 ASIN 6-speed automatic transmission

**[NEW]SITUATION**

Intermittently, the transmission warning lamp ("gear indicator") is displayed (in some instances, when the ignition is turned off). Also, the selector lever could not be moved out of the P position. Fault code A0B6 (Selector lever interlock signal, above threshold) may be stored in the CAS module.

**[NEW]CAUSE**

Incorrect adjustment of the gearshift cable at the transmission selector level

**[NEW]CORRECTION**

Adjust the gearshift selector cable according to Repair Instruction RA24 10 018. After the adjustment is performed, the M8 tightening nut of the transmission selector lever should be torqued to 12 Nm.

Do not replace any components. Clear the fault memory and test drive the vehicle.

**Note:**

On vehicles produced from 03/01/2008 to 03/31/2008, if fault code A0B6 is stored in the CAS module, the Steptronic gearshift assembly (P/N 25 16 7 577 589) should be replaced. For the replacement procedure, refer to RA25 16 056.

**WARRANTY INFORMATION**

Covered under the terms of the MINI New Vehicle Limited Warranty.

**Defect Code:** 25 16 09 66 00

**Labor Operation:** **Labor Allowance:** **Description:**

25 16 175\* 6 FRU Adjusting gearshift interlock cable

OR

25 16 056\* 18 FRU Replace Steptronic gearshift assembly

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this

is not the main repair, refer to KSD for the associated (+) labor operation code.

## WARRANTY INFORMATION

Technical Service Bulletin # **M640208**Date: **100501****A/C, Cooling System - Footwell Area Becomes Hot**

SI M 64 02 08

Heating and Air Conditioning

May 2010

Technical Service

This Service Information bulletin supersedes SI B M64 02 09 dated June 2008.

[NEW] designates changes to this revision

## SUBJECT

Driver Footwell Area Becomes Hot

## MODEL

R56 (Cooper, Cooper S)

## SITUATION

The customer states that the driver footwell area becomes too hot once the vehicle warms up. Adjusting the climate control system has no effect.

## CAUSE

The heater core pipes are poorly insulated.

## PROCEDURE

[NEW] Follow the procedure outlined in the attachment to this Service Information bulletin.

**PARTS INFORMATION**

Part Number	Description	Quantity
64 11 3 453 594	Insulating Foam	1

## PARTS INFORMATION

**WARRANTY INFORMATION**

Covered under the terms of the BMW New Vehicle Limited Warranty.

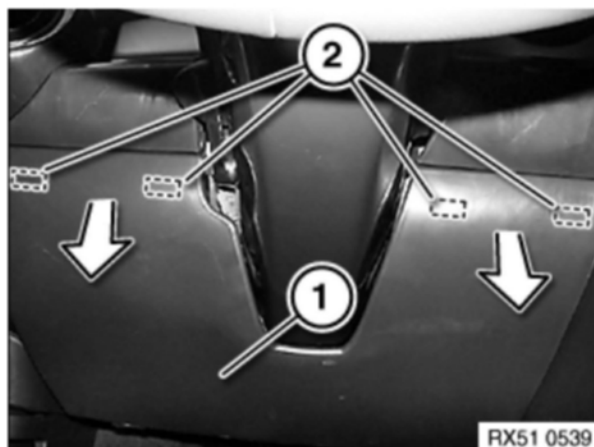
<b>Defect Code:</b>	<b>NEW</b> 64 11 01 79 00	
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
64 99 000	5 FRU	Install Insulating Foam

## WARRANTY INFORMATION

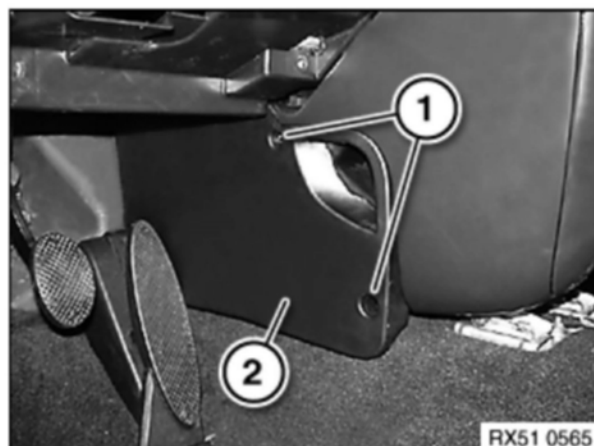
## ATTACHMENTS

**SI M64 02 08 - Procedure for installing insulating foam      June 2008**

1. Remove the three screws (1) from the dash trim panel.



2. Unclip the bottom instrument panel trim (1) from the retaining clips (2) and remove.



3. Remove the 2 screws (1) and remove the panel toward the rear of the vehicle.



4. Install the foam around the heater pipe as shown in the picture.
5. Ensure that the foam covers the entire pipe up to the clamp at the heater core.
6. Secure the foam using cable ties. Cut off any excess cable tie and ensure that the cable tie will not contact the cover once installed.
7. Reinstall the heater core cover.
8. Reinstall the dash panel trim cover.

Technical Service Bulletin # **M110207**Date: **100402****Engine - Cold Start Up Rattling Noises**

SI M 11 02 07

Engine

April 2010

Technical Service

This Service Information bulletin supersedes SI M11 02 07 dated April 2010.

[NEW] designates changes to this revision

**SUBJECT**

Rattle Noise from Engine

**MODEL**

R55 Cooper S with N14 engine

R56 Cooper S with N14 engine

From start of production up May 4th, 2009

**SITUATION**

The customer complains of a rattle noise from the engine during cold start-up - most often at the 1,600-1,800 rpm range, or in some instances (elongated timing chain) from the idle speed up to 2,000 rpm.

The rattle noise occurs more frequently when driving short distances.

The noise is more prevalent when the outside temperature is approximately 15° Celsius (59° Fahrenheit) or below.

**CAUSE**

The complaint can be caused by one or both of the following reasons:

^ Insufficient tension of the timing chain

^ The chain tensioner has not been bled sufficiently.

**PROCEDURE**

Work through the following procedure in order to eliminate other possible causes:

1. If a fault is stored in the DME memory (e.g., misfiring, VANOS, etc.), then work through all relevant test plans first.
2. A one-off short shrill will be heard within the first two seconds of engine operation. This is an inherent noise caused by the first regulation cycle of the engine oil pump. This is normal operation and no parts should be replaced.
3. If the noise appears to be coming from the valve cover or the vacuum pump area, refer to SI M11 02 08. To verify the source of the noise, disconnect the vacuum hose from the mechanical vacuum pump to eliminate the knocking noise. This is not a failure of the mechanical vacuum pump; do not replace any parts.
4. Ensure that the noise is not created or eliminated by depressing the clutch pedal, if equipped.
5. Disconnect the electrical connector from the tank ventilation valve. If the noise disappears when the connector is removed, reconnect to verify whether the noise returns. If the noise returns, replace the tank ventilation valve.

If all of the steps above are unsuccessful in eliminating the noise, please proceed to step 6.

6. Remove the right-hand wheel arch trim to access the crankshaft central bolt.
7. Disconnect the battery, remove ignition coils and spark plugs. Turn the engine by hand to move the flywheel to approximately 90° before TDC.

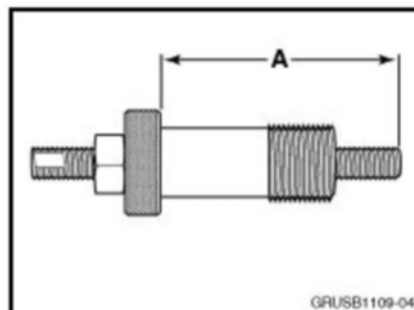


8. Install the locating pin (Special Tool 11 9 590) to lock the position of the engine.

9. Remove the chain tensioner and collect the residual oil with a shop towel.



10. Fit the chain tensioner (Special Tool 11 9 340) without the seal ring and with the lock nut loose. Pretension the chain tensioner with Special Tool 00 9 250 to 0.6 Nm. Finger-tighten the lock nut on Special Tool 11 9 340.



11. Remove the chain tensioner (Special Tool 11 9 340) from the engine, with the lock nut still tight. Measure the distance (A), as described in the illustration.

12. If distance (A) is less than 68mm (and the noise can be reproduced only between 1,600-1,800 rpm), then only replace the chain tensioner with P/N 11 31 7 607 551 (refer to parts list A), as per Repair Instruction REP 11 31 090 (Installing and removing/replacing chain tensioner piston N14).

13. If distance (A) is 68mm or greater (and the noise is reproducible both at 1,600-1,800 rpm range as well as at idle speed when cold), replace the following components in the list below (refer to parts list B). If you are uncertain regarding repair attempts already made, each chain tensioner part number is stamped on the outer sleeve. It must be removed from the engine in order to read the part number.

^ Chain tensioner P/N 11 31 7 597 895 only!

#### Note:

P/N 11 31 7 607 551, Timing chain tensioner, should not be installed with a new timing chain.

^ Timing chain

^ Guide rail

^ Tensioner rail

^ Sliding rail

^ Sprocket on the crankshaft

Bearing bolts for the tensioner and guide rails

Refer to Repair Instruction REP 11 31 051 (Replacing timing chain N14).

Refer to the EPC for additional parts required, i.e., gaskets, seals, etc.

## **NEW** 11 21 Crankshaft and Bearings

1 AZ	Type	Thread	Tightening	Measure
Torsion	N14	M14 x 1.5 x 74	specification	
Dampener (hub) to crankshaft (central bolt)			Replace screws	
			Lightly oil screws and threads	
			Jointing torque	50 Nm
			Torque angle	180°

[NEW] The incorrect crankshaft central bolt tightening torque is stated in the current release of ISTA. Disregard the torque specified in the current Repair Instructions when performing repairs that include replacing the crankshaft central bolt, P/N 11 21 7 585 184. The torque specification information will be corrected in the release of ISTA/D 2.21. The correct torque specification is described below.

[NEW] Do not replace the hydraulic valve lifters (HV A), intake camshaft VANOS adjustment unit, or the exhaust camshaft sprocket for this type of noise. It is NOT necessary to obtain a Part Replacement Authorization (TeileClearing) for this specific issue. Refer to the Warranty section of this bulletin for more details.

14. After the repair is completed, reprogram the vehicle with the current ISTA/P version (2.37.0 or higher) to the target integration level R056-10-03-501 or higher.

Note that ISTA/P will automatically reprogram and code all programmable control modules that do not have the latest software.

For information on programming and coding with ISTA/P, refer to Centernet / Aftersales Portal / Service / Workshop Technology / Vehicle Programming.



**PARTS INFORMATION**

<b>Part Number</b>	<b>Description</b>	<b>Quantity</b>
<b>Parts List A</b>		
11 31 7 607 551	Chain tensioner	1
<b>Parts List B</b>		
11 31 7 597 895	Chain tensioner	1
11 31 7 534 251	Chain tensioner seal ring	1
11 31 7 534 784	Timing chain	1
11 31 7 568 241	Guide rail	1
11 31 7 534 833	Tensioner rail	1
11 31 7 534 771	Bearing bolt	1
11 31 7 534 768	Bearing bolt	2
11 31 7 550 461	Bearing bolt gasket ring A14x21	1
11 31 7 546 697	Slide rail	1
11 21 7 534 654	Crankshaft sprocket	1
<b>NEW</b> 11 21 7 585 184	Bolt	1

Refer to the EPC for additional gaskets, seals and bolts, as described in Repair Instruction REP 11 31 051.

**PARTS INFORMATION****WARRANTY INFORMATION**

Covered under the terms of the MINI New Vehicle Limited Warranty or the MINI NEXT Certified Pre-Owned Program.

<b>Defect Code</b>	<b>11 33 04 39 00</b>	
Labor Operation	11 99 000	Procedure steps 1-5



**Main Work**

Labor Allowance 4 FRU

Or

Labor Operation 11 99 000 Procedure steps 1-11

**Main Work**

Labor Allowance 10 FRU

Labor Operation: 11 31 090\* Replacing piston for timing chain  
+ Associated Work tensioner

Labor Allowance 5 FRU

or

Labor Operation: 11 31 051\* Replace timing chain (Parts list B)

+ Associated Work

Labor Allowance Refer to KSD2

Plus

Labor Operation Refer to KSD Reprogram/recode vehicle

Labor Allowance Refer to KSD2

Note: The following explanations will spell out the correct use of the work times.

**Main Work:** Use this labor operation number when the only repair performed is the listed warranty repair.

OR

**+Associated Work:** Use this labor operation number when other repairs or services are performed along with the listed warranty repair. Under no circumstances should both labor operation numbers be claimed. Attempts to claim both times will result in an unnecessary delay in claim processing and payment.

In cases where ISTA requires the replacement of control modules or additional programming because certain control modules failed to program correctly, print out the Measures Plan and Final Report and attach these reports to the RO in the vehicle file. This additional work should be claimed under the defect code listed in this bulletin, using the labor operation and labor allowance from the KSD2.

**Part replacement authorization is NOT required.** Do NOT submit a TeileClearing PuMA case. A copy of the diagnostic report (short test) must be kept with the Repair Order (RO) and FASTA data must be transmitted. When submitting a warranty claim, please include "replaced per SI M11 02 07" in the comments section.

## WARRANTY INFORMATION

Technical Service Bulletin # **M650110**Date: **100601****CCC - 'Please Insert Navigation DVD' appears On CID**

SI M 65 01 10

Audio, Navigation, Monitors, Alarms, SRS

June 2010

Technical Service

This Service Information bulletin supersedes SI M65 01 10 dated March 2010.

[NEW] designates changes to this revision

## SUBJECT

CCC - "Please Insert Navigation DVD" appears on CID

## MODEL

R55 (Cooper Clubman, Cooper Clubman S)

R56 (Cooper, Cooper S)

R57 (Cooper Convertible)

All vehicles produced from 9/2006 to 12/30/2009 and equipped with SA 609 (CCC Car Communication Computer)

## SITUATION

The navigation map DVD cannot be read or detected. The message "Please insert navigation DVD" appears in the CID (Central Information Display). The navigation system is inoperative.

## CAUSE

Faulty DVD drive; read error due to hardening of the anti-vibration gel on the read head

## PROCEDURE

Ensure that the map DVD is not faulty by swapping it with a map DVD known to work.

If the map DVD is not the problem, replace the DVD drive as per ISTA repair instructions "REP 6583580 Removing and installing/replacing DVD drive for Car Communication Computer".

## Note:

If the DVD drive is replaced, it is not necessary to replace the map DVD or program the vehicle.

Part Number	Description	Quantity
 65 83 9 241 764	DVD drive	1

## PARTS INFORMATION

Covered under the terms of the BMW New Vehicle Limited Warranty

**Defect Code:** 65 83 90 18 00

Labor Operation:	Labor Allowance:	Description:
00 58 306*	Refer to KSD2**	Replace the DVD drive for the Car

Communication

Computer

Labor Operation:	Labor Allowance:	Description:
+00 58 980	Refer to KSD2**	Replace the DVD drive for the Car
		Communication
		Computer

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, use the associated (+) labor operation code.

\*\* Labor time allowances can be located in the KSD2 by entering the VIN, clicking on the **Search** button and then entering the listed flat rate in the **FR code** field.

## WARRANTY INFORMATION

Technical Service Bulletin # **000702**

Date: **090201**

## Maintenance - Condition Based Service (CBS) Overview

SI B 00 07 02

Maintenance and General Hints

February 2009

Technical Service

This Service Information bulletin supersedes SI B00 07 02 dated November 2007.

[NEW] designates changes to this revision

jmoraflores@hotmail.cl

**SUBJECT**

Condition Based Service

**MODEL**

[NEW] All models with Condition Based Service

**SITUATION**

This information is intended to provide a general system overview of Condition Based Service (CBS), which is an advanced development of the previous Service Interval Indicator systems.

CBS measures, monitors and determines the required maintenance of several service items independently of each other. This technology prompts the customer to bring the vehicle in for service whenever one of the CBS items requires maintenance or replacement. CBS strikes a compromise between too frequent maintenance intervals and too rigid service intervals that call for the replacement of service items that may still have substantial remaining useful life. CBS also details the recommended, due, and overdue required maintenance during and after the BMW Vehicle Maintenance Program Agreement.

[NEW] For details of CBS service items and maintenance intervals, refer to the vehicle and model year specific Service Information bulletins entitled "New Vehicle Preparation and Maintenance Requirements" located in Group 00 or the relevant Owner's Manual.

**SERVICE RECOGNITION**

The vehicle recognizes when a service is required using the following three methods:

A. Adaptive, using sensor technology and algorithms to determine the required maintenance of a service item depending upon the individual customer driving style. For example:

- ^ Oil change is determined from the engine oil condition sensor which monitors the oil condition, oil level, and oil temperature, and from additional algorithms using these parameters: engine load, fuel consumption, time and distance since the last oil change.
- ^ [NEW] Microfilter replacement (dependent on vehicle model and CBS version).
- ^ Replacements of front and rear brake pads are determined from 2-stage brake lining wear sensors located on the left front and right rear brake pads, and from residual wear algorithms using these input parameters: travel distance, wheel speed, braking pressure, braking time, and braking frequency.

B. Fixed Time (months) to determine the required maintenance of a service item. For example:

- ^ Brake Fluid and Engine Coolant changes.
- ^ State Safety and Emissions Inspections.

C. Fixed Distance (miles) to determine the required maintenance of a service item. For example:

- ^ Vehicle Check.
- ^ [NEW] Spark plug replacement (dependent on vehicle model and CBS version)
- ^ [NEW] State Safety and Emissions inspections

D. [NEW] Connected to Oil Service, based on which oil service being performed. For example:

- ^ Spark plug replacement (dependent on vehicle model and CBS version)
- ^ Air filter
- ^ Automatic transmission fluid
- ^ Microfilter replacement (dependent on vehicle model and CBS version)

**[NEW] SERVICE INDICATION (EXCEPT E65 AND E66)**

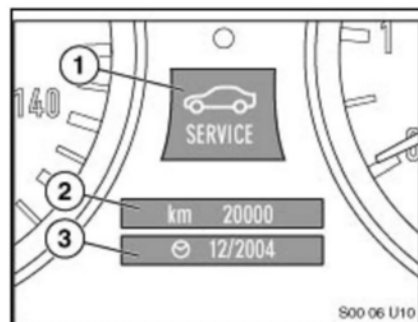
The service indicators are displayed in two possible locations inside the vehicle:

**1. Instrument Cluster**

The Instrument Cluster CBS display uses two separate displays:

- ^ A colored symbol in the center upper display:

- ^ Orange for normal
- ^ Yellow for service due
- ^ Red for service overdue
- ^ The remaining distance display is in the center lower display.

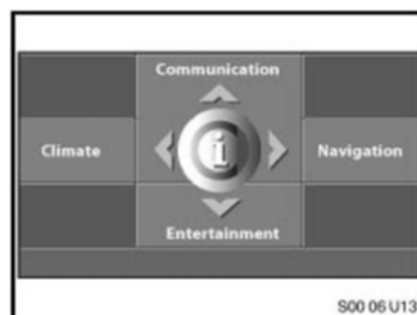


The illustration shows the CBS Display in the Instrument Cluster.

- (1) The CBS symbol in center upper display
- (2) The remaining distance display in the center lower display
- (3) The Next Service Due date information in the center lower display

## 2. Central Information Display (CID)

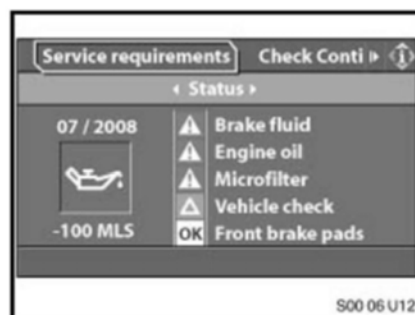
For vehicles with a CID, the CID can display all information on the individual service operations. The CBS functions are stored in the "Settings" menu item and can be used exclusively for individual user settings.



Press the controller down in the main menu and the "Settings" menu will appear.

Turn the controller until "Service" is highlighted, then press to activate the CBS menu.

The CBS menu window will appear and is divided into the following control and display fields:

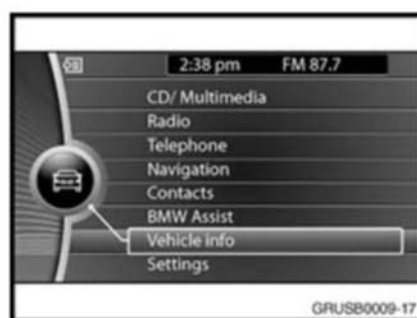


- ^ Status bar
- ^ First menu bar
- ^ Second menu bar

^ Display field for CBS symbol

^ Display field for service operation.

**NEW**



[NEW]

For vehicles with a CIC (Car Information Computer): from the start screen, select Vehicle Info / Vehicle status / Service required.

**NEW**



[NEW]

The Service required screen displays all the maintenance items and their current status.

#### **[NEW] PROCEDURE TO VIEW OR RESET SERVICE ITEMS IN THE INSTRUMENT CLUSTER (EXCEPT THE E65 AND E66)**

1. Turn ignition to Terminal 15.
2. Press and hold the Instrument Cluster Set/Reset button for 10 seconds.
3. The upper display in the Instrument Cluster will be illuminated with a Service Item (example: An oil can is the designation for Oil Service). The lower display in the Instrument Cluster will indicate the remaining time or mileage left for that Service Item (example: 14000). Pressing the button repeatedly will allow the display to scroll through all of the Condition Based Service Items.
4. Press and hold the Instrument Cluster Set/Reset button again and the lower display screen will indicate "OK" or "DUE".
5. Pressing the Instrument Cluster Set/Reset button again will allow the "RESET" to appear in the lower window for that service. Releasing and reapplying the button one more time will reset the service displayed in the upper window only. Repeat the procedure for any additional service reset needs.

#### **Note:**

The CBS service items for both State Vehicle Safety Inspection and State Emissions Inspection cannot be viewed in the Instrument Cluster. These State Inspections can be viewed on the CBS Menu in the Control Display or by DISplus / GT1.

#### **[NEW] PROCEDURE TO RESET THE CBS DISPLAY BMW GROUP DIAGNOSTIC SYSTEM (EXCEPT THE E65 AND E66)**

Using the [NEW] BMW diagnostic system, the CBS Reset sets the selected service item to 100% (full service interval) and displays a service counter indicating how many times the service item has been reset.

The CBS reset procedure is found under: Diagnosis - Function Selection - Service Functions - Maintenance - CBS Reset - Test Plan. Then highlight the listed procedure and press the bottom right corner green arrow to the right.

**Note:**

The original value of the individual CBS service item will be deleted during the reset procedure.

The next screen offers 3 selection menus:

The next screen offers 4 selection menus:

**Selection 1: CBS reset**

1. Engine oil
2. Microfilter
3. Front brakes
4. Rear brakes
5. Vehicle check

**Selection 2: CBS reset**

1. Spark plugs
2. Brake fluid
3. Coolant
4. State Safety inspection
5. Emissions inspection

**Selection 3: End**

The **CBS vehicle data correction** allows "quick access" to correct or change the basic data stored in the vehicle after the CBS reset. This procedure is found under: **Diagnosis – Function Selection – Service Functions – Maintenance – CBS Correction, Vehicle Data – Test Plan**. Then highlight the listed procedure and press the bottom right corner **green arrow** to the right.

The next screen offers 4 selection menus:

**Selection 1: Correction**

1. Engine oil
2. Microfilter
3. Front brakes
4. Rear brakes
5. Vehicle check

**Selection 2: Correction**

1. Spark plugs
2. Brake fluid
3. State Safety inspection
4. Emissions inspection

**Selection 3: Correction**

1. Telephone numbers
2. Date of first registration
3. Reset annual kilometer setting.

**Selection 4: End****Reset Annual Kilometer Setting**

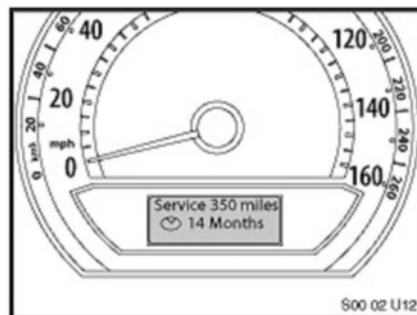
This setting is designed to compare the mileage of the vehicle to time. This reset should only be performed one time for each customer, and not reset annually. This replaces the date and time of day automatically downloaded in the vehicle as seen previously in the E65 and E66 vehicles. This is an enhancement to further refine the service intervals to properly match the customer's driving habits.

The reset of the Annual Kilometer Setting should be performed when the vehicle is delivered to the customer. If the vehicle is sold as a used vehicle in the future, the reset should again be performed for each subsequent owner.

**E65 AND E65 SERVICE INDICATION**

The service indicators can be displayed in three different locations inside the vehicle:

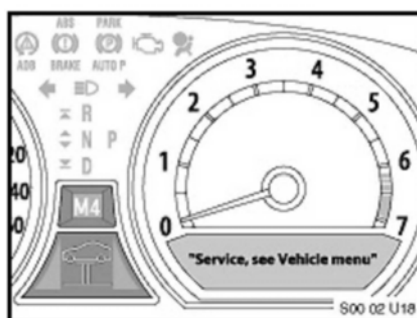
A. The Service Need Display (SBA) , located in the Instrument Cluster under the Speedometer, is the evolution of the SIA4 Service Interval Display. When the ignition (KL15 Terminal) is on, the SBA appears briefly. The first line specifies the mileage range before the next service is due. The second line, displayed by a clock symbol, specifies the time range before the next service is due. If service is overdue, a minus sign ("-") will appear with the overdue mileage or time.



For example: The next mileage-dependent service item is due in 350 miles and the next time-dependent service item is due in 14 months.

B. The Check Control Display located in the Instrument Cluster under the tachometer.

For example: If either the front or rear brake linings are worn, the following is displayed:

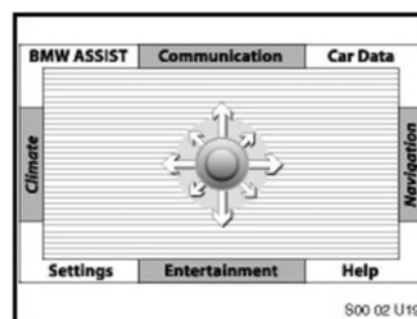


^ "Service, see Vehicle menu" is displayed in the Check Control Display. For more detailed information, the user can access the CBS Menu in the Control Display.

^ The general brake warning lamp and the variable control lamp illuminate in the Instrument Cluster.

^ The variable control lamp shows the symbol of a car on a lifting platform in the bottom center of the Instrument Cluster.

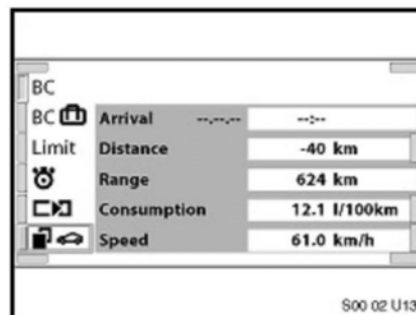
C. The CBS Menu in the Control Display provides additional information on any required service. The CBS Menu can be accessed by doing the following:



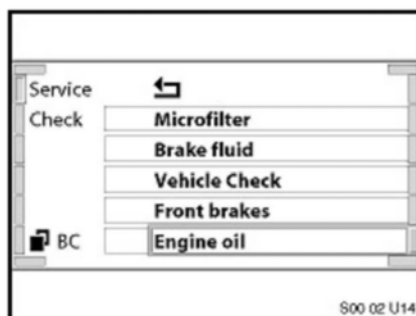
^ Select the "Car Data" menu using the controller.

^ After releasing the controller or returning to the central position, the "On-board Data" menu appears.

^ Turn the controller until the Vehicle Symbol (bottom left) is highlighted.



^ Confirm the selection by pressing the controller.



^ Turn the controller until Service (top left) is highlighted.

^ Confirm the selection by pressing the controller.

^ The CBS menu appears with the service items.

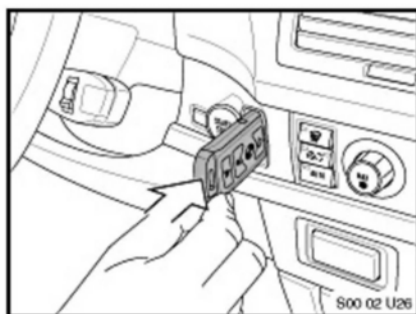
The service items are displayed in three different colors:

1. Green - No service is currently required.
2. Yellow - Service deadline is approaching (please see the above table: "Yellow" Interval Before Service Is Due).
3. Red - Service deadline has already passed (overdue).

To display the information of a service item, turn the controller to select the item and confirm the selection by pressing the controller.

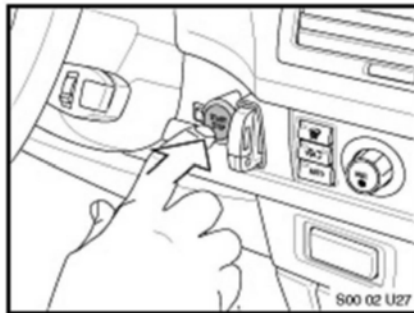
## E65 AND E66 PROCEDURE TO RESET THE CBS DISPLAY USING THE INSTRUMENT CLUSTER

The CBS Reset procedure enables resetting of the individual service item. After a service has been performed, the service item must be reset to 100% (full service interval). To reset a service item:

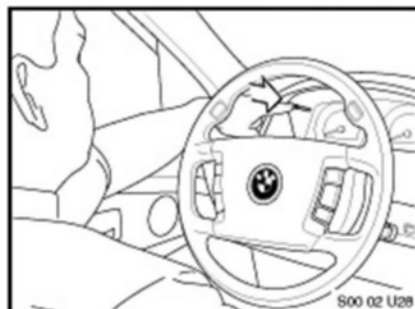


1. Insert the Remote Control into the Ignition Lock.





2. Press the Start/Stop Button once (KL 15 is "ON") with foot off the Brake Pedal.



3. Press and hold the Reset Button located on the upper left side of the Instrument Cluster for about 5 seconds.

4. Release the Reset Button when a 4-line menu appears inside the Speedometer display. At the top line is the "Back" function, followed by the first 3 service items. The menu will list the service items sorted by priority of the service due.

#### Note:

If the Reset Button is held too long and not released when the above 4-line menu appears, the system will go into Instrument Cluster Test Functions:

- 01 Identification
- 02 System test
- 03 Not used
- 04 Consumption

To exit Test Functions, remove the Remote Control from the Ignition Lock and repeat steps 1 through 4 above.



5. Tap the Reset Button or the lower FAS Button located in the side of the Turn Signal/High Beam Stalk to view the next service items in the menu.

6. Select the Service Item with "!" or "-" by tapping the Reset Button or the lower FAS Button.

7. Press and hold the Reset Button for a few seconds to display a 2-line menu in the Tachometer.

The third menu line will appear to confirm if the reset is successful. The nominal interval for the service item will also be highlighted in the Service Need Display (SBA), located under the Speedometer in the Instrument Cluster.

#### [NEW] E65 AND E66 PROCEDURE TO RESET THE CBS DISPLAY USING BMW DIAGNOSTIC TESTER

Using the [NEW] BMW diagnostic tester, the CBS Reset sets the selected service item to 100% (full service interval) and displays a service counter

The CBS reset procedure is found under: Diagnosis - Function Selection - Service Functions - Maintenance - CBS Reset - Test Plan. Then highlight the listed procedure and press the bottom right corner green arrow to the right. The original value of the individual CBS service item will be deleted during the reset procedure.

The first vital step of the reset procedure is to verify the DISplus or GT1 correct date and time: "Are the current date and time correct?" This is important for time and distance-based service items that are managed by the Instrument Cluster, because the internal vehicle trip odometer and vehicle data will be synchronized with the internal Tester data. Confirm by either pressing Yes or No (if required, correct date and time in Main Menu - Administration - DIS - Date/Time). Then select the bottom right corner green arrow to the right.

Selection 1: CBS reset	Selection 2: CBS reset	Selection 3: End
1. Engine oil	1. Spark plugs	
2. Microfilter	2. Brake fluid	
3. Front brakes	3. Coolant	
4. Rear brakes	4. State Safety inspection	
5. Vehicle check	5. Emissions inspection	

To properly complete the CBS reset, the date and time of service/maintenance will be transferred to the vehicle. This includes setting the day counter and the date. The transfer completion is confirmed by: **OKAY** in the setting status.

The CBS vehicle data correction allows "quick access" to correct or change the basic data stored in the vehicle after the CBS reset. This procedure is found under: Diagnosis – Function Selection – **Service Functions – Maintenance – CBS Correction, Vehicle Data – Test Plan**. Then highlight the listed procedure and press the bottom right corner **green arrow** to the right. Please verify the correct date and time of the DISplus or GT1 before proceeding.

The next screen offers 4 selection menus:

Selection 1: Correction	Selection 2: Correction	Selection 3: Correction	Selection 4: End
1. Engine oil	1. Spark plugs	1. Telephone numbers	
2. Microfilter	2. Brake fluid	2. Date of first registration	
3. Front brakes	3. Coolant		
4. Rear brakes	4. State Safety inspection		
5. Vehicle check	5. Emissions inspection		

**NEW** Note: CBS reset and correction may be required if a control module has been replaced or reprogrammed.

The next screen offers 3 selection menus shown above.  
The next screen offers 4 selection menus shown above.

Technical Service Bulletin # **M540308**

Date: **100601**

## Body - Sunroof Won't Open In High Temperatures

SI M 54 03 08  
Special Roofs

June 2010  
Technical Service

This Service Information bulletin supersedes SI M54 03 08 dated July 2009.

[NEW] designates changes to this revision

## SUBJECT

Sunroof Will Not Open at High Temperatures

## MODEL

R55, R56 (Cooper and Cooper S, Cooper Clubman and Cooper S Clubman)

## SITUATION

At high ambient temperatures, typically above 90 degrees, the sunroof may not open from the fully closed position. When this occurs, the rear edge of the glass panels will rise by about 10mm and then either stall in that position or close again.

Assisting the glass by pressing upward on it or allowing the sunroof to cool slightly will restore normal function.

## CAUSE

The blocking protection feature of the sunroof drive is being activated due to the presence of higher than expected frictional forces in the sunroof cassette. Such forces are only present at very high temperatures, and caused by a lack of proper lubrication along with incorrectly adjusted glass panels.

## CORRECTION

Adjust the glass panels and perform the recommended lubrication procedures.

It is not advised to replace the sunroof cassette for this situation.

## PROCEDURE

If the sunroof is binding at a position other than when it is first starting to open or at significantly lower temperatures, a sunroof cassette problem may be present. Normal diagnostic procedures should be followed for these cases.

1. Perform a short test and ensure that no charging system or battery-related problems are present.

## NOTE:

If the battery is not fully charged, a similar sunroof problem may be present.

2. Remove both the front and rear glass panels per Repair Instruction RA 5410240 (front) and RA 5410250 (rear).
3. Measure the gap on the left and right side of the cassette, between the rear edge of the wind deflector base and the leading edge of the sliding mechanism.
  - a. If the gap on the left side is equal to that of the right side, continue to step 4.
  - b. If the gap is not equal, remove the sunroof drive per Repair Instruction RA 6761515.
  - c. Move one of the sliding mechanisms by hand until the spacing is equal on the left and right side.
  - d. Install the drive and operate the sunroof to ensure the sliders move together.
4. Use Kluberplex adhesive spray grease to thoroughly coat and lubricate the areas identified in the attached document.
5. Install the glass panels and adjust per Repair Instruction RA 5413002 with the following exceptions:
  - a. The front edge of the front panel should be 0.5 - 1.5mm lower than the roof line.
  - b. The rear edge of the front panel should be 0.5 - 1.5mm higher than the front edge of the rear panel.
  - c. The rear edge of the rear panel should be 0.5 - 1.5mm higher than the roof line.
6. Do not replace the perimeter seal unless it is damaged.
7. Initialize the sunroof with the engine running per Repair Instruction RA 5400...
  - a. Reinitializing the sunroof is essential to the effectiveness of this repair.
  - b. With the sunroof fully closed, hold the sunroof close switch at the first detent for approximately 20 seconds. Continue to hold until the sunroof completes one full cycle.

8. Cycle the sunroof at least 5 times to allow the lubricant to penetrate all moving parts of the sunroof cassette.

Part Number	Description	Quantity
83 22 0 397 761	Klüberplex adhesive grease	1
51 16 2 756 511	Sunroof panel screws	12

## PARTS INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty.

**Defect Code:** NEW 54 12 22 34 00

Labor Operation:	Labor Allowance:	Description:
54 10 240*	Refer to KSD	Removing and installing or replacing glass panel, front
+54 10 750	Refer to KSD	Removing and installing or replacing glass panel, rear
+54 13 502	Refer to KSD	Adjusting both slide/tilt sunroof glass panels
+54 99 000	2 FRU	Work time to lubricate the sunroof cassette

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

Sublet Code 4\*\*      \$19.00      \*\* Reimbursement of up to the amount listed may be charged to sublet code 4 for the Adhesive Grease Spray (P/N 83 22 0 397 761) required to perform this repair. Claiming this part number outside of sublet code 4 will result in a delayed or denied claim payment.

## WARRANTY INFORMATION

## ATTACHMENTS

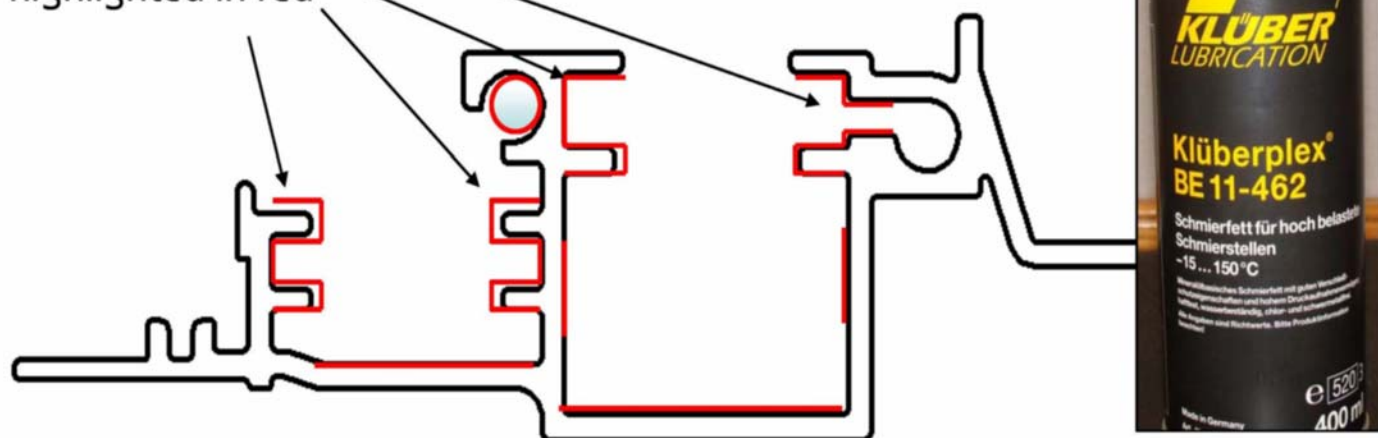
# SI M54 03 08

## R55/R56 Sunroof Lubrication Procedure

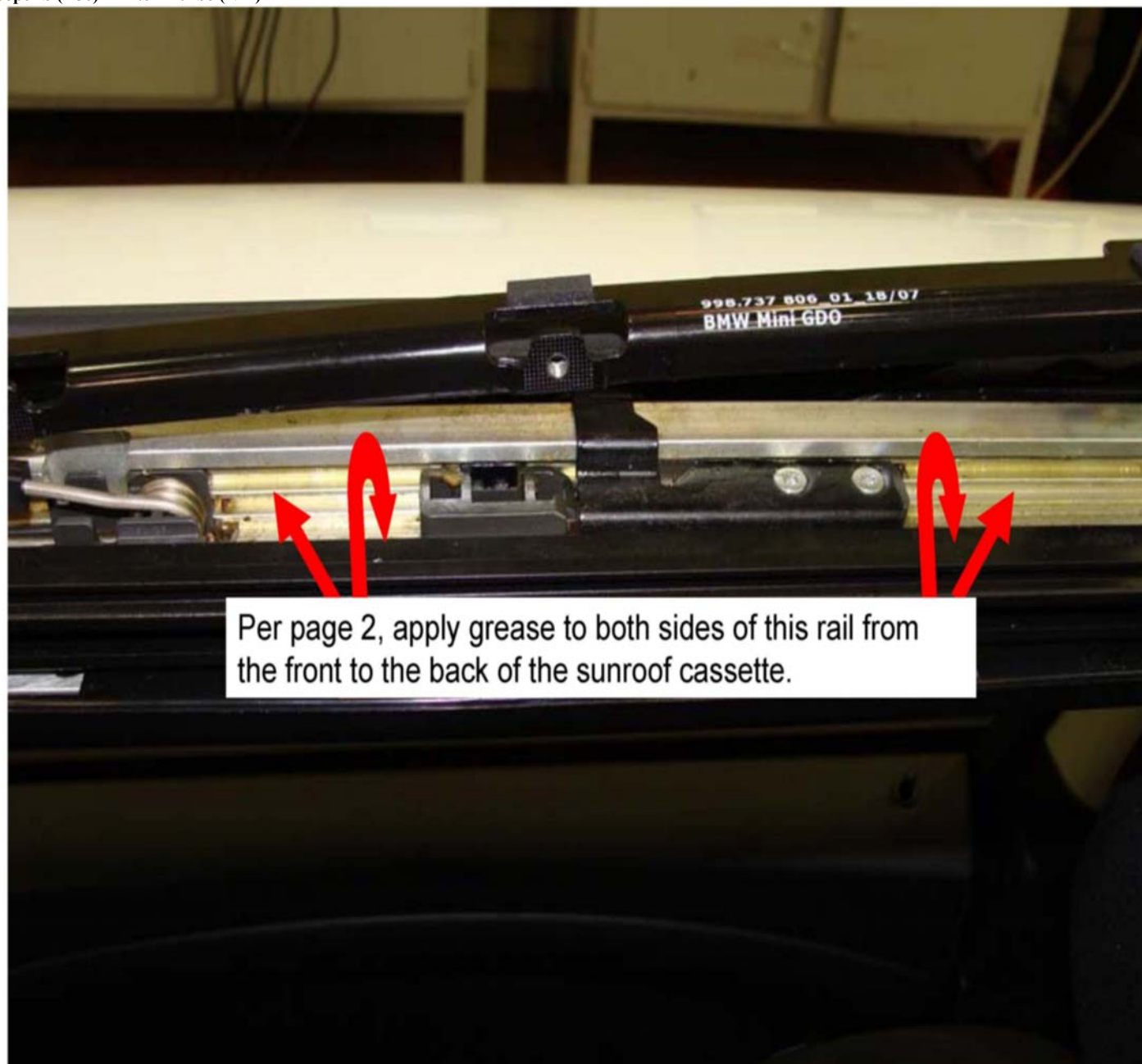


# Cross-sectional view of the aluminum guide rail

Grease needs to be added to all the areas highlighted in red



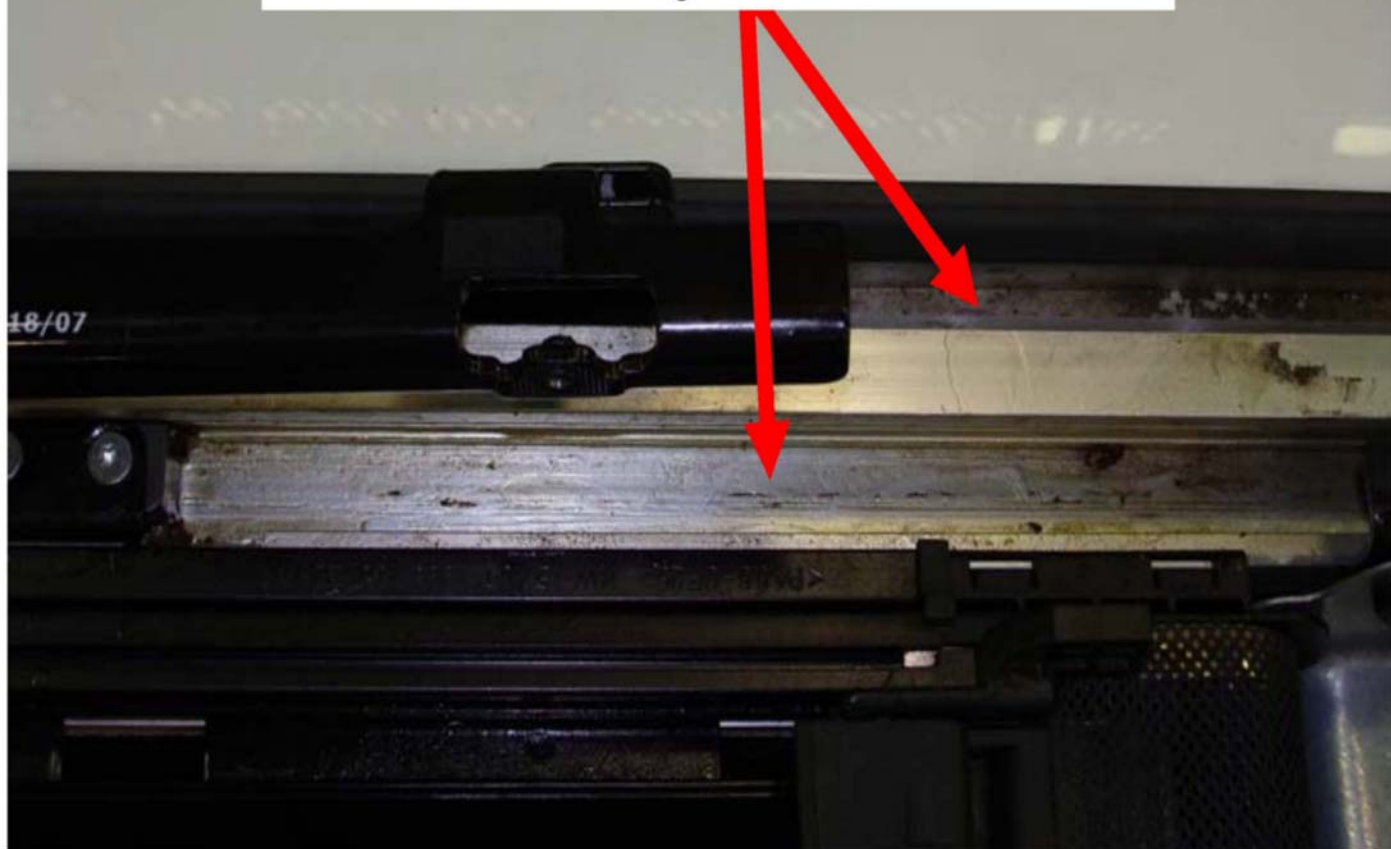
The cross-section to be lubricated should run the entire length of the guide on both the left and right side of the sunroof cassette. The following 2 pages will show this in more detail.



Per page 2, apply grease to both sides of this rail from the front to the back of the sunroof cassette.

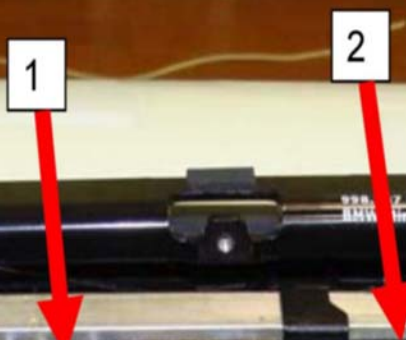


Per page 2, apply grease to the bottom of the sliding track on both sides of the guide.

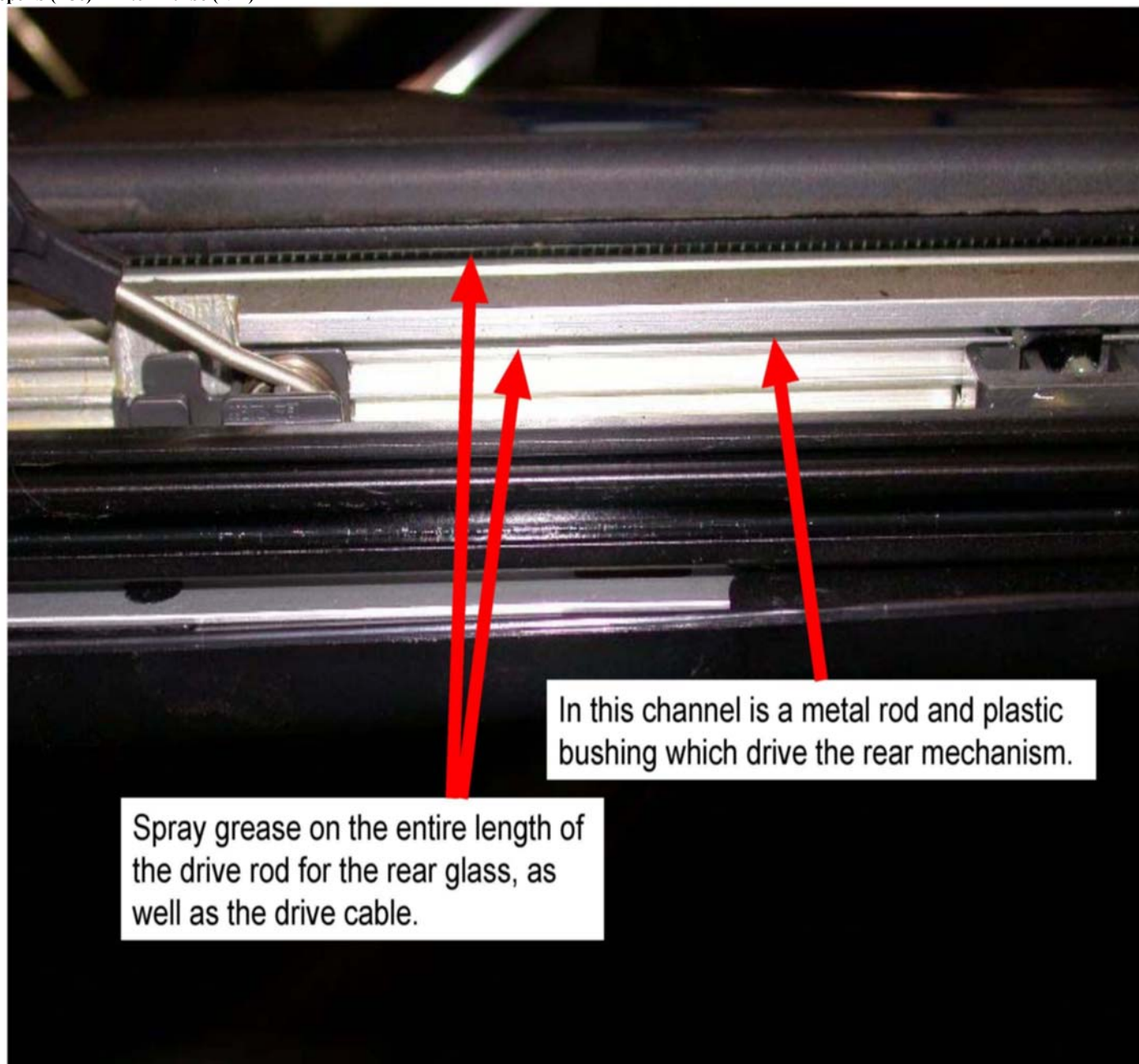




Partially open the sunroof until the rear mechanism slider (1) separates from the front mechanism slider (2).



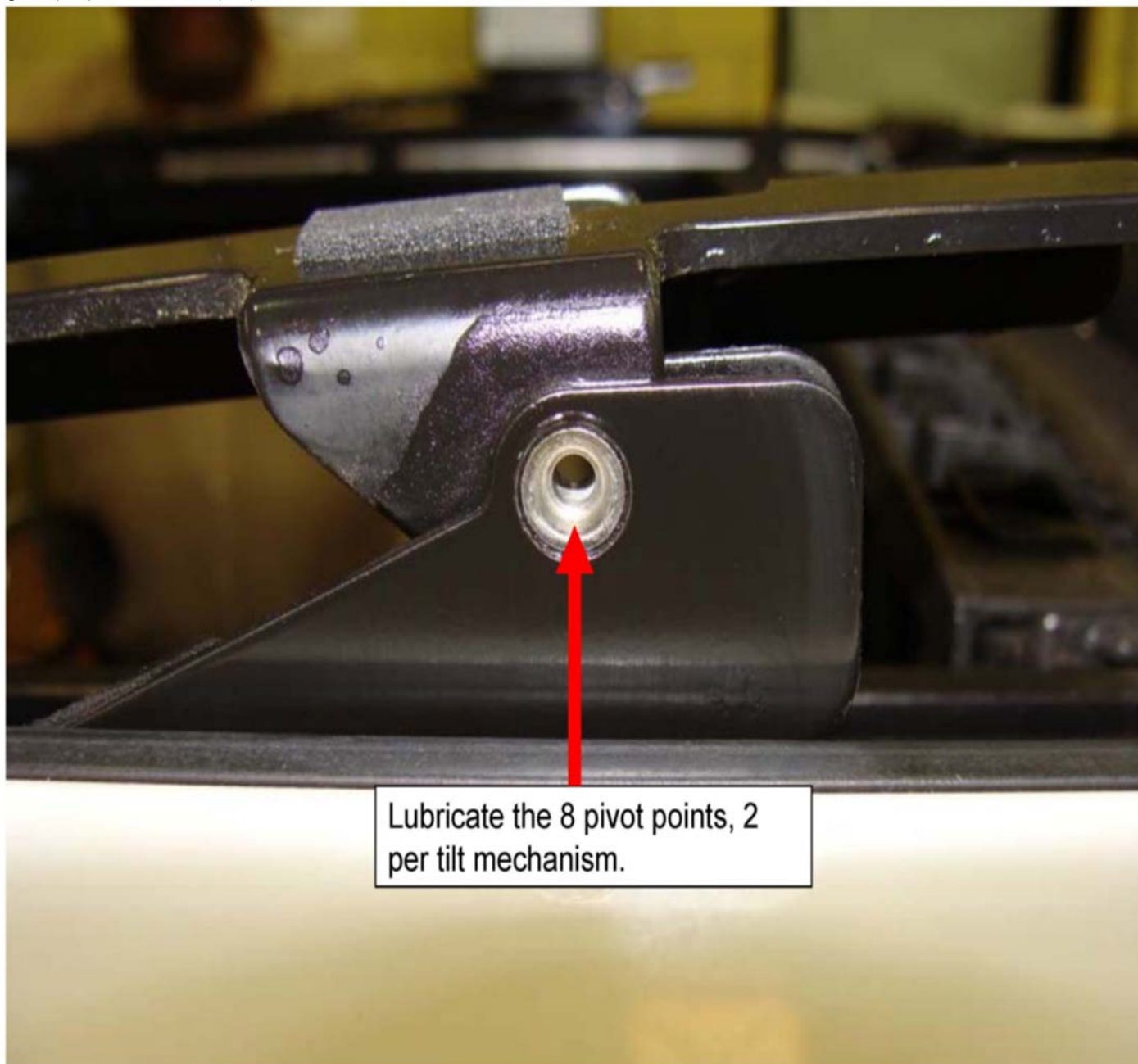
Apply grease in as well as on both of these sliding pieces to thoroughly coat the contact areas.





Spray grease in and around the entire rear tilt mechanism.





view PDF attachment M540308Lubrication\_Procedure.

Technical Service Bulletin # **M210110**

Date: **100701**

## **M/T - Clutch Removal Procedure**

SI M 21 01 10

Clutch

July 2010  
Technical Service

**SUBJECT**  
Removing and Installing Self-adjusting Clutch (SAC)

**MODEL**  
R55 (Cooper Clubman and Cooper Clubman S) with N12 and N14 engine  
R56 (Cooper and Cooper S) with N12 and N14 engine  
R57 (Cooper and Cooper S convertible) with N12 and N14 engine

**INFORMATION**  
Please refer to the attached procedure when removing and installing or replacing the self-adjusting clutch in the MINI vehicle.

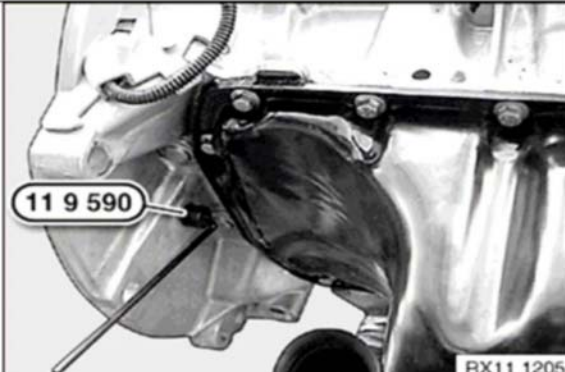
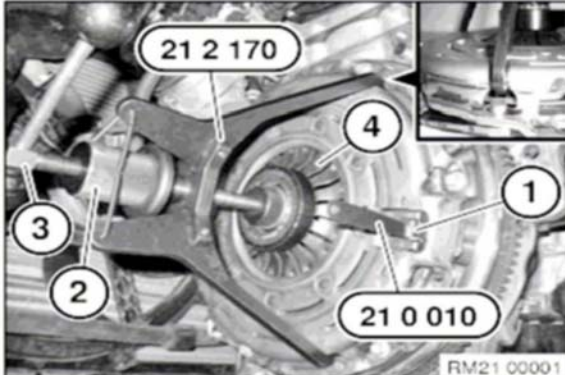
The current version of ISTA D does not support this procedure. A repair instruction will be available in September 2010 with the release of ISTA/D 2.22.0.

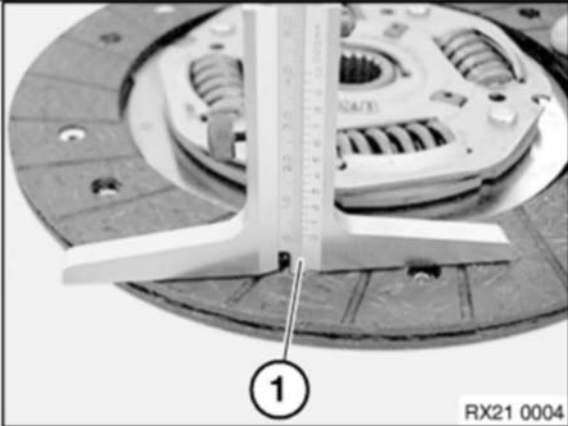

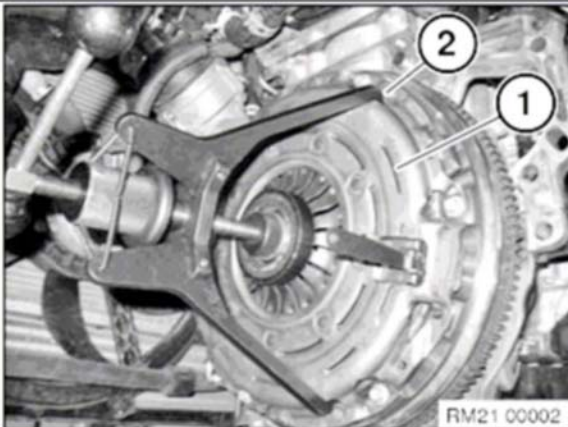
# ATTACHMENTS

## MINI Self-adjusting Clutch Removal and Replacement Procedure

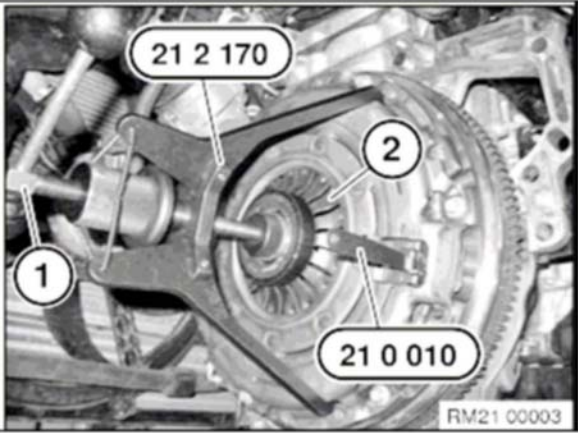

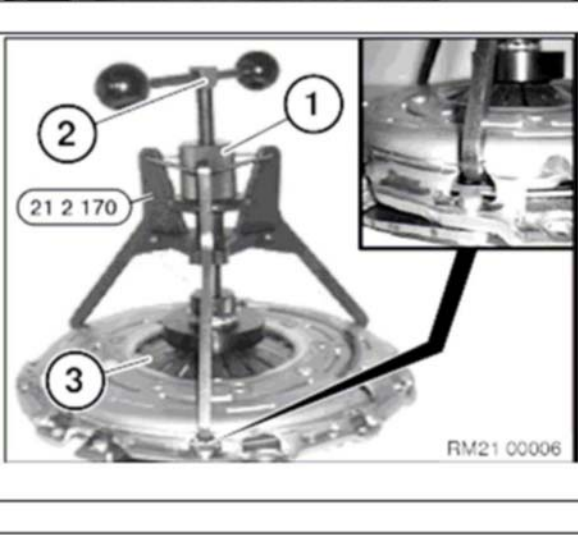
### Preliminary Tasks:


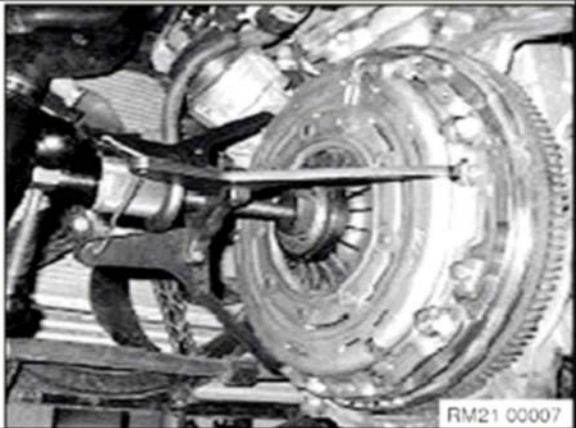
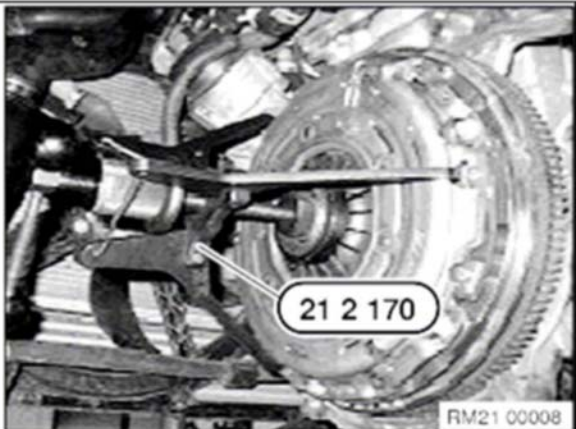

Remove the transmission: refer to RA 23 00 027, Removing and installing transmission.

	<p>Lock the flywheel with special tool 11 9 590.</p>
	<p>When refitting the removed clutch and clutch plate, proceed as follows:</p> <p>Install special tool 21 2 170, and use it to tighten the knurled screw (2).</p> <p>Screw in the spindle (3) (approx. 6-8 mm) until the diaphragm spring (4) is pretensioned.</p> <p>Insert special tool 21 0 010 into cutout (1) and deactivate the clutch adjustment. The special tool must remain in the position shown until refitting takes place.</p> <p>Caution: Insert special tool 21 2 170 only in the area around where the pressure disk springs are riveted to the cover. Undo the screws and remove the clutch from the flywheel.</p> <p>Installation note: Clean the flywheel and check for wear and damage. Replace the flywheel if it is damaged.</p> <p>Caution: If the clutch plate is soiled, e.g., with oil or a</p>

	cleaning agent, replace it completely.
	<p>Check the clutch plate for wear.</p> <p>Measure the lining clearance on the gearbox side. Measure from the rivet head (1).</p> <p>The clutch plate must be replaced if the lining clearance on the rivet head (1) is less than 1 mm.</p>
	<p>Center the clutch plate (1) using special tool 21 0 000.</p> <p>Caution: Install the clutch plate into its correct position.</p> <p>Handle the clutch plate with care. Do not touch the surfaces of the friction pads.</p>
	<p>Install the clutch (1) onto the flywheel.</p> <p>Tighten the clutch screws in a diagonally opposite sequence.</p> <p>Torque 23 Nm.</p> <p>Note: The clutch (1) must be fixed in place using the reamed pins (2).</p>



	<p>Loosen the spindle (1) until the diaphragm spring (2) is fully slackened.</p> <p>Remove special tools 21 2 170 and 21 0 000.</p>
	<p>Draw the special tool out of the clutch plate using the screw (1) supplied.</p> <p>Fit the new clutch.</p>
	<p><b>Caution!</b> Insert special tool 21 2 170 only in the area around where the pressure disk springs are riveted to the cover.</p> <p>Place special tool 21 2 170 onto the pressure disk and tighten the knurled screw (1).</p> <p>Screw in the spindle (2) (approx. 10-12 mm) until the diaphragm spring (3) is pretensioned. The diaphragm spring must not be overstressed.</p>

 <p>Center the clutch plate (1) using special tool 21 0 000.</p> <p>Caution: Fit the clutch plate in its correct position. Handle the clutch plate with care. Do not touch the surfaces of the friction pads.</p> <p>21 0 000</p> <p>RB21 00001</p>	
 <p>Fit the pretensioned clutch.</p> <p>Tighten the clutch screws in a diagonally opposite sequence.</p> <p>Torque 23 Nm.</p> <p>RM21 00007</p>	
 <p>Remove special tool 21 2 170.</p> <p>21 2 170</p> <p>RM21 00008</p>	
 <p>Draw the special tool out of the clutch plate using the screw (1) supplied.</p> <p>1</p> <p>RM21 00004</p>	
Reassemble the vehicle.	



**Engine Controls - MIL ON/Codes 2968/296B/2982/2983**

SI M 12 01 10

Engine Electrical Systems

June 2010

Technical Service

**SUBJECT**

N12 and N14 Camshaft Sensor Fault Codes 2968, 296B, 2982, 2983

**MODEL**

R55, R56, and R57 with the N12 and N14 engines produced up to 5/31/2009

**SITUATION**

The Service Engine Soon (MIL) lamp is on, with any of the following camshaft sensor fault codes stored in the DME.

^ 2968 or 296B, signal plausibility

^ 2982 or 2983, short circuit

**CAUSE**

These faults can be caused by a faulty camshaft sensor or poor electrical connection.

The sensor may be damaged if the connector is loose, which could allow the blue sealing ring to be pushed out. If this occurs, the connector is no longer sealed against moisture.

**CORRECTION**

If camshaft sensor faults are stored, work through all corresponding test plans, using the latest version of ISTA.

If any of the faults 2968, 296B, 2982, or 2983 are stored, follow the procedure below:

^ Replace the camshaft sensor (refer to the EPC) and the camshaft connector using P/N 12 52 7 590 939.

After the repairs are completed, perform a function check and clear the fault memory entries.

<b>Defect Code:</b>	<b>12 14 90 12 00</b>	
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
00 58 964 +	6 FRU	Read fault memory, replace intake camshaft
00 58 299 *	8 FRU	sensor and connector, clear fault code
		memory (N12/N14)
00 58 965 +	6 FRU	Read fault memory, replace exhaust
00 58 300 *	8 FRU	camshaft sensor (N12) and connector,
		clear fault code memory
00 58 966+	8 FRU	Read fault memory, replace intake and
00 58 301*	9 FRU	exhaust camshaft sensors and connectors,
		clear fault code memory (N12)
*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to the associated (+) labor operation code.		

**WARRANTY INFORMATION**

Covered under the terms of the MINI New Vehicle Limited Warranty, or the MINI Next Certified Pre-Owned Program.

Technical Service Bulletin # **M610607**

Date: **100501**

jmoraflores@hotmail.cl

# Electrical - Perform Dead Battery Energy Diagnosis

SI M 61 06 07

General Electric Systems

May 2010

Technical Service

This Service Information bulletin supersedes SI M61 06 07 dated March 2008.

[NEW] designates changes to this revision

## SUBJECT

Dead Battery: Energy Diagnosis Must Be Performed

## MODEL

R55 (Cooper Clubman, Cooper S Clubman)

R56 (Cooper, Cooper S)

[NEW] R57 (Cooper Convertible, Cooper S Convertible)

## SITUATION

The electrical system of MINI vehicles has been subject to an ongoing development process over the last few years. This has led to increased demands being placed on the battery. This document covers important information for the dealer on how to handle "dead battery" complaints.

A dead battery can have various causes, most of which do not concern the battery itself. For this reason, replacing the battery is not usually a permanent repair. The cause of the dead battery must be analyzed in order to guarantee a proper repair.

For this reason, "Energy Diagnosis" must be performed on all dead battery complaints. At the conclusion of the "Energy Diagnosis" test plan, a diagnostic code will be generated.

This code must be included in the "Comments" section when submitting the warranty claim. Failure to quote the diagnostic code in the comments of the warranty claim may result in a delay in processing or refusal of the warranty claim.

The 2 exceptions to the rule are:

^ Battery damage and leakage

^ Use of mobile service and battery replacement to restore customer drivability as soon as possible.

In the case of a battery replacement during a roadside repair, a subsequent service appointment needs to be scheduled for the customer; this is in order to perform an energy diagnosis to locate and address the cause of the battery failure, as well as to register the replacement battery.

## CAUSE

Refer to the "Procedure" section of this Service Information for details.

## PROCEDURE

### 1. Fault analysis (Energy Diagnosis)

There are currently 2 paths to access the energy diagnosis test plan:

^ If a power management fault is stored, the MINI diagnosis system will select the energy diagnosis test plan automatically.

^ The test plan can also be selected manually by selecting Function selection\Complete vehicle\Body\Power supply\Energy diagnosis\Execute energy diagnosis.

### Note:

The vehicle must have had a dead battery before Energy Diagnosis can be performed. Also, fault codes must not be deleted.

[NEW] Once the test plan has finished, the number [1] "Most Likely Cause" is automatically displayed if any are calculated by the test plan. Finish the test plan by processing all the "Most Likely Causes", starting from [1]. For purposes of diagnosis and warranty, the number [1] cause should be diagnosed and the other listed causes should be used for informational purposes. This is because the stored energy history is calculated over the last 3,000 kilometers, and the most recent cause of a discharged battery is listed under [1]. If no "Most Likely Causes" are calculated, the results screen will be displayed: "Most Likely Cause (0)".

[NEW] As an example:

## Most Likely Causes listed

[1] Closed-circuit current is too high

[2] Terminal 30g-f shutdown due to start capability limit

[3] Side Lights/Parking lights left on too long

[NEW] In this example, "closed-circuit current too high" should be diagnosed and the other 2 causes should be used for informational purposes. Even though an operating fault is listed under number [3], the most likely cause is listed as a vehicle fault.

Possible causes are:

Vehicle fault

^ Battery fault/alternator fault

^ Vehicle is not entering sleep mode

^ Vehicle is constantly woken out of sleep mode

^ Closed-circuit current is too high (only vehicles equipped with CCC Navigation SA609 and an IBS Intelligent Battery Sensor)

Operating fault

^ Lights/hazard warning lamps left on for too long

^ Terminal R/15 left on for too long

^ Unfavorable driving profile (e.g., extremely short distances)

^ Vehicle parked for too long

A functional description of Energy Diagnosis and terminal control, together with troubleshooting information, can be found in the Energy Diagnosis test module.

## 2. Closed-circuit current measurement (only vehicles equipped with CCC Navigation SA609 and an IBS Intelligent Battery Sensor)

Use the following path to diagnose closed circuit current faults: Function selection\Service functions\Body\Power supply\Closed-circuit current\Evaluate closed circuit current monitoring.

Refer to the MINI diagnosis system functional description for further information.

## 3. Checking the charging system

Refer to the MINI diagnosis system for testing the alternator using the following path: Function selection\Complete vehicle\Body\Power supply\Alternator.

## 4. Checking the battery condition

Refer to SI M61 01 02 for battery requirements.

## 5. New battery registration

Registration of the new battery is necessary using the MINI diagnosis system service function. If the new battery is not registered, erroneous messages (check control) may appear.

Use the following path to register the new battery: Function selection\Service functions\Body\Power supply\Battery\Register battery change. Follow the test plan instructions.

## 6. Recharging the battery

Refer to SI M61 03 07 for information on connecting the battery charger.

**WARRANTY INFORMATION**

Covered under the terms of the MINI New Vehicle Limited Warranty.

**Defect Code:** 61 21 07 59 00

**Labor Operation:** **Labor Allowance:** **Description:**

Refer to KSD

Refer to KSD

Refer to KSD

\*Main Work - use this labor operation number when this is the only repair being performed,

or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

**WARRANTY INFORMATION**

Technical Service Bulletin # **M630108**

Date: **100501**

**Lighting - Automatic Headlamps Sensitivity**

SI M 63 10 08

Lights

May 2010

Technical Service

This Service Information bulletin supersedes SI M63 01 08 dated December 2008.

[NEW] designates changes to this revision

**SUBJECT**

Automatic Headlights: Adjusting Sensitivity

**MODEL**

All MOST bus vehicles with option 521 (Rain sensor and auto headlight)

**SITUATION**

The customer complains that the headlamps switch on too early or too late with the headlamp switch set to the "Automatic" position.

**CAUSE**

Rain/light sensor sensitivity

**[NEW] INFORMATION**

The problem has been integrated into ISTA diagnostics. Follow the diagnosis test plan, using the latest ISTA version.

In the "Information Search", select the "Text Search" tab and search for "W6300" as the search term.

Select the test plan "W6300\_WAS20 Sensitivity, automatic driving lights".

**WARRANTY INFORMATION**

For information only. Warranty claims to adjust sensor sensitivity should not be made and will not be approved.

Technical Service Bulletin # **M110210**

Date: **100401**

**Engine - Incorrect Crankshaft Central Bolt Torque Change**

SI M 11 02 10

Engine

April 2010

Technical Service

**SUBJECT**

Incorrect Crankshaft Central Bolt Torque

**MODEL**

## INFORMATION

The incorrect crankshaft central bolt tightening torque is stated in the current release of ISTA. Disregard the torque specified in the current repair instructions when performing repairs that include replacing the crankshaft central bolt, P/N 11 21 7 585 184. This would include, but is not limited to, the timing chain, front crankshaft hub, or crankshaft repairs and replacement. The torque specification information will be corrected in the release of ISTA/D 2.21.

### N12 Engine and N14 Engine

#### 11 21 Crankshaft and Bearings

1 AZ	Type	Thread	Tightening	Measure
Torsion	N14	M14 x 1.5 x 74	specification	
Dampener (hub) to crankshaft (central bolt)			Replace screws	
			Lightly oil screws and threads	
			Jointing torque	<b>50 Nm</b>
			Torque angle	<b>180°</b>

The correct torque specification is described above.

## WARRANTY INFORMATION

For information only

Technical Service Bulletin # **M230308**

Date: **100501**

## M/T - Stiff Diagonal Gear Shifts/Can't Select Gears

SI M 23 03 08  
manual Transmission

May 2010  
Technical service

This Service Information bulletin supersedes SI B24 03 08 dated January 2009.

[NEW] designates changes to this revision

## SUBJECT

[NEW] MINI with Manual Transmission - "Stiff" Diagonal Gearshift

## MODEL

R50, R52 with W10 and Getrag 5-speed manual transmissions (GS5-52BG)  
[NEW] R55, R56, R57 with N12/N14 and Getrag 6-speed manual transmissions (GS6-55GB or GS6-53BG)

## SITUATION

The customer may complain of a "stiff diagonal shift" (e.g., N-R, R-N, 2-3/3-2 or 4-5/5-4). Also, in some cases, gears cannot be selected, or the selector lever does not go into the neutral position.

## CAUSE

Possibly corrosion at the gearshift mechanism (shift cables or transmission gearshift unit)

## SOLUTION

First verify that the shift cables operate freely by disconnecting them from the transmission gearshift unit.

- **NEW** R50, R52 Cooper (GS5-52BG) – P/N 23 11 7 545 076
- **NEW** R55, R56, R57; Cooper (GS6-55BG) – P/N 23 11 7 587 353
- **NEW** R55, R56, R57; Cooper S (GS6-53BG) – P/N 23 11 7 587 353

If the cables move freely after disconnection, replace the transmission gearshift switching unit, using the part numbers above.

For the gearshift replacement procedure, refer to Repair Instruction REP 23 11 310.

#### **NEW** PARTS INFORMATION

Part Number	Description	Quantity
23 11 7 545 076	Gearshift switching unit (R50, R52)	1
23 11 7 568 464	M8x25 Torx screw	3
	OR	
23 11 7 587 353	Gearshift switching unit (R55, R56, R57)	1
23 11 7 568 464	M8x25 Torx screw	4

#### [NEW] PARTS INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty or the MINI NEXT Certified Pre-Owned Program.

**Defect Code:** 23 00 03 34 00

**Labor Operation:**

**Labor Allowance:**

**Description:**

Refer to KSD\*

Refer to KSD

Replace shift unit

\*Main Work - use this labor operation number when this is the only repair being performed, or if this is the main repair when performed along with other repairs at the same time. If this is not the main repair, refer to KSD for the associated (+) labor operation code.

#### WARRANTY INFORMATION

Technical Service Bulletin # **M640110**

Date: **101101**

### **A/C - Excessive Compressor Noise/Runs Rough**

SI M64 01 10

Heating and Air Conditioning

November 2010

Technical Service

This Service Information bulletin supersedes M64 01 10 dated August 2010.

[NEW] designates changes to this revision

#### SUBJECT

Air Conditioning Compressor Excessively Loud

#### MODEL

R55 (Cooper Clubman, Cooper S Clubman)

R56 (Cooper, Cooper S)

R57 (Cooper Convertible, Cooper S Convertible)

[NEW] All vehicles produced from 9/30/2009 up to 11/30/2010

#### SITUATION

Air condition compressor is excessively loud/rough running when the air conditioning system is switched on and the compressor is active.

[jmoraflores@hotmail.cl](mailto:jmoraflores@hotmail.cl)


## CAUSE

Vibration in the air condition suction line (low side)

## PROCEDURE

See attachments.

## PARTS INFORMATION

Part Number	Description	Quantity
64 50 9 231 714	Vibration absorber	1
 07 12 9 903 806	ISA Screw M6x20	2

## PARTS INFORMATION

## WARRANTY INFORMATION

Covered under the terms of the Mini New Passenger Car Limited Warranty.

<b>Defect Code:</b>	<b>64 52 00 25 00</b>		
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>	
64 99 000	3 FRUs	Install vibration absorber (weight)	

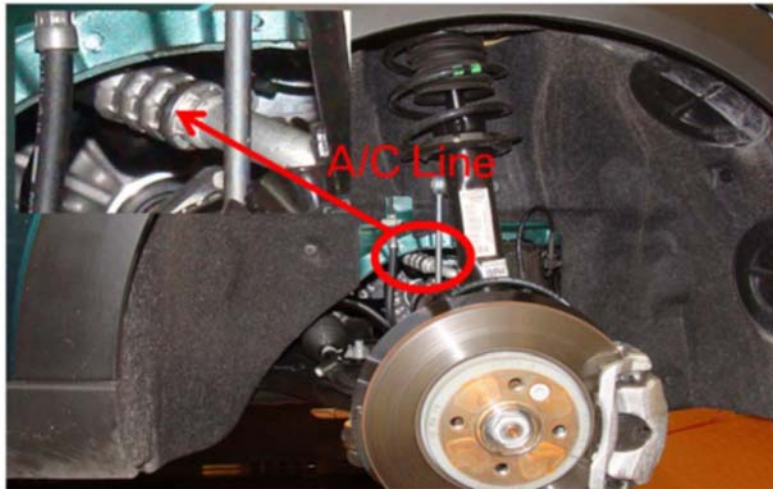
## WARRANTY INFORMATION

## ATTACHMENTS

**M64 01 10 Attachment****August 2010****A/C Compressor excessively loud****REPAIR PROCEDURE**

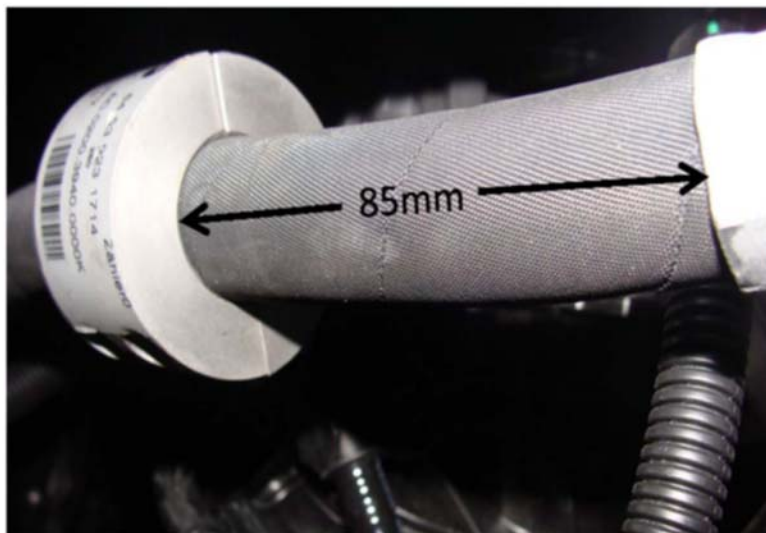
Note: Review the complete repair procedure before starting.

1. The air conditioning suction line (low side) must be accessed from under the vehicle. Place the vehicle on the lift and raise the vehicle to an acceptable height for the repairs to be completed.



2. This picture shows the location of the low side a/c line.

Note: The tire has been removed for illustration purposes only.



3. This picture shows the vibration absorber (weight) installed 85 mm from the end closest to the A/C compressor.

Note: Apply Wurth "Thread locker Blue" to the bolts prior to installation.

M64 01 10 - Procedure

Technical Service Bulletin # **M130506**Date: **100801****Fuel System - BMW Group Fuel System Cleaner Plus**

SI M 130506

Fuel Systems

August 2010  
Technical Service

This Service Information bulletin supersedes SI M13 05 06 dated September 2006.

[NEW] designates changes to this revision

BMW Group Fuel System Cleaner Plus

[NEW] All



Recent field experiences have shown a significant increase in various drivability complaints due to excessive carbon deposits in engines' combustion chambers on the intake valves and fuel injectors.

The overall increase in carbon deposit accumulation is generally attributed to poor gasoline quality; namely, a low level of cleaning additives and fuel contamination.

Combustion chamber deposit formation is a by-product of the gasoline burning process. Fuel injector and intake valve deposits may become less troublesome with the recently introduced Top Tier Detergent Gasoline deposit control standards, which are exceeding the detergent requirements imposed by the EPA in 1995.

However, vehicles that do not exclusively use a Top Tier Detergent Gasoline or are regularly driven under severe conditions such as stop-and-go traffic, high ambient temperatures and high altitude, can experience performance problems caused by intake system and combustion chamber deposits.

The most common customer complaints may include:

## FUEL INJECTORS

Deposits at the injector's tip can impact fuel flow, upsetting the air/fuel mixture ratio.

Symptoms:

- ^ Hesitation or stumble during acceleration or even loss of power
- ^ Poor fuel efficiency
- ^ Increased emissions of HC and CO
- ^ "Service Engine Soon" lamp illumination due to intermittent misfire faults or lean mixture adaptation values.

## INTAKE VALVES:

Deposits at the valves and on the intake manifold ports can absorb fuel during the warm-up phase, leaning out the air/fuel mixture ratio. Carbon buildup may disturb mixture flow at low throttle conditions/idle speeds.

Symptoms:

- ^ Poor drivability
- ^ Loss of power
- ^ Unstable/rough idle
- ^ Increased emissions of HC, CO and NOx
- ^ "Service Engine Soon" lamp illumination due to intermittent misfire faults.

## COMBUSTION CHAMBER:

Combustion Chamber Deposit Interference, or CCDI, occurs when there is contact between carbon deposits on the piston crown and cylinder head. The noise can be confused or misdiagnosed as ping, knock or other noises that could indicate a mechanical failure. CCDI occurs first as a cold start noise that can fade as the engine warms to operating temperature. The noise will reoccur at the next cold start. As deposits build, there is an increase in compression temperature that may cause pre-ignition detonations.

Symptoms:

- ^ Knocking
- ^ Pinging
- ^ Run-on
- ^ Poor acceleration
- ^ Octane requirement increase
- ^ Increased emissions of NOx
- ^ Engine idle speed surges.

Depending on the manufacturer, fuels may contain various additives such as oxidation and corrosion inhibitors, metal deactivators, emulsifiers, anti-icing agents and dyes. They are also required to include some form of an intake system deposit control package. Unfortunately, not all fuels are created equal, and some additive packages are not effective enough to maintain integrity of the intake systems in high performance engines or engines operating under severe environmental conditions. Even worse, the intake system deposit control additives in some fuels may actually contribute to the combustion chamber deposit accumulation and to the problems associated with those deposits: knock, run-on and increased emissions of oxides of nitrogen.

## RECOMMENDATION

MINI recommends using TOP TIER Detergent Gasoline with a minimum octane rating of AKI 91 and with alcohol content of less than 10% by volume (or any other oxygenates with up to 2.8% of oxygen by weight). Only the exclusive use of TOP TIER Detergent Gasoline provides the full benefit of reducing deposit formation. For more information related to TOP TIER Gasoline, refer to SI M13 02 06.

If TOP TIER Detergent Gasoline is unavailable, we recommend that BMW Group Fuel System Cleaner Plus (P/N 82 14 0 413 341) be added to the gas tank. For optimum cleaning and deposit control, add a 20 fl.oz. bottle every 3,000 miles when refueling.

Regular use of BMW Group Fuel System Cleaner Plus can help address the carbon deposit-related symptoms listed above. By removing these deposits, an engine may experience restored power, performance and fuel efficiency; smoother idle running; lower emissions; and reduced octane requirement.

BMW Group Fuel System Cleaner Plus uses polyether amine TECHRON<sup>®</sup>-based technology developed and patented by Chevron. BMW Group Fuel System Cleaner Plus has proven to clean up deposits in fuel injectors, ports and intake valves and reduce the harmful effects of combustion chamber deposits. It helps restore performance lost due to deposit buildup.

Chevron and MINI have run extensive "no harm" tests with polyether amine technology. When used as directed, it will not harm catalytic converters, oxygen sensors, any other mechanical components of the engine or the fuel delivery system.

The effectiveness of the additive depends on its presence in the gasoline in large concentrations for short periods of time. To keep your fuel intake system clean, we recommend usage at every 3,000 miles.



BMW Group Fuel System Cleaner Plus.  
P/N 82 14 0 413 341  
1 bottle, 20 fl. oz.  
Order in multiples of 6 bottles per case.

**NEW** Note: BMW Group Fuel System Cleaner Plus is the only MINI approved in-tank additive. Using non-approved fluids or tools can lead to premature component failure and will not be covered under Warranty.

Additionally, the vehicle's fuel sending units, equipped with silver-plated resistor card/contacts, are especially vulnerable to attacks by elemental sulfur and/or hydrogen sulfide found in fuels. Adding BMW Group Fuel System Cleaner Plus immediately upon noticing erratic fuel gauge behavior may, in many cases, restore proper performance due to the additive's ability to remove the harmful sulfur compounds from the sending unit's contact surface. Additionally, BMW Group Fuel System Cleaner Plus can help protect the fuel gauge from future malfunctioning by coating all metal surfaces of the fuel system.

Part Number	Description	Quantity
82 14 0 413 341	Fuel System Cleaner Plus; 20 fl.oz. bottle	1

## PARTS INFORMATION

**NEW** Because carbon deposit buildup is related to fuel quality, it cannot be considered as a defect in the vehicle's materials or workmanship. Consequently, usage of BMW Group Fuel System Cleaner Plus is not covered under the terms of the MINI New Vehicle Limited Warranty, maintenance plan or the MINI Next Certified Pre-Owned Program.

## WARRANTY INFORMATION

**★ ★ FIX IT RIGHT THE FIRST TIME, ON TIME, EVERY TIME ★ ★**

For administrative convenience and to reduce costs, this bulletin may contain repair procedures for authorized BMW car centers and/or authorized BMW SAV centers. All references to SAVs and/or the X5 are ONLY intended for authorized BMW SAV centers. Furthermore, ONLY BMW SAV centers are authorized to perform repair and service work on SAVs.

Disclaimer

Technical Service Bulletin # **M110207**

Date: **101001**

**Engine - Rattling Noise On Cold Engine Start Up**

SI M11 02 07

Engine

October 2010

Technical Service

This Service Information bulletin supersedes SI M11 02 07 dated September 2010.

[NEW] designates changes to this revision

**SUBJECT**

Rattle Noise from Engine

**MODEL**

R55 Cooper S with N14 engine

R56 Cooper S with N14 engine

From start of production up May 4th, 2009

**SITUATION**

The customer complains of a rattle noise from the engine during cold start-up - most often at the 1,600 - 1,800 rpm range, or in some instances (elongated timing chain) from the idle speed up to 2,000 rpm.

The rattle noise occurs more frequently when driving short distances.

The noise is more prevalent when the outside temperature is approximately 15° Celsius (59° Fahrenheit) or below.

**CAUSE**

The complaint can be caused by one or both of the following reasons:

^ Insufficient tension of the timing chain

^ The chain tensioner has not been bled sufficiently.

Work through the following procedure in order to eliminate other possible causes:

1. If a fault is stored in the DME memory (e.g., misfiring, VANOS, etc.), then work through all relevant test plans first.
2. A one-off short shrill will be heard within the first two seconds of engine operation. This is an inherent noise caused by the first regulation cycle of the engine oil pump. This is normal operation and no parts should be replaced.
3. If the noise appears to be coming from the valve cover or the vacuum pump area, refer to SI M11 02 08. To verify the source of the noise, disconnect the vacuum hose from the mechanical vacuum pump to eliminate the knocking noise. This is not a failure of the mechanical vacuum pump; do not replace any parts.
4. Ensure that the noise is not created or eliminated by depressing the clutch pedal, if equipped.
5. Disconnect the electrical connector from the tank ventilation valve. If the noise disappears when the connector is removed, reconnect to verify whether the noise returns. If the noise returns, replace the tank ventilation valve.

If all of the steps above are unsuccessful in eliminating the noise, please proceed to step 6.

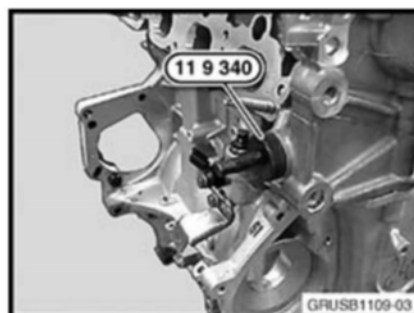
6. Remove the right-hand wheel arch trim to access the crankshaft central bolt.

7. Disconnect the battery, remove ignition coils and spark plugs. Turn the engine by hand to move the flywheel to approximately 90° before TDC.

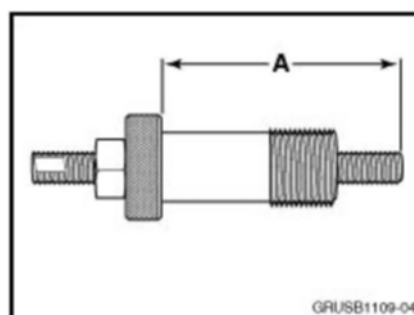


8. Install the locating pin (Special Tool 11 9 590) to lock the position of the engine.

9. Remove the chain tensioner and collect the residual oil with a shop towel.



10. Fit the chain tensioner (Special Tool 11 9 340) without the seal ring and with the lock nut loose. Pretension the chain tensioner with Special Tool 00 9 250 to 0.6 Nm. Finger-tighten the lock nut on Special Tool 11 9 340.



11. Remove the chain tensioner (Special Tool 11 9 340) from the engine, with the lock nut still tight. Measure the distance (A), as described in the illustration.

12. If distance (A) is less than 68mm (and the noise can be reproduced only between 1,600-1,800 rpm), then only replace the chain tensioner with P/N 11 31 7 607 551 (refer to parts list A), as per Repair Instruction REP 11 31 090 (Installing and removing/replacing chain tensioner piston N14).

13. If distance (A) is 68mm or greater (and the noise is reproducible both at 1,600-1,800 rpm range as well as at idle speed when cold), replace the following components in the list below (refer to parts list B). If you are uncertain regarding repair attempts already made, each chain tensioner part number is stamped on the outer sleeve. It must be removed from the engine in order to read the part number.

^ Chain tensioner-P/N 11 31 7 597 895 only!

#### Note:

P/N 11 31 7 607 55 1, Timing chain tensioner, should not be installed with a new timing chain.

^ Timing chain

^ Guide rail

^ Tensioner rail

^ Sliding rail

^ Sprocket on the crankshaft

Bearing bolts for the tensioner and guide rails

Refer to Repair Instruction REP 11 31 051 (Replacing timing chain N14).

Refer to the EPC for additional parts required, i.e., gaskets, seals, etc.

The incorrect crankshaft central bolt tightening torque is stated in the current release of ISTA. Disregard the torque specified in the current Repair Instructions when performing repairs that include replacing the crankshaft central bolt, P/N 11 21 7 585 184. The torque specification information will be corrected in the release of ISTA/D 2.21. The correct torque specification is described below.

#### 11 21 Crankshaft and Bearings

1 AZ	Type	Thread	Tightening	Measure
Torsion	N14	M14 x 1.5 x 74	specification	
Dampener (hub)			Replace screws	
to crankshaft				
(central bolt)			Lightly oil screws and threads	
			Jointing torque	50 Nm
		Torque angle	180°	

Do not replace the hydraulic valve lifters (HVA), intake camshaft VANOS adjustment unit, or the exhaust camshaft sprocket for this type of noise. It is NOT necessary to obtain a Part Replacement Authorization (Teileclearing) for this specific issue. Refer to the Warranty section of this bulletin for more details.

14. After the repair is completed, reprogram the vehicle with the current ISTA/P.

Manual transmission vehicles only:

Use version (2.37.0 or higher) to the target integration level R056-10-03-501 or higher.

Automatic transmission vehicles only:

Do not conduct the reprogramming step on Cooper S/Clubman S vehicles equipped with the ASIN F21 automatic transmissions. The updated DME software with drivability improvements will be released in [NEW]2.40.

Note that ISTA/P will automatically reprogram and code all programmable control modules that do not have the latest software.

For information on programming and coding with ISTA/P, refer to Centernet/Aftersales Portal/Service/Workshop Technology/Vehicle Programming.

## PARTS INFORMATION

Part Number	Description	Quantity
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**Parts List A**

11 31 7 607 551	Chain tensioner	1
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**Parts List B**

11 31 7 597 895	Chain tensioner	1
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11 31 7 534 251	Chain tensioner seal ring	1
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11 31 7 534 784	Timing chain	1
-----------------	--------------	---

11 31 7 568 241	Guide rail	1
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11 31 7 534 833	Tensioner rail	1
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11 31 7 534 771	Bearing bolt	1
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11 31 7 534 768	Bearing bolt	2
-----------------	--------------	---

11 31 7 550 461	Bearing bolt gasket ring A14x21	1
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11 31 7 546 697	Slide rail	1
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11 21 7 534 654	Crankshaft sprocket	1
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11 21 7 585 184	Bolt	1
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Refer to the EPC for additional gaskets, seals and bolts, as described in Repair Instruction REP 11 31 051.

## PARTS INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty or the MINI NEXT Certified Pre-Owned Program.

**Defect Code 11 33 04 39 00**

Labor Operation 11 99 000 Procedure steps 1-5

Main Work

Labor Allowance 4 FRU

Or

Labor Operation 11 99 000 Procedure steps 1-11

Main Work

Labor Allowance 10 FRU

Labor Operation: 11 31 090\* Replacing piston for timing chain tensioner

+ Associated Work

Labor Allowance 5 FRU

or

Labor Operation: 11 31 051\* Replace timing chain (Parts list B)

+ Associated Work

Labor Allowance Refer to KSD2

Plus

Labor Operation Refer to KSD Reprogram/recode vehicle

Labor Allowance Refer to KSD2

Note: The following explanations will spell out the correct use of the work times.

**Main Work:** Use this labor operation number when the only repair performed is the listed warranty repair.

OR

**+Associated Work:** Use this labor operation number when other repairs or services are performed along with the listed warranty repair.  
Under no circumstances should both labor operation numbers be claimed.

Attempts to claim both times will result in an unnecessary delay in claim processing and payment.

In cases where ISTA requires the replacement of control modules or additional programming because certain control modules failed to program correctly, print out the Measures Plan and Final Report and attach these reports to the RO in the vehicle file. This additional work should be claimed under the defect code listed in this bulletin, using the labor operation and labor allowance from the KSD2.

**Part replacement authorization is NOT required.** Do NOT submit a TeileClearing PuMA case. A copy of the diagnostic report (short test) must be kept with the Repair Order (RO) and FASTA data must be transmitted. When submitting a warranty claim, please include "replaced per SI M11 02 07" in the comments section.

## WARRANTY INFORMATION

Technical Service Bulletin # **M120210**

Date: **101002**

**M120210 - 10/02/2010**

This TSB # M120210, dated 10/01/10, has been superseded by TSB # M120210, dated 10/02/10. Technical Service Bulletin # **M010410**

## Campaign - H/P Fuel Pump Warranty Extension

SI M01 04 10

Warranties

August 2010

Warranties

### SUBJECT

N14 Special Limited High-pressure Pump (HPP) Emission Warranty of 10 Years/120,000 Miles

### MODEL

R55 MINI Clubman S with N14 from SOP up to 08/09

R56 MINI Cooper S with N14 from SOP up to 08/09

R57 MINI Cooper S Convertible with N14 from SOP up to 08/09

### SITUATION

MINI has become aware of a potential problem that could affect the durability of the High-pressure Fuel Pump (HPP) of certain MY 2007, 2008 and 2009 MINI automobiles equipped with N14 engines. We estimate that only a small percentage of vehicles will actually develop a problem. Vehicles affected may have the Service Engine Soon lamp illuminated with various high fuel pressure-related faults (e.g., 2880) stored in the Engine Control Module (DME). Also, the affected vehicles may experience reduced engine performance ("engine failsafe mode") when the High-pressure Fuel Pump malfunctions.

### CORRECTION

In the event that the High-pressure Fuel Pump of an MY 2007, 2008 or 2009 Cooper S, Cooper S, Cooper S JCW, Convertible or Clubman S with the N14 engine were to fail and exhibit the symptoms listed above, it should be replaced with the improved part (P/N 13 51 7 588 879).

Prior to replacement of the HPP, make sure that the appropriate ISTA/D test plan (B1214\_M\_KHDR\_H\_FUEL) high pressure system) was performed and completed with the diagnostic code included the warranty claim. Always use the current version of ISTA/D (currently 2.21 or higher).

For High-pressure Fuel Pump replacement instructions, refer to REP13 51 017.

### PARTS INFORMATION

Part Number	Description	Quantity
13 51 7 588 879	High-pressure Fuel Pump	1
13 53 7 528 348	Pressure delivery line	1

### PARTS INFORMATION

As a commitment to our customers and to demonstrate our confidence in our product, MINI will extend the emissions warranty of the High-pressure Fuel Pump from 4 years or 50,000 miles to 10 years or 120,000 miles, whichever comes first.

### EMISSIONS WARRANTY INFORMATION

The emissions warranty extension for this component applies to the above-listed models only, and is transferable to any subsequent purchaser of these models.

This extended emissions warranty is applicable to vehicles registered in all 50 states.

Warranty coverage for all other parts is not affected.

MINI will inform all affected owners of the above-listed models of their extended High-pressure Fuel Pump emissions warranty. A sample letter is shown in this bulletin.



**Defect Code:** 13 51 91 12 00

**Labor Operation** 0059053 Replace High-pressure Fuel Pump  
and clear DME fault memory

**Main Work**

**Labor Allowance** 12 FRUs  
OR

**Labor Operation:** 0059711 Replace High-Pressure Fuel Pump  
and clear DME fault memory

**+ Associated Work** 11 FRUs

**Labor Allowance**

Note: The following explanations will spell out the correct use of the work times.

**Main Work:** Use this labor operation number when the only repair performed is the listed warranty repair.

OR

**+Associated Work:** Use this labor operation number when other repairs or services are performed along with the listed warranty repair.  
Under no circumstances should both labor operation numbers be claimed. Attempts to claim both times will result in an unnecessary delay in claim processing and payment.

The following Emissions Warranty Information should be used if a High-pressure Fuel Pump replacement becomes necessary, as outlined above.

Dear MINI Owner:

MINI is committed to delivering complete and total product satisfaction to you, our customer. Our interest in your vehicle doesn't stop with its sale; rather, it continues throughout the vehicle's warranty period and beyond.

MINI USA has become aware of a potential problem that could affect the durability of the high-pressure fuel pumps in select 2007, 2008, and 2009 model year MINI vehicles equipped with the N14 turbocharged engines. The Service Engine Soon lamp may illuminate on affected vehicles, and drivers may experience reduced engine performance.

While we estimate that only a small percentage of vehicles will develop a problem, MINI USA will demonstrate the confidence we have in our product by extending the warranty for the high-pressure fuel pump to 10 years or 120,000 miles from the original in-service date, whichever comes first.

The emissions warranty extension for this component applies to your vehicle, and is transferable to any subsequent purchaser of your car.

All terms and conditions of the Federal Emissions Defect Warranty, the Federal Emissions Performance Warranty, and the California Emissions Warranty apply to the extended warranty. Warranty coverage for all other parts is not affected. Warranty terms and conditions can be found in your Service and Warranty information booklet.

In the event that your vehicle's high-pressure fuel pump exhibits the conditions outlined above, please contact your nearest authorized MINI dealer to schedule an appointment. Your MINI dealer has received a service information bulletin informing them of this warranty extension.

Please be assured that we at MINI are totally committed to the highest standards of product excellence and ownership experience, and we are determined to provide a level of service that exceeds your expectations.

Should you have any questions, please call us at 1.866.ASK.MINI (275.6464). Prefer email? Email us at: [MINI.Assistance@ASKMINIUSA.com](mailto:MINI.Assistance@ASKMINIUSA.com).

Thank you for your cooperation in this matter.

Very truly yours,

Your friends at MINI USA

Technical Service Bulletin # **M120102**

Date: **100801**

## Ignition System - Spark Plug Information/Application

SI M12 01 02

Engine Electrical Systems

August 2010

Technical Service

This Service Information bulletin supersedes SI M12 01 02 dated March 2009.

[NEW] designates changes to this revision

### SUBJECT

Spark Plug Application

### MODEL

R50 Cooper with the W10 engine

R53 Cooper S with the W11 engine

R52 Cooper or Cooper S Convertible with either the W10 or W11 engine

R52, R53 with W11 and John Cooper Works Tuning Kit

R55, R56, R57 Cooper (Clubman) with the N12 engine

R55, R56, R57 Cooper S (Clubman S) with the N14 engine

[NEW] R55, R56, R57, R60 Cooper (Clubman, Countryman) with the N16 engine

[jmoraflores@hotmail.cl](mailto:jmoraflores@hotmail.cl)

[NEW] R55, R56, R57, R60 Cooper S (Clubman S, Countryman S) with the N18 engine

## SITUATION

The spark plug used for the R50, R52, and R53 MINI models, Cooper and Cooper S, is designated NGK BKR6EQU.

The spark plug used for the Cooper S (R52, R53) with the John Cooper Works Tuning Kit (including the GP version) is designated NGK BKR7EQU.

This is a quad electrode spark plug design that incorporates a platinum-plated center electrode and four ground electrodes.

The spark plug used for the R55, R56, and R57 MINI models (Cooper and Clubman) equipped with the N12 engine is designated BERU 12ZR6SP03.

The spark plug used for the R55, R56, and R57 MINI models (Cooper S and Clubman S) equipped with the N14 engine is designated NGK ILZKBR7A-8G.

[NEW] The spark plug used for the R55, R56, R57, and R60 MINI models (Cooper, Clubman, and Countryman) equipped with the N16 engine is designated BERU 12ZR6SP02.




[NEW] The spark plug used for the R55, R56, R57, and R60 MINI models (Cooper S, Clubman S, and Countryman S) equipped with the N18 engine is designated BERU 12ZR6-SPP2.

[NEW] The spark plug used for the R55, R56, R57, and R60 MINI models (Cooper S, Clubman S, and Countryman S) equipped with the N18 engine and the JCW Tuning Kit is designated NGK ILZKBR7A-8G.

## PROCEDURE

For spark plug removal and installation instructions, refer to the MINI Repair Manual, group 12, section 12 12 011.

### PARTS INFORMATION

Part Number	Description	Quantity
12 12 0 030 548	Spark plug – NGK BKR6EQU	4
12 12 0 031 708	Spark plug – NGK BKR7EQU	4
12 12 0 035 933	Spark plug – BERU 12ZR6SP03	4
12 12 0 035 531	Spark plug – NGK ILZKBR7A-8G	4
 12 12 2 158 165	Spark plug - BERU 12ZR6SP02	4
 12 12 2 163 332	Spark plug - BERU 12ZR6-SPP2	4
 12 12 0 035 531	Spark plug - NGK ILZKBR7A-8G	4

## PARTS INFORMATION

## WARRANTY INFORMATION

For information only

Technical Service Bulletin # **M360210**

Date: **101001**

## Wheels/Tires - Tire Pressure Adjustment Information

SI M36 02 10

Wheels and Tires

October 2010

Technical Service

## SUBJECT

Adjusting Tire Pressures

## MODEL

All

## INFORMATION

To ensure proper tire inflation pressures, it is recommended to check/inflate tires when they are cold. The tires of a vehicle are often thought of as

2685  
Mini Cooper S (R56) L4-1.6L Turbo (N14)  
being cold prior to the vehicle being driven. However, ambient temperature can have an effect on tire pressure. For every 10°F drop in ambient temperature, the tire pressure can decrease by 1 psi. During the fall and winter months, there can be significant differences between the outside temperature and the temperature within the workshop. Inflating tires within a heated environment can result in a pressure difference of up to 3 psi when the vehicle is placed outside. Therefore, it is recommended to check/inflate tires prior to the vehicle being driven or placed in the workshop.

## WARRANTY INFORMATION

For information only

Technical Service Bulletin # **520810**

Date: **100801**

## Interior - One Touch Memory Function Information

SI B 52 08 10

Seats

August 2010

Technical Service

### SUBJECT

Front Seats: One Touch memory Function

### MODELS

All models

### SITUATION

There may be some confusion as to the operation of the "one touch memory function", when requesting a saved seat position. In most cases the operation is normal. This service information bulletin will clarify the normal operation below.

### INFORMATION

When using the seat memory, there are two options for requesting a successfully saved seat position from the vehicle, depending on the operating mode.

1. With the vehicle unlocked and terminal 15 off, press the desired memory button once, briefly. The seat moves to the stored position. This is considered the "one-touch function".
2. With the vehicle unlocked and terminal 15 on (ignition on or while driving): the desired memory button must be pressed and held until the seat moves to final stored position. Under all circumstances, avoid moving the seat to a position which is uncomfortable for the driver while the vehicle is in motion. This situation does not allow the "one-touch function".

## WARRANTY INFORMATION

For information only

Technical Service Bulletin # **M120310**

Date: **101001**

## Engine Controls - Hot Starting Problem

SI M12 03 10

Engine Electrical Systems

October 2010

Technical Service

### SUBJECT

N14 with AISIN Transmission - Hot Starting Problem

### MODEL

R55, R56, R57 with N14 engine and AISIN automatic transmission produced from 3/1/2010 to 7/30/2010, as well as earlier production cars which have been reprogrammed as noted below

### SITUATION

The engine fails to stay running when started hot, or may take several attempts to stabilize smooth idle speed.

This problem could occur with higher ambient temperatures (above 25°C) and engine temperatures above 97 °C.

The most common scenario is when starting after refueling or similar heat soak conditions.

### Note:

In addition to cars from the affected production period, earlier production N14 AISIN vehicles programmed for other reasons, such as a control module replacement or retrofit, e.g., John Cooper Works Tuning kit, could be affected if they are currently at either the R056-10-03-50x to

CAUSE  
DME software

CORRECTION  
Do not replace any parts!

For this "Hot Start" problem, only program the vehicle using ISTA/P 2.39.x (R056-10-08-513 target integration level); install an earlier DME calibration.

A complete DME software solution is planned with ISTA/P 2.40.0, which corrects both this error and also includes the drivability improvements for N14 AISIN vehicles as described in SI M11 02 07.

#### WARRANTY INFORMATION

Covered under the terms of the MINI New Vehicle Limited Warranty.

<b>Defect Code:</b>	<b>10 12 00 09 00</b>	
<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
00 00 710	Refer to KSD2	Programming / coding control units w/o CAS
00 00 720	Refer to KSD2	Programming / coding control units

with CAS

In cases where ISTA requires the replacement of control modules or additional programming because certain control modules failed to program correctly, or just an initialization is required, print out the Measures Plan and/or Final Report and attach these reports to the RO in the vehicle file. This additional work should be claimed under the defect code listed in this bulletin, using the labor operation and labor allowance from the KSD2.

#### WARRANTY INFORMATION

Technical Service Bulletin # **M650510**

Date: **101001**

### Cell Phone/Audio - iPod/iPhone(R) Poor Audio

SI M65 05 10  
Audio, Navigation, Monitors, Alarms, SRS

October 2010  
Technical Service

SUBJECT  
iPod/iPhone Has Extremely Poor Audio Quality and/or Is Not Recognized

MODEL  
All models

Produced between 02/28/2007 and 10/31/2010 with option 6FL (USB Audio Interface)

#### SITUATION

When the iPod/iPhone is connected to the USB connector with the original Apple USB cable (white cable which comes with the iPod/iPhone):

- ^ The audio quality may be extremely poor
- ^ The device may not be recognized intermittently

#### CAUSE

1. Defective Apple USB cable or defective 30-pin socket on the iPod/iPhone
2. Defect in the USB audio interface (ULF, hands-free charging module integrated in the CIC)

#### CORRECTION

**Cause 1:**

Check the function with an Apple USB cable known to work properly; if it is still acting the same way, test the original Apple USB cable with an iPod/iPhone known to work properly.

If both tests do not resolve the issue, follow the procedure outlined for Cause 2.

**Cause 2:**

1. Connect an approved battery charger and perform a vehicle test using the latest ISTA (Integrated Service Technical Application) diagnostic software.
2. Diagnose any relevant faults that are stored by completing the test plans.
3. Perform and complete the test plan "AT8400\_SYSTEL - Check of telecommunications system". Please note the DIAGCODE (Diagnosis Code) presented at the end of the test plan. The test plan can be accessed via the following path:
  - ^ Select "Activities\Information Search/Function structure\Body\Audio,Video,Navigation, Telephone (MOST ring)\Telecommunications" and start search.
  - ^ In Telecommunications, select "AT8400\_SYSTEL - Check of telecommunications system" and press "Display".
  - ^ Follow the on-screen instructions to work through the test plan.

**WARRANTY INFORMATION**

Covered under the terms of the MINI New Vehicle Limited Warranty.

**Defect Code:**                    **61 12 60 79 00**

<b>Labor Operation:</b>	<b>Labor Allowance:</b>	<b>Description:</b>
00 00 006*	Refer to KSD2	Performing vehicle test (with vehicle diagnosis system)
61 00 006**	Refer to KSD2	Performing vehicle diagnosis – test module -

\* Main Work – Only one main labor operation (ending with 000-499) may appear on any claim or group of claims (warranty, maintenance or campaigns) that are generated from the same repair visit.

All other labor operations on the same line or other lines must be claimed using plus code labor operations (KSD2 labor operations that have a (+) prefix and the last three digits are 500 or a higher number).

\*\*Work Time- the amount of FRUs claimed for this labor operation must be documented by the individual punch time necessary to perform the required repair.

In this case labor code 61 00 006 only includes the time necessary to complete the specific task(s), it is therefore not considered a main labor operation.

**WARRANTY INFORMATION**

Technical Service Bulletin # **M630110**

Date: **101001**

**Lighting - Bulb Out Message Diagnostics**

SI M63 01 10  
LIGHTS

October 2010  
Technical Service

This Service Information bulletin supersedes SI M63 01 10 dated May 2010.

[NEW] designates changes to this revision

**SUBJECT**

Check Control Message but Lights are Operating Normally

## MODEL

R55 (Cooper Clubman, Cooper S Clubman)

R56 (Cooper, Cooper S)

R57 (Cooper Convertible, Cooper S Convertible)

Vehicles produced from August 31, 2009 to August 30, 2010.

## SITUATION

Intermittently, a "bulb out" check control message is displayed, but all bulbs appear to be working normally. Typically, one or more faults are stored, all being set at the same mileage value. Possible fault codes are A8A8, A8A9, A8AA, A8AB, A8AC, A8AD, A8AE, A8AF, A8B0, A8B1, A8B2, A8B3, A8B6, A8B7, A8B8, A8B9, A8BA, A8BB, A8BC, A8BF, and A8C0.

## CAUSE

FRM3R (Footwell module) software

## [NEW] INFORMATION

The problem has been integrated into ISTA diagnostics. Follow the diagnosis test plan using the latest ISTA version. The stored fault code will generate test plan B6300\_70012 automatically.

## [NEW] CORRECTION

Refer to ISTA diagnosis for the required repair procedure.

## [NEW] WARRANTY INFORMATION

Refer to the KSD2 to code the repair performed as prescribed by ISTA diagnosis results and the Warranty Policy and Procedures Manual for specific warranty coverage.

Technical Service Bulletin # **M650410**Date: **100801****Antitheft System - Erroneous Fault Code A87E Stored**

SI M 65 04 10

Audio, Navigation, Monitors, Alarms, SRS

August 2010

Technical Service

## SUBJECT

A87E Fault Code in SPEG

## MODEL

R55 (Cooper Clubman, Cooper S Clubman)

R56 (Cooper, Cooper S)

Vehicles from June 30, 2010 to July 22, 2010 with option 302 (DWA)

## SITUATION

Fault code A87E (defective wire to ultrasonic sensor) is stored in the SPEG (Junction Box Electronics) control module. The DWA (alarm system) works with no issues.

## CAUSE

Early introduction of an improved ultrasonic sensor

The fault will no longer be set on vehicles with integration level R056-10-08-512 or later.

## INFORMATION

Do not replace parts. No corrective action is necessary; the fault can be ignored.

## WARRANTY INFORMATION

For information only

Technical Service Bulletin # **M070610**Date: **101101**

# Computers/Controls - ISTA(R) Does Not ID The Vehicle

SI M07 06 10

Workshop Environment Systems

November 2010

Technical Service

## SUBJECT

ISTA Does Not Automatically ID the Vehicle

## MODEL

All

## SITUATION

When identifying a vehicle using ISTA (Integrated Service Technical Application), the error message "VIN unknown" is displayed on the ISID (Integrated Service Information Display). This situation occurs with both automatic identification (Read out vehicle data) and manual entry of the VIN.

The "Start vehicle test" button is grayed out after identification of the vehicle via "VIN" or "Basic feature".

## CAUSE

The vehicle was produced after the production date of the ISTA DVD version. Therefore, its VIN was not included in the ISTA database.

## PROCEDURE

In some cases, when deleting the transport mode and performing the pre-delivery inspection, the vehicle may be too new, and the VIN from the vehicle is not recognized by ISTA.

The procedure has changed with the introduction of ISTA D2.22 or later. Perform the following steps to delete transport mode and perform the pre-delivery inspection:

1. Manually ID the vehicle by selecting "Identification".
2. Select "Basic features".
3. Select "Model series".
4. Select "Development code".
5. Select "Sales designation".
6. Select "Engine".
7. Select "Transmission".
8. Select "Model year" (Production year).
9. Select the latest "Model month" (Production month) available.
10. Select "Accept".
11. The "Start vehicle test" button is grayed out and cannot be selected.
12. Select the "Connection manager" icon from the top ISTA menu bar.
13. Select the ICOM that is connected to the vehicle.
14. A pop-up message will appear. Select "Maintain connection and continue working".
15. After a few seconds, the "Start vehicle test" button is now selectable and can be started.
16. After the vehicle test is finished, select "Service function".
17. Select "Service function"
18. Select "04 Maintenance and Pre-delivery check".
19. Select "Transport mode/pre-delivery check".



20. Select "Delete transport mode".

21. Select "Start search".

22. Select the test plan for "pre-delivery check" and "Display".

23. Finish the test plan accordingly.

#### WARRANTY INFORMATION

For information only

Technical Service Bulletin # **M090407**

Date: **101101**

## Computers/Controls - Program Version Veh. Data Status

SI M09 04 07

Programming/Coding Explanations

November 2010

Technical Service

This Service Information bulletin supersedes M09 04 07 dated June 2010.

Changes affect only the attachment.

[NEW] designates changes to this revision

#### SUBJECT

Programming Version Vehicle Data Status

#### MODEL

R56 (Cooper, Cooper S)

R55 (Cooper Clubman, Cooper S Clubman)

R57 (Cooper, Cooper S)

#### SITUATION

All affected vehicles have a Vehicle Data Status stored in the vehicle, e.g., R056-08-06-500. This Vehicle Data Status describes the current configuration of the vehicle, and is used for programming by ISTA/P.

#### INFORMATION

To check the Vehicle Data Status against the ISTA/P version, refer to the [NEW] attachment.

#### ATTACHMENT

## Programming Version vs. Vehicle Data Status

ISTA/P Version	Online JS	DVD	MINI
			R55/R56/R57
2.39.4	X		R056-10-08-513
2.39.3	X		R056-10-08-513
2.39.2	X		R056-10-08-513
2.39.1	X		R056-10-08-513
2.39.0		X	R056-10-08-512
2.38.2	X		R056-10-06-500
2.38.1	X		R056-10-06-500
2.38.0		X	R056-10-06-500
2.37.2	X		R056-10-03-503
2.37.1	X		R056-10-03-503
2.37.0		X	R056-10-03-501
2.36.1	X		R056-09-12-510
2.36.0		X	R056-09-12-510
2.35.4	X		R056-09-09-516
2.35.2	X		R056-09-09-516
2.35.0		X	R056-09-03-525
2.34.0		X	R056-09-06-510
2.33.3	X		R056-09-03-525
2.33.2	X		R056-09-03-525
2.33.1		X	R056-09-03-500
2.33.0		X	R056-09-03-500
2.32.2	X		R056-08-12-506
2.32.1	X		R056-08-12-506
2.32.0		X	R056-08-12-505
<b>Progman</b>			
31.1		X	R056-08-09-510
31.0		X	R056-08-09-510
30.0.2	X		R056-08-06-510
30.0.1	X		R056-08-06-510
30.0	X		R056-08-06-510
29.2	X		R056-08-03-520
29.1.1	X		R056-08-03-520
29.1	X		R056-08-03-520
29.0		X	R056-08-03-510
28.0.2	X		R056-07-12-521
28.0.1	X		R056-07-12-521
28.0			R056-07-12-520
27.2.1	X		R056-07-08-521
27.2	X	X	R056-07-08-521
27.1.2	X		R056-07-08-520
27.1.1	X		R056-07-08-520
27.1	X	X	R056-07-08-520
27.0		X	R056-07-08-516
26.2.2	X		R056-07-08-516
26.2.1	X		R056-07-08-510
26.2	X		R056-07-08-510
26.1.2	X		R056-07-06-515
26.1.1	X		R056-07-06-515
26.1	X	X	R056-07-06-515

## Programming Version vs. Vehicle Data Status

26.0		X	R056-07-06-515
25.2	X	X	R056-07-03-525
25.1.1	X		R056-07-03-525
25.1	X	X	R056-07-03-525
25.0.5	X		R056-07-03-525
25.0.4	X		R056-07-03-515
25.0.3	X		R056-07-03-515
25.0.2	X		R056-07-03-515
25.0.1	X		R056-07-03-511
25.0		X	R056-07-03-510
24.2.1	X		R056-06-12-515
24.2	X	X	R056-06-12-511
24.1.1	X		R056-06-12-510
24 .1	X	X	R056-06-12-510
24.0		X	R056-06-12-510
23.2.2	X		R056-06-09-515
23.2.1	X		R056-06-09-515
23.2	X	X	R056-06-09-515
23.1.3	X		R056-06-09-510
23.1.2	X		R056-06-09-510
23.1.1	X		R056-06-09-510
23.1			R056-06-09-510
23.0.1	X		R056-06-09-510
23.0		X	R056-06-09-510

Attachment - Programming Version Data Status Technical Service Bulletin # **M000202**

Date: **101001**

## Vehicle - MINI(R) Operating Fluids

SI M00 02 02

Maintenance and General Hints

October 2010

Technical Service

This Service Information bulletin supersedes SI M00 02 02 dated August 2010.

[NEW] designates changes to this revision

SUBJECT

MINI Operating Fluids

MODEL

R50 Cooper (W10)

R52 Cooper and Cooper S Convertible (W10 and W11)

R53 Cooper S (W11)

[NEW] R55 Cooper Clubman and Cooper S Clubman (N12, N14, N16 and N18)

[NEW] R56 Cooper and Cooper S (N12, N14, N16 and N18)

[NEW] R57 Cooper and Cooper S Convertible (N12, N14, N16 and N18)

INFORMATION

Fluids and sealers that are described in this Operating Fluids bulletin are MINI approved [NEW] (see attachment). Using non-approved fluids or sealers can lead to premature failure and will not be covered under Warranty.

ATTACHMENT

Application	Part Number	Description
Engine oil (1 quart)	07 51 0 143 829	MINI Synthetic Oil SAE 5W-30
Engine oil (55 gallon drum)	07 51 0 017 954	MINI Synthetic Oil SAE 5W-30  <u>R50, R52 and R53</u> W10 – 4.50 liters W11 – 4.80 liters  <u>R55, R56 and R57</u> N12 and N16 – 4.20 liters N14 and N18 – 4.20 liters
BMW Group Fuel System Cleaner Plus  Refer to SI M13 05 06 for application details.	82 14 0 413 341	1 bottle, 20 fl. oz. Order in multiples of 6 bottles per case.
BMW Group Fuel Injector and Induction System Cleaner Concentrate  Refer to SI M13 01 07 for application details.	82 14 0 428 376	1 bottle, 16 fl. oz.
6-speed Automatic Transmission GA6F21WA R52 and R53 Cooper S R55 Cooper Clubman and Cooper S Clubman R56 Cooper and Cooper S	83 22 7 542 290	MINI ATF JWS 3309 1 liter bottle <b>Note:</b> -Pan removal requires 4 liters to refill. -Torque converter replacement requires 4.5 liters to refill. -Transmission replacement requires 6 liters to refill.
ECVT Transmission Fluid	83 22 0 136 376	Esso EZL799
Manual transmission fluid <u>up to 7/2004</u> production R50 Cooper GS5-65BH 5-speed	83 22 0 403 247	Texaco MTF94 Extended Life Fluid  Fill Quantity: 2.0 liters
Manual transmission fluid <u>up to 7/2004</u> production Getrag 285 6-speed R52 and R53 Cooper S	83 22 0 403 247	Texaco MTF94 Extended Life Fluid  Fill Quantity: 1.7 liters
Manual transmission fluid <u>from 7/2004</u> production Getrag 252 5-speed R50 Cooper	83 22 7 533 818	MTF LT-3 Extended Life Fluid  Fill Quantity: 1.7 liters

Manual transmission fluid <u>from</u> 7/2004 production Getrag 285 6-speed R52 and R53 Cooper S	83 22 7 533 818	MTF LT-3 Extended Life Fluid  Fill Quantity: 1.7 liters
Manual transmission fluid <u>from</u> 9/2006 production Getrag GS6-55BG (G522) R55 Cooper Clubman R56 Cooper R57 Cooper Convertible	83 22 0 421 925	MTF LT-4 Extended Life Fluid  Fill Quantity: 1.7 liters
Manual transmission fluid <u>from</u> 9/2006 production Getrag GS6-53BG (G253)  Without limited slip differential Option code 2TA  R55 Cooper S Clubman R56 Cooper S R57 Cooper Convertible	83 22 0 421 925	MTF LT-4 Extended Life Fluid  Fill Quantity: 1.9 liters
Manual transmission fluid <u>from</u> 9/2006 production Getrag GS6-53BG (G253)  With Limited Slip Differential Option code 2TA  R55 Cooper S Clubman R56 Cooper S R57 Cooper S Convertible	83 22 0 403 247	Texaco MTF94 Extended Life Fluid  Fill Quantity: 1.7 liters
Antifreeze/coolant	82 14 0 031 133	Antifreeze/Coolant 1 Gallon
Power steering fluid	82 11 0 148 132	Pentosin CHF 11s
Brake fluid	81 22 0 146 735	DOT 4 Fluid
Convertible top hydraulic pump fluid	54 34 0 394 395	Hydraulic Oil
Air conditioning refrigerant	Sourced locally using independent supplier	HFC-R134a  <u>R50, R52 and R53 (W10 and W11)</u> 415±10g (0.91±0.02 lbs.)  <u>R56 (N12, N14, N16 and N18)</u> 490±10g (1.08±0.02 lbs.)
Air conditioning refrigerant oil	82 11 0 148 908	PAG Oil (Polyalkylene Glycol)

ATTACHMENT - M000202 Technical Service Bulletin # **M650610**Date: **100801****Navigation System - Missing/Incorrect Map Data**

SI M 65 06 10

Audio, Navigation, Monitors, Alarms, SRS

August 2010

Technical Service

**SUBJECT**

Navigation System Has Missing or Incorrect Road Map Data

**MODELS**

All models with option 609 (Navigation System Professional) and NAV road map from Tele Atlas(R)

**SITUATION**

The route guidance is inaccurate and therefore irritating to the customer; or it is not possible to locate certain addresses, for instance:

^ Street name, house number or city is missing or incorrect

^ Point Of Interest (POI) is missing or incorrect

^ Map feature is missing or incorrect

^ Bridge

^ Roundabout/rotary

^ Housing development/estate

The route calculation has discrepancies for certain addresses, for instance:

^ Distance is incorrect

^ Travel time is incorrect

^ Changes regarding vehicle restrictions

^ Lane direction changes, dependent on time and day

^ One way streets

^ Highway exits

^ Toll roads

## CAUSE

The Tele Atlas(R) Road Map has incorrect or missing data.

## INFORMATION

Do not replace parts!

This is not a hardware problem in the MINI navigation systems.

Therefore, a road map error or missing data must be reported directly to Tele Atlas(R).

The Tele Atlas(R) website, has a section for reporting map errors. This section can also be accessed by clicking on the following link:  
[www.teleatlas.com](http://www.teleatlas.com).

For a brief description on how to report a road map error or missing data, please refer to attachment A.

## IMPORTANT:

^ The customer must have the latest available Tele Atlas(R) Road Map data before reporting an error.

Road Map Error Reports on older Road Maps will not be processed by Tele Atlas(R).

^ A valid email address can be provided so that Tele Atlas(R) can reply to customer feedback.

## WARRANTY

For information only

## ATTACHMENT

EN DE FR NL IT ES SV FAQ → Demo →

↓ Step 1 - Locate

Where is the change located?

Country:

Can't find your country in the list? →

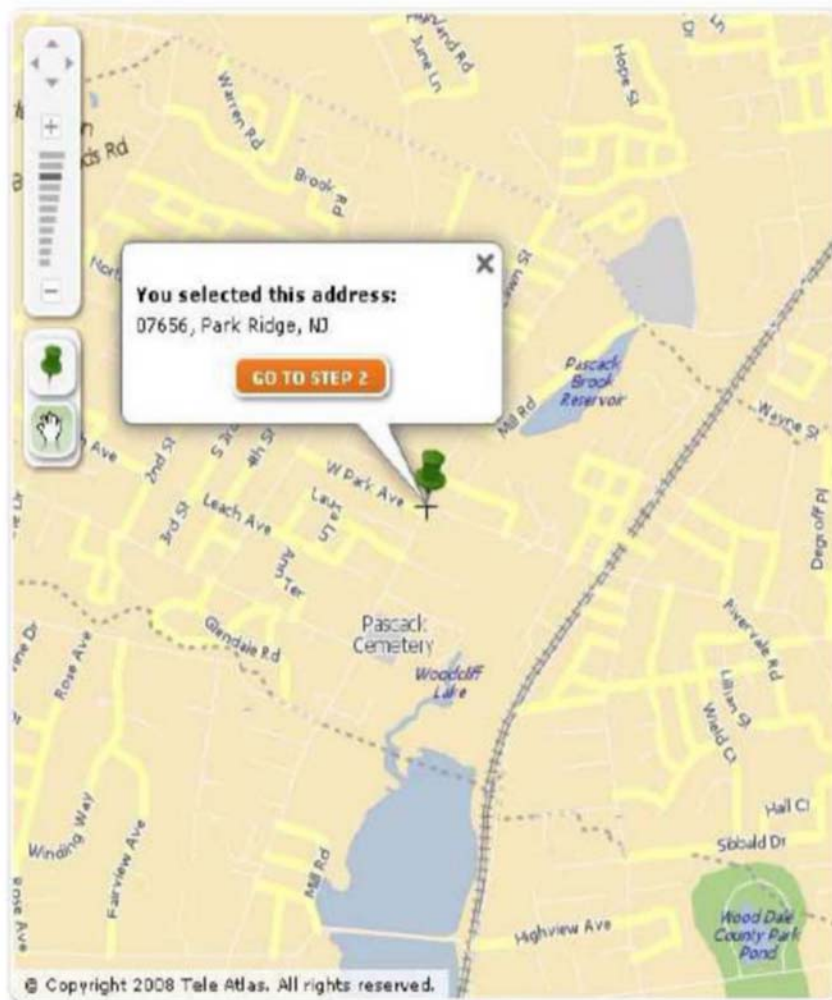
**Report a change in 3 easy steps...**

- Step 1 - Locate
- Step 2 - Describe
- Step 3 - Submit

**START**

→ Step 2 - Describe

→ Step 3 - Submit



EN DE FR NL IT ES SV FAQ → Demo →

## ↓ Step 1 - Locate

Country:  ▼  
State/province:  ▼

## Locate by address



No.:  Street:

City:  Postcode:

[Locate by coordinates? →](#)

or:

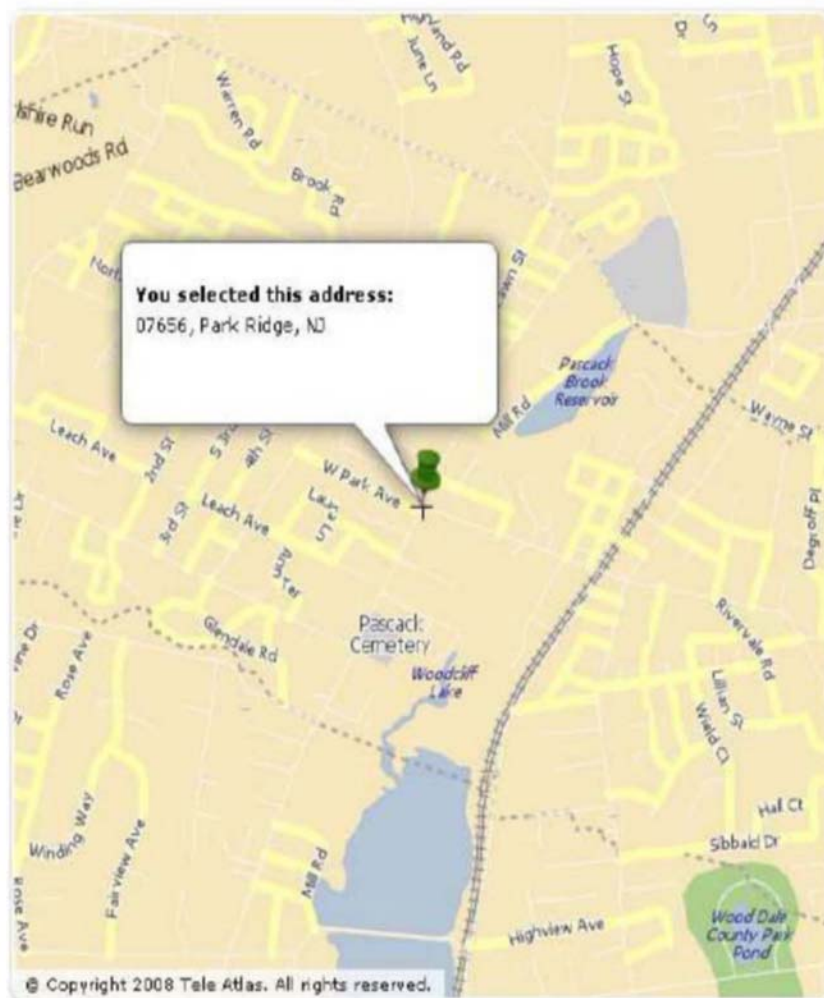
## Locate on the map

Use  to zoom in and  to zoom out,  
 to drag and  to pinpoint the location.

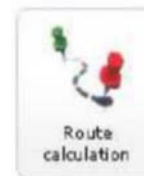
→ Step 2 - Describe

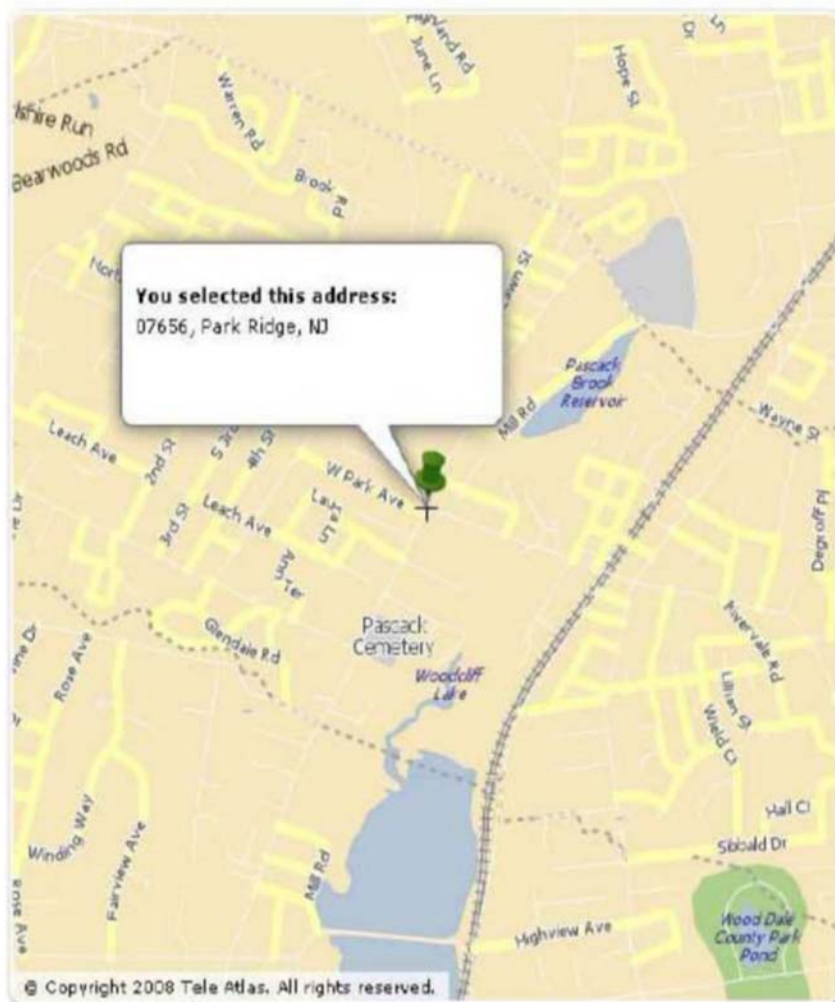
→ Step 3 - Submit



[EN](#) [DE](#) [FR](#) [NL](#) [IT](#) [ES](#) [SV](#) [FAQ](#) [Demo](#)[→ Step 1 - Locate](#)[↓ Step 2 - Describe](#)**Type of change**

Select a category below

[↩ Change Location in Step 1](#)[→ Step 3 - Submit](#)



EN DE FR NL IT ES SV FAQ → Demo →

→ Step 1 - Locate

↓ Step 2 - Describe

## Add an address

No.:  Street:

City:  State/province:

Postcode:

Website/device used:

Additional remarks →

← Back

Next →

→ Step 3 - Submit

EN DE FR NL IT ES SV
FAQ → Demo →

→ Step 1 - Locate

→ Step 2 - Describe

↓ Step 3 - Submit

Summary of change to be reported:

**Add an address**  
24 Railroad Street  
Park Ridge,  
New Jersey, United States

Enter your email address to receive updates regarding your reported change (We do not share your personal information with anybody).

Email address (optional):

[Privacy policy →](#)

**SUBMIT REPORT**

↶ Change information in Step 2

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View M650610 Attachment \_A

Technical Service Bulletin # **M650710**Date: **100801****Navigation System - Real Time Traffic Information**

SI M 65 07 10

Audio, Navigation, Monitors, Alarms, SRS

August 2010

Technical Service

SUBJECT

Real Time Traffic Information

MODEL

All models with option 609 (Navigation System Professional)

INFORMATION

The Navigation System of the above-mentioned models includes a feature which provides up-to-date traffic information to the driver. This enhanced feature is called RTTI (Real Time Traffic Information).

Whether you want the short route, the fast route or the scenic route, you never want to get stuck in traffic. The RTTI service notifies you of traffic incidents on your route so you can change course and possibly avoid delays. High traffic areas continuously update the service 24 hours a day, 7 days a week, while lower traffic areas report only during normal commuting hours.

Traffic incidents are compiled and transmitted in metropolitan areas by a leading FM broadcaster. The data is received through a dedicated tuner, which operates independently of your entertainment source. The reported traffic incidents are displayed as icons on the navigation map and in a list, sorted by distance from your BMW's current position. While you stay focused on enjoying the drive, your navigation system automatically calculates the best route, and even provides a detour around traffic if the delay is calculated to be longer than 5 minutes.

RTTI is still a developing service that requires information from different sources in order for the traffic information to be available to the driver. Customer complaints on the accuracy and timing of traffic information can by no means be considered a defect of the vehicle.

For FAQ, please refer to Attachment\_A, which provides valuable information for center personnel to help deal with customer questions that may arise. Please share this information with all service personnel, including the Service Advisor.

## WARRANTY INFORMATION

For information only

## ATTACHMENTS

M650710 Attachment\_A

August 2010

### Real Time Traffic Information

#### FREQUENTLY ASKED QUESTIONS

##### **What is Real Time Traffic information (RTTI)?**

Real Time Traffic information (RTTI) is encoded and broadcast as digital data by certain FM radio stations in 80 metropolitan areas. The traffic information is received by a separate tuner included in the radio of MINIs equipped with the service and then displayed on the navigation system. You do not need to listen to a specific radio station to receive the traffic information, as the additional dedicated tuner automatically scans for the appropriate station, even if the radio is turned off. The navigation system calculates the best route, considering the traffic incidents and potential delays. Traffic events in the area are shown as icons on the map display; those on your route have a yellow background. Details about the traffic events are also displayed as descriptive text in the "Traffic Info" menu.

##### **What are the key benefits of RTTI?**

- You don't have to listen to traffic reports on radio stations to be in the know about the traffic situation. Instead, listen to music, audio books and talk shows, or even just turn off the radio.
- You reach your destination more relaxed and faster, as your trip is streamlined with up-to-date traffic information.
- RTTI transforms the navigation system from an option that is primarily used when you're lost or going to an unknown destination to a benefit that improves your daily driving experience.

##### **Where does real time traffic information come from?**

The information that is broadcast is compiled from many different sources, including sensors embedded in highways, cameras on bridges and local traffic monitoring centers. When a traffic event is reported, it is normally broadcast within minutes.

##### **Is there a difference between the RTTI data and normal radio traffic reports?**

Generally the information that is reported audibly on the radio and the information delivered through your MINI navigation system will be similar. However, radio reports are limited by several factors, including:

- The spoken radio reports are limited to a certain length of time, often only at predetermined times of day. Only a small percentage of actual traffic issues will typically be reported through this system.
- The RTTI information is automatically interpreted by the MINI navigation system and allows you to view traffic events that are relevant to your route and near your location.
- The RTTI system will continuously relay real time information, whereas radio reports must wait for the scheduled time to report the information, regardless of when the events take place.

##### **Where is traffic data available?**

Current RTTI coverage maps are not available.

##### **How much does RTTI cost?**

There is no activation fee or recurring monthly charges. The cost to provide RTTI is included in the MINI navigation system price. The RTTI service will be provided for a minimum of 4 years from the purchase or lease of your MINI. After the four-year term, the service will continue to be provided at no additional charge as long as MINI continues its contractual relationship with its current RTTI service provider.

##### **Is a special map DVD required for the navigation system?**

Yes. It is required to have the navigation map DVD version 2007.1 or later installed in your MINI. This map DVD was initially available as of September 2006. For optimum performance, always install the latest map DVD release.



**How do I access RTTI?****1. Route guidance active:**

- If "Dynamic route" (in the route criteria menu) is checked, the navigation system automatically takes RTTI data into consideration and calculates a route through traffic. The main route criterion (e.g., "Fast Route") stays active.
- If "Dynamic route" (in the route criteria menu) is not checked, the navigation system informs the driver if there is a traffic incident on the route and offers a detour if the calculated delay is greater than 5 minutes.

**2. Route guidance inactive:**

RTTI data can be displayed under the "Navigation" menu. Select "Traffic Info" to the list of received traffic incidents, sorted by distance from your current location.

**Is there audible warning about traffic incidents?**

If "Dynamic route" is checked, the system will inform you with an audible warning if there is at least one traffic incident on your route and will provide the information that an alternate route through traffic is being calculated.

If "Dynamic route" is not checked, the system will give an audible warning at the last chance to exit and to change the route. Simultaneously, the control display will show the detour option. Select "Detour" by pressing the controller and the MINI navigation system will recalculate the route to attempt to avoid the congestion.

**In the station list under Traffic Information settings, the station name is not displayed. Instead, there is Local-No. or something else. Why?**

The text shown in station list depends on the data sent by the radio station. Either the station transmits the station name, the radio frequency, Local-No., phone numbers, advertisement, a song title, or the parts of a song title. (This may cause strange letter combinations due to song names with more than one word. For example, the song "With or without you" could lead to "With or with you" being displayed in the station list.)

The MINI radio or navigation system has no influence on the data displayed in the radio station list.

**I am stuck in traffic and it is not displayed on my RTTI-equipped MINI; or my MINI indicates a traffic incident at my current location and there is none. Why?**

Assuming RTTI is functioning properly in your vehicle, incidents reported to your MINI are gathered and processed by the RTTI service provider from many sources (refer to the third question above). Under normal circumstances, it may take several minutes for changing traffic conditions to be correctly reported and displayed in your MINI. On rare occasions, events may be inappropriately coded or may be displayed when not necessary. If this condition reoccurs on specific roads and times, please report this information to MINI Customer Relations at 866-ASK-MINI (866-257-6464) so that MINI can take corrective measures.

**What do the letters "TI" or "TI+" mean?**

TI and TI+ stand for "Traffic Information". The letters are shown in the status line of the Control Display whenever an RTTI signal is received by the vehicle. Starting with March 2007 production, MINI changed the text from "TI+" to "TI" to simplify the display. For 2009 and later models, TI means that the service is enabled, even though broadcast and/or content coverage may not be available in the area where you are currently driving.

**What is the meaning of the arrows and icons in the map view and traffic incident detail view?**

Traffic icons are displayed within a diamond-shaped symbol with a white or yellow background. Diamonds with only a white background and diamonds with arrows indicate the map scale is too large to display the detailed icons, or there may be multiple events close to each other. An arrow indicates the general direction of the traffic backup. To see more details, simply zoom in on the map display.

See the list below for a description of each icon. The map view may show slightly different icons due to resolution differences.

Icons	Description
	Map scale too large to display events. Zoom in to see the specific icon.
	Map scale too large to display events. Arrow indicates direction of the traffic delay. Zoom in to see the specific icon.
	General traffic obstruction
	Stopped traffic
	Road closed
	Road construction
	Accident
	Traffic backup
	No parking
	Slippery road
	Danger
	Crosswinds
	Delay
	Icy roads
	Slow traffic
	Fog
	Heavy precipitation
	Police checkpoint
	Smog
	Lane reduction
	Height restriction
	Traffic light failure
	Uneven surface
	Stopped traffic
	Stop-and-go traffic
	Slow traffic

View M650710 Attachment A Technical Service Bulletin # **620309**Date: **100801****Instruments - Outside Temperature Display Incorrect**

SI B62 03 09

Instruments

August 2010

Technical Service

This Service Information bulletin supersedes SI B62 03 09 dated July 2009.

[NEW] designates changes to this revision

SUBJECT

Outside Temperature Display Is Incorrect

MODEL

All current production vehicles

SITUATION

The outside temperature displayed in the instrument cluster is different from the known correct ambient temperature.

The noted situation is typically one of the following:

1. Temperature displayed is intermittently too high or low when the vehicle is stationary or shortly after start-up.
2. Temperature displayed is intermittently or permanently too high, showing a value of +122°F.
3. Temperature displayed is intermittently or permanently too low, showing a value of -40°F.
4. Temperature displayed is permanently too low, but not stuck on one value, during all vehicle operating conditions.
5. Temperature displayed is permanently too high, but not stuck on one value, during all vehicle operating conditions.

#### [NEW] INFORMATION

The problem has been integrated into ISTA diagnostics. Follow the diagnosis test plan, using the latest ISTA version.

^ In "Guided troubleshooting", select the "Fault pattern" tab.

^ Select "02 Display, information, communication / 0207 Instrument cluster"

^ Select "Accept fault pattern / Calculate test plan" and this will bring up a list of test plans.

^ Select the test plan "Outside temperature sensor".

#### [NEW] WARRANTY INFORMATION

For information only